

Data Decisions™ NEWS

communications systems

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UPDATING MATERIAL

August 1985

In addition to this newsletter, August updating material includes the reports described below. Please see the Communications Systems volumes to refer to these reports.

Product Reports • comprehensive, detailed analytical reports that evaluate key communication products.

- The **AT&T-IS 4400 Series, Datamedia, Lear Siegler, and Teleray Display Terminal reports** are revised to reflect new models, enhancements, changes, and current pricing.
- The **AT&T-IS Information Systems Network (ISN)** report is revised to include significant product enhancements.
- The **Coastcom D/I MUX** report is revised to include enhancements such as new CVSD voice channel and new drop and insert controller.
- The **IBM 7171 ASCII Device Attachment Control Unit** report describes and evaluates this important protocol converter.
- The **ICOT 25X CrystaLink Communication Processors** report is revised to include 4 new CrystaLink packages (modules), the 5210, 5220, 5250, and 5330.
- The **Northern Telecom Meridian SL PBX Family** report

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is revised to reflect enhancements and new pricing.

- The **On Line Software International (OSI) InterTest** report is revised to reflect the latest changes to this CICS/VS test package.
- The **Universal Data Systems (UDS) Modems** report includes new models and pricing.
- The **Western Union Satellite Transmission Services** report describes and evaluates Western Union's Satellite services including voice-grade and wideband channels, dedicated voice service, video channels, and transponder services.

ANNOUNCEMENTS

■ SPOTLIGHT

IBM ANNOUNCED BROAD ARRAY OF PRODUCTS International Business Machines (IBM) Corporation, Information Systems Group • National Accounts Division; 1133 Westchester Avenue, White Plains, NY 10604; 914-696-1900 • National Marketing Division; 4111 Northside Parkway, Atlanta, GA 30327; 404-238-2000.

At a press breakfast on June 18, IBM announced a broad range of hardware and software products, including its new System/36 PC, a 5364 (S/36 processor) with attached IBM PC. Besides an extensive list of IBM products that have been successfully tested for connection to Rolm's CBX II and VSCBX, the list includes:

- IBM 3179G Color Graphics Display Station
- IBM 3270-PC/AT enhancements
- Modems & limited distance modems
- IBM 5081 Model 12 Display for 5080 Graphics System
- IBM System/38 X.25 Attachment and Distributed Host Facility (DHF)

- IBM 8100 support (under DPPX) for Systems Network Architecture Distribution Services (SNADS)
- IBM 3725 Non-SNA Interconnection Releases 2 and 3.
- IBM Information Network support for SNA network interconnection.
- Availability of Teleprocessing Network Simulator (TPNS) in native mode under VM/SP.

IBM also announced a new System/38 5382 Model 18 processor to replace Model 8 with 1.1 times its performance; System/38 Model 6 storage expansion to 6M bytes; System/38 local workstation expansion to 256 (maximum) via four new workstation controllers; and also extended workstation, display, printer, and communication adapters for the 4361.

IBM also announced many software enhancements for Systems/36 and /38 including a new version of the S/36-to-S/38 Conversion Aid.

The 5364 System Unit for the System/36 PC is a smaller,

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lower-cost floor or table model that will run System/36 application programs without recompilation. The PC, which includes the PC, PC/XT, and PC/AT runs PC applications in addition to functioning as the System/36 workstation and system console. The 5384 supports a maximum of four local display/printer workstations including the attached PC. The workstations must be 5250 compatible. The 5364 does **not** support communication; however, the PC supports a single line using BSC or SDLC protocol at rates to 9600 bps and supports communication for 5384 application programs.

The **IBM/ROLM connectivity** announcement did not introduce any new interconnection products. However, it verified that the products as specified by each vendor did indeed meet specifications. ROLM offers three interconnection products for the CBX: DataCom Module (DCM) for asynchronous or synchronous communication over ROLMlink, which supports both voice and data over single nonshielded twisted-pair wiring; Data Terminal Interface (DTI) for asynchronous connections over non-ROLMlink paths that use two nonshielded twisted pairs; and ROLM IBM Gateway for connection of ASCII terminals to a BSC or SDLC IBM 3270 environment. The testing confirmed "that connection can be established and that data is transmitted transparently through these products." Products tested include terminals, PCs, protocol converters, controllers, modems, IBM cabling system, System/38, PROFS, Telephone Message Management, and the IBM Information Network.

IBM made significant enhancements to the 3270 in the form of an advanced 3179 graphics terminal plus two versions of IBM's highly touted Personal Computer/Advanced Technology (PC/AT) workstations, of which supports graphics.

The **3179 Color Graphics terminal** rumored in the mill since last year, supports 8 colors and has a 14-inch CRT that displays 1920 or 2560 characters. Two versions of the terminal are offered: Models G1 and G2. Model G1 has a 122-key typewriter keyboard, while the G2 has a 122-key typewriter/APL2 keyboard. Both controllers are used in cluster configurations with 3274 cluster controllers. Host interactive graphics support on IBM System/370, 43xx, 303x, and 3090 processors is included in an enhancement to Release 4 of Graphical Data Display Manager (GDDM). Screen management functions are extended to interact with graphics information as well as alphanumeric data.

IBM also announced the **3979 Expansion Unit** for its new 3179 that provides auxiliary ports to attach an IBM 5277 Mouse and an IBM 7371 or 7372 Color Plotter. The 3979 also provides an alternative port for attaching the IBM Color Jetprinter. The 3179 G1 and G2 are priced at \$2,995 each; the 3979 costs \$295.

The new PC/AT additions are called the **3270-PC/AT** and the **PC/AT/G**. The 3270-PC/AT, officially called the 5273, when used in conjunction with the 3270 Personal Computer Control Program Version 2.1, combines the host-interactive functions of the IBM 3270 and the computing power and versatility of the IBM Personal Computer AT. The 3270 Personal Computer AT can operate with four 3270-host sessions, two local notepad sessions, and multiple IBM PC-DOS Version 3.1 sessions.

The PC/AT/G and GX terminals, designated the 5373, combine the interactive graphic capabilities of the IBM 3270-PC/G and 3270-PC/GX with the increased performance of the IBM Personal Computer AT, by attaching the IBM 5279 Color Display and the IBM 5379 Color and Monochrome Displays to the IBM 5373 System Unit via their respective Display Attachment Units.

The 3270-PC/AT employs an Intel 80286 microprocessor and can be configured with up to 640K bytes of RAM, two 1.2M-byte diskette drive, and one 20M-byte fixed disk. It also has a ROM-based BASIC language and clock/calendar. Prices range from \$6,090 to \$8,145.

The 3270-PC/AT/G and GX terminals offer the same hardware configurable, plus a 1024x1024 picture element display space (pixels), up to 64 colors, up to four levels of gray scale, plus alphanumeric and 2D graphics functions. Base price for these terminals range from \$6,560 to \$8,965.

IBM has also made moves to expand the share (and penetration) of the **asynchronous ASCII terminal market** with two new entries that interface with IBM and non-IBM hosts. The **3161 and 3163** Models 11 and 12 are general-purpose ASCII terminals and composed of a 12-inch monochrome display with a tilt-and-swivel pedestal, a 102-key low-profile keyboard with 12 PF (24 programmable function) and three PA keys, and the base logic for emulating ADDS Viewpoint, Hazeltine 1500, Lear Siegler ADM-3A and 5A, and the Televideo 910. The 3163 also emulates the DEC VT52 and VT100. They also contain IBM 3101 Model 881 (Model 230) emulation, providing an interface for IBM hosts as well as a smooth migration path for current 3101 users. The 3161 Model 11 is priced at \$695 which Model 12 costs \$774. The 3163 Model 11 and Model 12 are priced at \$1,095 and \$1,174, respectively.

IBM is also looking to expand its markets in the high-speed modem market with the addition of **four network management modems**, and **two limited distance modems**. The new standalone **Model 5865 and 5866 modems** expand family of Network Management based modems designed for IBM's Communications Network Management (CNM) environment as well as non-CNM applications. The 5866 is a dual-mode unit at 9600 and 14.4K bps, which the 5865 runs at 9600 bps. Both have a 14-millisecond RTS/CTS delay, and an antistreaming feature which forces off any terminal handling an RTS longer than 40 seconds.

The 5865 and 5866 operate in half- or full-duplex modes over four-wire nonswitched duplex facilities point-to-point or multipoint. The 5865 has a primary data rate of 9600 bps and a 7200 bps fallback. Both RS-232C and CCITT V.29 interfaces are available. In optional CCITT V.29 mode, a second fallback speed of 4800 bps is available. The 5865 costs \$4,000.

The 5866 runs at 9600 or 14.4K bps and employs **Trellis** coding for error correcting. The 5866 can operate over voice-grade lines despite the fact that its transmit speed exceeds 9600 bps. Should the line degrade, a 12K-bps fallback speed is provided. If the 5866 is used on multipoint lines a tributary device, its primary transmit speed back to the control modem is 9600 bps and its receive speed is 14.4K bps. A hardware

switch on the 5866 permits it to communicate in 5865-compatible mode. Single-quantity purchase price of the 5866 is \$6,000.

IBM also introduced two rackmounted modems that operate at 9600 or 14.4K bps. The **5868 Rackmounted Modems Models 51 and 61** extend the IBM family of Network Management based modems. The 5868 Model 51 operates at speeds up to 9.6K bytes per second and the Model 61 operates at speeds up to 14.4K bytes per second. Both operate over basic (unconditioned) four-wire nonswitched voice-grade telecommunication facilities in either half-duplex or full-duplex mode. They are high performance, synchronous microprocessor-based modems designed for the IBM Communications Network Management (CNM) environment, as well as the non-CNM environment managed by a network specialist. Both models have a 14-millisecond RTS/CTS delay, and employ the same antistreaming features as the 5865 and 5866.

The **5869 Portable Keypad/Display (PKD)** is a hand-held unit which may be used to configure the 5868's operating characteristics, display line parameter statistics, and request execution of modem tests. Results may be read directly from a new high-resolution display built into the 5869. A single 5869 may be used to support multiple 5868 modems installed at the same site.

The 5868 modems are customer installed in IBM 3866 Multimodem Enclosures which can be mounted in a commercially available 19-inch rack cabinet (3866 Model 1) or already mounted in an IBM mini cabinet (3866 Model 2). The 5868 Model 51 costs \$3,300 and Model 61 sells for \$5,300. The 5869 lists for \$600.

The **5811 Limited Distance Modem Model 10, 5811 Rackmounted Limited Distance Modem Model 18, and 5810 Modem Enclosure Model 10** are extensions of the IBM modem family. The 5811 modems are general-purpose high-performance, limited distance, baseband modems designed to support synchronous data transmission at speeds of 2.4, 4.8, 9.6, and 19.2K bps across CCITT V.24, V.28, or RS-232C DCE/DTE interfaces. The 5811 modems support both point-to-point and multipoint configurations using half-duplex or full-duplex transmission on four-wire nonswitched telecommunications lines having metallic continuity.

The 5811 modems, which are **not supported** by IBM's Communication Network Management, complement the IBM 3833, 3834, 3863, 3864, 3865, and 3868 Communications Network Management modem family by offering substantially lower prices where distances are short and where sophisticated network management capabilities are not required by the customer. The maximum length of the telecommunications line permitted between 5811 modems is dependent on transmission speed and size of the wire used for the line. A typical range is 7.5 miles for 9600 bps transmission over No. 22 AWG wire on a point-to-point link.

The 5810 Modem Enclosure Model 10 provides slots for mounting up to fifteen 5811 Model 18 modem "packs." The enclosure is designed to fit into commercially available 19-inch electronic equipment cabinets.

The 5811 Model 10 standalone is priced at \$595, while the rackmounted version sells for \$45 less. The 5810 Model 10 enclosure costs \$800.

The IBM 5081 Display Model 12 provides a brighter display image for the IBM 5080 Graphics System.

The **X.25 feature for S/38** accommodates 2 independent lines and conforms to IBM's standard X.25 interface for SNA nodes. This allows networks to intermix S/38 with other IBM products with X.25 interfaces such as S/36 and 3705/3725. The data rate depends on the type of interface: up to 19.2K bps for V.24 or RS-232C, 48K bps for V.35, and 64K bps over an X.21 (nonswitched) interface.

IBM has now installed its **SNA Network Interconnection (SNI)** facility on its information network. This allows users on one SNA network to access resources on an interconnected SNA network, transparently. IBM customers can now expand their SNA networks with Information Network facilities. New applications can be put on the Information Network without making any additions to the customer's own SNA network other than connection to the Information Network. Applications can be installed and tested on the Information Network and later moved to the customer's own SNA network.

IBM has been proliferating software packages to run under VM/SP in native mode (requiring no-quest operating system). The offering of **Teleprocessing Network Simulator (TPNS)** under VM/SP continues that trend, it joins ACF/VTAM, Network Communication Control Facility (NCCF), and other network products running under VM/SP in native mode. TPNS tests online application programs, control programs, and networks with requiring a front-end communications controller.

IBM has definitely picked up its pace for announcements. It is rumored that IBM plans to make 1,000 announcements in 1985/86.

■ ANNOUNCEMENTS & NEW PRODUCTS

AT&T OFFERS ACCUNET SWITCHED 56 SERVICE AT&T Communications; 295 North Maple Avenue, Basking Ridge, NJ 07921; 201-221-2000.

AT&T has begun offering a new service that enables businesses to transmit information at 56K bps over AT&T switched-network facilities.

AT&T **AccUNET Switched 56 Service** provides businesses with an economical alternative to dedicated private lines for sending information at high speed to distant locations. It is useful for transmitting large blocks of data from one location to another. It enables customers to expand their private networks by allowing them to reach additional destinations for their data, video, or dedicated private lines. It transmits computer graphics, high-speed facsimiles and signals for full-color, slow-scan video teleconferencing. It provides a faster and more cost-effective means of transferring data from computer tapes to data storage facilities. It transmits digitally encoded, high-quality audio signals, including stereo music over great distances. Via encryption it transmits secure data for word processing.

With AccUNET Switched 56 Service, customers who need to send occasional data transmissions can enjoy considerable

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cost advantages compared with private lines because they pay only for the time they use the network.

Depending on distance, rates for the new service range from a minimum of 33 cents for the first 30 seconds, plus 6 cents for each additional 6 seconds, to a minimum of 45 cents for the first 30 seconds, plus 8 cents for each additional 6 seconds.

The service requires either 56K-bps or 1.544M-bps local access channels.

AT&T IS EXPANDING ITS PRESENCE IN LONDON & TOKYO AT&T Communications is opening its first foreign offices in London and Tokyo.

Worldwide, AT&T has 15 international offices in operation, including London and Tokyo, staffed by AT&T International. AT&T International is the AT&T unit established in 1980 to sell AT&T products and equipment overseas, such as private branch exchanges, switching machines and fiber optic cable, and to provide consulting services to foreign telecommunications administrations.

The opening of these offices will strengthen AT&T Communications' existing relations with international telecommunications companies in the United Kingdom and Japan to better customer needs. A permanent staff in those countries will now be able to work face-to-face every day with their international partners on a wide variety of business and technical matters. Resident AT&T Communications managers in the United Kingdom and Japan will work with the telecommunications entities in those countries on technical and new service development matters and will provide support to AT&T salespeople in the U.S.

These countries were chosen as sites for AT&T Communications' first overseas offices because of the volume of telecommunications business that flows between these points and the U.S. The United Kingdom is the third most frequently called point from the United States after Canada and Mexico. Japan is the most frequently called Far Eastern point.

The office for AT&T Communications U.K., Inc is located at Norfolk House, 31 St. James Square, London. In Japan, the office for AT&T Communications Japan, Inc is Kokusai Denshin Denwa, Co Ltd Building, 30th Floor, 3-2 Nishishinguki 2-Chomi, Shinjuku, Tokyo.

AT&T REACHES AN AGREEMENT WITH MERCURY COMMUNICATIONS LTD AT&T Communications has reached an agreement with Mercury Communications Ltd of the United Kingdom to provide telecommunications services between that nation and the United States.

The agreement will provide Mercury Communications with access to the wide variety of AT&T's telecommunications services and the many international customers that use them, and AT&T will be able to provide even more choice for customers doing business in the United Kingdom.

It calls for private line voice and data services to be provided between AT&T Communications and Mercury Communications. Both firms are looking forward to expanding this agreement to cover other international telecommunications services in the future.

Shortly after the agreement was finalized, a number of major banking and financial customers in London placed orders for the international private line service.

Mercury Communications was established in 1982 as an alternative to the United Kingdom's principal communications company, British Telecom. Today, Mercury is licensed as both a full-service domestic and international communications carrier.

Previously, AT&T has offered voice, toll-free calling, video teleconferencing, analog data and digital data services between the United States and the United Kingdom only in conjunction with British Telecom International.

NEW FEATURES PROPOSED FOR SATELLITE DIGITAL COMMUNICATIONS SERVICE AT&T Communications has filed with the Federal Communications Commission for additions to Skynet Digital Service, formerly Skynet 1.5 Service. This proposal, would allow customers to transmit medium-to-high-speed data, electronic mail, facsimile, video teleconferences and most other types of digital services ranging from speeds of 56K bps to multiples of 1.544M bps. Currently, Skynet Digital Service operates at 1.544M and connects AT&T earth stations as well as those situated on customer locations.

Additionally, Skynet Digital Service would allow customers with AT&T-provided earth stations on their own premises to connect with other private networks and with AT&T's Accunet Reserved 1.5 Service via satellite. The Accunet service currently links 42 U.S. cities, the United Kingdom, France, and Canada and is the backbone of AT&T's video teleconferencing network.

Earth stations for Skynet Digital Service would be provided by the Vitalink Communications Corp of Mountain View, CA, as part of a co-marketing agreement between the companies. Under the agreement, Vitalink would supply AT&T with either transportable or fixed, earth stations to be located on customers' property. The size of the stations would vary depending on customer requirements.

Skynet Digital Service will be provided by AT&T's network of four communication satellites, which includes two AT&T Telstar 3 satellites and two Comstar satellites leased from COMSAT General. A third Telstar 3 satellite is scheduled for deployment from the space shuttle Discovery and will replace one of the Comstar satellites.

Currently, AT&T's Skynet family of satellite services consists of Skynet Television Service and Skynet Audio Service for television and radio broadcasters; Skynet Transponder Service, which permits customers to lease satellite transponders for varying lengths of time at varying prices; and the existing Skynet Digital Service which operates only at 1.544M bps.

AT&T TO ACQUIRE COMSAT'S INTEREST IN SATELLITE STATIONS AT&T Communications has reached an agreement with Communications Satellite Corporation (COMSAT) to purchase its majority ownership in three U.S. earth stations used for international satellite communication services. Upon approval from the FCC, AT&T will purchase COMSAT's 50-percent share of earth stations located in Roaring Creek, PA; Etam, WV; and Jamesburg, CA for approximately \$55

million. AT&T will take over operation of the facilities on January 1, 1988.

The agreement will give AT&T direct control of the earth stations they currently use to transmit telecommunications services around the world.

Currently, all international earth stations in the continental United States are owned by the Earth Station Ownership Consortium (ESOC) and operated by COMSAT. Under the ESOC arrangement, COMSAT owns a 50-percent interest in the five international earth stations in the 48 contiguous United States, AT&T has a 47.5-percent interest, while the remaining shares are owned by other international communications carriers. A 1984 FCC ruling permits companies other than COMSAT to own and operate earth stations.

The ESOC earth stations in the continental U.S., not being purchased by AT&T are located in Brewster, WA; and Andover, ME.

The Roaring Creek and Etam earth stations began service in 1984 and 1968, respectively. They provide U.S. carriers with access to Atlantic Ocean satellites owned and operated by the International Telecommunications Satellite Organization (INTELSAT), a 109-nation group that is responsible for international satellite communications.

The Jamesburg earth station, built in 1968, provides direct connections to Pacific Ocean satellites owned and operated by INTELSAT.

While AT&T will own the earth stations' transmission facilities in the United States, it will continue to lease the satellite portions of international circuits from COMSAT, the U.S. representative to INTELSAT.

Earth station facilities in other countries are provided by the telecommunications administration in each foreign location.

Ownership and control of the international earth stations will have no impact on the availability of the satellite transmission services needed by other common carriers from Etam, Roaring Creek, and Jamesburg, according to AT&T.

AT&T WILL NOT BUILD FOURTH TELSTAR 3 T&T informed the FCC that it will not build a fourth Telstar 3 domestic satellite that had been tentatively scheduled for launch in 1988.

AT&T noted that changes in the telecommunications industry, as well as its own efforts to reduce costs and enhance the efficiency of its network, were key factors that contributed to this decision. The Telstar 3 satellite system will continue to ensure uninterrupted service for customers, will provide for growth of existing services and will guarantee the company's ability to provide new satellite offerings in the future.

Even without the fourth Telstar 3 satellite, AT&T could have up to 96 transponders through 1988 on its three Telstar satellites and the Comstar D4 spacecraft leased from the COMSAT General Corp. A transponder is the electronic device that receives signals, amplifies them and then transmits them back to earth.

In addition to this satellite capacity, customers also will be able to use AT&T's expanding digital communications

network, which by 1988 will consist of more than 30,000 miles of lightwave and digital microwave radio routes around the country.

AT&T's current satellite network consists of two Telstar 3 satellites located at 86 and 96 degrees west longitude, and the Comstar D3 and D4 satellites leased from COMSAT General at 76 and 127 degrees west longitude, respectively.

The third Telstar 3 will replace the Comstar D4 satellite at the new orbital slot of 125 degrees. Comstar D4 will move to 76 degrees and replace Comstar D3 which is nearing the end of its seven-year life.

In addition to long-distance voice communications, the Telstar 3 satellites transmit Skynet's family of business communications services. These include Skynet Television and Audio broadcast services for television and radio signals; Skynet Digital Service, which provides nearly error-free data transmission at speeds from 56K bps up to multiples of 1.5M bps; and Skynet Transponder Service, which allows customers to lease transponders on a full- or part-time basis.

AT&T-IS UNVEILS 4418 DISPLAY TERMINAL AT&T Information Systems; 100 Southgate Parkway, Morristown, NJ 07960; 201-898-8000.

The formal introduction of the 4418 display terminal represents the first product unveiling since the recent AT&T-IS acquisition of AT&T Teletype Corporation. The new **4418 display terminal** is a low-cost asynchronous unit with an IBM 3278-style keyboard. Designed to operate in character transmission mode, the 4418 supports an 80- or 132-column display format and five standard character sets including US, UK, line-drawing, securities, and mosaic. Ergonomic design considerations have resulted in the compact size of the terminal, the low-profile detachable keyboard, and features such as the plain language set-up menu, and screen saver facility.

In addition, the 4418 offers users an optional 212A-compatible modem which provides auto-dialing and auto-logout for up to three phone numbers. The integral modem option also features complete call progress status readouts, and single-key redialing and automatic repeat dialing capability. The 4418 is intended to operate in conjunction with an AT&T 3B computer system or a protocol converter from several leading vendors including AT&T, Micom, Renex, and Datastream which makes it suitable for 3270 environments. The inclusion of the 3278 keyboard eliminates the overhead and turnaround time normally required for familiarizing 3278 personnel with an asynchronous keyboard. Furthermore, the 4418 offers single-key access to all 3278-like keystrokes instead of the multiple-key sequences that must be executed on a typical asynchronous terminal with a protocol converter.

Available immediately, the new 4418 will be manufactured by Teletype and distributed and supported nationwide through AT&T-IS sales offices. It carries a purchase price tag of \$1,065.

AT&T-IS OEMS X.25 PRODUCTS AT&T-IS signed an OEM agreement with Amdahl Corp for Amdahl 4400 Series X.25 network products. The agreement is reported to be for a three-year term and is valued in excess of \$40 million. AT&T-IS will market these products as its 1800 Series, but

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has not yet released pricing. For comparison, the AT&T-IS 1800 Series models are listed below with their Amdahl equivalents and corresponding Amdahl pricing.

AT & T-IS	Amdahl	Price
1810	4410E/F	\$120K/\$150K
1845	4404E	\$50K
1850	4440	\$7.2K
1865	4450	\$11.5K
1870	4470E	\$12.5K
1875	4460	\$15K
1885	4440/50/60	—

The **AT&T 1810 Network Processor** is a packet-switching processor consisting of one to three processors. It can handle from 42 to 122 X.25 links. Over 100 network processors can be interconnected in a single network. Line speeds range from 600 bps to 64K bps. Line interfaces are RS-232C/V.24 and V.35. Packet sizes can contain 32, 64, 128, or 256 bytes. Packet throughput of the 1810 is 450 packets per second expandable to 1,350 packets per network processor.

Total throughput is 300K bps for full-duplex X.25 traffic per network processor, expandable to 600K bps for two-processor system or 900K bps for a fully expanded 1810E. For the 1810F, the single processor throughput is 500K bps expandable to 1,350K bps for a fully configured system.

Virtual circuit capacity is traffic dependent. Maximum is about 2,000 per packet processor, 6,000 per fully configured network processor, 1,023 per X.25 link. Supports both LAP and LAPB, auto-negotiated. Call setup capacity is 14 local calls per second, 50,400 per hour.

The **AT&T 1845 Network Manager** provides centralized network management and control. It supports the Network Processors in configuration and control reporting real-time status, recording statistics and billing information, and accessing and restoring recorded information. It also provides a network operator interface and diagnostics. Secondary network managers can be installed to provide automatic backup.

The 1845 includes a processor, 40.5M-byte hard disk subsystem, with 1M-byte diskette, AT&T-IS Dataspeed 4425 for network console, and two AT&T-IS Dataspeed 5320 Printers.

The network manager can support up to 240 network controllers, one to four X.25 network lines at speeds up to 19.2K bps, and over 9,000 logical devices. Bandwidth is 70K bps (half-duplex).

The **AT&T 1850 Asynchronous Network Controller** provides X.25 network access to nonpacket mode DTEs and DCEs. The 1850 uses X.25 LAPB protocol, X.29 for packet mode DTE or another network controller, X.28 for start stop mode DTE, and X.3 for the network controller. The 1850 provides network concentration, protocol conversion, statistical multiplexing, and direct point-to-point access. It supports asynchronous ASCII protocol.

One, two, or more X.25 links can be configured per controller. Line speeds can range from 75 bps to 19.2K bps; 8, 16,

24, 32, and 40 ports are offered. Packet throughput is 40 packets per second; total throughput is 80K bps (half-duplex).

The **AT&T 1865 Bisynchronous 3270 Network Controller** provides network access to nonpacket mode DTEs and DCEs to hosts or 3270-type cluster controllers. The 1865 provides network concentration, protocol conversion, statistical multiplexing, and point-to-point access.

The 1865 can be configured with one, two, or more X.25 links and 8/16 ports; it supports 3270 bisynchronous protocol and ASCII and EBCDIC codes. Line interface is RS-232C/V.24. Packet size is 64, 128, or 256 bytes. Total throughput is 100K bps (half-duplex). Packet throughput is 60 packets per second.

The **AT&T 1870 SNA/SDLC Network Controller** attaches SNA/SDLC devices to an X.25 packet-switched network. It can communicate with the IBM NPSI or with NPSI equivalent software. The 1870 can be configured with one, two, or more X.25 links and eight ports. It can communicate with up to eight SNA clusters and 128 SNA logical devices. It supports SNA/SDLC protocol and line speeds from 1200 to 9600 bps. Line interface is RS-232C/V.24. Packet size can be 64, 128, or 256 bytes. Total throughput is 100K bps (half-duplex). Packet throughput is 40 packets per second. Link access protocol is LAPB.

The **AT&T 1875 2780/3780 Network Controller** provides the ability to network hosts and terminals in an RJE environment using X.25 network. The 1875 provides network concentration, protocol conversion, statistical multiplexing, and direct point-to-point access.

The 1875 can be configured with one, two, or more X.25 links and 8/16 ports. Line speeds can range from 1200 bps to 19.2K bps. It supports 2780/3780 bisynchronous protocols and ASCII or EBCDIC codes. Line interface is RS-232C/V.24. Packet size can be 64, 128, or 256 bytes. Total throughput is 100K bps (half-duplex). Packet throughput is 40 packets per second. RJE terminals supported are IBM 2770, 2780, 3740/1/2/7, 3770/1/4/5/6/7, and 3780. It supports over 100 virtual circuits per controller. Virtual setup rate is two per second.

The **AT&T 1885 Mixed Protocol Network Controller** provides for networking hosts and terminals in mixed asynchronous and synchronous environments using X.25 links. The 1885 provides the combined facilities of the 1850, 1865, and 1875 network controllers.

AVATAR PROTOCOL CONVERTER GIVES IBM 3270 TERMINAL USERS CONCURRENT ACCESS TO ASCII/IBM HOSTS Avatar Technologies Inc; 99 South Street, Hopkinton, MA 01748; 617-435-6872.

Avatar has introduced a new protocol converter that provides IBM 3270-type display stations access to ASCII systems using asynchronous protocols. The **Avatar RPA2000** attaches directly to an IBM 3178, 3278, or 3279 display station using coax cable and allows these devices to emulate asynchronous terminals such as the DEC VT100 through a standard RS-232C interface.

In remote 3270 mode, users dial-in through the RPA 2000-PA1000 link to the nearest controller over ordinary telephone

lines. The intelligent link provides users full IBM terminal functionality but eliminates the problems of keyboard mapping. Purchase price is \$695.

BRIDGE COMMUNICATIONS ANNOUNCES NEW BROADBAND MODEM Bridge Communications, Inc; 1345 Shorebird Way, Mountain View, CA 94043; 415-969-4400.

An intelligent broadband modem that is designed to connect SDLC, HDLC, or bisynchronous devices over CATV cable networks has been introduced by Bridge Communications. The new **Model 8316 Broadband Modem** is a narrow-band 56K-bps synchronous modem that supports point-to-point or multipoint connections on two-way broadband coaxial cable systems. Up to 20 simplex or 10 duplex circuits can be operated in each 6-MHz broadband channel. The device provides fully protocol-transparent data transmission using biphase data encoding.

Modem operation is supported by a powerful on-board single-chip microcomputer which controls the device's frequency synthesizers, data path, operation controls, and indicators. This on-board intelligence allows link testing with remote loopback using in-band signaling and local loopback to tune the receiver to the transmitter frequency. It also effectively tests transmission quality by computing bit error rate (BER) in local or remote loopback modes using a pseudo random data pattern; the BER is displayed on the modem indicators.

Priced at \$1,795, the Model 8316 Broadband modem is available 30 to 60 days ARO. It is intended for systems using a head end frequency translator such as Bridge Communications' XL-MID.

DDRI ADDS NEW 3270 SUPPORT TO HYDRA II; ALLOWS PRINTER-KEYBOARDS TO ACCESS HOST Diversified Data Resources, Inc; 25 Mitchell Boulevard, Suite 7, San Rafael, CA 94903; 415-499-8870.

A new 3270 support technique that allows hardcopy terminals to access a host computer has been added to the **HyDra II** direct channel-attached protocol converter/controller. The feature, standard on all future HyDra IIs, allows a printer-keyboard combination to emulate a CRT terminal. A common application would be at a remote site, so that users with only, for example, a TI Silent 700 keyboard/printer and a modem could access the host system.

With the feature, the HyDra II sends a sequence of user-defined prompt characters to be printed on a hardcopy terminal. Users respond to the prompts and receive a hardcopy printout of the screen each time a screen would normally be redisplayed on a CRT.

The hardcopy terminal supports all of the PF and PA keys, tab keys, and editing features as a normal terminal would. All prompts from the HyDra II are completely user definable. And, if desired, users may delete all prompts.

The HyDra II is a byte multiplexer direct channel-attached protocol converter/controller that provides 3278/79 emulation for PCs and ASCII terminals, and 3286/87, and 1403, 3211 emulation for ASCII printers. It requires no 370X front-end processor 3272/74 communication controller, 3270-PC boards and remote software. HyDra II is available in rackmounted or standalone versions. Prices for an 8-, 16-,

32-, and 64-port configurations are \$7,900, \$9,900, \$13,900, and \$16,900, respectively.

GTE SPRINT TO CUT LONG-DISTANCE RATES GTE Sprint Communications Corp; 500 Airport Boulevard, Burlingame, CA 94010; 415-375-2853.

GTE Sprint will cut long-distance rates an average of 4.2 percent. The announcement followed a 5.6-percent rate reduction by AT&T.

Sprint will also reduce its Advance WATS, a service similar to AT&T's WATS service rates by 5.6 percent. The Sprint WATS cuts are effective August 1. Sprint's rate cuts are to maintain its discounts relative to AT&T's.

The rate reductions increase as the distances become greater. Interstate rates will be cut as much as 13 percent; WATS rates will be cut as much as 30 percent. A customer billed more than \$150 a month would get a discount to AT&T's rates of between 14 and 16 percent under the new rates.

HP UNVEILS NEW 2393A GRAPHICS TERMINAL Hewlett-Packard Company; 3000 Hanover Street, Palo Alto, CA 94303; 408-257-7000.

A new low-priced graphics terminal has been released by Hewlett-Packard to satisfy a variety of scientific and business requirements. Intended to provide a range of advanced graphics capabilities that increase user productivity and reduce system overhead, the new terminal features bit-mapped vector graphics in a dual-mode resolution of either 512 pixels horizontally x 390 pixels vertically or 640 pixels horizontally x 400 pixels vertically.

The new terminal supports 11 line types, including one that is user defined; 10 area-fill patterns; and the ability to add vector-drawn text to images. A rubber-band line feature allows the user to preview a vector before it is stored in graphics memory. All of these features increase the user's ability to manipulate data more productively and creatively.

In addition, the HP 2393A terminal provides full alphanumeric capabilities, symbols for line drawing and character sets for math, italics, and boldface. Up to 12 pages of text can be stored in display memory. The terminal also supports enhanced scrolling features which extend the display memory configuration to offer up to 160 columns of text. Furthermore, an ANSI X3.64 option is available at no additional cost which enables the terminal to execute Tektronix Plot 10 software and DEC VT100 and VT52 control sequences.

A number of graphics software programs are available for the HP 2393A such as HP Draw, HP EasyChart, and HP Map for business applications and Graphics 1000/II and Graphics 9000 for graphics applications. In addition to HP software, the terminal can operate with Precision Visual's DI-3000 and Grafmaker; Issco's Disspla and Tellagraf; SAS Institute's SAS/Graph; and Megatek's Template.

The HP 2393A also provides the user with multiple interface options including an RS-232C/HP 422 system port, a video interface, an HP Human-Interface Link (HP-HIL) and optional peripherals port. With the HP-HIL interface on the terminal, up to four different input devices such as HP Touch, graphics tablet, bar-code reader, and mouse, can be daisy-chained directly to the keyboard.

Data Decisions News

Distributed worldwide and available in 16 international versions, the HP 2393A terminal carries a list price tag of \$2,095.

IBM UNVEILS NEW 3179 COLOR GRAPHICS DISPLAY STATION
International Business Machines (IBM) Corporation, Information Systems Group • National Accounts Division; 1133 Westchester Avenue, White Plains, NY 10604; 914-696-1900 • National Marketing Division; 4111 Northside Parkway, Atlanta, GA 30327; 404-238-2000.

On June 18, IBM officially announced the long-rumored color graphics terminals for its 3179. The **3179 Models G1 and G2** support 8 colors and contain a 14-inch CRT with a display capacity of 1920 or 2560 characters.

Model G1 has a 122-key typewriter keyboard, while the G2 has a 122-key typewriter/APL 2 keyboard. Both terminals are used in cluster configurations with 3274 cluster controller. Host interactive graphics support on IBM System/370, 43xx, 303x, and 3090 processors is included in an enhancement to Release 4 of Graphical Data Display Manager (GDDM). Screen management functions are extended to interact with graphics information as well as alphanumeric data.

Both terminals can be used for displaying alphanumeric and graphics data and for entering data into and receiving data from the System/370, 43xx, 303x, 308x, and 3090 processors. The IBM 8100 supports both terminals in alphanumeric mode only. The graphics capabilities are all-points addressable 720x384 picture elements in a viewable area of 9.4x6.8 inches.

Also announced for the 3179 G1 and G2 is a 3979 Expansion Unit. The product provides auxiliary device ports to attach an IBM 5277 Mouse and an IBM 7371 or 7372 Color Plotter. The 3979 also provides an alternative port for the IBM Color Jetprinter (3852 Model 2).

The 3179 G1 and G2 both carry a \$2,995 price tag, while the 3979 sells for \$295.

IBM ADDS 3270-PC/AT & -PC/AT/G In another major enhancement to the 3270 line, IBM has added its powerful PC/AT personal computer and further complemented it with the interactive graphics capabilities of the IBM 3270-PC/G and -PC/GX. The new terminal, called predictably, the 3270-PC/AT, interfaces with existing 3270 controllers and can utilize the formats of the 3278 except Models 1 and 2A, or any model of the 3279 except the 2C.

The PC/AT (5273 System Unit), when used in conjunction with the 3270 Personal Computer Control Program Version 2.1, combines the host-interactive functions of the IBM 3270 Information Display System and the computing power and versatility of the IBM Personal Computer AT. The 3270 Personal Computer AT can operate with four 3270-host sessions, two local notepad sessions, and multiple IBM PC-DOS Version 3.1 sessions.

The PC/AT/G and GX Workstations (5373 System Unit) combine the interactive graphic capabilities of the IBM 3270-PC/G and 3270-PC/GX with the increased performance of the IBM Personal Computer AT, by attaching the IBM 5279 Color Display and the IBM 5379 Color and Monochrome Displays to the IBM 5373 System Unit via their respective Display Attachment Units. The terminals provide

1024x1024 picture element display space, 64 colors, four levels of gray scale, plus alphanumeric and 2D graphics functions.

The 3270-PC/AT, officially designated the Model 5273, employs an Intel 80286 microprocessor and provides 1.2M and optionally 360K bytes of diskette storage, up to 20M bytes of fixed disk, and up to 640K bytes of RAM. It also has a ROM-based BASIC language and clock/calendar with battery backup and keylock.

The 5273 is offered in five models. The 5273 Model 20 has 512K bytes of RAM, 5151/5272 Display Adapter, 5271-keyboard, keyboard adapter, and keyboard cable, one 1.2M-byte diskette drive, 3270 Systems Adapter, and a Serial/Parallel Interface Adapter.

The 5273 Model 41 contains a 640K-byte RAM, 5151/5272 Display Adapter, 5271-keyboard, keyboard adapter and keyboard cable, two 1.2M-byte diskette drives, 3270 Systems Adapter, and a Serial/Parallel Interface Adapter.

The 5273 Model 42 is the same as Model 41 plus it has an Extended Graphics Adapter (XGA).

The 5273 Model 61 contains a 640K-byte RAM, 5151/5272 Display Adapter, 5271-keyboard, keyboard adapter, and keyboard cable, one 1.2M-byte diskette drive, one 20M-byte fixed disk drive, 3270 Systems Adapter, and a Serial/Parallel Interface Adapter.

The 5273 Model 62 is the same as Model 61 plus it has an Extended Graphics Adapter (XGA).

The 3270-PC/AT/G and GX workstations, officially called the 5373, consists of six models. Model 160 contains a 20M-byte fixed disk drive, 1.2M-byte high-capacity diskette drive, 512K-byte memory, fixed disk/diskette interface, Serial/Parallel Adapter, Display/Mouse/Tablet Adapter, five additional expansion slots, and a 3270-PC Keyboard.

Model A60 is the same as Model 160 except it has a 3270-PC APL keyboard.

Model 161 contains a 20M-byte fixed disk drive, 1.2M-byte high-capacity diskette drive, 640K-byte memory, fixed disk/diskette interface, Serial/Parallel Adapter, Display/Mouse/Tablet Adapter, 3278/79 Emulation Adapter, three additional expansion slots, and a 3270-PC Keyboard.

The Model A61 is the same as Model 161 except it has a 3270-PC APL keyboard.

Model 162 contains a 20M-byte fixed disk drive, 1.2M-byte high-capacity diskette drive, 512K-byte memory, 0.5M-byte expansion memory, fixed disk/diskette interface, Serial/Parallel Adapter, Display/Mouse/Tablet Adapter, 3278/3279 Emulation Adapter, 80287 Math Coprocessor, three additional expansion slots, and a 3270-PC keyboard.

Model A62 is the same as Model 162 except it includes a 3270-PC APL keyboard.

The 5273 Models 20, 41, 42, 61, and 62 base systems cost \$6,090, \$7,090, \$7,640, \$7,595, and \$8,145, respectively. The 5373 Models 160, 161, 162, A60, A61, A62 base units list for \$6,560, \$7,815, \$8,965, \$6,560, \$7,815, and \$8,965, respectively.

IBM ALSO OFFERS TWO NEW ASCII DISPLAY STATIONS Also on June 18, IBM announced **Models 3161 and 3163** ASCII display stations, units with advanced levels of functionality and ergonomics. Both terminals attach to IBM and non-IBM systems, and contain IBM 3101 Model 881 (Model 230) emulation. This provides current 3101 users with a smooth migration path.

The 3161 and 3163 Models 11 and 12 are general-purpose ASCII terminals and composed of a 12-inch monochrome display with a tilt-and-swivel pedestal, a 102-key low-profile keyboard with 12 PF (24 programmable function) and three PA keys, and the base logic for emulating ADDS Viewpoint, Hazeltine 1500, Lear Siegler ADM-3A and -5A, and the Televideo 910. The 3163 also emulates the DEC VT52 and VT100. The emulators, of course, allow connection to non-IBM machines.

The IBM 3161 is a high-function, entry-level ASCII display. It offers such functions as menu setup, definable function keys split screen, and character and field attributes. The display provides brightness and contrast control knobs on a green phosphor, antiglare screen that is 25 lines x 80 characters wide (the 25th line is an indicator row). The keyboard layout is compatible with most ASCII display keyboards and is attached to the logic unit via a coiled cable. The keyboard provides tactile feedback to the operator, selectable tilt angle, and a numeric keypad. The logic element provides multiple options for communication, such as line speed, XON/XOFF, and operating modes. The operator may select 3161 native mode, 3101 mode, or one of the five non-IBM entry-level ASCII emulators. An auxiliary port allows the attachment of an ASCII printer.

The IBM 3163 is an advanced editing display that provides sophisticated features, such as multiple screen viewports, partitioning, and paging, as well as many advanced screen characteristics, such as smooth scroll and double-high/double-wide characters. It consists of a keyboard, a display, a logic element, and an optional cartridge.

Other features on the 3163 include a 7680-character buffer that may be divided into partitions (maximum of three), each of which may be longer and wider than the viewing area; block error checking; and a redefinable, recappable keyboard.

The IBM 3161 and IBM 3163 are each offered in two models: 3161 Model 11—RS-232C interface; 3161 Model 12—RS-232C/RS-422A operator-selectable interface; 3163 Model 11—RS-232C interface; and 3163 Model 12—RS-232C/RS-422A operator-selectable interface.

All have a 7/8 bits option and operate over communication facilities at speeds to 19.2K bps. The 3161 Model 11 sells for \$695, while the Model 12 is priced at \$774. The 3163 Model 11 and Model 12 are priced at \$1,095 and \$1,174, respectively.

ICOT INTRODUCES WORKSTATIONS/CONTROLLERS WITH MULTIPLE PROTOCOL SUPPORT ICOT; 830 Maude Avenue, Mountain View, CA 94043; 415-964-4635.

ICOT's new 780 family of terminals and workstations are designed for organizations (e.g., airlines) which must accommodate multiple protocols in a data communication network. Each workstation can interface with multiple

protocols including SNA and PARS, and can support up to two peripherals with the additional ability to support a magnetic stripe reader or optical scanner.

The workstations have a 12- or 15-inch CRT and use an Intel 8088 micro and 64K of RAM. The controller, called the 790, acts like a terminal concentrator and attaches up to 32 workstations. The 790 is offered in single or dual configurations. No prices have been set to date on any members of the family.

INTECOLOR UNVEILS COLOR VT220-COMPATIBLE TERMINAL Intecolor Corporation; 225 Technology Park, Norcross, GA 30092; 404-449-5961.

Intecolor has jumped on the DEC VT220-compatible bandwagon with a new terminal dubbed, **ColorTrend 220**. Similar to the vendor's ColorTrend 210, the 220 features the proprietary colorkey feature which adds color capability to monochrome software without modification.

Designed to support DEC VT52/100/220 compatibility, the new terminal includes a nonglare 14-inch CRT; eight different selectable foreground and background colors; and four character sets comprising ASCII, multinational, line drawing graphics, and downloadable characters. Also included is a low-profile, detached keyboard with 13 programmable function keys (shiftable to 26 functions) and an auxiliary keypad with an 18-key numeric key cluster. Priced at \$1,295, the new ColorTrend 220 is targeted for initial shipments in late summer.

INTERACTIVE SYSTEMS/3M FINALLY ANNOUNCES LAN/II Interactive Systems, TelComm Products Division/3M; 3M Center, St. Paul, MN 55144-1000; 612-733-1110.

Interactive Systems has finally announced **LAN/II** after listing it as a product at trade shows for the past year. LAN/II implements the IEEE 802.4 specification for token bus LANs and the IEEE 802.3 specifications for baseband CSMA/CD LANs. Both operate at 10M bps. The token bus version is obviously aimed at the market that is being developed for automated factories using the General Motors Manufacturing Automation Protocol.

Purchase price is \$49,400 for a Configuration with Test MAP 2.1 functionality; it includes head end control system, network monitor system hardware and software, two 8-port terminal servers, and two 1-port HDLC interfaces. Beta testing begins in July. Deliveries of LAN/II will begin in are scheduled for late October.

CERTAIN MCI RATES WILL INCREASE; OTHERS WILL DECREASE MCI Telecommunications; 1133 19th Street, Washington, DC 20036; 202-872-1600.

MCI, in response to a 6.1-percent cut in certain AT&T rates will reduce certain business and residential rates from 1 to 11 percent. In addition, MCI will eliminate its \$10 monthly fee for customers of its Advantage automatic-dialing service who incur long-distance bills of at least \$200 per month.

Meantime, however, discounts for high-volume customers will be narrowed. Bills of at least \$200 a month will receive a nine-percent discount. Previously, a 10-percent discount was offered on monthly bills of at least \$150. MCI will also add a surcharge of five cents a call to its credit-card rates.

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The first-minute rate on credit-cards calls will rise, while the rate for additional minutes will fall.

MCI will reduce daytime WATS rates about four percent, while raising some evening, night, and weekend rates about five percent.

MCI MAIL EXPANDED WITH NEW MAILING LIST SERVICE A new mail service has been introduced by MCI which enables mailing list customers to create mailing lists for online storage and distribution. Dubbed, **MCI Mail Shared Lists**, the new service also allows MCI mail customers to share mailing lists with other MCI mail customers electronically.

Maintenance costs for the MCI Mail Shared Lists is \$25 per month for 10 lists, which will be credited against usage. There is also a fee of \$2.50 for each additional list created. Usage will be charged at regular MCI Mail rates.

SATELLITE BUSINESS SYSTEMS, IBM IN SATELLITE PROGRAM Satellite Business Systems (SBS); 8283 Greenboro Drive, McLean, VA 22102; 703-442-5000.

Earth stations will be installed later this year at three IBM locations, as the companies embark on a joint development program to investigate the use of satellites for high-speed, host-to-host data transport.

According to an SBS spokesman, two of the three sites for the test-bed network have tentatively been slotted for installation of the 4.5-meter earth stations. One site is an IBM research facility in Los Gatos, CA, while the second one is likely to be IBM's Thomas J. Watson Research Center in Yorktown Heights, NY. The test-bed network is scheduled to be installed in late 1985 and will be used through 1986. Emphasizing that the joint development program is experimental, the spokesman said the basis behind that is to try to see what can happen if they can eliminate the historical bandwidth constraints that are placed on computers, and couple them with the things that satellites can do. They can transmit from one location to eight locations. What SBS has in mind is not necessarily a satellite transmission of New York to Los Angeles, but the ability to mesh multilocations. He noted that investigations will focus on host-to-host communications. He expects tests to yield bandwidths of 3M to 6M bps for host-to-host communications, compared to SBS's current T1 offering of 1.5M bps. They picked a range of speeds that people are repeatedly looking at, but may find out that they will want higher speeds.

IBM will be sending standard IBM systems software over the test-bed network to see if there are any benefits to be found. With this test IBM could be strengthening its challenge against AT&T's network offerings. The emphasis of the test, however is to improve host-to-host communications for IBM's customer base. IBM could, however offer the wider bandwidth as an enhancement to SBS's existing data services. SBS currently offers under its Skyline Network Service data transmission at 56K bps and T1 service at 1.544M bps.

SBS has secured equipment for the test-bed network from M/A Com Inc for the time division multiple access (TDMA) baseband hardware, and from NEC America Inc will supply the Ku-band earth stations. The TDMA hardware should resolve the one-half second lag in point-to-point satellite communications.

All five of SBS satellites operate in the Ku-band frequency spectrum. SBS-6, scheduled for launch in 1987, will quadruple the communications capability of the first three SBS satellites.

Compared to C-band satellite systems, Ku offers high-quality transmission in congested areas because it is not as prone to interference from microwave transmission.

SBS ALSO INTRODUCES SWITCH PARTITION SERVICE Long-distance carriers and resellers can now provide service over the SBS Network with the addition of a new offering from SBS. The new **Dedicated Switch Partition Service** supports switching service and call record detail as well as transmission service. With the new service, the customer directly accesses the SBS digital switch which reroutes traffic and handles all transmission through the SBS Network.

The new service allows carriers and resellers to participate in Equal Access presubscription without investing in expensive switch software upgrades. The SBS service is accessed by Feature Group B or Feature Group D access lines. (With Feature Group B, end users dial an access number and enter an authorization code. With Feature Group D, end users presubscribe to the carrier's or reseller's service and make 1 + long-distance calls. SBS provides authorization codes for Feature Group B users and Automatic Number Identification for Feature Group D.)

SBS usage rates for the service include a 1.5-cents-per-minute switching rate and a domestic transmission and completion rate of 18.9 cents per minute during the business day or 9.9 cents per minute during nonbusiness hours. Call completion to Canadian locations is available at an additional charge. A minimum monthly charge of \$10,000 per originating switch will apply to reseller or carrier customers after the first month of service. An SBS administrative charge for telco access lines also applies.

SBS currently operates digital switches in 21 major cities nationwide. Switches are planned for installation in four additional cities by year end.

TEKTRONIX UPGRADES 4105 GRAPHICS TERMINAL Tektronix, Inc; P.O. Box 1700, Beaverton, OR 97075; 503-644-0161.

Tektronix has upgraded its 4105 display terminal with an assortment of enhancements including expanded copier support, and extended DEC VT100-compatible capabilities. In addition, pixel operations are standard on the new **4105A display terminal**.

Copier support for the 4105A includes the Tektronix 4691, 4692, and 4695 Color Graphics Copiers, Tek's 4644 Dot-Matrix Printer, Hewlett-Packard's Thinkjet printer, and Epson's FX-80, as well as Centronics-compatible copiers. Furthermore, the 4105A features two new VT100 commands: media copy and answerback. Media Copy allows the user to copy information from a host computer to the display's dialog area, to a hard-copy device, or to both simultaneously. Answerback allows the host to query the display for identification. The increased VT100 compatibility makes the 4105A especially suitable for host environments that use DEC computers.

Like the 4105, the 4105A is designed for applications which include technical data analysis, presentation graphics text editing, as well as manufacturing applications such as

process control, numeric processor control, and shop floor automation.

Currently available, the 4105A is priced at \$3,995, the same cost as the 4105. Existing 4105 users can upgrade to the 4105A by purchasing the 4105F01 firmware upgrade kit. Priced at \$300, the upgrade kit includes four customer-installable ROMs that replace the ROMs in the 4105.

TIMEPLEX INTRODUCES MICROPLEXER DTM48 Timeplex, Inc; 400 Chestnut Ridge Road, Woodcliff Lake, NJ 07675; 201-391-1111.

Timeplex has announced the availability of the new **Microplexer DTM48 Multiplexer** which is designed to provide both statistical and time division multiplexing at a data transmission rate of up to 64K bps. The DTM48 Wideband Statistical Multiplexer supports up to 48 user ports for point-to-point applications requiring data link speeds of up to 64K bps, such as satellite and wideband terrestrial links. The statistical multiplexer supports both synchronous and asynchronous data, and includes sizeable buffer memories for handling peak traffic loads that exceed data link capacity.

The internal time division multiplexer module transparently handles synchronous protocol. When the module is installed, the maximum number of user ports available is 44.

TDM bandwidth can be dynamically allocated or permanently assigned on a per-port basis. Programming of the TDM ports is accomplished through the Supervisory Port of the DTM48.

The network manager can set up any mix of TDM and statistical ports at speeds up to 38.4K bps (TDM), 9600 bps (STDM). Both asynchronous and half-duplex synchronous data are statistically multiplexed. Full-duplex synchronous data usually pass through the TDM port. The Microplexer DTM48 multiplexer also supports variety of features that ensure network security and reliability. An optional I/O port module provides for data channel integrity for sensitive installations. Isolation techniques provide assurance that data from one port can never be transmitted in an intelligible form to another port (channel hopping). A crypto resync feature of the DTM48 multiplexer is programmable to reset external encryption devices upon detecting a loss of synchronization on the data link. This provides for automatic and rapid re-establishment of the transmission. The network manager can also program the multiplexer to signal an alarm whenever data link synchronization is lost. With the TDM ports installed in the DTM48, the primary 64K-bps data link can be backed with a hot spare.

Additionally, the Microplexer DTM48 enables the network manager to program up to 14 separate parameters per asynchronous data port and up to 10 parameters for synchronous ports. Programming can be initiated from the mux front panel or via the multiplexer supervisory port. All parameters can be automatically downloaded, eliminating the need for operator intervention at remote sites. In addition to operating flexibility, the DTM48 supports extensive diagnostics including internal hardware and firmware tests, local and remote port and data link loopbacks, and test messages.

Initial deliveries for DTM48 multiplexers are scheduled to begin this month with a purchase price of \$6,600 for a unit equipped with four TDM ports, four statistically multiplexed ports, and the data link loopbacks.

TYMNET/MCDONNELL DOUGLAS DEPLOYS T1 BACKBONE TO ACCOMMODATE GROWING VOICE/DATA TRAFFIC Tymnet Inc; 2710 Orchard Parkway, San Jose, CA 95134; 408-446-6000.

Tymnet, McDonnell Douglas Network Systems Company, and its parent company, McDonnell Douglas Corporation (MDC), have announced deployment of a **high-bandwidth T1 backbone** to supplement its Tymnet public packet data network. The T1 bandwidth will be shared across various MDC lines of business and corporate users.

T1 is a communication service provided by AT&T, under the Accunet trademark. This service provides point-to-point transmission bandwidth capable of handling 24 times the data capacity of a 56K bps DDS line (currently deployed in the Tymnet network). The T1 lines accommodate a total data rate of up to 1.544M bps.

The T1 backbone will integrate both data and voice traffic in the same line. The channelization process is achieved through intelligent transcoders and multiplexers. Tymnet data channels will account for a large portion of the data flow over the T1 backbone, while other MDC lines of business and corporate users will account for the bulk of voice usage.

In the T1 backbone, a 56K-byte channel between two Tymnet Engines may actually travel via several T1 links, but will appear as a point-to-point connection to the Tymnet network.

According to a Tymnet spokesman consolidating data and voice is more economical than purchasing and managing separate voice and data networks. He said T1 will provide a better quality of service without additional cost; user-perceived performance parameters, throughput and response time, will improve with the bigger chunks of bandwidth. Tymnet will be able to more efficiently handle high-speed applications, such as host-to-host file transfer, remote job entry, and 2400 bps dial-up.

The T1 bandwidth will enable tymnet to continue placing more applications and users on the network without having to buy additional lines and reconfiguring portions of the backbone network. In addition to the current network performance monitoring tools within Tymnet, a PDP-11 micro-based system will monitor and control the external hardware on the T1 backbone 24 hours a day. That system will provide the capability to pinpoint and troubleshoot problems occurring at the channel level.

WESTERN UNION UNVEILS SDNS Western Union Telegraph Company; One Lake Street, Upper Saddle River, NJ 07458; 201-825-5000.

Western Union has announced **Software Defined Network Services (SDNS)**, which has rates roughly 25 percent lower than its Optimized WATS rates and 50 percent lower than AT&T WATS rates.

Subject to approval by the FCC, the service is aimed at large corporations with heavy calling traffic between multiple branch offices. All SDNS lines have access to Western Union's nationwide network, giving users a single trunk group for all voice/data communications.

To create a software-designed network, Optimized WATS users have to provide Western Union with the telephone numbers of their various branch offices to be entered into

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the SDNS database. Western Union then assigns individual telephone numbers for each location and extension. This enables users to access branch office dial-up facilities with private dialing plans.

SDNS will initially be available in Boston; Chicago; Cincinnati; Dallas; Detroit; Houston; Los Angeles; New York; Philadelphia; Phoenix; San Francisco; Toledo; Washington, DC; White Plains, NY. The maximum discount applies when customer usage reaches 60 hours.

SDNS customers who also use Western Union's Easylink electronic mail service, worldwide Telex and/or TWX services, are reportedly eligible for the recently announced joint service discount. This is said to apply to 20 percent of their other Western Union service bills against their SDNS bill to a maximum of \$1,000 per month or 10 percent of their long-distance service bill.

XPOINT OFFERING IBM 3178-COMPATIBLE TERMINAL WITH 3287 PRINTER SUPPORT XPOINT Corp; 5600 Oakbrook Parkway, Suite 130, Norcross, GA 30093; 800-241-4719 or 404-446-2764.

XPOINT, a nationwide master distributor of data communication products, has announced an IBM 3178-compatible terminal with or without an optional ASCII printer port for 3287 emulation. The **XPOINT 178 and 178P** are OEMed Term-Tronics Miracle 178Ps, and have a 12-inch CRT plus a 3178-like keyboard. The unit is plug-compatible with an IBM 3178 or 3278-2.

The Model 178P is the same terminal with an ASCII printer port that allows any serial or parallel ASCII printer to emulate a 3287. The 178P is priced at \$1,495, while the 178 lists for \$995.

■ CALENDAR OF EVENTS

□ August 1985

Aug 20-22 - Illinois Bell Fiber-Optic Showcase • Westmont, IL **Contact** Dennis Gonka; 312-727-3887.

Aug 26-29 - APCO/FCCA National Conference • San Diego, CA **Contact** 619-236-7044.

Aug 26-29 - INTECH '85 • San Francisco, CA **Contact** Rosalind Price-Raymond; 703-683-8500.

Aug 27-29 - INTERCONNECT '85 • San Mateo, CA **Contact** 312-782-8597.

□ September 1985

Sep 8-11 - CICA Annual Conference • Edmonton, AB **Contact** 416-499-4222.

Sep 9-11 - Eighth Annual Federal Computer Conference • Washington, DC **Contact** 617-358-5301.

Sep 10-14 - INTELEC 85 • Basel, Switzerland **Contact** 061-26-20-20.

Sep 16-20 - FOC/LAN 85 • San Francisco, CA **Contact** 617-787-1776.

Sep 16-20 - TCA Annual Conference • San Diego, CA **Contact** 818-960-1838.

Sep 17-19 - CARIBECOM '85 • San Juan, PR **Contact** 703-685-0600.

Sep 17-20 - Telocator Annual Conference • Las Vegas, NV **Contact** 202-659-6446.

Sep 22-26 - Intelligent Building & Information Systems Conference • Boulder, CO **Contact** Tom Cross; 303-444-7799.

Sep 23-25 - AAR Annual Meeting • Chicago, IL **Contact** 202-835-9100.

Sep 26-28 - EIA International Mobile Communications Show & Conference '85 • New Orleans, LA **Contact** 202-457-4935.

Sep 27-29 - SIRSA 1984 Annual Membership Meeting • Boca Raton, FL **Contact** 703-528-5115.

□ October 1985

Oct 3-5 - 4th Annual Land Mobile Expo/East • Atlanta, GA **Contact** Kathy Kriner; 303-694-1522.

Oct 7-9 - National Communications Forum • Des Plaines, IL **Contact** Robert Janowiak; 312-828-0491.

Oct 7-9 - 10th Conference on Local Computer Networks • Minneapolis, MN **Contact** 205-837-2400.

Oct 7-11 - NASTD Annual Conference • Orlando, FL **Contact** 804-872-7272.

Oct 13-15 - USTA National Convention • San Antonio, TX **Contact** 202-872-1200.

Oct 14-17 - 8th Annual Midwest Telecommunications Conference • Minneapolis, MN **Contact** Chuck Champine; 612-540-1066.

Oct 15-17 - Satellite Communications Users Conference • New Orleans, LA **Contact** Kathy Kriner; 303-694-1522.

Oct 21-23 - Telecon V Teleconferencing Show • Anaheim, CA **Contact** 415-820-5563.

Oct 24 - Mid-America's 28th Annual Meeting & Show • Kansas City, MO **Contact** Rob Marshall; 913-841-9241.

Oct 28-31 - The International Telemetry Conference • Las Vegas, NV **Contact** Darrell Gabel; 805-866-7938.

Oct 29-31 - Sixth Annual Federal Office Automation Conference • Washington, DC **Contact** 617-358-5301.

□ November 1985

Nov 4-5 - International Tele/Conferencing Symposium • Boulder, CO **Contact** Tom Cross; 303-444-7799.

Nov 6-8 - BIZTELCOM • Dallas, TX **Contact** 609-698-7020.

Nov 10-13 - SETA Annual Conference • Hollywood, FL **Contact** 804-746-3195.

Nov 13-15 - CMA Annual Conference • Long Island, NY **Contact** 201-766-3824.

Nov 18-20 - ITG Fiber-Optics Trends & Directions Seminar • Napa Valley, CA **Contact** 202-457-4980.

Nov 18-21 - Network Management/Technical Control Conference • Chicago, IL **Contact** 617-879-0700.

Nov 18-21 - COMMUNITECH/COMPUTER 85 • Kuala Lumpur, Malaysia **Contact** Jerry Kellman; 201-652-7070.

□ December 1985

Dec 2-5 - GLOBECOM '85 • New Orleans, LA **Contact** 504-528-7350.

Dec 3-6 - NATA Convention & Exhibition • Dallas, TX **Contact** 202-296-9800.

Dec 9-11 - FUTURECOM—Cellular & Personal Communications Conference • Washington, DC **Contact** Sherry Andrews; 703-352-1200.

• END

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UPDATING MATERIAL

July 1985

In addition to this newsletter, July updating material includes the reports described below. Please see the Communications Systems volumes to refer to these reports.

Survey Reports • present succinct product profiles by product type:

- The **Distributed Network Architecture** survey report summarizes the vital characteristics and features of **11 prominent network architectures** from as many vendors.
- The **Facsimile Terminals** survey report summarizes the important characteristics and features of **94 models** from **19 vendors**.
- The **Telecommunications Software Systems** survey report summarizes the salient characteristics and features of **69 software packages** from **30 vendors**.

Product Reports • comprehensive, detailed analytical reports that evaluate key communication products.

- The **AT&T-IS Call Accounting Systems** report describes and evaluates AT&T-IS's family of products.
- The **Commercial Software Telemangement Software Systems** report describes and evaluates the telecom software products of this prominent vendor.
- The **DMW Group Software Systems** report describes and evaluates DMW's telecom software products.
- The **Concord Data Token/Net** report describes and evaluates Concord's broadband local area network that conforms to 802.4.
- The **Forte Communication Emulators** report describes

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and evaluates Forte's family of protocol converters/emulators.

- The **Protean ProNet-10/-80** report describes and evaluates this important local area network.
- The **Summa Four Call Accounting Systems** report describes and evaluates Summa's family of systems.
- The **Techland Systems BlueLynx** report describes and evaluates this important family of local and remote protocol converters.
- The **AT&T-IS Systems 75 & 85, Anderson Jacobson Display Terminals, CASE DCX Series Multiplexers, Honeywell Datanet Network Processors, IBM 5280, Northern Telecom Meridian DV-1, NCR 7950, Racal Vadic Modems, and Visual Technology Display Terminals** reports are revised, as well as 2 software reports, **Candle OMEGAMON/CICS** and **Mathematica ATLAS** to reflect the latest changes and pricing.

ANNOUNCEMENTS

■ SPOTLIGHT

AT&T-IS UNLEASHES BARRAGE OF PRODUCTS AT ICA SHOW AT&T Information Systems; 100 Southgate Parkway, Morristown, NJ 07960; 201-898-8000.

• Although an 8:00 AM press conference is not the easiest thing in the world to handle, several brave souls showed up for the AT&T Information Systems confab on Tuesday, May 7, 1985 at the Dallas Convention Center. AT&T-IS wisely chose the 1985 International Communications Association (ICA) conference as the forum to announce several new and enhanced products for voice and data communications. During the course of the ICA Conference, the new products

could also be seen in operation at the AT&T booth. If there was any doubt about AT&T's willingness to listen to its users, it was effectively dispelled at the show. The company is indeed doing what many have said couldn't be done—become a marketing-driven organization.

Five major product announcements occurred at the ICA show:

- **Premises Distribution System (PDS)**—The company has developed an internal wiring scheme for buildings that use a combination of twisted pair and fiber optic cables. It is comparable to IBM's Cabling System. PDS is designed to

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support voice, data, text, and video communications. AT&T-IS has developed technical and management literature to help users plan for PDS. It announced the support of 3 major computer manufacturers—Hewlett-Packard, Wang Labs, and Xerox—for PDS in their individual programs for integrating voice, data, text, and video. A further endorsement for PDS came from office furniture manufacturer Steelcase, Inc, which said it plans to develop a series of education programs based on PDS for architects and other key players in the building industry.

• **Enhancements to Information Systems Network (ISN)**—AT&T-IS's local area network (LAN) product received support for additional specialized communication facilities and data communication terminals. The first enhancement is an **interface to AT&T's STARLAN** local area network, a 1M-bps facility designed for personal computers, workstations, and file serves. The next was **synchronous terminal support** that provides a direct interface for IBM 3270 terminals to be switched to multiple cluster controllers. The terminals use standard AT&T keyboard dialing to access any cluster controller. Connections are handled via AT&T's PDS. A **BSC and SNA/SDLC interface** was announced that provides a synchronous transport interface for interconnecting compatible synchronous devices that use BSC or SNA/SDLC link protocols. An **Ethernet interface** provides transport connectivity for devices attached to Ethernet and IEEE 802.3 baseband networks. New **ISN networking features** permit the creation of wide area networks using high-speed T1 digital trunks between ISN packet controllers. Transport speeds can range from 9600 bps to 2.048M bps, and trunks provide up to 512 statistically multiplexed virtual circuits. ISN can route calls through intermediate ISN nodes to their destinations, and also uses automatic alternate routing techniques for efficient call processing. Several **enhanced user services** were announced, including access security, which requires users to logon to the network; closed user group, which controls access to users on the network; dual simultaneous sessions, for operating between 2 different devices; and various training and information routines for users. The new features can be ordered at the end of this year and will be available for delivery in the second and third quarters of 1986. The price per device port for asynchronous applications ranges from \$350 to \$550. For STARLAN and Ethernet interface applications the price per port ranges from \$500 to \$800. Synchronous terminal device ports range from \$1,000 to \$1,300 per port.

• **3270 Data Modules**—AT&T-IS introduced 3 new data modules for connecting 3270 terminals to a System 75 or 85 PBX that switches data calls to host computer systems. Two data modules are used for connecting a 3270 terminal to the PBX: the **3270T**, which connects 3270 terminals only, and **3270A**, which operates in both synchronous and asynchronous modes for connecting an even wider range of devices to the PBX. A third module, the **3270C**, connects the PBX to 3270 cluster controllers. The modules are in effect protocol converters. The 3270T converts Coax A protocol from the display to Digital Communications Protocol (DCP) used in the Systems 75 and 85. The 3270C converts DCP back to Coax A for connection to cluster controllers. Each 3270C has 2 cluster controller ports, and a special housing is available for up to four 3270C modules, if required. The

3270T appears as a cluster controller to 3270 terminals, and the 3270C appears functionally as a 3270 terminal to a cluster controller. The modules can connect to distant cluster controllers via T1 digital facilities switching through a System 75 or 85 PBX. The units will be available fourth quarter 1985 and cost \$785 for the 3270T, \$995 for the 3270A, \$1,600 for the 3270C, and \$800 for the 3270 Data Module Housing.

• **Model 7404 Digital Voice Terminal**—This new addition to AT&T's 7000 Series of voice and data terminals costs only \$700, yet provides a high degree of data and voice functionality. It connects to a System 75 or 85 via 2-pair station cabling and has an RS-232C interface for data terminals. An integrated data module permits data speeds up to 19.2K bps using full-duplex asynchronous transmission. It supports keyboard dialing of data calls and has a speed matching feature which automatically adjusts transmission speeds to another device if that device's speed is less than the set speed at the 7404 interface. The 7404 has 6 programmable feature buttons, 4 fixed feature buttons, message waiting indication, and a cartridge slot for specialized applications, such as messaging.

• **System 75 Enhancements**—The popularity and wide-spread acceptance of AT&T-IS's System 75 digital PBX is unprecedented in AT&T history. The system has an inter architecture that supports a high degree of functionality when compared with previous AT&T PBX systems. The price is especially attractive to end users, who bought up the initial production run of 75s within 2 months of their availability. Two major complaints were raised: when can the System 75 grow beyond 400 stations, and when will it be able to reside within an Electronic Tandem Network (ETN). Both of these questions were answered on May 7. System 75 will **grow to 800 stations** and will be able to function within an **ETN with new software upgrades**. Additional features include a voice message retrieval capability, call forwarding—off premises—and additional system performance reporting capabilities. To achieve the expanded performance, AT&T doubled the speed of the System 75 processor, such that it will be able to handle 3600 calls per hour, rather than the current 1800. AT&T-IS also will provide analog station circuit cards with 16 circuits per board, as opposed to the current 8-station boards. AT&T-IS said the System 75 can support both 8- and 16-station circuit boards in the same system. The number of data connections increased from 200 to 800, memory was increased from 2M to 4M bytes, and automatic alternate routing (AAR) for operation in an ETN. Current System 75s can be field-upgraded to enhanced models for approximately \$8,000. The average cost per line for a voice-only configuration ranges from approximately \$600 to \$800 and voice/data configurations range from \$750 to about \$1,300. Systems with up to 600 stations will be available in the first quarter of 1986, and larger sizes up to 800 stations will appear in mid-year.

A potential problem area for the enhanced System 75 is its traffic handling capabilities. Although the company likes to brag about doubling the call handling speed of the System 75, it has not increased the number of internal time slots at all, and the system's total internal traffic capacity increased from 8,500 to 8,670 CCS. The maximum number of

simultaneous conversations increased from 236 to only 241, which could pose a problem for users with heavy data traffic. Whereas the System 75 formerly was a nonblocking switch, it no longer can claim this ability, particularly for any applications over 500 stations. Users should review their data requirements carefully before investing in a System 75. It is likely, however, that AT&T will have this problem corrected by the time the enhanced 75s enter the market. Their ability and desire to satisfy user requirements is highly refreshing, in light of the company's previous attitudes towards new product development and responding to user requests.

AT&T-IS is once again proving the doomsayers wrong. It is building a highly competitive, well thought out product line, and is actively listening to its customers. AT&T-IS's whole approach to the business is **can-do**, and is reflected in the products it has been introducing in the last 18 months.

■ ANNOUNCEMENTS & NEW PRODUCTS

AMDAHL ADDS FIBER OPTIC AND VIDEO TELECONFERENCING LINKS TO T1 MUX Amdahl Communications Systems Division; 2500 Walnut Avenue, Marina Del Rey, CA 90291; 213-822-3202.

Amdahl has significantly enhanced the capabilities of its **Model 2211 T1 multiplexer** with the addition of: (1) a fiber optic channel connector, modem, and trunk interface; (2) a high-speed synchronous loop access module; and (3) a high-speed 768K-bps synchronous channel card.

The fiber optic options provide optical data channels up to 2,000 feet for use when security is imperative or when the channels pass through a hazardous environment. Data transfer rate is up to 64K bps. The options support standard control signals. Fiber optic trunks provide the same security advantage as fiber optic channels, but at aggregate data rates up to 2.048M bps. The options are integrated assemblies with electrical and physical properties identical to current channel and trunk equipment.

The high-speed synchronous loop access module (HS SLAM) is a completely integrated limited distance data set that is installed in the 2211 multiplexer and connects to a remote data set up to 32 miles over standard 4-wire cable. Transmission speeds of 56K bps and 64K bps are supported. Special network features include central management to the DTE for diagnostic purposes.

Channel and trunk rates up to 768K bps are standard on new 2211s. Existing 2211s can be field-upgraded to include the feature. Standard 768K-bps video can be multiplexed along with data and voice to permit video teleconferencing over the multiplexer link.

The HS SLAM is priced at \$900. Its matching remote data set is \$700. Both are available immediately. The fiber optics options will be available in the third quarter of 1985. The channel option, consisting of a channel connector assembly, asynchronous input/output card, and interface adapter card, is priced at \$1,660. The optical modem will cost \$875. Fiber optics trunks, consisting of a trunk connector assembly, trunk interface converter, and interface adapter card, will cost \$2,000.

AMERICAN SATELLITE OPENS NETWORK CONTROL CENTER American Satellite Company; 1801 Research Boulevard,

Rockville, MD 20850; 301-251-8333.

American Satellite opened its first Telecommunications, Satellite and Network Control Complex, which will track and control communication satellites scheduled to be launched by ASC, in addition to controlling ASC's earth station network.

The \$1.5 million network control complex will also enable ASC to provide the Atlanta business community with satellite communication services such as voice and data transmissions and videoconferencing.

The control complex represents one of the final preparations for ASC's launch in August of its first wholly owned communication satellite, ASC I. A second communication satellite ASC II is tentatively scheduled for launch in late 1986.

According to an ASC spokesman, ASC couldn't maintain its growth without owning its own satellite. Currently, ASC leases transponder space from Westar Satellite System (20 percent owned by ASC) and leases transponder space outside that ownership.

The new facility will track, monitor, and control satellites through the use of 12-meter dish antennas. The antennas will also open Atlanta to ASC's satellite-based offerings. Two additional antennas will monitor ASC's earth station network. The complex will house 4 control and telecommunication functions: tracking, telemetry, and control will receive telemetry data and uplink commands to the spacecrafts; the satellite operations control center will check telemetry data in real-time to insure the satellite's health and safety; the network operations control center will monitor the status of more than 170 earth stations throughout the continental U.S., Alaska, Hawaii, Puerto Rico, Midway, and Guam; a national network communication service will provide ASC's enhanced satellite communication services to Atlanta and its other areas of service.

AMERICAN TELECOM BECOMES FUJITSU BUSINESS COMMUNICATIONS Fujitsu Business Communications; 3190 Mira Loma Avenue, Anaheim, CA 92806; 714-630-7721.

American Telecom, a supplier of Focus digital PBX systems, Focus hybrid key telephone systems, and compact cellular mobile telephone equipment, has changed its name to **Fujitsu Business Communications (FBC)**. The new name reflects the decision made some time ago by Fujitsu to charter the company as its arm for participating in the broad business communications market in North America. FBC is a wholly owned subsidiary of Fujitsu America Inc, and has been a wholly owned subsidiary of the \$5 billion Japanese electronics and telecommunication giant since 1980. Founded in 1976 as a joint venture between American Telecommunications Corporation and Fujitsu Limited, FBC is now the fifth largest supplier of PBX systems in North America. The move is consistent with the company's strategy to expand and diversify by entering the integrated business communication and office automation systems market. Fujitsu America's telecommunication products include fiber optic transmission, microwave radio, and satellite communication systems. Fujitsu America also manufactures and markets data communication, computer storage and peripheral products, and electronic components. Its subsidiary, Fujitsu Systems of America, designs and manufactures retail point-of-sale financial transaction

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systems and automated teller banking machines. American Telecom launched the FOCUS II digital PBX system in 1976, and the FOCUS Elite digital PBX system in 1980, followed by enhancements that include data switching capabilities and the FOCUS Electronic Terminals. In 1983, the FOCUS Hybrid system was introduced. FBC, which employs 400, introduced its compact modular cellular telephones in 1984.

ASTROCOM ENTERS STAT MUX FIELD WITH ASIM-3 PRODUCT Astrocom Corporation; 120 West Plato Boulevard, St. Paul, MN 55107; 612-227-8651.

Astrocom has announced its entrance into the statistical multiplexer arena with its newest product release. The **ASIM-3** is designed to multiplex data from 3 asynchronous terminals onto 1 line at synchronous speeds up to 9600 bps. The new mux features a menu-prompted display that allows the network manager to set all multiplexer parameters from a terminal keyboard rather than using internal switches and straps. A remote terminal set-up feature allows the selection of operating parameters to be controlled from any customer-specified location.

Other features of the ASIM-3 include data compression, error-free transmission, local and remote loopback, transmission statistics, flow control, and automatic speed conversion to maximize system flexibility.

The 3-port system is priced at \$640 and is available within 60 days after receipt of order.

AT&T PLANS TO LINK GUAM AND THE PHILIPPINES AT&T Communications; 295 North Maple Avenue, Basking Ridge, NJ 07921; 201-221-2000.

AT&T and 15 other international telecommunications organizations have given their initial approval to plans to build an undersea lightwave cable that will link Guam and the Philippines with high-speed digital communications.

Final approval to implement these plans must be obtained from government administrations involved in the project, including the Federal Communications Commission.

The \$107 million fiber optic system to be known as the Guam-Philippines 2 (GP-2) cable system will be the second underwater cable to connect the 2 Pacific locations. It is tentatively scheduled for service in mid-1989. The GP-2 is planned to connect with the proposed Hawaii 4/Transpacific 3 lightwave cable. When these 2 systems are operational in 1989, AT&T and other companies will be able to provide the latest in voice, data, video, and video teleconferencing services from the United States to Guam, Japan, the Philippines and other points in the Far East.

Other companies approving the initial co-ownership agreement include the Hawaiian Telephone Company, ITT World Communications, MCI International, RCA Global Communications, Western Union Telegraph Co, TRT Telecommunications, Teleglobe Canada, five telecommunications entities from the Philippines, and administrations from Japan, the Republic of Korea, and the Federal Republic of Germany.

According to current planning, the GP-2 cable system will be manufactured and installed by AT&T and will consist of 1 working pair of lightwave fibers operating at 140M bits of information per second and driven by 1.3 micron lasers. The system will be able to transmit the equivalent of nearly 10,000

simultaneous telephone calls. The planned system will stretch more than 1,500 nautical miles from the island of Luzon in the northern Philippines of Tanguisson, Guam, where it will connect with the Hawaii 4/Transpacific 3 cable. The GP-2 will include 47 regenerators, undersea electronic devices that recreate communications signals, spaced one every 32 nautical miles.

Final plans for the GP-2 cable system are to be approved by the co-owners early 1986.

AT&T COMMUNICATIONS NEW PRIVATE LINE TARIFFS APPROVED The FCC has approved the restructuring of AT&T's private line rates. The rates which cover AT&T prices for voice-grade, Dataphone Digital Service, telegraph, Accuent T1.5, wideband, terrestrial, and television private-line services became effective April 27 under the commission's order. While the rates are widely different for the diverse number of services offered, AT&T has said they represent an overall private-line increase of about 7 percent. The company expects gross revenues from this service to reach about \$4.2 billion in 1985.

The rates approved will affect categories of users differently. Some television network users, for example, can expect increases as high as 40 percent for some terrestrial television services, other categories will decrease depending on how the services are used. AT&T said it would achieve a rate of return of minus 4.3 percent for short-haul service covering less than 100 miles. The return on circuits of more than 100 miles has been targeted at 26 percent.

The FCC said that while the present rates are not an ideal rate structure, it has allowed them to take effect pending several ongoing reporting requirements. The proposed structure breaks the services into two fundamental rate elements: one for service provided between AT&T central switches; and another for end-to-end service where AT&T obtains the local channels from the Bell operating companies. A third element, the central office connection, allows users to make access line connections without regard to the provider of local channel service.

AT&T has said the new structure will give users a wide variety of choice with respect to how their dedicated networks can be configured; either by ordering end-to-end service from AT&T, or by obtaining only an AT&T interoffice channel and procuring local channels elsewhere. The structure is designed to permit customers to obtain the separate functional components of a circuit directly from the local exchange carriers, from alternative local access providers, and from competing interexchange carriers, without artificial restrictions in AT&T's offerings that would discourage such combinations.

FCC is requiring that AT&T adjust its rate structure for local channels within 6 months for local channels to further align them with local central office access rates.

INTERNATIONAL 800 SERVICE EXPANSION PROPOSED AT&T has proposed to expand its International 800 Service to the Caribbean island of Antigua to allow toll-free calls to businesses in the United States. AT&T has requested that the service become available on June 17.

U.S. business subscribers from Antigua would pay \$90 per

cumulative hour or \$1.50 per minute for service. U.S. customers, in addition, would pay \$36.80 per line per month for connection to the AT&T network and \$50 per month for access from the network in Antigua.

In Antigua, sponsors could use existing domestic AT&T 800 Service numbers since the island is part of the North American telecommunications numbering plan.

BRITISH TELECOM ANNOUNCES DISTRIBUTION AGREEMENT WITH ITS British Telecom; 23 Howland Street, London, ENG W1P 6HQ; 441-631-2078.

British Telecom Business Systems has signed an agreement with ITS (Compagnie Internationale de Services de Telecommunications) for worldwide distribution of its **Fourth Generation X-series modems**.

ITS is based in France and has a major international network of offices to serve its clients who include airlines, international banking organizations, and government agencies.

The Fourth Generation is a family of British designed and manufactured modems meeting CCITT standards. The range covers data rates from 300 to 9600 bps. Fourth Generation X-series modems feature similarity in design and construction. The modularity enables all members of the family to share common cases and rackmounts which allows users to modem types in the same shelf unit. A requirement for upgrading the speed of operations can be achieved by a simple card replacement.

The designs incorporate the latest technology, including LSI and microprocessor control techniques, to give high performance and powerful features with small physical size and power dissipation. All family members incorporate comprehensive diagnostic capabilities and are suitable for operation both on private circuits and public-switched telephone network.

BRITISH TELECOM INTRODUCES NEW FOURTH GENERATION MODEM British Telecom Business Systems has launched a new modem to join its popular Fourth Generation X-series. This latest product, designated **DM4962X**, is the first designed to meet **CCITT recommendation V.32**. The heart of the modem is a new custom LSI chip-set developed at British Telecom Research Laboratories. It provides duplex operation at 9600 bps over 2-wire circuits using echo-cancelling techniques and can also be used on connections through the public switched telephone network (PSTN).

DM4962X offers a wide range of features including: 9600/4800 bps synchronous or asynchronous; automatic speed and bit rate selection to match the remote end; local or remote soft-strap configuration; automatic adaptive equalizer and echo-canceller; unattended standby switching; automatic disconnect for switched network; multiplexer interface for use with 4-port synchronous time division multiplexer; operating parameters from modem front panel. Automatic calling and answering are standard features for PSTN operation and the modem provides diagnostics.

BURROUGHS ANNOUNCES NEW FAX PRODUCTS Burroughs Corporation; Imaging Systems Division, Commerce Park, Danbury, CT 06810; 203-796-5794.

The **dex Express 6200** is a CCITT Group 3, 2, 1 (domestic FM)

compatible system. Key features are fast transmission speed (12 seconds), automatic dialing of 99 stored locations, optical mark reading for ease of operation, and a synchronous data port. Additional features include a 16-level greyscale for transmission of half-tone or multishaded documents such as photographs; 2 interchangeable paper rolls for standard (A4) and wide (B4) printing, and automatic reduction. "These features enable the system to accommodate diverse applications," observed Lamb. "Just as our customer's communication needs have grown, our systems' capabilities are incorporating simple sophistication to meet those needs."

The dex Express 6200 also includes an extensive activity reporting systems that consists of separate send and receive journals, transmission confirmation reports, terminal identification headings, pagination and self-diagnostics. It also features polling—secured and turnaround; automatic line density control—automatic adjustment of contrast to the content of the document so that clear crisp copies are transmitted in the least amount of time; and LCD prompter and time display; convenience copying; and voice communication.

The second new product, **dex Express 2010**, is a Group 2 and 3 compatible system that operates at 9600 bps. A compact unit, it weighs only 36 pounds and measures 7.6x14.5x25 inches (HxWxD).

Some of its strengths include a detailed activity reporting system consisting of transaction journals for management control; transmit terminal identification headings; and transmit confirmation report. The operator easily masters the use of these features through a 20-character liquid crystal display prompter. Burroughs has yet to release prices on either product.

CASE DEVELOPS LOW-END NETWORK MANAGEMENT SYSTEM CASE Communications, Inc; 2120 Industrial Parkway, Silver Spring, MD 20904; 301-381-2300.

The new **5100 Network Management System** has been introduced by CASE Communications. Designed for small- and medium-sized networks, the 5100 system joins existing 5000 Series products to provide network surveillance, fault recovery, comprehensive diagnostics and control, problem management, optional full-color graphics, and management reporting.

The CASE 5100 central site controller is based upon a 32-bit computer that supports up to 4 color workstations for operator efficiency with optional color graphic management reporting. The 5100 manages 30- to 120-line networks while supporting up to 1,500 devices. Other system features include ticket management, multilevel operator security, a sophisticated relational database with a 26M-byte hard disk and 640K floppy disk. The system uses the UNIX operating system and supports both the CASE 4000 diagnostic modems and the CASE DCX multiplexers.

COMMUNICATIONS SOLUTIONS ADDS IBM-COMPATIBLE FILE TRANSFER TO ACCESS/SNA 3270 Communications Solutions, Inc; 992 South Saratoga-Sunnyvale Road, San Jose, CA 95129; 408-725-1568.

CSI has enhanced its **access/SNA 3270** product to allow IBM-compatible file transfers between remote systems and host IBM mainframes using IBM 3270-PC formats and

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protocols. The file transfer program emulates the file transfer capabilities of IBM 3270-PCs, and permits files to be transferred across different IBM mainframe environments, including CICS, TSO, and VM/CMS systems, without requiring additional non-IBM mainframe software. It also enables files to be shared between IBM 3270-PCs and non-IBM systems connected by ACCESS/SNA 3270 to a host computer.

The new program simplifies file transfer by making files compatible with standard IBM formats and protocols. It also eliminates the need to transfer files using host "editors," such as TSO/SPF. Any type of file, including binary programs, can be sent and received. No price for the file transfer program was available at this writing.

CLI ANNOUNCES REMBRANDT Compression Labs, Inc; 2305 Bering Drive, San Jose, CA 95131; 408-946-3060.

Compression Labs, Inc (CLI), a large manufacturer of full-motion, color video teleconferencing systems, has announced the introduction of Rembrandt, the company's newest video teleconferencing system. Rembrandt offers full-motion video teleconferencing at 384K bps, making Rembrandt suitable for the proposed worldwide ISDN standard. Rembrandt's user-selected transmission bandwidths from 3.136M bps to 384K bps, in multiples of 64K-bits, gives users the choice of picture quality and transmission cost best suited to their individual video teleconferencing needs. Rembrandt features international video teleconferencing through conversion between National Television Standards Code (NTSC) video used in the U.S., Canada and Japan, and Phased Alternative Line (PAL) video used in Europe, South America, and the Middle and Far East. Rembrandt also offers RGB, the worldwide video standard for high-quality graphics.

Rembrandt's compact dimensions permit its use in low-cost, modular video teleconferencing units as well as in permanent video room installations. Rembrandt is compatible with CLI's base of over 183 VTS 1.5E video teleconferencing systems in the U.S. and worldwide. Additional Rembrandt features include higher resolution graphics and video switching for Simulvision, CLI's continuous presence option and extended network line communications, offering T1, G732, and V.11. System prices begin at \$85,000. Production shipments began in April.

CLI PROTOCOL CONVERTER CONNECTS ALL DOMESTIC-INTERNATIONAL TELECONFERENCING NETWORKS Compression Labs, a leading manufacturer of full-motion, color video teleconferencing systems, is now offering a Data Protocol Converter (DPC) to its **Rembrandt family** of video teleconferencing equipment. The DPC economically interconnects international and U.S. video teleconferencing networks, providing superior system cost performance.

CLI's DPC offers duplex conversion of interface standards and line transmission speeds, facilitating the combination of compressed video, digital voice, and data on the same channel. Data rates are flexible and conversion takes place at the gateway between networks eliminating the need for separate multiplexers at each codec. The DPC supports RS-422/449, T1, G703/732 for international networking, dual ports for simultaneous video teleconferencing and is compatible with AT&T's DACS, Intelsat's IBS, and the forthcoming ISDN standards. The DPC is approved for

interconnection and is compatible with the British Telecom Megastream Service. DPC is priced between \$15,000 to \$25,000 depending on network configurations.

DAMA ANNOUNCES CORPORATE VOICE/DATA SERVICES FROM NETWORK CONSOLIDATION Dama Telecommunications Corporation; 169 Johnson Road, Parsippany, NJ 07054; 201-898-9300.

A line of **corporate voice and data communication services** has been unveiled by Dama Telecommunications Corporation following the consolidation of the company's switched digital network with the telecommunications system it acquired last year from International Harvester. The services, which range from banded WATS long distance to fully integrated voice/data, were introduced at the 1985 International Communications Association (ICA) Exposition in Dallas.

The company has retained the name **DamaNet**, its registered service mark, for the system. The DamaNet services include: **National Voice Network, Corporate Voice Network, Digital Data Link, and Integrated Voice/Data Network.** They are available to business users as separate services or in a configuration to form customized corporate networks.

As banded WATS type service, DamaNet's **National Voice Network** features "on-net" call routing within 80 percent of the exchanges in contiguous U.S., and permits calling to Alaska, Hawaii, Puerto Rico, and the U.S. Virgin Islands. The service provides 6-second incremental billing and flat rate calling for \$0.19 per minute between DamaNet switching cities in Chicago, New York, Philadelphia, Washington, Memphis, San Diego, and San Francisco. Dedicated access lines from customer premises to a DamaNet switching facility are required to initiate service. **Corporate Voice Network** features National Voice Network benefits in addition to flat rate calling at \$0.17 per minute between DamaNet switching cities. Designed for high-volume calling, the service requires dedicated access lines in at least 2 DamaNet switching cities. Corporate Voice Network offers 7-digit dialing, special billing arrangements, optional customized directory assistance, and private line services for low-speed data. Both Corporate Voice Network and National Voice Network offer free call detail reporting and advanced diagnostics through Automatic Trunk Routing.

DamaNet's **Digital Data Link** provides point-to-point dedicated digital data transmission channels at rates of 2.4K, 4.8K, 9.6K, 56K bps or T1 (1.544M bps). Data traffic is routed over DamaNet fiber optic and terrestrial microwave facilities. Local access is supplied by point-to-point microwave or by local exchange carrier-provided terrestrial digital facilities. It currently serves selected cities including: New York City; Philadelphia, Harrisburg, Altoona, and Pittsburgh in Pennsylvania; Youngstown, Cleveland, Dayton, Cincinnati, and Columbus in Ohio; Indianapolis, in Indiana; Wilmington, in Delaware; Baltimore, Washington, D.C.; and Chicago. The company expects the rates for this service to be competitive with AT&T DDS. The **Integrated Voice/Data Network** is an end-to-end digital service for intracompany voice/data/video networking. Service will be available in over 50 metropolitan areas within the contiguous U.S., with switched point-to-point transmission or conferencing available. It features on-demand circuit creation and user-selectable data rates from 2.4 through 512K bps; data charges are based on bandwidth selected and capacity used. Voice is

\$0.19 per minute. Voice, data, and video services are billed in 6-second increments. This service requires proprietary DamaNet customer premises equipment, which routes user voice/data/video signals locally through DTS microwave, broadband cable, or DS1 facilities to the DamaNet long-haul network.

DCA ADDS WINDOWS, GRAPHICS TO IRMA Digital Communications Associates, Inc; 303 Technology Park, Norcross, GA 30092; 404-448-1400.

DCA has corrected 2 of Irma's greatest shortcomings with the introduction of a multiwindow and graphics facility. **Irmalink/Windows** is a software package which works with the Irma board and allows a user to have simultaneous PC, mainframe, and notepad windows.

IRMALink/Windows runs on the IBM PC, PC/XT, and PC/AT, and supports and retains up to 10 active window profiles. Each window profile can include a PC window, a mainframe window, and 2 notepad windows. Text editing is supported in the notepad windows and as many as three passwords can be generated for the mainframe window. Users can switch back and forth between the windows or copy information from one window to another. IRMALink/Windows displays windows in as many as 16 colors and enables the windows to be sized, zoomed, overlaid, shaped, placed, added, or deleted. IRMALink/Windows contains a terminal emulation program which operates like E78 (IRMA's terminal emulation program) and essentially replaces E78 when used with IRMA. Therefore, the transition from using E78 to using IRMALink/Windows is an easy one for the IRMA users. An online Help feature is contained in the program to further simplify the use of IRMALink/Windows. With IRMALink/Windows, files can be uploaded to the mainframe or downloaded to the PC via a question and answer session or through the use of a command line. Both CMS and TSO file transfers are supported, as is DCA's Irmalink FT/TSO and FT/CMS. Windows sells for \$149.

IRMAX Graphics, a hardware and software package, enables an IRMA-equipped IBM PC, IBM PC/XT, IBM PC/AT, or IBM PC-compatible to function as an IBM 3270/PC with graphics. IRMAX Graphics is the first member of a new family of DCA products based on distributed function terminal (DFT) technology.

IRMAX Graphics provides capabilities such as those supported by the IBM 3270/PC. It is totally compatible with IBM's host-based Graphical Data Display Management System (GDDM) and operates in an SNA teleprocessing environment. The product also allows a PC to function as an IBM 3278 S3G or IBM 3278 S2G monochrome terminal or an IBM 3279 S3G or IBM 3279 S2G color terminal.

Any IRMA product, can be converted to work with IRMAX Graphics. In addition to using IRMA, the PC must be equipped with at least 320K bytes of RAM plus a graphics adapter. Display hardware supported with the color displays include IBM's enhanced color graphics adapter and Tecmar's Graphics Master card. Display hardware supported with the monochrome displays include IBM's standard color graphics adapter IRMAX costs \$1,195.

DCA ANNOUNCES NEW DATA SERVICE UNIT (DSU) DCA has expanded its line of data communication networking systems by announcing the availability of a new **Data Service**

Unit (DSU). The new DSU is a multirate unit that provides private line data service between data terminal equipment (DTE) and the AT&T Communications Digital Data Systems (DDS) or an equivalent network. The DSU converts data from standard digital format into bipolar signals suitable for 4-wire transmission. It provides a complete interface including all functions of the formerly separate channel service unit (CSU).

Interchangeable interface modules allow the DSU to accept digital data from the DTE at standard asynchronous rates (50 bps to 19.2K bps) or at synchronous rates of 2.4K, 4.8K, 9.6K, or 56K bps. Interface modules include the appropriate female connector and signal conditioning circuitry for 1 of the 3 available interconnect formats: RS-232C, RS-499, and CCITT V.35. Each DSU provides a single-channel DTE interface, but an optional dual synchronous 19.2K bps interface provides dual channels. The DSU provides line termination with automatic line build-out, bipolar conversion, clock recovery, network control signal encoding and decoding, and loopback test features under local or network control. LED indicators display status and transmission activity. The user can select any of the 4 DSU-to-network data rates, alternate clocks, continuous clear-to-send, sourcing of simplex (sealing) current, local loopback disable, and system status control. DCA offers both desktop and rackmount versions of its Data Service Unit. Two rackmount models which plug into multiple-unit shelf assemblies for customers with 19-inch relay racks are also available. The DCA DSU is available 60 days ARO; prices for the rackmount unit start at \$875, prices for the desktop unit start at \$1,075.

DDRI OFFERING HACKER HANGER Diversified Data Resources, Inc; 25 Mitchell Boulevard, Suite 7, San Rafael, CA 94903; 415-499-8870.

DDRI has released an **optional dial-back system** that ties passwords and security codes to predesignated telephone numbers in order to foil personal computer hackers. Offered as an option to its **HyDra II** direct-channel attached protocol converters/controller, it fits existing products and sells for \$1,000.

The HyDra II is a byte multiplexer direct-channel attached protocol converter/controller that provides 3278/79 emulation for PCs and ASCII terminals and 3286/87, and 1403, 3211 emulation for ASCII printers. It requires no 370X front-end processor, 3272/74 communication controller, 3270 PC boards, or remote software. PCs, ASCII terminals, and other ASCII devices attached to the HyDra II look like local 3278/79s to the mainframe host, even when attached remotely through a modem for dial-up or lease-line applications. The HyDra II is capable of VM, DOS, VS1, and MVS support.

Companies incorporating the new security feature would first assign to each dial-in user a password and security code tied to a particular telephone number. Then, when a remote user dials into a port on the HyDra II, the device puts him through a password and security code verification. Once cleared by the HyDra II, the auto-dial modem is instructed to end the connection, and tell the user he will be called back on the phone number associated with his password and security code. When reconnected, the user must again key in his password and security code, and be cleared once more by the HyDra II before being allowed to talk to the mainframe as

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a 3270.

DDRI INTRODUCES 32-PORT HYDRA II-E In other news from Diversified Data Resources, the San Rafael company announced a new **32-port version of the HyDra II** called the **II-E**. Like previous HyDra's, the new product is a byte-multiplexer, direct-channel attached protocol converter/controller that provides 3278/3279 emulation for PCs and ASCII terminals; and 3286/87, 1403, and 3211 emulation for ASCII printers. Since it directly connects to the byte multiplexer on the host computer, no 3270 controllers or front-end ports are involved. HyDra II-E lists for \$13,900.

INTERNATIONAL FAX DIRECTORY SERVICE ANNOUNCED BY DIAL-A-FAX Dial-A-Fax; 230 College Street, Burlington, VT 05401; 800-DIALFAX.

A worldwide computerized **database of facsimile terminal telephone numbers**, which can be accessed by subscribers through phone or fax numbers in the U.S. and Canada, is now being offered by Dial-A-Fax. Currently comprised of over 150,000 facsimile user's names, addresses, and fax phone numbers and constantly being updated, Dial-A-Fax Directory Assistance gathered its data through the efforts of many researchers in many countries.

Subscriber requests are obtained by faxing a request form to a "hot line" number, and having the number requested faxed back quickly. For security purposes, each subscriber is given an access I.D. number. The service carries an introductory price of \$36.00 for 6-month access and \$48 for 12-month access, plus \$0.95 for each fulfilled request.

EXECUTONE INTRODUCES ENCORE PLUS Executone Inc; 2 Jericho Plaza, Jericho, NY 11753; 516-681-4000.

Executone Inc introduced **Encore Plus**, an enhanced key telephone system at the ICA Show in Dallas, Texas. This system is the most recent addition to the Encore family of key systems introduced by Executone in 1984, and includes an expanded roster of features, all designed to improve office productivity, save time, and help reduce telephone usage costs. These include: Remote Maintenance and Programming, which allows a phone technician who is offsite to diagnose system problems and reprogram select features. This eliminates unnecessary office visits for the technician and can help reduce maintenance costs; Least Cost Routing, which enables the system to automatically select the most economical outside line on which to make a call; Liquid Crystal Display, which permits the user to transmit and receive visual messages. A package of 10 different messages is available with this feature.

Like Encore, the Encore Plus can be expanded from 6 to 64 phones without investing in an entirely new system. Encore users also have the option of purchasing either multiline phones or standard single-line phones specifically designed for Encore products.

EXECUTONE ANNOUNCES ENTREE Entree, a fully digital telecommunication system that switches voice telephone communication and integrated voice/data communication between personal computers and peripheral equipment. Entree was designed primarily for small- and medium-size businesses that use from 6 to 250 telephones. Its unique design provides a key system, hybrid key system, and PBX system all in one unit, eliminating over half of the system components and making it easy to service. Entree requires

no user programming for simple key system or PBX installations. Features include speakerphone, programmable keys, speed dialing, alphanumeric LCD display, and physical port independence, which enables users to move their own phones to any wall jack within the system and still receive their own calls.

EXECUTONE UNVEILS EQUITY III Executone also introduced **Equity III**, a new electronic key system, at the ICA Show. Equity III is the most recent addition to the Equity product line of small key systems, and uses the same technology as in the larger line of Encore key systems.

Equity III was developed for businesses that need up to 3 lines and 8 phones and the expansion capability to 5 lines and 12 phones. Features include: 1-touch speed dialing, which allows the user to dial any of 10 frequently called numbers stored in the phone's electronic memory with just a touch of a button; zone paging, which is done through integral speakers in the phones. Employees can selectively page any 1 of 4 zones. External paging is available as an option; call forwarding, which automatically redirects either outside or intercom calls to whichever workstation a user is visiting; area code restrictions, which allows businesses to automatically program which area code employees can and cannot dial. In addition, Equity III uses thin wiring, making it easier and more economical to install.

FUJITSU ANNOUNCES RELEASE IV SOFTWARE Fujitsu Business Communications; 3190 Mira Loma Avenue, Anaheim, CA 92806; 714-630-7721.

Fujitsu Business Communications introduced a new advanced business software package for the **Focus Hybrid key telephone system** at the 1985 International Communications Association (ICA) Exposition. **Release IV software** for the Focus Hybrid key telephone system improves call handling and cost efficiency. Among the new features are: multiple CO line appearances, which allows for flexible programming of feature access buttons to represent individual CO line appearances. Automatic privacy is provided for all incoming and outgoing calls, and an intercom button is provided for answering station calls. DSS (Direct Station Selection) consoles can be programmed for individual CO line appearances, 32 CO line appearances can be programmed per system; call forward follow me, which allows calls terminating at a station to be forwarded to any distant station using the call forward follow me feature. Change of station location and reactivation of this feature cancels previous call forwards; all calls are forwarded to the new location. Feature access is dependent upon class of service designation; message waiting lamp capability on 2500-type sets, which illuminates a lamp on 2500-type sets to register message waiting; internal paging, which allows a station user to initiate a page through speakers of idle proprietary telephones by depressing a preassigned feature button or dialing an access code. The 10-zone capacity features access codes for 9 separate paging groups and all-zone paging. Access to the internal paging feature is determined by the station's class of service. The feature is supported by a new card, the HBWP, which has 3 trunk circuits and 1 paging circuit; camp-on button on DSS console, which equips the DSS console with 1 dedicated button to register camp-ons to busy stations. To re-register a camp-on, only the camp-on button needs to be pressed. Up

to 20 simultaneous camp-ons per system can be utilized by this feature.

HEWLETT-PACKARD OFFERS HP 2334A STAT MUX Hewlett-Packard Corporation; 19420 Homestead Road, Cupertino, CA 95014; 408-725-8111.

Hewlett-Packard has introduced the **HP 2334A statistical multiplexer** for connecting up to 16 asynchronous workstations to a central-site host system. The HP 2334A operates on RS-232C standard protocol via analog, digital, leased, dial-up, or X.25 lines. The HP 2334A combines signals from remote workstations using a single synchronous X.25 connection at speeds up to 19.2K bps.

Furthermore, the HP 2334A mux can be integrated into a private X.25 network or can be connected to an HP 3000 or HP 1000 minicomputer via an X.25 interface. When attached to the minicomputers, the new mux functions as a cluster controller for X.25 terminals. The HP 2334A is priced at \$2,500 and is available 6 weeks ARO.

INTECOM UNVEILS TOP-END S/80 PBX; KEYSTONE WORKSTATION InteCom, Inc; 601 InteCom Drive, Allen, TX 75002; 214-727-9141.

InteCom has joined the elite ranks of very large PBX manufacturers with the May 6, 1985 announcement of its new **IBX S/80+**, an integrated voice and data PBX that joins the company's current family, the IBX S/10, IBX S/40, and IBX S/80. The S/80+ expands InteCom's product offerings into the 20,000+ line marketplace. The system's master control unit (MCU), which consists of fully redundant 32-bit multiprocessors, differs from the standard S/80 MCU in that it has enhanced processing speed and memory that are required by the larger-sized system user. A maximum of 32 remote switching partitions (RSP) consisting of 1 interface multiplexer (IM) each can be supported by the IBX S/80+. Each RSP allows access to a separate remote site from the main switch without geographic limitations, while maintaining centralized control and transparency for most features. Additionally, the system size has been expanded to provide a total of 16,384 voice/data ports, or 32,768 channels of communication. The architecture of the IBX S/80+ allows up to 62 interface multiplexers (IMs) to be distributed a maximum of 2,000 feet via coaxial cable, or up to 25,000 feet using fiber optic cable from the main switchroom. Centralized system features include uniform alternate routing (UAR), satellite directory groups, call detail recording (CDR), and directory look-up system (DLS). Initial installations were scheduled for mid-year, with production-level installations to begin by year end. The new S/80+ joins an elite group of high-capacity systems, including the AT&T-IS System 85, Ericsson MD-110, GTE Omni V, NEC NEAX 2400, and Northern Telecom Meridian SL-100.

INTECOM INTRODUCES INFORMATION NETWORKING TERMINAL InteCom took advantage of the 1985 International

Communications Association (ICA) Conference in Dallas to unveil its new information networking terminal, **Keystone**. The product is the completed version of the prototype that was shown in September, 1984 at the Telecommunications Association Conference (TCA) in San Diego. Keystone bridges the voice and data communication features of InteCom's Integrated Business Exchange (IBX) switching system with office automation and data processing applications available in Wang products and other shared

resources such as IBM, DEC, and HP. Keystone provides a desktop link to the users' corporate information system via existing IBX twisted-pair networks.

Keystone replaces the need for individual devices like telephones, modems, speakerphones, video screens, typewriter keyboards, calendars, and calculators by merging these functions into a single product. The terminal includes an integrated electronic digital telephone with 80-character LCD display, a handset and built-in speakerphone, a 9-inch video screen, and a Wang universal keyboard. Keystone accesses the IBX network through **2-pair telephone wire** and includes an RS-232C communication port for an optional printer. Keystone is **proprietary to the IBX family**, and is being offered to existing IBX users at an introductory price of \$2,400 through December 31, 1985. The product is planned to be available in the third quarter of 1985. Keystone will be manufactured by Wang and marketed and maintained by InteCom and its recognized distributors. Attachments and upgrades such as the Wang VS and Wang Professional Computer will be marketed and supported by Wang.

ITT ANNOUNCES DATA SWITCHING ON SYSTEM 3100 ITT Telecom; 6131 Falls of the Neuse Road, Raleigh, NC 27609; 919-878-9510.

The Business and Consumer Communications Division of ITT Telecom has announced immediate availability of **data switching** on its **System 3100L digital PBX** product line. The system provides simultaneous voice and data transmission at asynchronous communication speeds up to 19.2K bps, with speed and format conversion and automatic data call setup. Data devices are connected with industry-standard RS-232C or RS-422 interfaces.

Future releases of software supporting higher data speeds and increased functionality in all data environments are planned as part of ITT's evolving voice/data strategy. An expanded configuration assuring compatibility with the present 288-port System 3100 is underway. This development also will assure that upgrades from the present to the expanded system will be cost effective for customers. An existing 3100L voice system is easily upgraded to a voice/data PBX through simple software changes and the addition of terminal adapter devices. Cost of adding data to an existing system is said to amount to less than 15 percent over the price of the typical voice-only System 3100 installation. Depending on configuration, a newly installed voice/data System 3100 is expected to be end-user priced at an average of \$750 per line or station. A fully modular, microprocessor-based, distributed architecture system, the System 3100L begins at 40 ports and currently grows incrementally to 288 ports. System ports can be used in any combination of lines or trunks, and this same flexibility permits virtually any mix of voice, voice/data, or data-only configurations.

LEAR SIEGLER INTRODUCES ADM 11PLUS DISPLAY TERMINAL Lear Siegler, Inc; 901 East Ball Road, Anaheim, CA 92805; 714-778-3500.

Lear Siegler has announced the availability of its new **ADM 11plus display terminal**, which incorporates all of the ADM 11 with additional function keys and editing capabilities. The ADM 11plus is compatible with Lear Siegler ADM3A, ADM 5, and ADM 11; ADDS Viewpoint and Regent 25; Esprit 1400, 1420, and 1500; and DEC VT52 terminals.

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This conversation mode terminal features 16 function keys for 16 programmable and 16 nonprogrammable functions, and will handle transmissions up to 19,200 bps without handshaking. The terminal also features 3 edit keys and a break key, which can be programmed to perform an additional 7 functions. Editing features include character/line insert, character/line delete, line erase, and page erase.

Additional features include 4 visual attributes—nonembedded reduced intensity, plus blink, blank, and reverse video. A 2-level English-language set-up and a 25th status line is also provided. Options include international character sets, answerback memory, and a 14-inch green or amber screen.

The ADM 11plus is currently available and is priced at \$695 in single quantities.

MCI RAISES SHORT-HAUL RATES MCI Communications Corporation; 1133 19th Street, Washington, DC 20036; 202-872-1600.

MCI has increased its rates for long-distance calls of 55 miles or less by 13 to 26 percent. The rate increase affects the 1- to 10-, 11- to 22-, and the 23- to 55-mileage bands, with the exact changes in price being based on call duration, time, day, and distance.

All increases apply to day, evening, and weekend rates. For 1 to 10 miles, the cost of the first minute increased 26 percent, with each additional minute costing an extra 26 percent. In the 11- to 22-mile band, the cost of the first minute increased 21 percent, with each additional minute costing an extra 19 percent. For the 23- to 55-mile band, the cost of the first minute increased 13.3 percent, with each additional minute costing an extra 15.4 percent.

The price increases became effective April 27, 1985.

MCI PLANS FIBER OPTIC NETWORK EXPANSION MCI plans to spend about \$400 million to expand its U.S. Telecommunications network by adding optical fiber routes in the Midwest and elsewhere.

The project, along with other improvements, will increase the long-distance telephone company's transmission capacity 80 percent by the year's end.

MCI expects to build 2,900 miles of optical fiber routes linking Chicago, Milwaukee, Cleveland, Pittsburgh, and other midwest cities with its existing New York-Washington optical fiber system. Other routes are planned for the West Coast and Southwest.

The company has obtained rights to 7,300 miles of railroad right of way for its fiber optical routes, and has purchased more than 100,000 miles of optical cable from 2 manufacturers, Northern Telecom Ltd and a joint venture of Corning Glass Works and Siemens AG.

MCI is also installing new microwave stations and radio equipment.

MCI has also introduced for corporate customers a private phone network that is intended to compete with a similar product recently introduced by AT&T.

MCI UNVEILS VNET MCI has introduced **MCI V NET**, a software-defined network that the company describes as an

intra-company, national corporate telephone network, carrying voice and data communication. The network was created for multilocation companies who 1) have offices too dispersed, either geographically or organizationally, for a private line network, 2) have offices too small or too distant to be included on an existing private line network, 3) have a private line network that cannot be managed and maintained cost-effectively, 4) have current total voice traffic of 200,000 minutes per month or more. MCI's V NET is a virtually private network that extends cost allocation methods to all company employees, since the MCI network is accessible from practically everywhere. Its link with MCI's shared network simplifies the pricing structure and user privileges. It also provides customized call reports, conference calling, and remote access to the system.

MCI V NET features include: access to all corporate offices, regardless of size and location; MCI's Calling Card for traveling employees; complete call details and cost allocation; customer control of system features; billing options; partial private line network that can work like a single, national system; customized dialing plans; dedicated or shared access, transport, and termination; over 400 access points nationwide; volume discount pricing; and a full customer service bureau to answer technical or management questions.

MCI's V NET has several call routing options, with direct termination overflow routing, to automatically route overflow calls through the local telephone company if the dedicated line is busy. For organizations with range privileges, this system allows regional, national, or international privileges; speed number on Universal Service Numbering is also available to simplify the user numbers. Billing and traffic reports include single or multiple billing invoices; magnetic tape of detailed call records; cost allocation summary reports; and traffic reports formatted to answer usage questions. Customer management options include direct interaction with data, for editing or adding directory information or routing instruction. Customers receive real-time unsolicited reports to notify them of unusual traffic characteristics, and absence of traffic during a 24-hour period, and dedicated trunks can have been put into or out of "maintenance busy states."

FASTER GROUP 3-ONLY FACSIMILE MACHINE INTRODUCED BY MURATA BUSINESS SYSTEMS Murata Business Systems; 4801 Spring Valley Road, Dallas, TX 75244; 214-392-1622.

Murata Business Systems has developed the **Multifax 7150**, a low-cost facsimile machine that transmits a page in 16 seconds (9600 bps), and is compatible with all Group 3 facsimile machines.

The new 7150 operates at the same speed as the more expensive Multifax 7200, but unlike it, the 7150 will be compatible with only Group 3 facsimile machines. The Multifax 7100, priced lower than either 7150 or 7200, is compatible with all Group 3 facsimile machines but has a slower transmission rate of 4800 bps, or 26 seconds per page of text.

The new Multifax 7150 retails for \$2,995. It includes Murata's standard 30-page document feeder, automatic reception, automatic reduction, transmit terminal identification,

confirmation reports, thermal printing, and secure polling. Like the rest of the Multifax Series, the 7150 incorporates the company's Murata Super Express (MSE) data compression technique, which provides up to 40-percent savings in communication costs by reducing long-distance telephone time.

NORTHERN TELECOM UNVEILS DMS-250M Northern Telecom Inc; 259 Cumberland Bend, Nashville, TN 37228; 615-251-4903.

Northern Telecom announced the **DMS-250M**, a low-capacity **digital tandem switching system** designed for the interexchange and resale carrier markets at the 1985 International Communications Association (ICA) conference. The DMS-250M supports 480 telephone lines and can be doubled to 960 lines. It is targeted at the smaller reseller of long-distance services. The DMS-250M can also serve as a standalone, remote switch within larger networks of other common carriers. The DMS-250M, which became available in July, offers the same features and options, including all subscriber features, that are available on the company's large-scale DMS-250. The new system can be ordered with a fixed configuration to reduce the delivery date to 12 weeks. Engineering and installation support are offered as an option. The DMS-250 product line is a member of Northern Telecom's DMS-100 Family of digital switching systems, which are used by the Bell operating companies and independent telephone companies for central office communication traffic. The DMS-250 uses the same basic hardware as other members of the DMS-100 Family, but has software developed to accommodate the switching requirements of interexchange carriers. Other members of the DMS-250 product line are the DMS-250 with a capacity of 30,000 lines and the DMS-250C with a capacity of 8,000 lines.

PARADYNE ENHANCES ANALYSIS 5500 SYSTEM Paradyne Corporation; P.O. Box 1347, 8550 Ulmerton Road, Largo, FL 33540; 813-530-2000.

Paradyne has announced 2 major enhancements for its **ANALYSIS 5500 Series** network control and management systems. ANALYSIS network restoral facilities have been expanded to include an intelligent Multidrop Auto Call Unit (MACU) and a Dual Call Auto Answer (DCAA) card for use in the event of loss or degradation of primary leased-line connections. The MACU utilizes public switched telephone network (PSTN) connections to restore service in point-to-point and multidrop circuit configurations without manual intervention. Unique switching logic permits multiple lines and remote drops to be supported from a single unit, significantly reducing the number of standby PSTN access lines required to maintain restoral capability.

The MACU can be installed at both host and node sites to "localize" the dial backup circuit connections. MACU and DCAA ports are FCC registered for direct-switched network access. A hot spare stand-by capability has also been added for communications restoral in the event of remote modem failure.

The new network restoral options are controlled via ANALYSIS and operate in conjunction with Paradyne's VHS/MPX diagnostic modems. Both options are scheduled for July delivery.

PARADYNE ANNOUNCES NEW 1200-BPS AUTO-DIAL

MODEM The new **FDX 1200 modem** is a 1200-bps full-duplex, auto-dial modem designed for 2-wire public switched telephone network (PSTN) applications.

The FDX 1200 modem fully automates call connection, information transfer and disconnection for synchronous or asynchronous host/terminal or terminal/terminal applications. Dual RS-232C ports provide continuous access and alternate use of synchronous and asynchronous terminal applications without manually reterminating the modem.

The FDX 1200 features English-language display formats, help files, and prompt sequences. In the command mode, the user can monitor call progress and change configuration parameters to support a variety of applications.

Standard features include auto-originate/auto-answer and reverse calling modes, auto-rate speed detection, tandem and alternate dialing with tone and trunk/circuit busy recognition, Hayes "AT" command set, call progress monitoring, and extensive diagnostics. The FDX is FCC registered for direct access to the PSTN and is compatible with AT&T 212A, 113, 103, and (CCITT) V.22A/B standards. Optional error detection is available to ensure error-free data transfer. An automatic adaptive equalizer, combined with selective compromise equalizers, maintains data integrity over the wide range of circuit conditions encountered in dial-line applications. The unique design of the FDX 1200 allows it to communicate with most other manufacturer's current-generation 1200- and 300-bps modems while supporting both bit- and character-oriented synchronous and asynchronous protocols.

The FDX 1200 is scheduled for initial delivery during the second quarter of 1985 and will be initially priced at \$365. The modem can be upgraded to support 2400-bps operation (CCITT V.22 bis) for a one-time factory charge of \$275.

RACAL-MILGO EXTENDS OMNIMUX FAMILY Racal-Milgo Information Systems; 1601 North Harrison Parkway, Sunrise, FL 33323; 305-475-1601.

New Omnimax Models 82, 162, and 322 have been released by Racal-Milgo. With 8-, 16-, or 32-channel capacity, the Omnimax 82 series supports single, dual-link, and wideband applications, and multiplexes asynchronous and synchronous data at aggregate link speeds from 1200 bps to 72K bps.

Base priced from \$2,026 for the 8-channel unit, to \$5,957 for the 32-channel model, the Omnimax 82 series is designed to offer significant cost savings over comparable multiplexers. The series also provides optional front-panel control features. This touch sensitive/alphanumeric display can be used to set and read all operating parameters, diagnostic, and system statistics without opening the unit. Statistics for local and remote units are gathered at 5-minute intervals, and can be read from the front-panel display or at a local or remote supervisory Omnimax. The series is online compatible with Racal-Milgo's asynchronous Omnimax 4 and 8, offering cost-effective application alternatives. Users may select among dual aggregate link applications to reduce the number of multiplexers and data lines required; or wideband aggregate links for more economical use of DDS on analog circuits.

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Standard features include: local and remote loopback; data test functions; an autobaud feature, which allows different speed async terminals to dial into an Omnimux channel; error-free transmission for asynchronous data; and support for a wide range of asynchronous and synchronous protocols.

RACAL-VADIC UNVEILS 7400 SERIES STAT MUXES
Racal-Vadic Inc; 1525 McCarthy Boulevard, Milpitas, CA 95035; 408-946-2227.

Racal-Vadic has introduced its **7400 Series Statistical Multiplexer**, a 4- or 8-channel modular multiplexer. The new series features a 2400-bps switched-network internal modem option, leased-line internal modems with automatic dial backup and restoral, and an extended system control function that is accessed through a 300-bps Help diagnostic modem.

The 2400-bps modem feature provides full-duplex operation over switched lines and includes a Dial-with-Data capability that dials and connects to the remote site only when data is present in one of the multiplexer channels; the connection is terminated after a user-specified amount of idle time.

The 7400 Series also offers integral 4800- and 9600-bps modems, which feature dual-dial backup. Although designed primarily for leased-line operation, the modems can automatically call each other via the switched network and continue transmission without system downtime or data loss.

A strong beneficial 7400 Series feature is the optional Help modem that is an AT&T 103-compatible modem with automatic dial and answer. When line problems occur, the modem automatically dials a preset telephone number to inform the system manager about the problem. Conversely, users can call the Help modem from any geographic location and gain access to the supervisory mode. The supervisory function can also be accessed through a dedicated port or, if the proper escape sequences and user-specified passwords are known, over any data channel. In the supervisory mode, statistical information can be retrieved, the system reconfigured, and diagnostic tests run. Internal tests of microprocessors, memory, and I/O circuits can be performed, and a full package of local and remote loopback tests with and without self-test is available. The 7400 Series also has a built-in local channel data monitor and an EIA lead monitor that identifies active pins to help resolve interface difficulties. Because these can be performed from a central site, response time is improved and service costs decreased.

The 7400 Series is designed to interface with a wide range of asynchronous terminals and is compatible with vendor-specific protocols including Wang and Hewlett-Packard. Currently available, the basic 4-channel 7400 Series Stat Mux is priced at \$1,295; and an 8-channel 7400 Series with both 9600-bps and Help modems is priced at \$3,410.

SBS TO PROVIDE ONE-WAY VIDEO NETWORKS Satellite Business Systems (SBS); 8283 Greensboro Drive, McLean, VA 22102; 703-442-5000.

Video Network Services, a new analog videoconferencing offering, provides businesses, government, and other large organizations with nationwide internal networks for economical, 1-way video transmission.

Customer networks will include at least 1 uplink (a

transmit-receive earth station), satellite transponder time, and multiple downlinks (small receive-only earth stations). SBS services for system installation maintenance, network management, and control are also offered.

High-quality video is transmitted in analog format, thereby averting the cost of codecs at receiving locations, a cost which could become substantial in a large network.

Video will be transmitted point-to-multipoint via an SBS satellite and receive-only earth station with 1.2-meter or 2.4-meter dish antennas. Two-way audio is also available. Customer applications might comprise nationwide employee training sessions or distribution of product information from a central location.

The new service offers Ku-band satellite technology, facilitating small dish antennas with freedom from terrestrial microwave interference, and allowing transmission or reception at virtually any location within the contiguous U.S.; availability from SBS of small low-cost receive-only earth stations, easily installed at customer sites; fully scrambled and addressable FM transmission for security of customer information; availability of mobile earth stations for fast, easy uplinking from any area of the 48 contiguous states; easy flexible scheduling of transmission time; availability of SBS's nationwide organization of engineering, field service, and support personnel; future enhancements such as high-speed 1- or 2-way data distribution are contemplated.

SBS VIDEOLINK ANNOUNCED SBS has announced a family of digital videoconferencing services called SBS Videolink. The services include videoconferencing rooms operated by SBS and selected SBS customers, which are made available to others on an occasional-use basis.

The SBS Videolink offering comprises consulting services and equipment leasing, as well as access to a network of 2-way full-motion videoconferencing facilities. Use of modular videoconferencing equipment and on-demand, circuit-switched transmission via the SBS Network ensure flexibility and cost-effectiveness.

SBS Videolink consists of 3 categories of service: **Videolink Consulting Services**, which includes surveys and analyses of customer needs, project management, and post-implementation consulting; **Videolink Implementation Service**, which provides equipment leasing and installation of facilities, arrangement, and administration of leasing or purchasing agreements, and maintenance and repair; **Videolink Network Service**, which provides third-party users with access to full-motion videoconferencing rooms in a growing number of metropolitan areas, and allows organizations with their own videoconferencing rooms to make them available to other organizations on an hourly basis.

The initial facilities include rooms in Chicago, Illinois; Hartford, Connecticut; McLean, Virginia; and San Francisco, California. SBS plans to offer the service also in New York and other major metropolitan areas later in 1985.

SBS has signed a contract with National Technological University of Fort Collins, Colorado to provide 1-way video transmission services for a preview series of educational programs sponsored by NTU, this is the first commercial

application of Video Network Services.

SBS SIGNS OPERATING AGREEMENTS WITH AUSTRALIA AND SINGAPORE SBS has signed operating agreements to provide international communications services to Australia and Singapore.

Under the agreements, SBS will offer private line services at speeds ranging from 2400 bps to 1.5M bps. It will soon file tariffs for the services, which will be introduced as early as the fourth quarter of 1985.

Along with agreements with Japan and Hong Kong, the new agreements bring to 4 the number of Pacific Basin countries that can be served by SBS.

TELECOM CANADA ADDS TWO NEW FEATURES TO DATAPAC NETWORK Telecom Canada; 410 Laurier Avenue West, Ottawa ON K1P 6H5; 613-560-3000.

Telecom Canada has added the use of an updated X.25 packet-switching communication protocol, and the extension of a billing option called the network user identifier. Both features apply to users of the Datapac 3000 access service, which provides direct access to the network for terminals, computers, and other equipment operating in the same X.25 protocol, and will provide users greater control over their data communications systems.

The updated protocol, adopted internationally in 1980, allows users to customize each call that they send through a Datapac 3000 link, enabling them to combine different types of traffic such as batch and inquiry response. In the past, combining this traffic was not as feasible or as efficient, often requiring separate Datapac links for different applications.

The network user identifier is similar to a credit card for telephone calls, specifying an account to which Datapac 3000 usage charges can be billed. Customers can thus use it for accounting, to apportion Datapac usage charges by department, individual, or terminal, in cases where many users have shared access to the same Datapac 3000 line.

MAJOR FIBER OPTIC NETWORK PLANNED FOR CANADA

Telecom Canada has announced that it intends to construct the first coast-to-coast fiber optic network for Canada extending over 7000 kilometers. According to a Telecom Canada spokesman, this step introduces a leading edge technology to the Canadian telecommunications network and is a cost-effective way of providing for the full range of current and future requirements.

TELECOM PLUS AND SIEMENS ANNOUNCE SIECOM Telecom Plus International Inc; 48-40 34th Street, Long Island City, NY 11101; 212-392-7700.

Telecom Plus International and Siemens Communications Systems jointly introduced **SieCom**, a fully integrated **telecommunication management information system** utilizing the Siemens Saturn PBX on May 6, 1985.

SieCom offers office managers and executives of small- to medium-sized businesses a comprehensive approach to totally managing their communication system. Utilizing that Saturn II (60 to 150 lines) and Saturn III (180 to 800 lines), SieCom will be available to end users and selected distributors through Tel Plus Communications. Tel Plus Communications is the joint-venture company formed by Telecom Plus International and Siemens.

SieCom is a comprehensive facilities management program that provides end users with a method of totally managing their systems by providing an administrative management system, a facilities management system, and electronic key sheets. Developed by Telecom Plus Software Systems, Inc, SieCom features include terminal equipment inventory, trunk and special facilities maintenance, and a cost allocation system that allows end users to keep detailed records of costs of each line. The system-switching interface affords end users a single point of entry. Future products within the SieCom concept will include integrated voice/mail systems and integrated voice/data terminals.

TWO NEW ELECTRONIC KEY TELEPHONE SYSTEMS FROM TEL PLUS Tel Plus Communications Inc; 48-40 34th Street, Long Island City, NY 11101; 718-392-7700.

Tel Plus Communications, a subsidiary of Telecom Plus, recently introduced 2 new electronic digital key telephone systems for small- and medium-sized business firms, marking the first-time Tel Plus has designed a proprietary system for its customers. The **Tel Plus 6/16** and **16/48 systems**, manufactured exclusively for Tel Plus Communications, incorporate distributed microprocessor technology. Features include a built-in busy lamp field showing the status of all keysets within the system. Optional equipment includes alarm signaling, external paging, station speed dialing, a speakerphone module that permits handsfree response to internal and external calls, and toll restriction. The 6/16 is equipped with 8 function buttons, 6 central office (CO) line buttons, and 16 Direct Station Selection (DDS) buttons for intercom dialing. The 16/48 has similar station sets, and can be easily expanded to 16 lines and 48 stations. The system's modular design and digital technology allow for system reprogramming and the system can be interfaced with call accounting equipment. Additional features include: speed dialing at each station with up to 10 frequently dialed numbers; system speed dialing for up to 36 commonly dialed numbers; full internal and external speakerphone capabilities. A 3-position switch provides selection of intercom signaling modes such as tone ringer, page, or handsfree reply calls. Options soon to be available on the Tel Plus 16/48 are an integrated voice message system that enables the user to record and send voice messages and an integrated voice/data workstation. The new systems are available now.

NEW SERIES III STAT MUX FROM TIMEPLEX Timeplex, Inc; 400 Chestnut Ridge Road, Woodcliff Lakes, NJ 07675; 201-930-4672.

Timeplex has released a **Series III Microplexer** that is data-link compatible with its switching multiplexers, the SM and QSM models. The Series III Microplexer will be available in 3 versions, the M8, M24, and M48. Up to 8, 24, or 48 user ports can be accommodated and the unit can be supplied with 1, 2, 3, or 4 composite links that run up to 19.2K bps each. The composite links are compatible with link-side connections on Timeplex Microplexer Switching Statistical Multiplexers (1 or 2 links), and Quad Switching Multiplexers (which support up to 4 links).

Series III Microplexer features internal data bypass and traffic balancing. Internal data bypass reduces the number of leased circuits needed to service a certain number of locations by allowing traffic between remote sites to pass through an intermediate site without being demultiplexed.

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Additionally, traffic balancing assigns 2 composite links to the traffic between a pair of nodes. Traffic is routed, on a block by block basis over the least-traveled line.

The Microplexer Series III statistical multiplexer is flexible, allowing each port to be set individually for handling asynchronous data of 5, 6, 7, or 8 bits, plus optional parity, with 1, 1.5, or 2 stop bits at speeds from 50 to 9600 bps. With the proper synchronous option, any port can be configured for SDLC or any of several variations of bisynchronous protocols.

Furthermore, Series III multiplexers are compatible with the Timeplex PROPHET, a software package for the IBM PC/XT. PROPHET allows an entire network to be configured off-line, then downline loaded to the local and all remote nodes automatically. It also helps conduct diagnostics; receives reports on link status, and connections made or broken; and logs faults. The new Series III Microplexer M8 is priced from \$2,300 for the first unit and delivery is 30 to 60 days ARO.

UDS UNVEILS TWO AT&T 212A-COMPATIBLE MODEMS
Universal Data Systems; 5000 Bradford Drive, Huntsville, AL 35805; 205-837-8100.

UDS has introduced modem **Models UDS 212A and UDS 212A/D** for operation over 2-wire public switched telephone network (PSTN). Compatible with AT&T 212 modems, the new models feature full-duplex, asynchronous operation at 0 to 300 bps, and asynchronous or synchronous operation at 1200 bps.

Models UDS 212A and UDS 212A/D include automatic or manual answer and built-in diagnostic circuitry for testing modem and line performance. In addition, Model UDS 212A/D features automatic dialing and automatic logon and provides storage for up to 10 numbers with logon sequences. Telephone numbers can also be entered through the terminal keyboard. Model UDS 212A lists for \$495 and the UDS 212A/D lists for \$545.

US TELECOM IMPLEMENTS SOFTWARE-DEFINED VIRTUAL PRIVATE NETWORK ISACOMM Inc; 1815 Century Boulevard, Atlanta, GA 30345; 404-320-1033.

Isacomm, a part of US Telecom, Inc, has established a **software-defined virtual private network service**. This network service represents the first of US Telecom's network products that will be integrated into the company's all-digital, fiber-optic communication network. The Home Insurance Company of New York City, first customer of the new offering, has begun implementation of US Telecom's **Virtual Private Network (VPN)** service in 18 locations throughout the country. VPN provides shared transmission facilities operating under a single software management system. The service encompasses a family of products designed to meet the total voice and data communication requirements of multilocation corporate customers. The heart of the system is software-controlled switching that provides network features and functions such as 7-digit on-net dialing, nationwide off-net calling, customer-defined dialing plan, speed numbers, route advance (7- to 10-digit conversion), and optional authorization and account codes.

JURY FINDS WESTERN UNION VIOLATED ANTITRUST LAW
Western Union; One Lake Street, Upper Saddle River, NJ 07458; 201-825-5000.

Western Union Telegraph Company announced that on April

17, 1985, a federal court in Chicago found for plaintiffs in an antitrust and contract suit bought against the company in 1977. The damage award in the antitrust suit is \$24 million which, under the law, is trebled. On the contract claim, the jury awarded \$30 million. Reasonable attorneys' fees and costs, to be determined by the court, are also to be included.

The company does not believe that the verdict is supported by the evidence and will ask the trial judge to set the jury's awards aside.

WESTERN UNION ANNOUNCES SOFTWARE DEFINED NETWORK SERVICES Western Union has announced the availability, subject to FCC approval, of its **Software Defined Network Services (SDNS)** with rates the company claims are approximately 25-percent lower than its low-cost Optimized WATS rates (and approximately 50-percent less than AT&T WATS rates). SDNS is aimed at large corporate long-distance telephone users, with heavy calling traffic among multiple branch offices, who currently operate their own private networks. Many companies that operate private corporate telephone networks are finding that such networks are no longer cost-effective, due to recent increases in the overall costs of private line facilities. Because all SDNS lines have access to Western Union's nationwide network, SDNS users can obtain a single trunk group of lines for all of their voice and data communications. The new service complements Western Union's Optimized WATS service offering.

To create a Software Defined Network, Optimized WATS users must provide Western Union with the telephone numbers of their various branch offices, for entry into the SDNS database. Western Union then assigns individual telephone numbers for each location and extension. Using this information, and existing Optimized WATS access lines, SDNS functions like a private network. Users will not even have to dial area codes to reach their branch offices. SDNS will be initially available in the following cities: New York City; Chicago; Phoenix; Los Angeles; San Francisco; Detroit; Dallas; Cincinnati; White Plains, New York; Toledo, Ohio; Washington, DC; Boston; Houston; and Philadelphia. Western Union's SDNS offers rates as low as 10 to 13 cents per minute for daytime calling. It improves access to Western Union network lines through the use of "dynamic allocation" of network and local access facilities, as calling patterns fluctuate. SDNS lines can be used at any time, for any combination of different types of calls.

Overhead expenses are reduced because customers are charged only for actual usage. Software Defined Network Service offers comprehensive billing information to help communication managers control long-distance telephone costs. Also, SDNS can reduce the need for company switchboard operators, as SDNS lines allow direct access to individual telephone extensions.

Western Union said its Software Defined Network Service will be one of the lowest-priced long-distance services of its type. Also, the maximum discount applies when the customer reaches 60 hours of usage, rather than 80 hours as with other carriers. SDNS customers who also use Western Union's EasyLink electronic mail service, worldwide telex and/or TWX services, are eligible for the recently announced "joint-services discount." This discount allows SDNS

customers to apply 20 percent of their other Western Union service bills against their SDNS bill, to a maximum of \$1,000 per month, or 10 percent of their Long Distance Services bill, whichever is higher.

WESTERN UNION OFFERS \$100 INCENTIVE ON OPTIMIZED WATS SERVICE Western Union also announced a \$100-per-line credit for businesses that subscribe to its new **Optimized WATS service**. Rates for Western Union's single-trunk WATS are up to 30-percent lower than rates for traditional "banded" WATS lines from other carriers. The \$100 credit is applicable to evening, night, and weekend dial-access calling. To qualify, a firm must purchase a minimum of 4 Optimized WATS lines. The credit is not restricted to office use, but it must be applied before September 30, 1985. In contrast, banded WATS systems bill customers under a complex pricing structure often unrelated to the distance of the call. Customers can order Optimized WATS by calling Western Union toll free at 800-336-3797, extension 144.

For business users, WATS is less expensive than direct long-distance dialing. Companies offering banded WATS service provide a selection of WATS lines that reach separate geographical "bands," or calling areas. The bands represent progressively wider areas and are billed at progressively higher rates. Thus, band 1, covering adjacent states, carries the lowest charges, while band 5, covering the entire nation, is the most expensive. With Optimized WATS, however, a customer can call anywhere in the nation at a rate based not upon the number of the band but upon the actual distance of the call. For instance, under a banded WATS pricing structure, a customer with a band-5 line who calls an adjacent state would pay for a band-5 call. Under Optimized WATS, the customer will only be charged for a call to an adjacent state, at a cost 40-percent lower than the band-5 call.

WESTERN UNION OFFERS MAJOR TELEPHONE SERVICE DISCOUNT FOR EASYLINK AND TELEX CUSTOMERS

Western Union is now offering a discount of up to \$1,000 per month on Western Union long-distance telephone service for users of the company's **EasyLink and Telex Message services**. Effective immediately, business customers are able to apply, as credit toward their monthly long-distance telephone charges, 20 percent of their EasyLink bills and/or usage charges for Telex, including Western Union's Worldwide Telex, up to a maximum of \$1,000 per month. The 20-percent joint-service discount, which cannot exceed the amount of the long-distance bill, is applied to the following month's long-distance charges. Customers may sign up for the discount by calling Western Union toll free at 800-527-5184.

Western Union's transmission network uses the company's own terrestrial microwave communication system, fiber optic links, and Westar communication satellites. Digital switching hardware and an extensive installed base of local cable in most major urban areas enables Western Union to offer comprehensive long-distance telephone service.

■ CALENDAR OF EVENTS

□ July 1985

Jul 15-18 - 1985 National Computer Conference • Chicago, IL **Contact** 703-620-8926.

Jul 17-18 - AT&T & IBM: New Directions in Technology • New York, NY **Contact** Gregory Blundell; 201-267-3700.

□ August 1985

Aug 20-22 - Illinois Bell Fiber-Optic Showcase • Westmont, IL **Contact** Dennis Gonka; 312-727-3887.

Aug 26-29 - APCO/FCCA National Conference • San Diego, CA **Contact** 619-236-7044.

Aug 26-29 - INTECH '85 • San Francisco, CA **Contact** Rosalind Price-Raymond; 703-683-8500.

Aug 27-29 - INTERCONNECT '85 • San Mateo, CA **Contact** 312-782-8597.

□ September 1985

Sep 8-11 - CICA Annual Conference • Edmonton, AB **Contact** 416-499-4222.

Sep 9-11 - Eighth Annual Federal Computer Conference • Washington, DC **Contact** 617-358-5301.

Sep 10-14 - INTELEC 85 • Basel, Switzerland **Contact** 061-26-20-20.

Sep 16-20 - FOC/LAN 85 • San Francisco, CA **Contact** 617-787-1776.

Sep 16-20 - TCA Annual Conference • San Diego, CA **Contact** 818-960-1838.

Sep 17-19 - CARIBECOM '85 • San Juan, PR **Contact** 703-685-0600.

Sep 17-20 - Telocator Annual Conference • Las Vegas, NV **Contact** 202-659-6446.

Sep 22-26 - Intelligent Building & Information Systems Conference • Boulder, CO **Contact** Tom Cross; 303-444-7799.

Sep 23-25 - AAR Annual Meeting • Chicago, IL **Contact** 202-835-9100.

Sep 26-28 - EIA International Mobile Communications Show & Conference '85 • New Orleans, LA **Contact** 202-457-4935.

Sep 27-29 - SIRSA 1984 Annual Membership Meeting • Boca Raton, FL **Contact** 703-528-5115.

□ October 1985

Oct 3-5 - 4th Annual Land Mobile Expo/East • Atlanta, GA **Contact** Kathy Kriner; 303-694-1522.

Oct 7-9 - National Communications Forum • Des Plaines, IL **Contact** Robert Janowiak; 312-828-0491.

Oct 7-9 - 10th Conference on Local Computer Networks • Minneapolis, MN **Contact** 205-837-2400.

Oct 7-11 - NASTD Annual Conference • Orlando, FL **Contact** 804-872-7272.

Oct 13-15 - USTA National Convention • San Antonio, TX **Contact** 202-872-1200.

Oct 14-17 - 8th Annual Midwest Telecommunications Conference • Minneapolis, MN **Contact** Chuck Champine; 612-540-1066.

Oct 15-17 - Satellite Communications Users Conference • New Orleans, LA **Contact** Kathy Kriner; 303-694-1522.

Oct 21-23 - Telecon V Teleconferencing Show • Anaheim, CA **Contact** 415-820-5563.

Oct 24 - Mid-America's 28th Annual Meeting & Show • Kansas City, MO **Contact** Rob Marshall; 913-841-9241.

Oct 28-31 - The International Telemetry Conference • Las Vegas, NV **Contact** Darrell Gabel; 805-866-7938.

Oct 29-31 - Sixth Annual Federal Office Automation Conference • Washington, DC **Contact** 617-358-5301.

□ November 1985

Nov 4-5 - International Tele/Conferencing Symposium • Boulder, CO **Contact** Tom Cross; 303-444-7799.

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Nov 6-8 - BIZTELCOM • Dallas, TX **Contact** 609-698-7020.

Nov 10-13 - SETA Annual Conference • Hollywood, FL **Contact** 804-746-3195.

Nov 13-15 - CMA Annual Conference • Long Island, NY **Contact** 201-766-3824.

Nov 18-20 - ITG Fiber-Optics Trends & Directions Seminar • Napa Valley, CA **Contact** 202-457-4980.

Nov 18-21 - Network Management/Technical Control Conference • Chicago, IL **Contact** 617-879-0700.

Nov 18-21 - COMMUNITECH/COMPUTER 85 • Kuala Lumpur, Malaysia **Contact** Jerry Kallman; 201-652-7070.

□ December 1985

Dec 2-5 - GLOBECOM '85 • New Orleans, LA **Contact** 504-528-7350.

Dec 3-6 - NATA Convention & Exhibition • Dallas, TX **Contact** 202-296-9800.

Dec 9-11 - FUTURECOM—Cellular & Personal Communications Conference • Washington, DC **Contact** Sherry Andrews; 703-352-1200.

• END

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UPDATING MATERIAL

June 1985

In addition to this newsletter, June updating material includes the reports described below. Please see the Communications Systems volumes to refer to these reports.

Technology Reports • describe technology for the communication/telecommunication environment.

- The **Call Accounting Systems** report examines the need for call accounting, explores system concepts and differences, and cites guidelines for justifying call accounting equipment.

- The **Call Distribution Systems** report examines the need for call distribution, explores system concepts and offers guidelines for system planning.

Survey Reports • provide profiles at-a-glance by product type:

- The **Call Accounting Systems** survey report summarizes the characteristics of **100 systems** marketed by **36 vendors**.

- The **ACD Systems** survey report summarizes the characteristics of **30 ACD, UCD, and ACS systems** marketed by **17 vendors**.

- The **Modems** survey report summarizes the characteristics of over **700 models** of modems, DSU, and CSUs marketed by **125 vendors**.

Product Reports • comprehensive, detailed analytical reports that evaluate key communication products.

- The **AST Research Protocol Converters** report describes and evaluates this family of IBM 3270 protocol converters for IBM PCs and ASCII terminals.

- The **CASE 4000 Series Modems** report describes and evaluates this new family of high-performance dedicated modems that support network control.

Please Route to:

- The **Infotron Infostream 1500** report describes and evaluates this new T1 multiplexer that features software control and DACS compatibility.

- The **Micom-Interlan Instanet/Plus** report describes and evaluates this newly combined baseband LAN and data PBX product from the recently merged companies.

- The **Satellite Business Systems (SBS)** report describes and evaluates SBS's offerings including CNS, SNS, Skyline WATS/FX/LD, and Toll-Free services.

- The **TIE/communications Electronic Key Systems** report describes and evaluates this family of products from a prominent vendor.

- The **United Tech Com-Dev Systems** report describes and evaluates this family of call accounting systems.

- The **Codex 6000 Series** processors; **IBM 3270, 3705-II/-80, and 8815 Scanmaster**; **Racal-Milgo Omnimode Modems**; and **Sytek LocalNet 20 LAN** reports are also revised to reflect the latest changes and pricing.

ANNOUNCEMENTS

■ SPOTLIGHT

SOFTWARE DEFINED NETWORK OFFERS BENEFITS FOR AT&T CUSTOMERS AT&T Communications; 295 North Maple Avenue, Basking Ridge, NJ 07921; 201-221-2000.

AT&T's recently announced **Software Defined Network (SDN)** has far-reaching implications for communication users with virtually any network requirement. The firm has initially targeted its new offering at its existing base of large-scale corporate network users—those with **EPSCS** (Enhanced

Private Switch Controlled System), **CCSA** (Common Control Switching Arrangement), and **ETN** (Electronic Tandem Network)—although the service is expected to satisfy needs of smaller corporate users, too.

Whereas current network users build networks around discrete circuit-based configurations, an SDN user does not need to be concerned about the number of circuits between switching points—only the amount of traffic entering and leaving each switching node. SDN is heavily software-based,

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and is under direct end-user control. This means the user can dynamically manage the operation of the network based on real-time events, such as an unusually heavy amount of traffic to a particular location of a time-of-day shift in traffic from the east coast to the west.

The Software Defined Network builds on AT&T's Public Switched Network, which provides DDD service. Users connect to SDN at **Action Points (ACP)**, which are powerful central office switching systems. Over 860 SDN action points are available in the U.S. Customer network information is stored in centralized databases with double redundant backup at various off-site locations to prevent loss of customer data. The voice portion of a call is routed over the existing circuit-switched DDD network, the same as a regular long distance call. A high-speed packet-switched **Interprocessor Data Network** handles all signaling between switching centers to expedite call processing. It uses a technology called **Common Channel Interoffice Signaling (CCIS)**. Call routing is dynamic—it doesn't utilize the traditional AT&T 5-level routing structure the company has depended on for many years. The overall state of the network is constantly under the surveillance of the software-controlled network management system. Calls are routed dynamically based on the available circuits.

Perhaps the most important feature of SDN is its ability to be customer-controlled. Users can interactively define the characteristics of their networks. If they want to obtain the status of traffic conditions of the network, it is easily provided on a CRT or printer. Changes in routing patterns or dialed digit translations can be made in real-time, using a menu-based approach. Detailed bills are provided on a monthly basis initially, with more frequent billings available in the near future.

How does SDN work? Suppose a large corporation has 20 locations throughout the country. A uniform numbering scheme is desirable for each system on the network to make it easier for each location to call another. There will be voice traffic on the network, between various corporate sites. There will also be traffic originating within the network, but terminating off the network. And there will probably be traffic originating outside the network, completing either on the network or off-net again.

Currently, there are 3 basic methods of satisfying these requirements. The first is a **private line network** switching through various PBX or Centrex systems. Dialing various locations requires a series of access codes, which can get confusing to most users, and doesn't provide a uniform dialing plan. The second is a **premises-based switching system**, such as **ETN**. Specially equipped PBXs with sufficient intelligence are provided at major switching locations to create the network. The third approach is a central-office-based network, such as **EPSCS** or **CCSA**, with all switching equipment located in telephone company central offices. The second and third methods both provide uniform dialing, digit translation, and a fairly high degree of end-user control. However, if there are any changes in the configuration of the network, such as the need for more circuits or a relocation of circuits to another location, the time involved in getting these changes made usually takes 1 to 4 months, depending on the carrier. The cost for these changes can be high, and the time lag could be harmful to profits if it becomes increasingly

difficult to make calls over the network.

A Software Defined Network user must define the location of each point on the network and the overall dialing characteristics of the network. This equates to an extensive database design exercise before the system can be cut into service. SDN can overlay virtually **every** point on the network, provided a network access point is available in the area. Locations are connected to access points via several methods: AT&T leased line(s), operating telephone company leased lines, T1 lines, OCC leased lines, or customer-arranged bypass. Customer data is stored in **Network Control Points (NCP)** and is backed up extensively. A **Network Service Center (NSC)** provides services such as voice messages and prompts, special tones, and other support functions. All SDN operations are under control of the SDN Control Center, located in Atlanta. Users connect into the SDN-CC via a **Service Management System (SMS)**, using standard communication terminals on a dial-up basis.

A typical on-network call originates by dialing a special single-digit access code (usually an 8) followed by a 7-digit number. If the user's system is a PBX, the access code seizes a line in a bank of voice circuits connecting the PBX to the local telco central office, which then routes calls to the AT&T SDN access point. The 7 digits are read into the NCP, which looks up the translation data for transmitting the call over the public network. This information in the form of a special 10-digit code number, is routed over the Interprocessor Data Network to an access point at the terminating end. This switch then takes the data from the NCP and converts it into the correct dialing information to complete the call to the customer's switch.

Calls originating on the network can be completed to locations off the network. Once the NCP receives the 7- or 10-digit number information, it looks up the desired routing information in the customer's database, and completes the call over the AT&T network based on parameters the customer has selected. SDN is sophisticated enough to permit a uniform 7-digit numbering plan for users on and off the network. It can also translate 7-digit numbers to multiple-digit international DDD numbers, if desired. Other dialing plans can be accommodated beside 7-digit systems, but a 7-digit numbering scheme is universally accepted in the U.S., and makes it easier for users to accept.

Users with existing private networks are not expected to "drop everything" and swing over to SDN, although AT&T is going after its large corporate users initially. Existing networks that do not have the high level of intelligence found in an EPSCS or ETN are ideal candidates for SDN, provided it can be cost-justified. AT&T believes hybrid networks, in which a combination of SDN and an existing network co-exist, offer a viable solution to their large customers. Although start-up costs for SDN are relatively high, they must be evaluated in the contexts of increased user participation, greater ease of configuration, and usage-sensitive pricing.

SDN has been awaiting approval by the FCC, which was anticipated **April 27, 1985**. Assuming the new service is approved, AT&T already has several customers lined up, and can be expected to aggressively promote its latest service. Standard features of SDN include a uniform numbering plan, access to the AT&T public-switched network, teleconfer-

encing via AT&T's Alliance Teleconferencing service, standard tones for call processing, standard- and customer-elective announcements, and on-net, off-net, and international calling. The service is designed initially as a voice offering, with data transmission limited to 9600 bps. Users who get frustrated with satellite-induced transmission delays can specify a nonsatellite-based network at the time of network establishment, for no additional cost. Other features include: complete control over the network; call screening, which establishes calling privileges for groups of callers; authorization codes for network access, with 3 to 12 digits possible; local automatic remote access, which simulates Foreign Exchange (FX) service; forced on-net routing, which permits callers to dial a standard 10-digit number for a long-distance call, but completes it over the network at a better price; variable dialing plans that support both 7- and 10-digit numbering; as well as other user variations; detailed billing reports; high level of network security; integrated voice/data access to the network; analog transmission for data communication equipment up to 9600 bps; and access to AT&T's Switched 56K Service, for end-to-end digital communication up to 56K bps. The SDN Control Center is available 7 days/24 hours for centralized trouble reporting, troubleshooting, maintenance, and testing.

AT&T envisions SDN as an **important part** of an **Integrated Services Digital Network (ISDN)**. The basic components used in SDN—the action point, NCP, and the network—are also integral parts of an ISDN. Voice communication will be carried over the SDN, while high-speed data/image/video will be carried by other AT&T offerings such as Accunet T1.5 and Accunet Packet-Switched services. Additional features and enhancements are planned for SDN on 6-month intervals.

The initial network establishment charge for SDN is \$105,000. Access to the network is based on a sliding scale of \$1,000 each for the first 50 access groups, dropping to \$600 per group above 250 groups. The monthly fee for each access group is \$50. Access to the network from customer premises is via standard voice-grade private lines, Accunet T1.5 lines, or customer-provided lines. Usage on the network is both time and distance sensitive. Distance between switching points is measured using 7 bands based on point-to-point mileage. Discounts are available for calls outside normal working hours (8 AM to 5 PM). Calls are billed at 30 seconds for the initial period, and in 6-second increments thereafter. Call completion rates within the network are built on 3 different schedules, depending on the points of entrance and egress. The average cost per minute for the shortest distance increment ranges from \$0.30 for off-net to off-net calls down to \$0.12 for on-net calls. Nonbusiness-hour discounts range from 20 to 30 percent, depending on rate schedule. Other options include \$75 per month per caller group or call screening group; \$800 per month for 1,000 authorization codes; \$500 per month for the Service Management System (customer interface to SDN), which includes 1-hour free access to the SDN Control Center; and network announcements (other than standard-issue) for \$50 each per month, plus \$0.07 per play. The Software Defined Network is available immediately pending tariff approval by FCC.

■ ANNOUNCEMENTS & NEW PRODUCTS

AVERAGE MINIMUM TIME REDUCED FOR AT&T 800 SERVICE On April 1, 1985, AT&T Communications reduced from 60 to 30 seconds for the average minimum amount of time for which 800 Service subscribers are billed. The change, which will be phased in through July 1, will prove especially beneficial to businesses that have a large volume of calls lasting only a short time.

Now, AT&T 800 subscribers who offer toll-free calling to their customers will be billed a minimum of 30 seconds for each incoming call if the average duration of all calls is less than 30 seconds, however, if the length of all calls averages more than 30 seconds; customers will be billed for actual usage. Previously, subscribers to the service were billed for a minimum of 60 seconds for each incoming call if the average duration of all calls was less than 60 seconds.

AT&T has also revised certain one-time, nonrecurring charges for obtaining or changing AT&T WATS or AT&T 800 Service.

AT&T PROPOSES RESTRUCTURING OF LONG-DISTANCE INTERSTATE RATES AT&T has proposed a restructuring of certain **interstate long-distance rates** to better align the price of calls with the cost of providing them. The company said it is seeking **rate increases** for interstate long-distance calls of **55 miles or less**, which represent about 13 percent of AT&T's interstate long-distance traffic. The proposed rate changes would generate \$74 million annually in revenue for the company. In a filing with the FCC, the company asked that the new rates take effect April 26.

AT&T is seeking the following:

- For a call from 1 to 10 miles, the day rate for the initial minute would increase from \$0.30 to \$0.38 and for each additional minute from \$0.15 to \$0.19.
- For a call from 11 to 22 miles, the day rate for the initial minute would change from \$0.38 to \$0.46 and for each additional minute from \$0.21 to \$0.25.
- For a call from 23 to 55 miles, the day rate for the initial minute would increase from \$0.45 to \$0.51 and for each additional minute from \$0.26 to \$0.30. The proposed rates would be discounted during the evening and night/weekend periods by 40 and 60 percent, respectively.

AT&T also said it expects to reduce all interstate long-distance rates on June 1, when residential and single-line business customers begin paying their local telephone companies a \$1-a-month local-subscriber line charge. That fee, ordered by the FCC, is designed to help cover the cost of customer connection to the local telephone company office. At the same time, local telephone companies will be reducing connection charges paid by long-distance companies. AT&T will pass along those savings to customers by lowering rates on June 1.

AT&T PROPOSES INTRODUCTION OF DDS TO UNITED KINGDOM AT&T has proposed to introduce **International Dataphone Digital Service (IDDS)** to the United Kingdom, providing business customers with digital data services at a variety of speeds across the Atlantic via undersea cable.

In a filing made late Wednesday with the FCC, AT&T asked

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that IDDS become available to customers on May 18. IDDS would be provided by AT&T Communications, the AT&T unit responsible for long-distance and international services. In the United Kingdom, the service would connect with British Telecom International's Kilostream Service.

AT&T said IDDS would be available to customers at speeds of 2.4K, 4.8K, 9.6K, and 56K bps. The dedicated digital service would be in operation 24 hours a day, 7 days a week.

Businesses could use IDDS circuits to transmit financial analyses, sales reports, file transfers, credit verifications, and a variety of accounting information, the company said.

According to today's proposal, customers would pay monthly charges to both AT&T and British Telecom International. AT&T's rates for IDDS would be \$1,800 for a 2.4K-bit channel; \$2,400 for 4.8K bits; \$3,000 for 9.6K bits; and \$12,000 for 56K bits.

AT&T UNVEILS INTERNATIONAL TELECONFERENCING SERVICE AT&T has announced that customers can now establish and control large-scale audio and audiographics teleconferences to 134 global locations through its International Alliance Service (IAS). The AT&T teleconference bridging service can connect up to 59 locations simultaneously in the United States or in any of the 134 countries and locations around the world customers can dial directly. With IAS, customers can establish either audio only or audiographics calls. The audiographics capability can be used to connect graphic equipment and to transmit data or graphics to numerous points simultaneously. Customers wishing to establish an Alliance teleconference may do so from any pushbutton telephone by dialing 1-800-544-6363. Operators then will make the connections or allow customers to do it themselves from any of the 4 Alliance bridges. The bridges are located in Chicago, Dallas, Los Angeles, and White Plains, New York. In addition, the AT&T customer assistance center can be reached during an Alliance call by dialing "0."

Customers establishing Alliance teleconference calls to points in the North American Dialing Plan must dial the respective area code plus the local number. To add a location in Bermuda, the caller would dial 1, the 809 area code, and the local number. For calls outside North America, users must dial the international access code—011—the appropriate country and city codes, plus the local number. To add a location in London, England, the caller would dial 1-011-44-1 plus the local number.

IAS calls are billed at the same rate as international long-distance calls from the originating teleconferencing bridge. Originators of calls also pay long-distance charges for the call to the nearest bridge. In addition, if the call is established by an attendant, there is an additional charge of \$3.00 per location.

AT&T ANNOUNCES JOINT-CERTIFICATION WITH HONEYWELL & AT&T INFORMATION SYSTEMS AT&T Information Systems; 100 Southgate Parkway, Morristown, NJ 07960; 201-898-8000.

AT&T and Honeywell have successfully completed **joint-certification testing** of Honeywell computer equipment with the AT&T System 85 digital voice/data PBX. The certification assures that for the configurations tested, both

companies' products will operate properly when interconnected within a communication network. System 85, with its twisted-pair wiring, can be connected between Honeywell DPS 6, DPS 7, and DPS 8 computers or VIP series terminals. Certification testing used Honeywell software for applications such as office automation, transaction processing, and timesharing. Local connections support both synchronous and asynchronous protocols, using System 85's DTDM and PDM interface modules. Connectivity to remotely located equipment is provided by System 85's modem pool. The pool included AT&T 2224 modems transmitting data at 2400-bps formatted according to X.25 protocols. The certification is Honeywell's first with a non-Honeywell PBX supplier.

AVANTI ADDS EXPANDED ULTRAMUX, ULTRAPAC, & DPAC TO HIGH-SPEED DATA LINE Avanti Communications Corp; Aquidneck Industrial Park, Newport, RI 02840; 401-849-4660.

Avanti has announced a larger capacity **Ultra Mux-1.5**, **UltraPac**, and **DPAC**, new additions to its family of high-speed digital networking products. All provide for the intermixing of synchronous, asynchronous, and voice channels.

The expanded UltraMux-1.5 is for host site applications and supports up to 96 synchronous and voice ports or 192 asynchronous ports. Included in this expansion is an increase to 6 T1 aggregates. These additions significantly enhance UltraMux's node networking applications for larger communication networks.

The UltraPac is tailored to low-channel capacity T-1 applications and is particularly well suited to remote network extensions. It is available in a 16-port chassis (standalone or rackmount) with optional redundancy of all common equipment. This includes the capability for automatic fallback to spare transmission facilities. The aggregate can be programmed to operate at speeds of up to 1.544M bps. The UltraMux and UltraPac aggregate interfaces include V.35, RS-449, and DSX-1, as well as fully integrated CSU/DSU for direct connection to Accunet T1 services.

The Dpac is intended to bring increased functionality and flexibility to 56K-bps DDS service and to expand high-speed digital networking. It is available with 6 or 16 ports in both standalone or rackmount configurations. The aggregate speed is selectable at either 56K bps or 64K bps, and is available with either a V.35 or RS-449 interface. An optional integrated line driver is also available for local distribution up to 6 miles.

Prices for the expanded UltraMux start at \$14,050. The UltraPac and DPAC are priced at \$7,950 and \$6,050, respectively.

AVATAR EXPANDS MACINTOSH-TO-IBM LINK Avatar Technologies, Inc; 99 South Street, Hopkinton, MA 01748; 617-435-6872.

Avatar has enhanced its **PA1000E protocol converter** to provide expanded support to Apple Macintosh users connecting to an IBM host. The PA1000E, used in conjunction with a Macintosh, is now fully compatible with the AppleLink option available in MacTerminal revision 1.1.

Priced at \$1,095, the PA1000E gives Macintosh users full IBM 3278 terminal emulation plus an auxiliary RS-232C connection. This RS-232C connection can be used to attach

an ASCII printer to obtain local printouts of host session screens or for communicating with a minicomputer, public data network, or other personal computer. The PA1000E allows Macintosh users to switch back and forth between an asynchronous and IBM session with a single keystroke.

The standard Avatar PA1000E supports local and remote dial-up applications. A disconnect time-out delay that provides a programmable delay up to 300 seconds before the PA1000E will reconnect with a terminal or modem provides for added security and enhanced support for communication networks. Multilevel security ensures that only qualified users are gaining access to the 3270 network.

The Avatar PA1000E connects via Type A coax to an IBM 3274 or 3276 cluster controller, and functions in all IBM 3270 environments. Online HELP screens provide easy access to information on how to perform 3278 functions, and eliminate the need for frequent reference to manuals.

CIE TERMINALS UNVEILS NEW GRAPHICS TERMINAL CIE Terminals Inc; 2505 McCabe Way, Irvine, CA 92714; 714-863-1376.

CIE Terminals has introduced the new **CIT-420** alphanumeric display terminal as the vendor's first commercial offering to combine new proprietary chip sets and special function cards. The CIT-420 employs a modified keyboard with 20 programmable function keys, a 14-inch diagonal screen, a proprietary chip set that incorporates DEC VT220/240 features, and a new graphics card for handling Tektronix 4010/4014 emulation.

Targeted at OEMs, systems integrators, and value-added resellers, the CIT-420 supports both graphics and data/word processing applications. It features both interlace and noninterlace operating modes with corresponding dot resolution of 63x287 in noninterlace mode, and 632x574 in interlace mode. The addressable plot area is 4096x3120. Other major functions include a native graphics mode for the rapid generation of line, arc, circle, and box; a set-up mode for 87 user-selectable operating features; variable-speed smooth scroll; and selectable static/blinking cursor control.

Available now, the CIT-240 terminal has a single-unit purchase price of \$1,949.

CODEX OFFERS NEW AUTOMATIC CALLING UNIT Codex Corporation; 20 Cabot Boulevard, Mansfield, MA 02048; 617-364-2000.

Codex introduced the **Model 2207 Auto-Call Unit (ACU)** that provides price/performance improvements over 4 previously offered ACU models. The new unit allows a data terminal to establish calls directly through the telephone network and can be configured to support parallel or serial data input from a terminal, front-end processor, or CPU. These inputs are then converted into pulse or tone signals for entering telephone numbers through the public switched-telephone network.

In addition, the 2207 includes a speaker option that allows the user to audibly monitor call progress. The Auto-Call Unit is also available in card versions for use with the 16-card Codex 5016R or 8-card Codex 5008R multiple modem enclosures. Priced at \$600, the Codex 2207 is presently available for delivery.

COHESIVE NETWORK INC UNIFIES WIDEBAND & METROPOLITAN DIGITAL NETWORKS THROUGH

COHESIVE SYSTEM Cohesive Network Inc; 1680 Dell Avenue, Campbell, CA 95008; 408-370-4650.

Cohesive Network has announced the **Cohesive System**, which networks a large company's voice, data, and image applications, and provides management and control of wideband digital metropolitan and wide-area networks. The new product allows large corporations and telecommunication service providers to build upon their existing networks to develop more cost-effective and manageable telecommunication systems and services.

The Cohesive System ties together and manages diverse telecommunication applications through a group of intelligent devices called CN-1 nodes, each of which participates in the automatic routing, monitoring, and analysis of transmissions. An operations management system (OMS)—which includes a processor, terminal, and printer—serves as the interface between the user and the network. The CN-1 nodes serve both immediate- and long-term needs by merging existing incompatible networks of all types of media—including both private and public networking technologies—and by accommodating future innovations in satellite, microwave, cable, and fiber technologies. In addition, they automatically allocate bandwidth, reroute transmissions according to demand, provide built-in diagnostics, and accommodate both synchronous and asynchronous transmission modes.

The CN-1 node accommodates different transmission facilities and devices through its timing and control scheme, called automatic adaptive network synchronization. Any node can reroute transmissions automatically in case a link in the network fails. In addition to automatic routing, the Cohesive System can, if desired, be managed by an operator. The OMS can be attached at any point on the network, allowing operators to communicate interactively with the entire network. Operators can use the built-in database to determine the status and location of transmissions as well as failures in equipment. Rather than relying on routing tables to anticipate any problems in a circuit, the Cohesive System automatically routes information around trouble spots, regardless of the source of the problem.

The Cohesive System features standard interfaces for digital voice and data and is designed to work with the evolving ISDN standards. Also, the architecture of the system is partitioned so that nodes can be easily upgraded to accommodate evolving network formats and interfaces. Unlike most similar systems, it handles public as well as private networks. The Cohesive System is compatible with all wideband digital services offered by AT&T and by the Bell Operating Companies and Interchange Carriers. Digital transmission media equipment and T-1 carrier services are connected via standard DS-1 interfaces. Voice transmissions are connected via DS-1 connections to T1-D3 PBX interfaces, and the product can handle bit compression multiplexing using ADPCM. Up to 44 digitized voice channels can be carried on a single T-1 line. Through standard data port interfaces, such as RS-232C and V.35, most office automation equipment used in businesses can be linked to the Cohesive System. For high-capacity applications, such as compressed video or high-speed data transfer, the system offers interfaces at speeds of 56K bps or 1.535M bps.

Cohesive nodes cost \$30,000 to \$70,000 each, depending

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upon equipment configuration and capacity. The product will begin shipping in the United States in the second quarter of 1985.

COMPAQ UNVEILS TELECOMPAQ Comaq Telecommunications; 15182 Marsh Lane, Dallas, TX 75244; 214-484-4200.

Compaq Telecommunications Corporation has introduced a workstation that integrates personal computing and communication tasks.

The new product, called **Telecompaq**, is targeted at managers in medium- to large-size corporations who are not presently computer users and combines an IBM Personal Computer-compatible micro with a host of voice/data communication functions. With 2 telephone lines or future links to digital private branch exchanges (PBX), the Telecompaq handles simultaneous voice and data communication. Users can suspend a personal computing task to make or receive a call and then resume the personal computing task where they left off.

Six models were introduced, offering a range of random-access memory (RAM) and disk storage options. Top-end models feature 640K bytes of RAM and a 10M-byte hard disk drive.

The Telecompaq is built around an Intel 8086 processor with 384K bytes of RAM for personal computing and personal productivity work and a Z80A communication processor with 64K bytes of RAM.

Other features include an integral 9-inch green text-graphics monitor, an internal Hayes Microcomputer Products, Inc 300-bps or 1200-bps modem, 2 IBM-compatible expansion slots, an RS-232C port, a parallel port, a battery-powered data/clock system, two 360K-byte diskette drives for personal computer applications, a third 360K-byte diskette drive for personal productivity use, an IBM-style keyboard enhanced with function keys, and MS-DOS 2.11 operating system.

For voice communications, the Telecompaq offers a separate telephone unit with speakerphone and handset and a telephone function panel next to the computer screen.

Built-in support software provides 80 user-programmable telephone functions; TTY and ADM3A terminal emulation; an electronic phone directory with search capabilities, attachment of notes and addresses, and auto-dialing; a data communications directory for automatic connection, modem setup and dialing, file transfer and capture to and from disk; automatic logon and logoff abilities; and electronic mail. The bundled software permits users to switch between computing and communications tasks and also gives calendar, electronic notepad, and calculator applications.

Compaq does not presently plan to offer an upgrade kit for its current personal computer customers. Three versions that connect to 2 standard analog telephone lines are scheduled for June shipment, while 3 other systems that interface to 6 standard analog keyset lines will be delivered in August.

The Telecompaq is priced from about \$4,195 to \$6,395, depending on configuration.

DATASTREAM ADDS FILE TRANSFER FACILITY TO ITS SNA CONTROLLER Datastream Communications, Inc; 2520 Mission College Boulevard, Santa Clara, CA 95050; 408-986-8022.

Datastream's **Execulink II** software package provides the Datastream 874 SNA controller with the facility for transferring file data between microcomputers and mainframes. The 874 is a protocol converter that emulates the IBM 3274 controller and 3278 terminals. By connecting a personal computer to it, users can interface with a normally incompatible IBM host.

Execulink II resides on the PC's diskette and is loaded into its main memory. It emulates a 3278/3279 terminal, 3287 printer, and provides multiple session support. It also handles the file transfer between the PC and host. Price is \$195.

FIBRONICS MODULE ALLOWS TWISTED PAIRS TO SUPPORT IBM 3270 TRANSMISSION Fibronics International, Inc; 325 Stevens Street, Hyannis, MA 02601; 617-778-0700.

The new **FM 041** is a data and voice multiplexing module that enables standard telephone twisted-pair wires to support IBM 3270-type terminals. The FM 041 operates in pairs—1 attached to the PBX and cluster controller, and the other to the user's telephone and 3270. This allows both voice and data to be transmitted over a single line. Price is \$300 per pair.

GILTRONIX ADDS NEW PORT SELECTOR Giltronix Corp; 3780 Fabian Way, Palo Alto, CA 94303; 415-493-1300.

Giltronix's new **Checkpoint Switch** port expansion/contention device allows RS-232C interfaced devices to contend for modems and/or communication front-end processor ports. The Checkpoint Switch offers a wide range of solutions to remote site problems. Typical applications include a dial-in capability that allows remote users to share central office equipment without fear of unauthorized access; remote reboot and general access to one or more computers; remote security of data acquisition by connecting the Checkpoint Switch to time clocks, power meters, process measurement devices, or remote test and measurement installations.

The Checkpoint Switch features 4 levels of security. These include 10 passwords of up to 20 characters each; hang-up capability on multiple invalid attempts; optioned dial back; and port selection by name. Other crucial features include a front-panel display with LED monitors, showing all phases of incoming calls, and easy-to-follow menus allowing the user maximum flexibility and ease of operation. Purchase prices start at \$647 for a 3-port unit; 3-, 5-, and 7-port models are standard.

HEWLETT-PACKARD ANNOUNCES NEW 2334A STATISTICAL MULTIPLEXER Hewlett-Packard Company; 19420 Homestead Road, Cupertino, CA 95014; 408-725-8111.

The new **HP 2334A statistical multiplexer** from Hewlett-Packard allows users to connect to HP and non-HP terminals, microcomputers, printers, or plotters to a host system over an analog or digital leased line, a dial-up line, or an X.25 packet-switching network.

The HP 2334A combines signals from remote workstations using a single, synchronous X.25 connection, operating at speeds up to 19.2K bps. In many cases, the performance of remote-workstation connections, typically limited to 1200 bps, is increased significantly. In addition, the reliability of remote workstations is improved by taking advantage of the error-detection capabilities of the X.25 protocol.

As a user's network requirements expand, remote workstations can be added to the HP 2334A by adding an RS-232C interface card to the on-site multiplexer. Up to 4 interface cards can be installed in a single HP 2334 for supporting up to 16 workstations.

The HP 2334A is priced from \$2,500 for 4 ports to \$5,000 for 16 ports. Estimated delivery on the new product is 6 weeks ARO.

HONEYWELL INTRODUCES LOW-COST DIGITAL TELEPHONE Honeywell Inc, Communication Services Division; Honeywell Plaza, Minneapolis, MN 55408; 612-870-2705.

Honeywell Communication Services Division announced a new low-cost digital telephone to be used with its **Delta-Plex Series 2000 voice/data communication system**, rounding out Honeywell's family of digital PBX instruments. This new telephone offers multiline capability and feature-button convenience to traditional single-line telephone users. The price is comparable to a standard analog telephone, while the enhancements represent a significant improvement in value. Eight software-programmable keys provide line and/or feature access. Three of the keys include LED status illumination. A major advantage of the new digital instrument is its capability to handle data communication with an add-on data interface. This arrangement provides simultaneous integrated voice and data communication over a single pair of telephone wires without additional PBX hardware. Both devices simultaneously use the same digital communication line to access the same PBX line circuit.

The new instrument belongs to the Delta-Plex Series 2000 communication products developed through a joint technology arrangement between Honeywell and L.M. Ericsson of Sweden. It will be available in the fourth quarter of 1985.

INNOVATIVE ELECTRONICS UNVEILS NEW PROTOCOL CONVERTER Innovative Electronics, Inc; 4714 NW 165th Street, Miami, FL 33014; 305-624-1644.

The new **MC 80/900 protocol converter** from Innovative Electronics is a microprocessor-based unit that allows a microcomputer or ASCII terminal to concurrently access both IBM mainframe environments and ASCII hosts in either local or remote configurations. ASCII terminals and microcomputers appear to the IBM host as IBM 3278-2 display terminals.

The MC 80/900 connects directly by coaxial cable to an IBM 3274/76 cluster controller or to the Display/Printer Adapter of the IBM 4331, and supports BSC or SNA/SDLC communication. A standard auxiliary RS-232C port is available that can be used to increase productivity and expand utilization of data processing resources. The RS-232C port allows an attached PC or ASCII terminal to have simultaneous pass-through access to an async minicomputer or public database without requiring the user to logon and logoff the active IBM host session. An ASCII printer attached to the RS-232C port allows the user to obtain local printouts of host session screens, without burdening the IBM system printer attached to the cluster controller.

Also available as an option, is the PC Extra Software package for use with the MC 80/900. This package provides flexible 3278-2 terminal emulation and extensive keyboard management for the IBM PC or XT.

Additional features of the unit include multilevel password security, simplified host access through HELP screens and English commands, and easy installation.

The price for the MC 80/900 protocol converter is \$1,095.

INTECOM AND AT&T COMMUNICATIONS CERTIFY DIGITAL INTERFACE InteCom Inc; 601 InteCom Drive, Allen, TX 75002; 214-727-9141.

InteCom Inc and AT&T Communications have announced the successful field-trial compatibility testing of AT&T Communications' new **common digital interface**, Special Access (PUB 41458), to transmit voice or 56K-bps data calls on DS-1 access facilities, between InteCom's Integrated Business Exchange (IBX), and the public-switched network. Special Access is the local link, obtained from local telephone companies, that connects a customer location to an interexchange carrier.

Compatibility testing, completed in January, successfully demonstrated the ability to originate and terminate 56K-bps data calls in each direction between IBX stations and between an IBX station and a Special Access single station. The testing also demonstrated that voice calls could be established between the IBX and the AT&T Communications network. AT&T Communications Software Defined Network (SDN) will make use of Special Access. SDN is a virtual private network service that is available standalone or interworked with other private networks.

NEW COLORVUE VIDEO DIGITIZING SYSTEM FROM INTECOLOR InteColor Corporation; 225 Technology Park, Norcross, GA 30092; 404-449-5961.

InteColor has developed a complete digitizing system for users with applications requiring the manipulation and computerization of color images. The **ColorVue** system includes the 6120 color graphics terminal with direct memory interface, the Datavue 4000 computer system, and the Colorpix video digitizer/printer. The Colorpix system handles the frame capturing and digitizing, the Datavue 4000 enables the image to be revised, and the 6120 provides color image display on a CRT screen.

The system takes any video input, such as from cameras, televisions, and video tape recorders, and converts the image to computer-readable machine code. A bidirectional I/O port that uses a card edge connector insures image transfers. According to the vendor, comparable systems using RS-232C serial ports often take from 5 to 15 minutes.

More than 16 million colors can be represented by the system when all 3 colors use 8 bits per channel. Lesser numbers of bits permit cost savings with relatively small loss of color quality until the 4- or 5-bit resolution levels are reached.

Priced at \$11,600, the ColorVue system is available for immediate shipment.

MCI TO PROVIDE MCI MAIL FOR E.I. DUPONT MCI Communications Corporation; 1133 19th Street NW, Washington, DC 20036; 202-887-3094.

E.I. DuPont de Nemours & Company, Inc, has signed a corporate agreement with MCI Mail to provide domestic and international electronic mail. The contract calls for MCI to provide electronic mail to more than 150 DuPont sites in the U.S. and abroad.

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MCI BEGINS LONG DISTANCE SERVICE TO THE UNITED KINGDOM As of April 1, 1985, MCI customers can call the United Kingdom, this is the 18th overseas location.

Negotiations are underway with many other countries, and MCI expects to serve 80 percent of the international long-distance market by the end of 1985.

The United Kingdom accounts for 15 percent of the \$6 billion international voice market. MCI International, which was the first company to compete with AT&T in this market, offers rates up to 30 percent below those charged by AT&T.

Other major countries that are served by MCI International include Argentina, Australia, Belgium, Brazil, Canada, Egypt, and Greece.

MCI RESOLVES ANTITRUST AGAINST USWEST COMPANIES An agreement between MCI and 3 telephone companies owned by USWest, resolving those 3 companies' involvement in the antitrust suits that MCI had bought against AT&T, the Bell System, and various independent telephone companies prior to the divestiture of AT&T.

Although the terms of agreement were not disclosed, both USWest and MCI said cash payments, as well as a series of other business relationships between the companies, are included.

These relationships include arrangements for Mountain Bell, Northwestern Bell, and Pacific Northwest Bell to begin performing long-distance billing services for MCI, and for those companies to begin purchasing MCI's long-distance and other telecommunications services for their official use.

Mountain Bell and Pacific Northwest Bell agreed to adopt an equal access conversion plan in use by Northwestern Bell. The plan gives customers 2 opportunities by ballot to select the long distance company of their choice. Nonresponding customers are then assigned randomly to a long distance company in the same percentage as those who did make a selection. Northwestern Bell's response rate from customers has ranged from 70 to 82 percent, compared with an industry average of 33 percent.

The 3 USWest companies also agreed to follow the Northwestern Bell plan to convert groups of metropolitan exchanges to equal access at about the same time, rather than on an exchange-by-exchange basis over an extended time, as is being done throughout the rest of the country.

Both MCI and USWest said the changes should increase customer understanding of the conversion process and promote competition within the long-distance industry.

NATIONAL SOFTWARE ENTERPRISES OFFERS "STAR" National Software Enterprises, Inc; 3260 Powers Ferry Road, Suite C-210, Marietta, GA 30067; 404-955-4268.

National Software Enterprises (NSE) has announced it is offering a network performance tuning and modeling tool called **STAR** (Simulated Telecommunications Analysis Reporting). This tool is designed to help in the decision-making process of planning and managing a company's telecommunication requirements. STAR is a network-modeling package used to identify cost-effective network alternatives and optimally routed line topologies. It provides cost-benefit reports for data communication. STAR is PC-based and does not require additional mainframe

resources, travel to off-site locations, long waits to schedule a report or expensive time-sharing runs.

NSE is distributing STAR, developed by Network Strategies, Inc, as an entry in the newly developing arena of performance tools for networks. The product costs \$20,000 per single unit.

NETWORK SWITCHING SYSTEMS RELEASES N16 AND NETWORK INFORMATION MANAGEMENT SYSTEM Network Switching Systems Inc; 3 Dundee Park, Andover, MA 01810; 617-470-2853.

Network Switching Systems, a start-up founded by a group of former Tymnet executives, has introduced its first products: the **N16 switch** and the **Network Information Management System (NIMS)**.

The N16 is the first in a line of products to be introduced later this year as part of a wide area network called the NSS network.

Network Switching Systems plans to market the N16—which integrates circuit-switching and packet-switching—as a cost-effective alternative to using separate dedicated circuits for each switching capability.

The N16 switch transmits voice, data, video, and motion video on 1 circuit, thus providing Integrated Services Digital Network-type functionality in the private network world.

The N16 modular switch integrates circuit-switching and X.25 packet-switching for wide-area networks using high-bandwidth T1 digital transmission facilities.

It will provide an aggregate full-duplex switching capacity of up to 16M bps, with packet-switching capacity of up to 2,000 packets per second or 2.56M bps, based on 128-character packets.

The N16 switch will support voice, data, and video on individual lines from 1.2K bps to 1.544M bps—the T1 speed at which video typically runs—with packet switching from 50 bps to 19.2K bps. It will support up to 236 ports and will provide error control.

Prototype units are in alpha testing. Beta testing is scheduled to begin at midyear, and production units will be available in late 1985, the company said.

NIMS also will be available in late 1985 and will be sold on an OEM basis. Key elements of NIMS are the Network Control (Nc) Station and the Network Director. An Nc Station comprises dual computers off the network host, working in tandem to provide redundancy. It acts as the host processor and control console interface to the software portion, or Network Director, of NIMS.

The Nc Station will have several databases and a network access directory for network management and control of wide-area networks. Users who need to intervene in the network control, located essentially in the switches, will issue commands from the station.

The Network Director, a printed circuit in the N16 switch, will be responsible for automatic networkwide functions such as routing and addressing of calls.

Network Switching Systems is taking orders for N16, which is priced from \$50,000 to \$150,000 depending upon

configuration. The price for the NIMS ranges from \$80,000 to \$100,000.

The N16 and NIMS will be marketed via direct sales through regional sales offices in Andover, Massachusetts and in New York. The sales offices also will be responsible for sales to OEMs, PBX manufacturers, and computer vendors.

PCC/SYSTEMS UNVEILS TWO COMMUNICATION PRODUCTS FOR THE IBM PC PCC/System, Inc; 535 Middlefield Road, Suite 160, Menlo Park, CA 94025; 415-321-0430.

Professional and Corporate Communication Systems (PCC) announced what it claims is the first fully interactive teleconferencing product and the first text and graphics electronic mail package for the IBM Personal Computer family and PC compatibles. They allow users to communicate whatever they can create on their PCs in either real-time or in store-and-forward mode.

cc:SHARE, the real-time teleconferencing product, enables geographically separated users to run any application program concurrently over the telephone network. cc:SHARE transforms single-user programs into 2-user programs, spreadsheet programs into joint simulation tools, word processors into joint document editors, and graphics packages into 2-way electronic blackboards. cc:SHARE also supports 2-way teleconferencing, 1-way teleconferencing, file transfer, and users who have both a voice and a data telephone line as well as users who have only 1 telephone line.

cc:MAIL, the first text and graphics electronic mail package for the personal computer, allows users to communicate the contents of any application program in 2 ways. They can capture the displayed screens while running application programs and include these screens in a mail message, or they can attach the application DOS files to the mail message. cc:MAIL provides every tool needed to compose mail messages. Included are a full word processor, a graphics drawing package, and a highlighter. These tools can be used to create text documents or graphic images, as well as annotate screens captured from application programs. Optional central server software for cc:MAIL users is also available.

Both products permit users to avoid printing out text and graphic information from application programs, assembling the material, duplicating it and sending it to its destination by express courier or facsimile transmission. To ensure data integrity over the telephone network, both cc:SHARE and cc:MAIL use an X.25 error-correcting protocol.

cc:SHARE and cc:MAIL run on an IBM PC, XT, AT, or compatibles and require DOS 2.0 or higher. A Hayes-compatible modem is also required. cc:SHARE requires 26K bytes of memory to run an individual application program. cc:MAIL requires 320K bytes of memory.

PCC/Systems is selling both products directly to Fortune 1000 end users as well as to OEMs. cc:SHARE costs \$195 per copy and cc:MAIL costs \$295 per copy in corporate 10-packs. Volume discounts and site licenses are also available.

RCA AMERICOM AND HUBBARD BROADCASTING ANNOUNCE \$85 MILLION AGREEMENT RCA American Communications, Inc; 400 College Road East, Princeton, NJ 08540; 609-734-4200.

RCA Americom and Hubbard Broadcasting jointly announced an agreement under which Hubbard's United States Satellite Broadcasting (USSB) subsidiary will lease 4 transponders on RCA Americom's Satcom K-2 satellite for more than \$85 million.

The agreement provides a right under which USSB can increase its order to 10 transponders, in which case the revenues from the agreement will be in excess of \$300 million. It also provides that RCA Americom will proceed with its plans to offer Ku-band receive-only earth stations to commercial broadcast stations nationwide.

CONUS Communications will use Satcom K-2 to distribute its News Service and other programming to its affiliates, and to offer nationwide or regional news service to commercial broadcast television stations.

RCA's Satcom K-2 is scheduled for launch December 1985.

The selection of the RCA Ku-band satellite by USSB confirms the role of Satcom K-2 as the nation's broadcast television spacecraft. It also confirms RCA's belief that Ku-band transmissions are preferred for broadcast television distribution because they permit interference-free access to urban areas where C-band transmissions can be degraded by terrestrial microwave radiofrequency (RFI).

The RCA Americom unit has received authority from the FCC to launch 3 Ku-band satellites, and has been assigned orbital slots of 67, 77, and 87 degrees west longitude. Satcom K-1 is scheduled for launch in November, Satcom K-2 in December, and Satcom K-3 in 1987. These spacecrafts will be the most powerful domestic communications satellites in service after their launch, each satellite carries 16 transponders with 45 watts of power, meaning they can deliver a superior quality television signal into antennas as small as 3 feet in diameter.

For the USSB agreement and for its Syndiation System offering, RCA will be offering antennas approximately 3.7 meters in diameter to provide the capability of receiving high-quality signals from each of the transponders used.

RCA AMERICOM CONTRACTS WITH LDX NET FOR FIBER OPTIC LINK RCA has announced a 5-year contract with LDX of St. Louis, for a fiber optic link that will add the St. Louis area to RCA Americom's nationwide satellite communications network via its Kansas City earth station.

Service will begin in September via 13 T-1 carriers having a capacity of 312 circuits capable of voice and facsimile transmissions as well as data transmissions to 9600 bps. Later service will expand to 28 T-1 carriers having a capacity for 672 circuits.

When service is implemented, St. Louis will be the 18th city in RCA Americom's private line business-to-business long-distance telecommunications network.

This represents the first use of fiber optics for long-haul terrestrial extensions in our network. RCA Americom believes it exemplifies an ideal marriage of 2 transmission techniques, which will characterize the roles of fiber optics and satellites in the future.

Through the Kansas City earth station, businesses in St. Louis will be able to access as many as 16 other major business centers in the country via other RCA Americom

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earth stations and terrestrial extensions.

ROLM ANNOUNCES COST MANAGEMENT PRODUCTS Rolm Corp.; 4900 Old Ironsides Drive, Santa Clara, CA 95054; 408-986-1000.

Rolm Corporation has announced new capabilities to improve call routing and restriction functions and to provide connection to equal access vendors of long-distance telephone services. These new features are part of **Integrated Call Management**, a comprehensive family of call management products for the CBX II and VSCBX business communication systems. The ability to connect to equal access carriers can provide an important cost savings to customers. Users can selectively change network vendors at their convenience, either by manually keying in a special code before each phone number, or by using the CBX to insert the code automatically. This option gives customers the flexibility to access the least-expensive network service at any given time.

Equal access connectivity is incorporated in a new software package of long-distance cost-control features called Route Optimization II. This package consolidates the capabilities of least-cost routing, queuing, and toll restriction into 1 comprehensive routing control system.

Another new software capability is Call Screening, a call management feature that can accurately control the placement of calls based on an entire 7- or 10-digit number, as opposed to the maximum of 3 or 6 digits screened by most other PBXs. Call Screening has been developed specifically to prevent telephone abuse resulting from nonbusiness-related calls, such as those for time and weather reports, "dial-it" services, and off-track betting. Companies can regulate the volume and type of calls made from a particular site by programming the phone system to accept or reject certain phone numbers, depending on the caller's class of service. In the face of deregulation, companies can reduce current phone bills using these routing and restriction enhancements, with savings depending on the configuration.

For organizations with multiple business locations, Rolm Corporation has introduced ROLMnet II, an integrated product that includes a new capability known as Virtual Private Lines (VPL). VPL duplicates the direct desk-to-desk function of leased lines, using public network (dial-up) phone lines instead. It is offered on the VSCBX and CBX II 8000. ROLMnet II also includes a comprehensive 10-digit routing capability to ensure maximum use of those leased facilities that remain cost-effective. In addition, Rolm offers ROLMnet Analysis and Support Services (RASS) for multisite analysis and design. The enhanced software packages will be available for shipment beginning June 1, 1985.

ROLM ANNOUNCES PHONEMAIL FOR NON-ROLM PBXs AND CENTREX SYSTEMS Rolm Corporation has announced a **new version** of its **PhoneMail** voice messaging system to serve organizations that have a non-Rolm PBX or a Centrex system. In addition, IBM, Rolm's parent company, announced that it will adopt the Rolm PhoneMail system for voice messaging in the United States and Canada, and will no longer market its Series/1-based Audio Distribution System (ADS).

Rolm now offers 2 versions of PhoneMail, 1 of which is integrated with the Rolm CBX, and the other interfaced to

non-Rolm PBXs or Centrex systems. Either version will provide voice messaging and telephone answering for 40 to 1,000 users. The non-Rolm PBX version of PhoneMail provides users with voice-store-and-forward features for recording and listening to messages, and provides telephone answering with a personal greeting. System users can retrieve messages at any time from any Touch-Tone telephone.

Either version of PhoneMail, for the non-Rolm PBX or integrated with the Rolm CBX, is available in 4-, 8-, and 16-channel models. Customers who buy smaller models can upgrade the system to serve more users simply by adding channels and storage capacity. If customers with a non-Rolm PBX decide at a later time to purchase a Rolm CBX, they can operate their existing PhoneMail system with their new Rolm CBX with minimal modifications. Pricing for the new version of PhoneMail starts at \$67,000. It is available in the United States and Canada immediately.

SYMPLEX COMMUNICATIONS INTRODUCES QUANTUM MODEM SERIES Symplex Communications Corporation; 5 Research Drive, Ann Arbor, MI 48103; 313-995-1555.

The new **Quantum modem series** unveiled by Symplex Communications comprises the following models: Quantum 14.4K- and Quantum 9.6K-bps modems along with the Quantum 9600-bps DSU/CSU. Utilizing data compression and statistical multiplexing techniques found in its Datamizer product, Symplex has developed a proprietary Automatic Link Intelligence (ALI) feature with dynamic link speed control which constantly monitors line conditions and automatically adjusts operating parameters to optimize data throughput.

ALI provides users with other capabilities including adaptive packet sizing, auto-dial backup, and leased-line restoral.

Adaptive packet sizing adjusts the size of data packets transmitted over a composite link to optimize data throughput, while remaining transparent to the user's DTE.

In addition, Quantum modems can initiate a dual-line dial backup when line quality degrades so that full-duplex data communication is maintained. Furthermore, the Quantum Series is compatible with Maestro, a new Symplex network monitoring and diagnostic center. This capability enables the user to control remote- and central-site Quantum and Datamizer units from the central-site Maestro system.

Both Quantum Models 9.6 and 14.4, and DSU/CSU include a 4-channel statistical multiplexer that utilizes dynamic bandwidth allocation. Each channel is capable of simultaneously multiplexing a different half-/full-duplex communication protocol at an independent rate. Therefore, the Quantum 9.6 can divide its 19.2K-bps data rate into two 9600-bps channels or four 4800-bps channels for peak data transmission. The Quantum 14.4 can input a channel at 14.4K bps and a second at 9600 bps; or 2 channels at 9600 bps and 1 at 4800 bps. Both Quantum 9.6 and 14.4 and DSU/CSU models will accept a 19.2K-bps input or, conditions permitting, allow all 4 channels to be set at 9600 bps, resulting in an aggregate input rate of 38.4K bps.

Available now, Quantum 9.6 has a purchase price of \$7,450, Quantum 14.4 is priced at \$9,950, and Quantum DSU/CSU lists for \$6,450.

TEKTRONIX EXPANDS PLOT 10 FAMILY Tektronix, Inc; P.O. Box 500, Beaverton, OR 97077; 503-627-7111.

The Information Display Group of Tektronix has released its **Plot 10 Software Terminal Interface (STI)**, a high-performance application and device driver development tool for the Tektronix 4120 Series of color graphic workstations, and the 4110 Series of display terminals.

STI consists of a set of ANSI FORTRAN '77 subroutines provided in source code for software access to all major firmware features of the 4110 Series of Computer Display Terminals, as well as the 4120 Series workstations. STI combines software speed and flexibility with support for advanced terminal features, including 3D, segment editing, segment subroutines, arcs, and multiple dialog areas. With STI, new graphic applications and intelligent device drivers can be developed on any host computer with an ANSI FORTRAN '77 compiler. STI also operates on the Tektronix 6000 Family of Intelligent Graphics Workstations in support of 4110 and 4120 Series displays. STI joins other PLOT 10 product offerings including PLOT 10 Graphical Kernel System (GKS), Interactive Graphics Library (IGL), and Terminal Control System (TCS). Currently available, STI is designed to provide enhanced flexibility to implement device dependent applications or integrate the 4110 and 4120 Series into an already existing application. The single-unit purchase price is \$1,900.

TOLL-FREE ACCESS FOR INTELLIGENT SERVICE Telecom Canada; 770-410 Laurier Avenue West, Ottawa ON K1P 6H5; 613-560-3024.

Telecom Canada announced that customers can now dial toll-free 800 numbers to reach iNet 2000, a service that provides subscribers with access to information stored in many computer databases throughout North America.

The new access arrangement applies to customers located outside the 84 areas across Canada served by the Datapac packet-switched network, through which the service is provided. Customers within Datapac-serving areas access iNet 2000 through dial-up or dedicated connections. Before toll-free access became available, however, customers outside these areas could reach iNet 2000 only by long distance.

iNet 2000 is currently undergoing an 18-month market trail, providing approximately 2,000 subscribers easy access to more than 350 databases.

The new arrangement has been approved by the Canadian Radio-television and Telecommunications Commission (CRTC), for Bell Canada and the British Columbia Telephone Company.

TELEVIDEO CUTS PRICE OF DEC-COMPATIBLE 922 TERMINAL Televideo Systems, Inc; 550 East Brokaw Road, San Jose, CA 95112; 408-971-0255.

Televideo has joined the ranks of other leading terminal vendors including Qume, Esprit, and Wyse by announcing a price reduction of one of its display terminal offerings. The purchase price of the **Model 922** has been lowered by 20 percent; originally priced at \$995, the 922 is now priced at \$799.

The 922 is a code-compatible replacement for DEC's VT220 and VT100 terminals. Attributing a manufacturing cost reduction as the impetus for the price cut, the Televideo 922

is now competitively positioned against both VT100/VT200 terminals that retail for \$1,945 and \$1,395, respectively. The Model 922 features an alphanumeric keyboard that combines the VT100/VT220 keyboards for enhanced key placements. In addition, the 922 includes block mode, programmable function keys, tilt/swivel display, and a Tektronix 4010 graphics board upgrade.

TELEVIDEO ADDS NEW 955 TERMINAL TO CURRENT LINE-UP The newest addition to the Televideo line of display terminals is the economically priced **Model 955**. List priced at \$699 and presently available, the Model 955 features a 14-inch tilt/swivel screen, full Televideo 925/950 code compatibility, and 2 sets of 32 (unshifted) programmable function keys that allow the user to switch between 2 applications without reprogramming.

Model 955 includes an 80-/132-column display and up to 4 pages of memory in both 80- and 132-column mode. It also features a reconfigurable keyboard, line-by-line definable scrolling regions, and a screen-saver feature for extending the life of the CRT. An amber display is also available as a no-cost option.

TYMNET AND SATELLITE TECHNOLOGY MANAGEMENT INTRODUCE TYMSTAR NET Satellite Technology Management, Inc; 5601 Slanson Avenue, Culver City, CA 90203; 213-410-9920 • Tymnet, Inc; 2710 Orchard Parkway, San Jose, CA 95134; 408-946-4900.

Tymnet and Satellite Technology Management Inc have launched a joint venture called **Tymstar**, offering a public satellite network service that should be in operation by early 1986.

Tymstar is a full-duplex digital communication service based on a proprietary, packet-oriented Time Division Multiple Access (TDMA) design. Each micro earth station will have between 4 and 24 ports. Protocols supported in the first release will be asynchronous PAD, X.25, and 3270 SDLC. Port speeds for asynchronous protocols will be from 1200 to 19.2K bps; speeds for synchronous protocols will be up to 64K bps.

The micro earth station can also support Tymnet's own proprietary network protocol, allowing the network to be used with existing Tymnet equipment and providing access to all protocols supported by Tymnet such as 3270 BSC and 2780/3780 HASP.

The first master hub will be in southern California, with additional hubs to be added on the East Coast and in the Midwest.

In addition to the public satellite network, dedicated Tymstar networks, with master hubs located on user's sites, will be offered to large-volume customers.

Under the terms of the joint venture agreement, Tymnet will market the service, maintain responsibility for the sale of associated micro earth stations, and provide customer and field support. Satellite Technology will provide technological support.

Tymstar pricing will be determined by 3 factors; usage of bandwidth costs, hub port connections (if needed) and micro earth stations.

According to Tymnet, the usage or bandwidth costs are attractive for high-volume or batch applications, with prices

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lower than current service. The hub port connection costs will be comparable to present rates for connecting hosts to Tymnet via leased lines.

Satellite Technology Management will offer the same basic system to companies that want to establish a private satellite network.

WYSE & ESPRIT REDUCE TERMINAL PRICES Wyse Technology; 3040 North First Street, San Jose, CA 95134; 408-946-3075 • Esprit Systems, Inc; 100 Marcus Drive, Melville, NY 11747; 800-645-4508.

Both **Wyse Technology** and **Esprit Systems** have reduced the purchase prices of their low-end terminals in direct response to Qume's recent price cut of its QVT-101 terminal. Last month Qume slashed QVT-101 purchase prices in an attempt to gain more favorable competitive positioning against the other leaders in the terminal market. A cost-reduced version of the Qume QVT-102, the QVT-101 now carries a price tag of \$395 in an attempt to capture a sizable portion of the low-end ASCII terminal marketplace.

Over the past month, both Wyse and Esprit have reacted to the Qume announcement by reducing prices for their low-end systems. The price of the Wyse WY-50 terminal has been lowered by 14 percent, reducing the original \$695 purchase price to \$599. In a similar move, Esprit Systems dropped the price of its ESP 6110 terminal from \$495 to \$395, matching the list price of Qume's QVT-101. The actions of these leading terminal vendors reinforce a downward trend in terminal prices as vendors struggle to remain afloat amid the pressures of personal computers competing for the same market share. This pricing trend also accompanies a downward migration of high-end features to mid-range and low-end products. Many vendors are incorporating more sophisticated standard items that, until recently, were optional features. The price reductions initiated by Wyse, Esprit, and Qume represent the present bottom-level terminal price with prices extending to \$1,500 and up for high-end systems with advanced capabilities such as special graphics symbols, multiwindowing, and sophisticated editing functions.

■ CALENDAR OF EVENTS

□ June 1985

Jun 3-6 - NCTA Annual Convention • Las Vegas, NV **Contact** 202-775-3550.

Jun 4-6 - AFCEA Annual Convention • Washington, DC **Contact** 703-425-8525.

Jun 4-6 - PHONE '85 • London **Contact** Buckingham 0280-81 5226.

Jun 11-14 - VENCOM '85 • Caracas, Venezuela **Contact** 703-685-0600.

Jun 12-14 - INFO/WEST - Communications & Computer Trade Conference • Anaheim, CA **Contact** 203-964-0000.

Jun 13 - Timeplex Seminar on T1 Facilities & Networking • San Diego, CA **Contact** William Flanagan; 201-930-4600.

Jun 14-19 - NENA Annual Meeting • Baltimore, MD **Contact** 512-480-5191.

Jun 17-18 - Fiber Optics to the Year 2000 • Monterey, CA **Contact** Eloise Beckett; 415-365-1322.

Jun 17-19 - The New York Telecommunications Fair • New York, NY **Contact** Victor Harwood; 212-475-3356.

Jun 17-19 - CATA '85 • Nashville, TN **Contact** Ruth Williams; 703-823-5522.

Jun 17-21 - UTC Annual Meeting • Minneapolis, MN **Contact** Larry Harrison; 612-937-8599.

Jun 23-26 - ADCU Annual Conference • Washington, DC **Contact** 612-881-6803.

Jun 23-25 - Digital Facsimile Systems • Andover, MA **Contact** Richard Murray; 617-267-9425.

Jun 23-25 - Direct Facsimile Seminar • Andover, MA **Contact** Richard Murray; 617-267-9425.

Jun 24-26 - Telecon East Teleconferencing Show • New York, NY **Contact** 415-820-5563.

Jun 24-26 - ICC '85 • Chicago, IL **Contact** Dr. John Johannesen; 312-627-6854.

Jun 26-27 - Centrex Versus PBX: New Directions • New York, NY **Contact** Gregory Blundell; 201-267-3700.

□ July 1985

Jul 1-5 - 14th Annual ACUTA Conference • Banff, AB **Contact** Gordon Morrison; 403-284-7555.

Jul 15-18 - 1985 National Computer Conference • Chicago, IL **Contact** 703-620-8926.

Jul 17-18 - AT&T & IBM: New Directions in Technology • New York, NY **Contact** Gregory Blundell; 201-267-3700.

□ August 1985

Aug 20-22 - Illinois Bell Fiber-Optic Showcase • Westmont, IL **Contact** Dennis Gonka; 312-727-3887.

Aug 26-29 - APCO/FCCA National Conference • San Diego, CA **Contact** 619-236-7044.

Aug 27-29 - INTERCONNECT '85 • San Mateo, CA **Contact** 312-782-8597.

□ September 1985

Sep 8-11 - CICA Annual Conference • Edmonton, AB **Contact** 416-499-4222.

Sep 9-11 - Eighth Annual Federal Computer Conference • Washington, DC **Contact** 617-358-5301.

Sep 16-20 - FOC/LAN 85 • San Francisco, CA **Contact** 617-787-1776.

Sep 16-20 - TCA Annual Conference • San Diego, CA **Contact** 818-960-1838.

Sep 17-19 - CARIBECOM '85 • San Juan, PR **Contact** 703-685-0600.

Sep 17-20 - Telocator Annual Conference • Las Vegas, NV **Contact** 202-659-6446.

Sep 23-25 - AAR Annual Meeting • Chicago, IL **Contact** 202-835-9100.

Sep 26-28 - EIA International Mobile Communications Show & Conference '85 • New Orleans, LA **Contact** 202-457-4935.

Sep 27-29 - SIRSA 1984 Annual Membership Meeting • Boca Raton, FL **Contact** 703-528-5115.

□ October 1985

Oct 3-5 - 4th Annual Land Mobile Expo/East • Atlanta, GA **Contact** Kathy Kriner; 303-694-1522.

Oct 7-11 - NASTD Annual Conference • Orlando, FL **Contact** 804-872-7272.

Oct 13-15 - USTA National Convention • San Antonio, TX **Contact** 202-872-1200.

Oct 14-17 - 8th Annual Midwest Telecommunications Conference • Minneapolis, MN **Contact** Chuck Champine; 612-540-1066.

Oct 15-17 - Satellite Communications Users Conference • New Orleans, LA **Contact** Kathy Kriner; 303-694-1522.

Oct 21-23 - Telecon V Teleconferencing Show • Anaheim, CA **Contact** 415-820-5563.

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Oct 29-31 - Sixth Annual Federal Office Automation Conference
• Washington, DC **Contact** 617-358-5301.

November 1985

Nov 6-8 - BIZTELCOM • Dallas, TX **Contact** 609-698-7020.

Nov 10-13 - SETA Annual Conference • Hollywood, FL **Contact**
804-746-3195.

Nov 13-15 - CMA Annual Conference • Long Island, NY **Contact**
201-766-3824.

December 1985

Dec 2-5 - GLOBECOM '85 • New Orleans, LA **Contact**
504-528-7350.

Dec 3-6 - NATA Convention & Exhibition • Dallas, TX **Contact**
202-296-9800.

• **END**

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communications systems

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UPDATING MATERIAL

April 1985

In addition to this newsletter, April updating material includes the reports described below. Please see the Communications Systems volumes to refer to these reports.

Technology Reports • describe technology and its application to the communication/telecommunication environment.

- The **Digital PBX—The Office Connection** report explores PBX concepts and applications, compares PBX and LAN technologies, and presents guidelines for evaluating, selecting, and installing a PBX system.

- The **Teleconferencing** report replaces teleconferencing technologies and trends, and presents guidelines for successful teleconferences.

Survey Reports • present succinct product profiles by product type:

- The **IBM 3270 Compatible & Replacement Products** survey report summarizes the important characteristics and features of **models** from **vendors**.

- The **Private Branch Exchanges—PBXs** survey report summarizes the salient characteristics and features of voice-only and voice and data analog and digital PBX systems. This survey contains **1 to 6 models** from **36 vendors**.

Product Reports • comprehensive, detailed analytical reports that evaluate key communication products:

- The **Amdahl 4705 Series** report is revised to include the new model T communication processor.

- The **Davox Information Display Systems** report is revised to include new products that offer greater operating flexibility.

- The **Executone Key Systems** and **Inter-Tel Key Systems** reports describe and evaluate these important key telephone systems from prominent industry vendors.

- The **Graphnet Freedom Network** report is revised to include new services and rates.

Please Route to:

- The **IBM 5250** and **3710** reports are revised to reflect IBM price changes.

- The **Infinet DMX Series Modems** report describes and evaluates Infinet's new family of dedicated diagnostic modems that supercede its older NCM Series for its network control and management system.

- The **NCR Comten 5620** report describes and evaluates NCR Comten's new communication processor which offers greater flexibility than its equivalent IBM 3710.

- The **NSC HYPERbus**, report is revised to include IBM cabling compatibility and attachments for IBM 3270 terminals and controllers to eliminate terminal-to-controller cables and support multihost operation.

- The **Protocol Computers (PCI) Protocol Converters** report describes and evaluates these important emulators for IBM 3274 and 3276 controllers with attached 3278 terminals.

- The **Racal-Milgo Communications Management Series** and **Omnimux Series** reports reflect the latest changes to these products that include a network control and management system and a family of statistical multiplexers with new models.

- Revised software communication reports include: **IBM CICS**, **Morino TSO/MON**, and **Pansophic O-W-L**.

ANNOUNCEMENTS

■ SPOTLIGHT

AT&T-IS UNVEILS OFFICE AUTOMATION PRODUCTS AT&T Information Systems; 100 Southgate Parkway, Morristown, NJ 07960; 201-898-8000.

On March 26, AT&T-IS addressed the office automation market with the unveiling of new products including an **advanced personal computer** and an **inexpensive network to interlink them**. AT&T-IS also announced **enhancements to its**

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PC 6300 that increase its performance to the equivalency of the IBM PC/AT **at a lower price**. The new products and PC 6300 enhancements include:

- **AT&T UNIX PC Model 7300**—a powerful multiuser, multitasking, desktop unit that integrates processing under UNIX System V operating system and voice/data communication and promotes ease-of-use through menus, windowing, and a mouse.

- **AT&T Personal Terminal Model 510**—an executive workstation with integral digital voice/data communication, soft-touch screen, snap-in cartridge software features including a 100/200 listing local directory and unauthorized use, security, single-touch access to voice/data information plus a host of other useful features.

- **AT&T Starlan Network**—a low-cost local area network that interconnects workstations, terminals, computers, and peripherals such as printers, disk drives, etc, via standard 2-pair twisted telephone wiring and modular plugs and supports 1M-bps data rates. It conforms with IEEE 802.3 and promises interconnection with AT&T-IS's ISN, IBM's SNA environment, Ethernet, and X.25 PDNs.

- **Application Software for UNIX PC**—a start-up library of 28 software packages including programming/development, communication, word processing, spreadsheets, database, graphics, and accounting packages are now available for the new UNIX PC Model 7300 with plans to double the number of programs by mid-1985.

- **AT&T PC 6300 Enhancements**—a Communication Manager that features an integral modem, concurrent voice/data transmission, single-button dialing, Microsoft XENIX operating system (used on IBM AT), a 20M-byte hard disk and a very high-speed co-processor that quickly and easily facilitates large-scale computing, are the latest enhancements for the year-old PC 6300.

UNIX PC 7300

The new AT&T PC 7300 is designed to meet the needs of the so-called knowledge worker. The **integrated telephony functions** and the **high-level user interface**, coupled with an **integrated mouse** for cursor and command control, make the system an easy-to-learn, easy-to-use personal workstation. Based on the second generation MC68010 processor, it is aggressively priced with entry-level configurations available at less than \$5,100.

The PC 7300 employs state-of-the-art, icon-based windowing software technology based on an enhanced version of UNIX System V (Version 5.2). The PC 7300 is perhaps the first desktop workstation to fully integrate computing and data communication.

The PC 7300 is composed of 4 basic units. The base unit houses the power supply, diskette drive, and hard disk storage, modem, processor logic, and 3 proprietary expansion slots. The detachable keyboard is a 103-key low profile design. The 12-inch monitor is green monochrome with medium resolution graphics capability. The fourth component is a 3-button mouse.

The unit's Motorola MC68010 processor runs at 10 MHz and utilizes 32-bit processing/16-bit data bus architecture, and

addressable virtual memory, which accommodates applications and data requiring memory capacity exceeding that of actual memory. A 16K-byte ROM handles bootstrapping and diagnostics; a 512K-byte RAM is standard and is expandable to 2M bytes in 512K-byte increments. A 512K-byte (320K-byte formatted) diskette drive backs up hard disk, loads application software, and coupled with PC Read function, provides compatibility with MS-DOS diskettes so data for common applications like dBASE III can be easily shared by UNIX PC and MS-DOS PC users. A 10M- or 20M-byte internal hard disk drive is provided depending on model.

The PC 7300 features a 9600-bps RS-232C communication port, a Centronics parallel printer port, an integral 300-/1200-bps modem (AT&T 212A compatible), 3 modular jacks, and 3 expansion slots. Additional features include clock/calendar with battery backup, start-up/user-initiated diagnostics, speaker, and remote console support. A 1A2 Key Adapter is optional and connects telephone hardware with modular interfaces to key systems using a 50-pin connector, providing access to up to 5 lines in a standard 25-pair cable.

The UNIX PC 7300 is compatible with the AT&T-IS 3B computer family (3B2, 3B5, and 3B20) which utilize the UNIX System V operating system. Application software which conforms to UNIX System V Interface Definition (SVID) specifications can be compiled to run on the UNIX PC, the 3B computer family and other SVID-compatible UNIX systems. The UNIX PC can read data from MS-DOS or IBM PC-DOS disks, but will not **run** MS-DOS or PC-DOS programs.

Available now, operating system software is provided in 3 discrete groups:

- **AT&T Bundled System Software**—includes core UNIX System V, Telephone Manager, Asynchronous Terminal Emulator, Diagnostics, Print Spooler, UUCP, User Interface, and GSS Drivers:

_____ \$495

- **AT&T Development Tools**—includes SORT (used to sort files in ascending or descending sequence on each key-in), MERGE (for file manipulation) and ISAM (Indexed Sequential Access Method) for file access:

_____ \$395

- **AT&T Utilities**—includes C Language, 68010 Assembler, optional UNIX commands, Enhanced Editors, Document Formatting Commands, Terminal Filter Commands, Program Development Commands, and SCCS (Source Code Control System):

_____ \$495

The UNIX PC 7300 is now available in 4 models which differ in RAM and hard disk capacity.

AT&T UNIX PC 7300 with 0.5M-byte RAM & 10M-byte Hard Disk:

_____ \$5,095

With Software:

_____ \$5,590

AT&T UNIX PC 7300 with 1M-byte RAM & 10M-byte Hard Disk:

\$5,495

With Software:

\$5,990

AT&T UNIX PC 7300 with 0.5M-byte RAM & 20M-byte Hard Disk:

\$5,695

With Software:

\$6,190

AT&T UNIX PC 7300 with 1M-byte RAM and 20M-byte Hard Disk:

\$6,095

With Software:

\$6,590

512K-byte RAM Expansion Card:

\$1,195

Conceived in 1982, the PC 7300 was designed in conjunction with Convergent Technologies which will manufacture the workstation under exclusive contract in its Santa Clara, CA facility. Development costs are reputed to be in excess of \$50 million. According to Yates Ventures, a market research firm, Convergent will manufacture **45,000 systems in 1985.**

AT&T Personal Terminal Model 510

The AT&T Personal Terminal is the complete manager or executive desktop tool. It provides managers with single-touch access to voice and data information and all System 75 and 85 PBX Unified Messaging services. Voice and data communication are fully integrated through a single digital port in the System 75 or 85. All functions are easy to use and easy to learn through its patented "soft" touch-sensitive screen. The AT&T Personal Terminal enhances voice communication and provides single-touch access to data communication, for example, with the AT&T UNIX PC. The AT&T Personal Terminal clears the desktop of a digital telephone, a 40-character message display, a modem, features of a Touch-a-Matic telephone, a speakerphone, a telephone directory, message slips, follow-up file, a "smart" asynchronous data terminal, and even a calculator and a clock.

Managers can add more software capabilities to the AT&T Personal Terminal with snap-in cartridges. The introductory/training cartridge, included with each terminal, guides first-time users. The optional telephone directory cartridge adds space for more entries or can be used as a backup file. The security cartridge allows the user to install and modify a password that locks out unauthorized users.

In addition, the AT&T Personal Terminal gives the user one-touch access to the company centralized database or any host computer, on or off premises, that has asynchronous dial-up ports. The AT&T Personal Terminal has an on-screen keyboard for quick updates to its personal directory or other local functions. With the optional keyboard, the AT&T Personal Terminal supports intensive data interactions, for example, with AT&T UNIX PC applications such as electronic mail,

spreadsheet, database management, and text editing.

The Personal Terminal is composed of 3 components: the base unit, an optional detachable keyboard which stows under the base unit, and a 9-inch monochrome monitor. The base unit contains a telephone handset with 7-foot cord, dial pad, speakerphone, microphone, cartridge port, Centronics parallel printer port, and corresponding manual controls.

The optional 72-key, typewriter-style keyboard contains cursor control keys, 8 function keys, and a dial-it key.

The green phosphor monochrome monitor displays 256 data characters in a 27-line x 80-column format; characters are displayed in a 6x10 matrix within an 8x12 cell. Video attributes include half-/full-intensity, reverse video, underline, and blinking; a blinking cursor is provided.

Standard features include an Integrated Digital Module for half-/full-duplex asynchronous transmission from 300 to 19.2K bps, character/block transmission, protected fields, 2 pages of data memory, parity checking, flow control, answerback, vertical/horizontal smooth scrolling, multiple screen windows, a 40/80/132-column display format, VT100 compatibility, AT&T 513 BCT emulation, separate user/host programmable action block labels for screen touchpoint applications, and a host-programmable touch screen. Diagnostic support is provided for all major terminal components.

Resident within the local memory are 3 personal services to improve ease of use and user productivity:

- **Local Directory**—stores up to 100 voice and data listings and displays them on-screen for single-touch activation. A single touch of a voice "touchpoint" initiates the call and simultaneously turns on the integrated speakerphone. A single touch of a data "touchpoint" displays the data screen and activates the Auto Log-In sequence.
- **Auto Log-In**—a feature of the Local Directory, provides single-touch access to information sources such as in-house databases, remote host subscription services, and the System 75 or System 85 Applications Processor.
- **Time Manager**—acts as a personal reminder system by displaying a daily activities list. Optional sound alarms are also provided when appropriate.
- **On-Screen Calculator**—allows the user to do simple mathematics calculations on-screen.

The data terminal includes flexible display features such as 40/80/132-column modes, horizontal/smooth scrolling, multiple windows, and protected fields/forms support. In addition, the touch screen technology of the data terminal allows the host to project and utilize "touchpoints" on the data screen to support specific touch screen applications.

The AT&T PT can also access any multiuser, multitasking processor, such as those in the full line of AT&T-IS UNIX System based computers, to perform workstation applications.

Seven on-screen blocks that are used primarily to access AT&T PT screens can be used as programmable function keys.

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An on-screen keyboard is provided for data entry and editing. An optional full-sized, stowable keyboard dialing is provided.

Software cartridges that slide into a cartridge slot at the rear of the terminal increase the AT&T PT capability. Three cartridges are initially available:

- The **Introduction/Training Cartridge** comes standard with each AT&T PT. This cartridge provides a step-by-step, on-screen tutorial to instruct the user on how to use the AT&T PT without needing to open a manual.
- The optional **Directory Cartridge** doubles the capacity of the Local Directory for additional directory storage.
- The **Security Cartridge** is also optional and performs the function of a software lock to prevent unauthorized access to the AT&T PT and functions.

The AT&T Personal Terminal Model 510 with Introductory/Training cartridge is priced at \$1,795. The optional keyboard is priced at \$100. Optional Directory and Security cartridges are available for \$70 and \$50, respectively.

AT&T Starlan Network

The AT&T Starlan Network is a low-cost LAN that interconnects workstations, terminals, computers, peripherals, etc., for resource sharing. The wiring scheme, 2-pair 24-AG twisted wire and standard 8-pin modular plugs/jacks, is compatible with AT&T standard for telephone wiring and facilities ease of installation, ease of expansion, and ease of reconfiguration. The network is compatible with the proposed IEEE 802.3 standard for 1M bps, CSMA/CD networks. Upper level protocols are compatible with Microsoft Networks and IBM PC Network to accommodate applications developed for these environments. It can be arranged in a daisychain configuration with up to 10 workstations, or a star configuration with from 20 to 200 devices depending on application or combinations of these arrangements.

The capacity of the network can expand to 1,200 physical connections to accommodate growth. AT&T-IS promises future gateways to its Information Systems Network (ISN), IBM's SNA, Ethernet, and X.25 networks.

Starlan currently supports the AT&T-IS PC 6300, UNIX PC 7300, 3B2 computer, and IBM PC, PC/XT, PC/AT, and PC-compatible models. Compatible operating systems are UNIX System V and MS-DOS 3.1.

Five network software packages are promised and include the AT&T Starlan:

- **Personal Computer 6300 Network Program** (fourth quarter 1985)—\$125.
- **UNIX PC Network Program** (fourth quarter 1985)—\$125.
- **UNIX PC Server Program** (first quarter 1985)—\$125.
- **3B2 Network Program** (first quarter 1986)—\$395.
- **3B2 Server Program** (first quarter 1986)—\$395.

Software compatibility is also provided for applications designed for Microsoft MS-NET and the IBM PC Network.

Starlan Network software supports messaging file and device

sharing. Shared resources include printers, disk storage, and backup devices. Resources can be shared among the PC 6300, IBM PC, PC/XT, PC/AT, and compatible equivalent. Server services are provided from the UNIX PC 7300, 3B2, and MS-DOS workstations. Most existing MS-DOS applications can access files resident on a server; users can access multiple servers, and multiple users can share information located on the file server. All printers currently supported by the PC 6300, UNIX PC 7300, and 3B2 are supported by the print server. Features supported include print queue query and administration services, restricted access to network resources, full-screen and command-level interfaces (each program), and record/file locking. The PC 6300 Network Program requires MS-DOS 3.1 in each workstation; server-mode workstations require hard-disk units.

Starlan hardware currently consists of 5 modules including 3 types of **Network Access Units (NAUs)** to connect the various workstations/PCs to the network, a **Network Extension Unit (NEU)** to expand the network, and a **Network Interface Unit (NIU)** to connect RS-232C interfaced asynchronous devices to the network. A **Starlan Interface Module**, planned for availability in second quarter 1986, will interconnect Starlan with the AT&T-IS Information Systems Network (ISN) through the ISN Packet Controller or the ISN Concentrator.

The **NAU** is a printed circuit board that slides into the expansion slot of a workstation/PC and interconnects the devices in a daisychain or star configuration through modular jacks/plugs. A convenience jack is also provided to connect a telephone. Diagnostic software accompanies the NAU on a diskette.

The **NEU**, a small unit that can be mounted in a telephone wiring closet or in the same room as the workstations, interconnects up to 11 discrete daisychained networks and directly connects workstations in a star configuration. As many as 12 NEUs can be interconnected creating a 2-tier hierarchy supporting up to 1200 connections from a single wiring closet.

The **NIU** contains 3 modular jacks, 2 of which connect RS-232C interfaced asynchronous devices (terminals/printers/modems/CPU's). The third jack is for analog telephone communication when Starlan is connected to in-house telephone system. Port parameters are 150/300/1200/2400/4800/9600/19.2K-bps data rates; 5/6/7/8 data bits per character; 1/1.5/2 stop bits; odd/even/no parity; XON/XOFF, RTS/CTS, DTR/DSR flow control, and selectable input/output buffer capacities.

Hardware pricing and availability is as follows:

- **PC 6300 NAU** (fourth quarter 1985)—\$595.
- **UNIX PC 7300 NAU** (fourth quarter 1985)—\$595.
- **3B2 NAU** (first quarter 1986)—\$895.
- **RS-232 NIU** (first quarter 1986)—\$750.
- **NEU** (fourth quarter 1985)—\$575.
- **ISN/Starlan IM** (second quarter 1986)—\$2,800.

A minimum-cost daisychain configuration will price at about \$720 per user including hardware, software, and cable. An 8-workstation star arrangement averages \$790 including

hardware, software, and 200 feet of cable.

PC 6300 Enhancements

Enhancements announced for the PC 6300 include:

- **PC 6300 with 20M-byte hard disk and 512K RAM** (July 1985)—price not announced.
- **Display Enhancement Board.**
- **Communications Manager** (April 1985)—\$599.
- **8087 Co-Processor** (April 1985)—\$295.
- **Mouse 6300** (April 1985)—\$150.
- **Mountain 6300 Combo** (April 1985)—\$5,595.
- **XENIX** multitasking operating system with software development package and text processing package (available now):
 - Operating System—\$395.
 - Software Development Package—\$450.
 - Text Processing Package—\$150.
- **Additional software** includes:
 - MS-DOS 3.1 availability and price not announced.
 - File It! (April 1985)—\$295.
 - Informix (April 1985)—\$795.
 - 513 Terminal Emulator (April 1985)—\$100.
 - Business Accounting System (second quarter 1985)—price not announced.

A new top-end model of the PC 6300 to be available in second quarter 1985 with 20M-byte integral half-height hard disk and 512K-byte RAM for users with expanded storage and memory requirements. An upgrade kit will be available for existing users.

The **Display Enhancement Board**, available in July 1985, is designed for business graphics as well as CAD/CAM applications. Minimum system requirements are a PC 6300 standard. Feature configuration highlights are:

- 16 shades in monochrome or color.
- concurrent blinking at 4 different rates.
- 4 frame buffers for animation applications.
- dithering.
- supports 2 concurrent monitors.
- overlay text on graphics mode or converse.
- transparent/disabled mode.
- supports 640x400 APA (all points addressable); 640x200 APA; 640x200 APA Graphics Mode.
- supports tiny text—80x50 character resolution in 640x400 graphics mode.
- 80x25 Alpha-Numeric Mode.
- compatible with existing software.

The **Communications Manager** is an expansion card that slides

into the PC 6300, IBM PC, PC/XT, and most IBM compatibles under MS-DOS 2.1, PC-DOS 2.0, or PC-DOS 2.1. It expands communication flexibility with telephone communication, concurrent/alternate voice/data transmission, single-touch dialing, terminal emulation (AT&T 4410/DEC VT100) concurrent context switching (switches between Communications Manager and DOS application with single keystroke); and an intended 300-/1200-bps, 212A-compatible modem. Incoming calls are automatically answered. A directory stores up to 200 names and phone numbers, automatically sorted into alphabetic order with personal comments; search command; single-keystroke auto dialing. Supports half-/full-duplex asynchronous communication. Modular jacks provided for voice line, data line, and telephone which can be 500/2500 type or 1A keyset with appropriate adapters. Requires 128K bytes of memory for Communications Manager and Concurrent Context Switch; additional memory required for concurrent applications.

The **8087-2 Co-processor** is designed for math-intensive applications and for vastly improved processing performance (8-MHz clock). It adds arithmetic, trigonometric, exponential, and logarithmic instructions to the PC 6300 repertoire. And it is fully compatible with the 24 addressing modes available on the 8086 processor and conforms to the IEEE floating point standard. Supports 8 data types: 8/16/32/64-bit integers; 32/64/80-bit floating point; and 18-digit BCD operands. Supports DR LOGO, DR C, DR PL/1, DR Pascal/MT, DR Graph, DR Draw, and SuperCalc 3.

The **Mouse 6300** is an ease-of-use feature that eliminates keystrokes, to access, move, or file information. The user manipulates information simply by pointing the mouse's cursor to the desired information on the screen and clicking one of the 2 mouse buttons. The mouse is applicable with Microsoft Word, Dr Draw, and Dr Graph. Keys must be used for Lotus 1-2-3, Multiplan, and SuperCalc 3. The mouse requires 256K bytes of RAM and plugs into the keyboard.

The **Mountain 6300 Combo** combines both disk and tape backup storage via a 30M-byte hard disk and a 27M-byte tape unit, both of which are fully compatible with the MS-DOS operating system. It can backup the entire contents of a 20M-byte hard disk in 6 minutes and requires no operator intervention once commands are entered. Rewinding and track addressing are fully automatic. It provides full error correction, and it can restore files according to the data last modified. File-by-file or complete tape restoration is optional.

Hard disk specifications are:

- 30M-byte capacity.
- 5M-bps data transfer rate.
- 45-millisecond average access time.
- 3600 rpm rotational speed.
- 800-tpi track density.

Tape drive specifications are:

- 27M-byte capacity.
- 90K-byte data transfer rate.
- 90-ips tape speed.

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XENIX 3.0 is a multitasking operating system which is used to run business applications, administer the system, edit files, and communicate with other users. It allows simultaneous file sharing between independent terminal operators or between any applications programs under control of one or more system operators. XENIX 3.0 is a fully licensed, commercially enhanced version of AT&T UNIX System III operating system and may co-reside on a hard disk with MS-DOS 2.11. XENIX 3.0 consists of 3 modules: the basic operating system, a text processing package, and a software development package which can be purchased separately to accommodate individual needs.

XENIX 3.0 highlights are:

- Contains 3 Modules:
 - Basic Operating System, containing 75% of the XENIX utility programs available and sufficient for most commercial applications.
 - Software Development Package, designed for advanced software development, computer graphics, circuit design, and image analysis.
 - Text Processing Package, used with a text editor for writing books and manuals or preparing camera-ready materials.
- Supports up to 2 simultaneous users on the AT&T PC 6300.
- Supports the use of floating-point arithmetic.
- Facilitates communication with other users.
- Allows the user to transfer files between MS-DOS 2.11 and XENIX 3.0.
- Provides file and record-locking capability to ensure data integrity.

XENIX 3.0 requires PC 6300 with 512K bytes of RAM and 10M-byte hard disk.

Additional Software for the PC 6300 includes:

- **MS-DOS 3.1**—an enhanced version of MS-DOS 2.11 (standard operating system of PC 6300). Allows interfacing with network systems such as Starlan Improved parameters.
- **File-IT!**—a fully interactive file manager for novice user to easily and quickly create and access databases. Easily integrated into more powerful Informix database management system. Runs under UNIX System V and MS-DOS operating systems.
- **Informix**—a full featured database management system for high-end application requirements. Runs under MS-DOS and UNIX System V.
- **513 Terminal Emulator**—AT&T-IS 513 terminal emulator compatible with the Context Switch, PC Interface, and Communications Manager. Allows user to switch between local processing and communication with single keystroke.
- **Business Accounting System**—an integrated accounting system for up to \$10,000,000 in sales. Composed of 5 modules: Order Entry/Inventory Management, General Ledger, Accounts Receivable, Accounts Payable, and Payroll.

Available as separate modules or complete package.

CODEX UNVEILS 4850 & 4860 NETWORK CONTROL SYSTEMS

Codex Corporation; 20 Cabot Boulevard, Mansfield, MA 02048; 617-364-2000.

Codex unveiled its latest network control and management system during an Interface '85 special briefing held at Delta Airlines headquarters in Atlanta. The Spotlight focused on the **Codex 4860**, a system designed in cooperation with Delta to monitor and control an online network of over 3,000 modems and 400 leased lines. In conjunction with the 4860 announcement, Codex introduced the **Codex 4850**, a smaller version of the 4860 yet also targeted at Fortune 500 users whose large-scale networking requirements represent a critical corporate asset.

The new Codex 4800 Series products integrate network control and management functions in a central-site capability. Both 4850 and 4860 operate through secondary channels of master and slave modems to provide a host of monitoring and diagnostic functions for point-to-point and multipoint lines. The two models consist of the following system components: 32-bit minicomputer, Distributed Network Processor (DNP), Network Control Terminal (NCT), system console, and printer. A basic 4850 system contains 50M bytes of disk storage and 2M bytes of main memory, up to 4 DNPs, and up to 6 NCTs. A basic 4860 system can be configured with 73M bytes of disk storage, 4M bytes of main memory, up to 6 DNPs, and up to 10 NCTs.

All line and modem conditions are automatically and continuously monitored by 4850 and 4860 systems. In addition, a variety of analog and digital tests can be initiated from Codex 4850 and 4860 Network Control Terminals (NCT) from either central or remote sites. These tests permit operators to identify and locate network problems. Among the tests generated are poll tests, device bit error rate tests, and line bit error rate tests. Poll testing isolates network problems on a multipoint line to a particular segment or modem. Device bit error testing for a particular modem identifies bit errors via modem loopback and a bit error rate test. Additionally, line bit error testing provides users with an end-to-end test of the phone line, without requiring trained technicians and specialized equipment at both sites. Transmit level and receive level tests, main channel fallback or reconfiguration, and hot-spare switchover are also available with the basic 4850 and 4860 systems.

In addition, 5 reporting functions are supported by the Codex Management Applications (CMA) facility. Generated reports include Site Management Reports, Equipment Management Reports, Problem Management Reports, and Alarm Management Reports. Furthermore, a customized report generator is provided for handling special reporting formats.

The basic Codex 4850 system costs \$84,400 and is available 90 days ARO.

In showcasing the Delta 4860 installation, Codex and Delta representatives demonstrated the cash flow, revenue, and productivity factors associated with network management. The 4860 system in operation at Delta distributes certain levels and types of diagnostic information to a set of devices, called agents, which are strategically located in different networks and/or products. The agents then collect, in some

cases process, and transmit back to a Codex applications processor for another level of processing. The compiled information is then passed to the operator interface for notification and action.

Also revealed at the special briefing, was Codex's involvement with current international standards activities. Foremost, the company has contributed to the formulation of a set of proposed architectures and standards which will facilitate the management and control of heterogeneous networks. These compiled documents will serve as part of U.S. proposals for adoption by the International Standards Organization (ISO).

PROTEAN INTRODUCES AN 80M-BPS VERSION OF ITS PRONET LAN

Protean; 4 Tech Circle, Matick, MA 01760; 617-655-3340.

Using many of the same components as its ProNET-10, Protean has developed a ProNET-80 LAN that implements a token ring architecture and supports a data rate of 80M bps. ProNET-80 can interconnect up to 240 computers. The system can function as a backbone network that interconnects multiple ProNET-10s or it can function as a high-speed network for such applications as graphics processing for CAD/CAM and Computer-Aided Tomography (CAT) and computer networking. Like the ProNET-10 the ProNET-80 can use twinax or fiber optic cabling. The ProNET-10 can also use twisted pair or infrared links. Protean has installed a ProNET-10 on IBM's cabling system at Carnegie Mellon University.

Protean implements the token ring architecture using a string of stars; each star is a wiring center with ports to connect computers or terminals to the network. The wiring center is passive. Computers connect to the network through a Controller Board (CTL), which is the same for all systems, and a host specific board (HSB). Batch ProNET-10 and -80 use the same HSBs as well wiring centers and cables. The CTL board for ProNET-10 is different from the one for ProNET-80.

The CTL board manages all the network transmissions—serial-to-parallel conversion, repeater, address recognition, parity check, token management, modem, bit stuffing, and error timeouts. The CTL board contains two 4K-byte receive FIFO (first in/first out) packet buffers to ensure that back-to-back packets will be received without loss of data. It also contains a 4K-byte transmit buffer.

The HSB performs all communications processing for the host: sequencing, buffering, and controlling. It contains packet buffers and full-duplex direct memory access (DMA) logic. It maintains two 2K-byte buffers: 1 for transmit and 1 for receive. Thus, ProNET-80 provides 3 receive and 2 transmit buffers in CTL and HSB combined.

ProNET-80 and -10 use the same token circulation scheme. ProNET-80 is implemented somewhat differently because of its high speed. The ProNET-80 CTL is implemented using emitter coupled logic (ECL).

For ProNET-10, the distance between wire centers and from host to Wire Center is 50 meters for twisted pair, 300 meters for twinax, using repeaters, 4 kilometers using Fiber Optic Links, and 250 meters using infrared devices. For ProNET-80, the distance between host and wire center and between Wire

Centers is 100 meters using twinax cable and 2 kilometers using fiber optic links.

Currently, Protean offers HSBs for Unibus and Multibus systems for the ProNET-80. A Terminal Interface Unit for asynchronous terminals is under development. A gateway for connection of ProNET-10 to ProNET-80 is under development. The wire center can provide 4, 8, 12, and 16 ports for connection of computers as network nodes.

Software includes ProNET Drives for VAX/VMS systems and Ringway software (DECnet drivers) for DECnet VAX/VMS and DECnet/RSX-11.

Protean sells its system OEM, primarily through value-added resellers (VARs), through distributors, and through direct sales force. Quadram is an OEM that sells the QUAD 9 base on the ProNET-10. Bell Atlanticom is a distributor of the ProNETs.

Purchase price is \$2,200 for a UNIBUS or MULTIBUS HSB, \$950 for CTL for ProNET-10, \$5,800 for CTL for ProNET-80, \$335 for a 4-node Wire Center, and \$2,300 for a pair of Fiber Optic Links (1 for each Wire Center).

Protean has sold hundreds of the ProNET-10s since it was announced in 1980. A ProNET-80 has been installed at the University of Wisconsin.

■ ANNOUNCEMENTS & NEW PRODUCTS

AMDAHL ANNOUNCES LOW-COST VERSION OF ITS T-1 MULTIPLEXER

Amdahl Corp, Communications Systems Division; 2500 Walnut Avenue, Marina Del Rey, CA 90291; 213-822-3202.

Amdahl announced the **2211L**, a new medium-speed, full-featured, entry-level-priced TDM to meet data communication needs for small and mid-sized networks. The 2211L is compatible with existing Amdahl 2211 multiplexers and combines the best features of the higher-speed units. The unit is primarily designed for use on Digital Data Services (DDS) 56K-bps services, but can be upgraded on-site to provide T1 trunking capabilities. In addition, the new device allows flexible network configuration; supports standard asynchronous data speeds from 110 to 19.2K bps and synchronous rates from 300 to 230.4 bps; supports voice transmission between 16K to 64K bps and trunk rates from 9.6K to 256K bps; provides trunk utilization up to 99 percent; and offers an extensive range of diagnostic tests.

The 2211 accepts plain English commands from the operator terminal, to configure a network of up to 27 pairs of multiplexers. Automatic framing allows configuration changes without disrupting service. Network configurations are stored in the unit and are not lost even during a power failure. Standard configurations are available to support asynchronous, synchronous, and voice applications. A unique feature includes integrated data sets for tail circuit extension and can provide up to 4 synchronous channels over one facility to reduce costs. The 2211L prices begin at \$5,700.

ANDERSON-JACOBSON INTRODUCES 2400-BPS FDX DIAL-UP MODEM

Anderson-Jacobson, Inc; 521 Charcot Avenue, San Jose, CA 95131; 408-263-8520.

The new **AJ Data Modem/2400** provides savings over 1200-bps dial-up modems for such applications as lengthy database searches, and high-volume micro-to-micro and

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micro-to-mainframe file transfers. The new modem transmits data, full-duplex, in both synchronous and asynchronous mode and features auto-logon for storing up to 20 logon sequences which can be linked with one or more of 20 directory-stored telephone numbers.

The AJ Data Modem/2400 is AT&T 212 compatible at 1200 bps and CCITT V.22 compatible at 2400 bps. It is intended to fill a gap in the Anderson-Jacobson low-to-medium speed standalone modem line. Diagnostic capabilities include digital loopback, analog loopback, and remote digital loopback. Priced at \$795, the new modem is available 30 days ARO.

AST OFFERING TWO CLUSTER CONTROLLER EMULATION PACKAGES FOR IBM PC AST Research, Inc; 2121 Alton Avenue, Irvine, CA 92714; 714-863-1333.

AST has announced the **AST-SNA/Cluster** and **AST-BSC/Cluster 2** packages that allow an IBM PC to emulate an IBM 3274 cluster controller and support communication with a remote IBM mainframe via either the SNA/SDLC or BSC line protocols. They facilitate mainframe communication for up to 4 PCs or asynchronous terminals attached to a single "master" PC with one of the new AST cluster controller packages installed.

The packages emulate a 3274 plus 3278 and 3279 terminals. Each AST cluster package includes 4 built-in asynchronous communication ports and RS-232C connector cables to accommodate up to 4 PCs or asynchronous terminals. Industry standard ASCII terminals supported by the 2 cluster packages include DEC VT100 and IBM 3101 terminals, as well as popular "look-alike" terminals manufactured by Lear Siegler, ADDS, and TeleVideo.

When using synchronous ports to support 3274 cluster controller, 3278/79 terminal, or 3287 printer emulation, both packages offer the following: EBCDIC-to-ASCII translation; half-duplex communication between the master controller PC and the host mainframe at speeds ranging from 1200 to 9600 bps; audible alarm; status line indicators; and basic 3270 screen attributes. In turn, the following features are supported by both packages when using the 4 asynchronous ports; full-duplex communication at speeds ranging from 110 to 9600 bps, and the ability to configure the number of data bits, number of stop bits, and screen handling attributes. The new emulation packages are priced at about \$3,000 each.

AT&T UNVEILS SOFTWARE DEFINED NETWORK AT&T Communications; 295 North Maple Avenue, Basking Ridge, NJ 07920; 201-221-2000.

AT&T Communications has announced a new offering that will allow large business customers to use portions of AT&T's long-distance network as part of their dedicated internal voice and data communication systems. The company, in filing with the FCC, said its Software Defined Network Service will give customers control of special call-routing features in AT&T's network, thus providing greater flexibility in managing their own communications networks quickly and cost-effectively. AT&T's new service will allow many of its customers to supplement or replace existing dedicated private lines. However, AT&T said, the service is not intended to take the place of all existing private lines because they may remain the most cost-effective way to address many customer needs. With private lines, customers pay flat

monthly charges to have point-to-point or multipoint analog/digital circuits available to them 24 hours a day for transmitting voice, data and video signals. By contrast, AT&T Software Defined Network Service customers pay for the time and distance for which they used the AT&T network.

The new service will allow businesses to design their own private communications systems using AT&T's digital No. 4 Electronic Switching System (ESS) to route calls. Customers can also use Software Defined Network Service features to change their call-routing patterns quickly from their own premises. Connections to the AT&T switched network are available at more than 600 serving offices nationwide, making it easy for customers to add locations, such as new sales offices, as soon as they obtained lines to connect each new location.

AT&T's Software Defined Network Service also provides improved network management features. For example, customers can use the service to assign specific calling privileges to selected employees; allow callers in any location to reach any other location on the private network by dialing a special 7-digit number, instead of 11 digits; obtain detailed reports about calls over the private network; and improve security because unauthorized callers cannot enter a customer's private, software-defined network.

AT&T said it expects customers to gain additional network flexibility and control from the new service in the future as new functions are introduced. The company said its pricing for the service would consist of charges for use of the AT&T network based on time and distance, optional network-management features and access channels to connect customers to AT&T serving offices. Pending regulatory approval, AT&T said it could begin providing Software Defined Network Service to its first customers later this year.

AT&T-IS ANNOUNCES DATAPHONE II ENHANCEMENT AT&T Information Systems; 100 Southgate Parkway, Morristown, NJ 07960; 201-898-8000.

AT&T-IS announced an enhancement to its Dataphone II Network Controller that can save its customers up to 40 percent of the peripheral equipment costs associated with their Dataphone network while extending the controller's monitoring and diagnostic management capabilities to more complex configurations.

The Network Controller is a device that monitors Dataphone II modems connected to data communication lines. It gathers information on the health and status of the modems from a central location in the network. The Network Controller is part of the third level of AT&T's 4-level Dataphone II product architecture, and has been in customer use since 1980. According to AT&T, the savings on peripheral equipment come from being able to use less expensive AT&T Model 4425 video display terminals, AT&T Model 475 printers and the recently announced AT&T 2212C modem.

Software enhancements to the Network Controller extend its monitoring and diagnostic management capabilities to network configurations with tandem multipoint circuits.

A typical configuration consisting of a network controller with 2.8b software, a 4425 terminal, a 475 printer, and a 2212C modem will cost about \$11,000 and will be generally avail-

able in April 1985.

AT&T-IS ALSO ANNOUNCES ACCESS CONTROLLER FOR DATAPHONE II LEVEL 4 AT&T-IS also announced a new **Access Controller** to serve as an interface between AT&T's Dataphone II, Level 4 System Controller and AT&T's Dataphone Multiplexers. The new device continuously monitors and controls all Dataphone multiplexers under the command of workstation terminals of the System Controller. According to AT&T-IS, customers who need to monitor and diagnose troubles of local and remote multiplexers will find the Access Controller a useful addition to Dataphone II, Level 4.

Workstation terminals of the System Controller connect transparently to any port of the Access Controller. The workstation issues commands and receives reports of the status of individual multiplexers and the network as a whole. An alarm from any multiplexer will change the status and alert the workstation. Keyboard action will determine the specific multiplexer and type of alarm. Multiplexer polling commands can be grouped and stored in the Access Controller for execution immediately, at a specific time, or repeatedly at chosen intervals. Each multiplexer attached to the Access Controller can be addressed with simple English commands.

The smallest version of the Access Controller can monitor 16 ports. It can be expanded to the largest 240-port system incrementally by adding expander chassis units and additional circuit packs.

The Access Controller will be available in May 1985, and will cost from \$6,085 to \$26,200, depending on configuration.

AT&T-IS DEMOS DMI AT INTERFACE 85 AT&T-IS demonstrated, for the first time, a working Digital Multiplexed Interface (DMI) at Interface 85. DMI is a standardized interface between a digital PBX and host computer. The demonstration of DMI was conducted jointly with Hewlett-Packard. An HP 3000 series host computer located in the HP booth at the show was hooked up by a DMI interface link to a System 85 digital PBX in the AT&T booth through approximately 800 feet of 4-wire telephone grade cable. HP graphics terminals both in the AT&T booth and the HP booth were connected through AT&T digital telephones to the System 85, which switched them through DMI to the HP host.

DMI supports 23 terminals (30 in Europe) at speeds up to 64K bps along with a common channel for signaling. DMI will support the CCITT recommended common channel messaging standard and is based on the ISDN primary rate interface standards for North America, Japan, and Europe. Other enhancements of DMI include a 64K bps multiwindowing capability for personal computers, already specified in detail for DMI licensees. Since DMI was first proposed, over 50 companies have obtained DMI licenses from AT&T Information Systems, 37 of which have publicly indicated their support of the DMI standard.

AT&T-NS UNVEILS NETWORK CONTROLLER AT&T NETWORK SYSTEMS AT&T Network Systems; 475 South Street, Morristown, NJ 07960; 201-631-6000.

AT&T Network System has announced the Western Electric Digital Access and Cross-Connect System (DACS), which uses time-space-time switching techniques for controlling

digital networks. DACs features automated local or remote control using a distributed microprocessor configuration with nonvolatile bubble memory. The system uses microprocessor-controlled electric cross-connection and test access for digital signals. It also provides direct termination to signals transmitted at the DS1 and DS1C rates. A single system can manage up to 128 digroups (1.544M bytes per second) including one normally reserved for test access. In addition, 1,524 cross-connections also can be managed by a single system. DACS is able to connect any DSO channel or multiples of up to 24 DSO channels from one terminating facility to any other terminating facility on command. Connections can be made from either local or remote operations locations. The system can provision and rearrange circuits quickly while improving facilities utilization.

The complete DACS framework consists of a double bay arrangement measuring 6'6" wide, 7' high and 12" deep. Principal equipment consists of 4 DACS units and a Controller. The Controller is further subdivided into a Microprocessor System, a Synchronization Module, and an Alarm Interface.

AT&T-NS ANNOUNCES HIGHEST CAPACITY LIGHTWAVE SYSTEM AT&T Network Systems has also announced an improved high-capacity lightwave communications system with the potential to carry more information than any lightwave system available commercially. Developed by AT&T Bell Laboratories, the Western Electric FT Series G system combines advanced laser, lightguide fiber and microelectronics technologies to operate initially at 417M bps the equivalent of some 24,200 telephone calls AT&T claims this is the highest capacity ever offered in a commercial lightwave system.

The new system uses single-mode fibers and lasers that operate at wavelengths in the 1.3 micron range. This combination will allow light pulses to travel as far as 24 miles before they need to be regenerated—an important factor in overall system cost and expense. The FT Series G provides interconnection at the standard DS3 transmission rate of 44.7M bps, already widely used in digital transmission between central offices.

Shipments of the 417M-bit system will begin this year, with first service scheduled for January 1986. The FT Series G system is targeted at the telecommunications industry's need for high-capacity digital transmission of voice, data, video, and graphics.

AT&T TELETYPE CORPORATION INTRODUCES ASYNCHRONOUS ADAPTER FOR ITS 3270-COMPATIBLE E4540 TERMINAL SYSTEM AT&T Teletype Corporation; 5555 Touhy Avenue, Skokie, IL 60077; 312-645-8800.

AT&T Teletype is now offering the **E4542 asynchronous adapter** for its synchronous E4540 terminal system. The adapter allows AT&T Teletype's 3270-compatible workstations to access IBM or async hosts operating with their protocol at the touch of a single keytop. Another keyboard-selectable option provides a horizontal split-screen mode which allows the terminal to interact with both an asynchronous and a synchronous host simultaneously. This feature, according to the company, could save time and improve productivity by allowing an operator to view, compare, and operate on data contained in more than one database at the same time.

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The asynchronous adapter consists of a small module and a program diskette. One module connects to a port on a tabletop BSC cluster controller, and 2 can be connected to a standard floorstanding controller. Each module provides the E4540 displays connected to the controller with access to 8 RS-232 asynchronous modem ports with line speeds of up to 2400 bps.

In asynchronous operation, the E4540 displays are compatible with application programs based on ANSI X3.64 display terminal protocol and DEC VT-100 and VT-52 operation. This includes many popular timesharing and other applications available on host computers using the UNIX System V operating system. The E4542 asynchronous adapter will be generally available beginning in the second quarter of 1985. Distributors list price is expected to be in the \$900 range.

BONNEVILLE TELECOMMUNICATIONS INTRODUCES DATA TRANSMISSION NETWORK Bonneville Telecommunications; 19 West South Temple, Salt Lake, UT; 801-532-3400.

Bonneville Telecommunications Company (BTC) introduced its **Bonneville Data Network** at Interface '85. The network supports point-to-multipoint data transmission; utilizing satellite and FM radio technology, messages and information are beamed instantly and simultaneously from a single point to an unlimited number of destinations.

The Bonneville Data Network provides an extremely fast and cost effective means for large and geographically dispersed companies to send data to personal computers and/or dumb terminals by using FM broadcasting frequencies. The cost savings to operations configured in a central office with dispersed branches are enormous. By eliminating costly and often unreliable land lines, the BTC system costs are distance insensitive.

Bonneville collects data to be distributed from a data provider, such as a company sending updates to regional sales offices, and then transmits it via satellite to FM radio stations nationwide, which in turn broadcast that data on the FM sideband or subcarrier to individual personal computers or printing terminals located within the broadcast area of each radio station.

Applications for the BTC data network are found within industries as diverse as banking, retailing, electronic publishing, security, and database distribution.

BRITISH TELECOM BUSINESS SYSTEMS LAUNCHES NEW 9600 MODEM British Telecom; 23 Howland Street, London, England W1P 6HQ.

British Telecom Business Systems has introduced a new modem designated the **DM4926X**. According to the vendor, this is one of the first 9600 modem offering to meet CCITT Recommendation V.32. The DM4962X provides full-duplex operation at 9600 bps over 2-wire circuits and can be used on connections through the public switched telephone network (PSTN). DM4962X offers a range of features including: 9600/4800 bps synchronous or asynchronous operation; automatic speed and bit rate selection to match the remote end; local or remote soft-strap configuration; and automatic adaptive equalizer and echo-canceller.

British Telecom is currently seeking U.S. distributors for DM4926X. Initial deliveries are scheduled for 1985. At the

present time, no set purchase price has been established.

CASE INTRODUCES 5000 & 4000 SERIES NETWORK PRODUCTS

Case-Rixon Communications, Inc.; 2120 Industrial Parkway, Silver Spring, MD 20904; 301-622-2121.

The CASE **5200 system** represents this vendor's entrance into the realm of network control and management. A network management processor, the 5200 comprises a central-site controller based on a 32-bit computer with color graphic workstations. The 5200 provides the facilities needed to integrate CASE data communication equipment into a network featuring comprehensive diagnostics and control. It also addresses issues such as network restoral, performance measurements, and problem management.

The 5200 allows users to control an entire data communication network and its various components. In addition to modems, wraparounds, and DCX multiplexers, a common interface on products currently under development will allow management of Data Service Units (DSUs), Channel Service Units (CSUs), T1 multiplexers, LANs, and new generations of networking products. The 5200s downline configuration and testing function supports all set-up and testing of remote locations. CASE has also announced the availability of **5010 and 5020** "wraparound" units. These new devices allow network management facilities to be extended to existing networks containing nondiagnostic and other vendor's modems. The 5010 monitors the digital interface between a modem and its attached terminal, while the 5020 also monitors the analog interface on the line side of the modem.

In conjunction with the 5000 series announcements, CASE has also introduced a line of high-speed modems with diagnostic options. The CASE **4000 Series** includes 4800-bps, 9600-bps, and 14.4K-bps models for synchronous transmission over dedicated lines with fallback over switched telephone network. All 3 units are available in both standalone and rackmount versions.

The new modems are fully supported by the company's Series 5000 network management system. The diagnostic and remote control facilities are supported by an optional printed circuit card that can be plugged into each unit. The diagnostic card communicates information back to the network management processor using a separate channel with the same transmission line as the data traffic. Each modem can be configured and tested through a touch-sensitive LCD front panel where an LCD display shows the modem status in plain English. Alternatively, the addition of a diagnostic option card in the modem will allow configuration to be carried out from a remote central site.

Each modem can be fitted with a multiplexer option that can split the statistics for long-term development of the network. At the operational level, system faults trigger alarms and trouble tickets can be constructed for the implementation of remedial action. While sophisticated switching devices will implement rerouting procedures locally, reporting the results back to the controller, in the case of a modem failure, the 5200 will isolate the fault by restoring transmission through the switched telephone network.

All CASE 5000 and 4000 Series products are currently available. The CASE 5200 has a purchase price range of \$12,000 to \$50,000 depending upon system configuration. Purchase

prices for the 5010 and 5020 are \$595 and \$695, respectively. Additionally, 4000 Series purchase prices are as follows: \$1,995 for Model 4048; \$2,995 for Model 4096; and \$7,995 for Model 4144.

CASE ADDS PROTOCOL CONVERTER TO DCX MUX LINE CASE is now offering its **Bluegate protocol converter**, an IBM 3271/3274 emulator, for its DCX 840/850 statistical multiplexer to allow asynchronous ASCII terminals to interface with IBM hosts using BSC protocol. The Bluegate protocol converters slide into a card slot in the mux frame and makes the attached terminals look like IBM 3277/3278 displays. Each Bluegate card supports up to 32 users; up to 10 Bluegates can be handled by a single mux.

CCI INTRODUCES 8400 SUPERBAND T1 PROCESSOR Computer Communications Inc; 2610 Columbia Street, Torrance, CA 90503; 213-320-9101.

CCI announced Release 1.0 of its new 8400 Superband T1 Processor, designed for high-speed data file transfers between mainframe computer systems. Superband 1.0 attaches to up to 4 IBM byte, block, or selector channels, and up to 4 T1 communications lines, each of which operates at 1.544M bps. It features a software-driven architecture. A special supervisory console and status panel allows operators to perform path management, diagnostics, and dynamic system reconfiguration. Future releases will support up to 8 communications lines and IBM SNA and pre-SNA access methods.

The 8400 Superband T1 Processor was scheduled for delivery first quarter 1985. Typical system prices range from \$80,000 to \$120,000.

CENTIGRAM ANNOUNCES NEW VOICE MESSAGING ENHANCEMENTS Centigram Corporation; 1883 Ringwood Avenue, San Jose, CA 95131; 408-291-8200.

Centigram Corporations's latest VoiceMemo software package provides three new voice messaging features. Release 2.07 contains a **flexible billing package** which enables companies to determine departmental usage of the VoiceMemo system. Reports can be generated by the number of messages left in a mailbox, the number of times a mailbox is used and the amount of storage time used. System administrators can review usage statistics and print reports at any time. An **automated attendant** helps companies reduce the number of calls which come through their switchboard attendants. When a call comes in, it goes automatically to the VoiceMemo system which announces the company name. The caller is given the option to either enter an extension number or be automatically transferred to the attendant for assistance. **Extended paging capabilities** give VoiceMemo the ability to support up to 16 different paging systems. Previously only 6 paging systems could be used. Users of paging devices are automatically paged every 10 minutes (for a total of 6 times) whenever a message is left in the user's mailbox. VoiceMemo with the 2.07 software is available for immediate delivery.

CERMETEK MICROELECTRONICS ADDS SWITCHING STAT MUX TO LINE-UP Cermetek Microelectronics, Inc; 1308 Borregas Avenue, P.O. Box 3565, Sunnyvale, CA 94088; 408-752-5000.

A 3-channel switching statistical multiplexer has been released by Cermetek. The **Cermetek 3X1200 Multiplexer**

concentrates 3 serial communication ports into one for transmission over a single voice-grade telephone line to another 3X1200 Multiplexer using its built-in 1200-/300-bps modem.

The new Cermetek 3X1200 Multiplexer employs a concentrating protocol which monitors received data for errors. If an error is detected, the remote 3X1200 Multiplexer is automatically requested to retransmit the data.

The Cermetek 3X1200 additionally supports switched multiplexing, unlike most other multiplexers, which operate on only a fixed channel basis. Fixed channel multiplexers require port 1 on the local multiplexer to communicate with port 1 on the remote multiplexer, etc. The 3X1200 Multiplexer allows each port to communicate with any other port on the remote multiplexer. The multiplexer can also connect to other single user modems, allowing 3 users to alternately use the built-in modem to access databases such as The Source and Dow Jones News/Retrieval.

Additional system features include support for setting local and remote multiplexer parameters from a terminal connected to any local or remote port and password protection of all parameter settings. Time and usage statistics are gathered and maintained on all ports for management reporting and review.

The Cermetek 3X1200 Multiplexer is available directly from Cermetek or one of its authorized distributors at a list price of \$1,395.

COMDESIGN INTRODUCES FUTURECOM 2000 NETWORK ComDesign, Inc; 751 South Kellogg Avenue, Goleta, CA 93117-3880; 805-964-9852.

ComDesign announced its **FutureCom 2000 Integrated Area Network** at Interface '85. FutureCom 2000 interconnects multiple LANs and WANs in a single network and is a comprehensive solution to the problem of distributed data communication among incompatible terminals within multiple network configurations. Terminals can establish a virtual circuit connection to other resources located within adjacent networks.

FutureCom 2000 functions independently of network topology and transmission media, supporting bus, WANs, coaxial cable, and other media, and can be quickly and easily modified to work with any networking scheme and support new technologies as they are developed.

FutureCom 2000 is an integrated product line based on a proprietary protocol called the Compatible Communications Architecture (CCA). CCA utilizes the best features of several different protocols to provide the compatibility and integration required to connect different local and wide area networks. CCA's layered architecture and modular software base provide for FutureCom's ease of migration to new topologies and media.

FutureCom's components include the **LS-2000 Local Server**, the **RS-2000 Remote Server** and the **NS-2000 Network Server**. The LS-2000 Local Server concentrates data traffic from up to 32 devices onto a local area network. Multiple LS-2000 nodes can be connected to a local area network and interconnect via an NS-2000 Network Server to RS-2000 Remote Servers on wide area networks.

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The RS-2000 Remote Server establishes multipoint connectivity between distributed computer resources. In conjunction with the NS-2000, the RS-2000 allows access to resources attached to LAN nodes. The RS-2000 establishes virtual circuit connections between user resources in geographically separated lines (WANs). Dynamic resource access allows the user to request access to another resource on the same or different online nodes, using logical names, which eliminates the need to know where that resource resides. A call request automatically establishes the most direct and efficient connection. The RS-2000 connects up to 32 user channels in its current release, with 4 composite RS-232C concentrated links.

The NS-2000 Network Server is the key to the integrated area network design. As a gateway node bridging different and normally incompatible transmission media, the NS-2000 combines multiple LANs and WANs into a single cohesive networking system. An NS-2000 on each node group provides remote access from LAN-based resources residing in physically separate LANs, such as CPU ports, terminals, printers, data collection devices, etc. The NS-2000 functions as an Ethernet controller with an Ethernet link and currently up to 4 RS-232C wide area links. Connection to the cable is via a standard transceiver to either type of coaxial cable currently supported by Ethernet. An 8-link version is planned.

Any of these components can function independently. Together they comprise an integrated solution for a combined wide area/local area switching network, providing end-to-end network control. The entire network can be **configured** and **monitored** from **any** user channel on **any** FutureCom node, with password authorization to the supervisory control logic. This distributed intelligence approach provides for a flexible network that can be expanded almost infinitely and managed easily with no single point of failure.

Security is provided by programmable resource access and password protection. An additional security mask is provided for in the protocol to handle gateway access between disparate networks. The establishment of multiple communication paths safeguards the network in case of failure in one of the links.

Modular hardware and software supports ease of installation, use, and upgrading. Implementation costs are minimized and users' cost-per-connection is decreased. The need to centralize network control on a main control node is bypassed.

In its initial release FutureCom 2000 supports Ethernet LANs and RS-232C connections, with additional networking standards slated for development. Ethernet was selected because of its large installed base and effectiveness for interactive data traffic. An X.25 gateway is currently in development. Connection to Thin Ethernet is also supported in the initial release.

FutureCom supports data transfer speeds of up to 19.2K bps on RS-232C links and async speeds from 300 to 9600 bps per channel.

ComDesign will market and support FutureCom internationally through its direct sales force and already installed base of manufacturer's representatives and distributors.

The FutureCom product line will be available in production

quantities in the third quarter of 1985. The NS-2000 is priced at \$5,800. The LS-2000 ranges from \$4,300 (8 ports) to \$7,700 (32 ports). The RS-2000 ranges from \$3,800 (8 ports) to \$10,300 (32 ports).

CONCORD DATA RELEASES CDS 224 TRISPEED MODEM
Concord Data; 303 Bear Hill Road, Waltham, MA 02154; 617-890-1394.

Concord Data has introduced its first single-card, dial-line rackmount modem. The **CDS 224 Trispeed** operates synchronously/asynchronously at 2400/1200 bps and asynchronously at 300 bps. The CDS 224 Trispeed modem is designed to transmit and receive data at 2400 bps, 1200 bps, or 300 bps. When receiving data, the CDS 224 Trispeed modem's auto-answer feature automatically adjusts it to the speed of the incoming call. This feature eliminates the need to assign separate dial-in numbers for each modem speed, and allows all users to access the central site facility using a modem and the same phone line. The CDS 224 Trispeed modem also provides space savings for environments where mounting space and density are critical. Each 3-speed modem card requires only one card slot and is plug-compatible with a variety of rackmount chassis.

The CDS 224 Trispeed modem's optional autodial feature permits unattended central site out-dialing to remote sites, allowing data transfer during off-hours when telephone costs are lower. The modem's autodial supports both pulse and tone telephone systems and single-stroke keyboard or software controlled dialing functions. Integral autodial features include automatic dialing, redialing, on-screen call progress monitoring, diagnostics, and mode setting functions. When used in conjunction with a telecommunication software package, the CDS 224 Trispeed allows users to store multiple numbers and automatically access databases and online news and information services.

In addition, the new unit features automatic adaptive equalization at 2400 and 1200 bps to compensate for telephone line interference. System diagnostics include Loop 2 (digital self-test), Loop 3 (analog self-test), and an internal test pattern generator. The CDC 224 card is priced at \$855 or \$895 with autodial option.

DAMA DEMONSTRATES WIDEBAND DATA CAPABILITY OF INTEGRATED VOICE/DATA SYSTEM AT INTERFACE '85
Dama Telecommunications Corporation; 169 Johnson Road, Parsippany, NJ 07054; 201-898-9300.

Dama Telecommunications demonstrated the demand assigned wideband data transmission capability of DamaNet, its fully integrated voice/data network, at Interface '85. The company also exhibited DataCom, its switched long distance service.

The DamaNet service offers demand assigned user selectable data rates from 2.4K bps through 512K bps for both standalone and fully integrated voice and data applications.

According to Dama, corporate information managers will find DamaNet especially attractive for those high-speed data applications that require wideband transmission facilities over 19.2K bps. Users can choose the required bandwidth whenever needed, and only pay for data rate selected and time actually used.

High-speed printing, remote job entry, CAD/CAM data transfers, and business video-teleconferencing are specific applications satisfied by DamaNet's demand assigned wideband data transmission capability. DamaNet also accommodates point-to-point and ETN-like switched voice environments, and satisfies low-speed data needs.

DamaNet creates end-to-end digital facilities among corporate locations by linking proprietary customer premises equipment (CPE) and a nationwide wideband network. The network consists of satellite, terrestrial microwave, and optic fiber for long-haul distribution, and digital termination systems (DTS), broadband cable and DS-1 facilities for local transmission. DamaNet's Network Control Center monitors and controls operations for the system, which will serve over 50 major metropolitan areas when fully deployed.

The company's DamaCom service is based on the telecommunications system acquired by Dama from International Harvester in March 1984.

The DamaCom service provides long distance service within the contiguous United States, Alaska, Hawaii, Puerto Rico, and the U.S. Virgin Islands. Its (Banded WATS type) pricing includes all major metropolitan areas and more than 75 percent of all exchanges within its low cost "on-net" service definition. Special flat rate pricing of \$0.17 per minute, billed in 6-second increments, applies between DamaCom switching cities and other key locations. DamaCom has common carrier digital switches located in Oak Brook IL; Memphis, TN; Philadelphia, PA; and San Diego, CA.

DamaCom features include: Centralized trouble reporting, complete telemanagement, comprehensive call detail analysis, optional customized directory assistance and optional customized reporting.

Dama Telecommunications Corporation is a privately-held company authorized by the FCC to operate as a common carrier in the Digital Electronic Message Service (DEMS).

DATAGRAM ANNOUNCES STEAMER STAT MUX/DATA COMPRESSOR Datagram U.S.A.; 11 Main Street, East Greenwich, RI 02818; 401-885-4840.

Datagram has just released its latest market offering, the **Steamer DM-700** data compressor combined with statistical multiplexer. The Steamer employs a proprietary compression algorithm designed to provide composite data throughput that exceeds current stat mux or data compressor offerings.

This compressed algorithm analyzes incoming data streams on port-by-port basis and on a directional basis. Therefore, the compression routines used for an individual port can be different from the routines used on another port or even the same port for data being transmitted in the other direction. Datagram is utilizing this new approach to support the significant differences in traffic between ports or between directions on the same port. Compression ratios with Steamer average 2.2:1 to 3.3:1 as compared with 2:1 averages offered by competing products.

The Steamer's statistical multiplexer routine accommodates data from up to 8 asynchronous channels at speeds up to 9600 bps. Composite-link data is transmitted, in compressed form, over a full-duplex link at up to 9600 bps utilizing the X.25 Level II protocol. Additionally, the stat mux algorithm

includes a contention and switching feature.

The Steamer is targeted at users with the following application requirements: remote file transfer, graphics generation, computer-to-computer and computer-to-terminal communication on the same link, the increase of terminal quantity without the necessity of scrapping the current modem investment, and the maintenance of system throughput when modems are operating in fallback mode because of line degradation.

Introductory prices for the 3-channel unit start at \$1,395 and extend to \$4,995 for the 8-channel unit with built-in 9600-bps modem.

DCA ANNOUNCES NETLINK II T1 MUX Digital Communications Associates, Inc; 303 Technology Park, Norcross, GA 30092; 404-448-1400.

Digital Communications Associates has officially announced **Netlink II**, an enhanced high-speed TDM. Like the original Netlink, Netlink II provides voice, data, and compressed video transmission at speeds up to 1.544M bps or 2.048M bps, while offering the following new features. Data Decisions had advanced knowledge of this product and published a full report (see 930-D665-0097).

Netlink II is compatible with any asynchronous ASCII terminal, as well as DCA's Network Management System (NMS). NMS allows a network manager to utilize an IBM PC or PC/XT to control the entire network from one central location. The independent processing power of the PC, incorporation NMS software, allows network managers to diagnose system problems, change channel parameters, complete configurations, and analyze trunk utilization and port expansion capabilities at a glance. Netlink II, with expanded statistics and menus, provides the NMS with the necessary data to display and evaluate this information.

Netlink II also supports drop and insert place bypass applications for multipoint networks. Other system features include fully-redundant power, logic, T-carrier modems; support for independent trunk clocks; D4 framing compatible with Accunet T1.5 service, and time-of-day reconfiguration. Also announced is a new voice card employing CVSD, which quantizes voice at 32K bps.

Netlink II is available in 2 sizes: a 44-channel desktop unit, expandable to 128 channels in rackmount form; a 20-channel desktop unit with the same capabilities but designed for smaller applications. The 44-channel unit of Netlink II is available now, with system prices starting at \$5,795. The 20-channel unit will be available in May 1985, with system prices starting at \$4,195.

DCA ANNOUNCES SWITCHING NETLINK DCA also announces new **Switching Netlink**, an enhanced high-speed TDM. Like the original Netlink, Switching Netlink provides voice, data, and compressed video transmission at speeds up to 1.544M bps or 2.048M bps, with switching. Switching netlink allows users to assign **individual channels** or **groups of channels** to various destinations throughout the network.

Switching Netlink performs all switching functions via software-programmable commands that the network manager or operator enters from an operator's console. Using the operator's console, network managers can store

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preprogrammed configurations that Switching Netlink executes at the proper time, or change channel destinations online. The console also provides a central point for controlling all Netlinks in the network. In addition, network managers can program the time-of-day configurations to change the routing schemes of devices in the network automatically at specified times.

Because it is compatible with DCA's Network Management System, Switching Netlink provides expanded diagnostics and monitoring capabilities. NMS allows a network manager to utilize an IBM PC or PC/XT to control the entire network from one central location. The independent processing power of the PC, incorporating NMS software, allows network managers to diagnose system problems, change channel parameters or complete configurations, and analyze trunk utilization and port expansion capabilities at a glance. With its expanded statistics and menus, Switching Netlink provides the NMS with the necessary data to display and evaluate this information.

With its flexible bus structure, Switching Netlink provides software-programmable drop and insert and bypass functionality. More importantly, it provides rapid, nondisruptive fault isolation without forcing the network manager to reprogram the equipment to multiple point-to-point configurations, as is required in conventional multitrunk multiplexing. Switching Netlink is available now, with system prices starting at \$6,295.

DIGILOG ANNOUNCES MODEM-BASED NETWORK MANAGEMENT SYSTEM Digilog Inc; 1370 Walsh Road, Montgomeryville, PA 18936; 215-628-4530.

The Network Control Division of Digilog has released a network control system that adds intelligent capabilities to any vendor's modem for automatic digital and VF alarming, modem, and terminal status checking, remote testing, and streaming device detection and correction. The new Modem Diagnostic Test System (MDTS) is based on an IBM PC and Digilog proprietary software. The system controller maintains the system database. This database contains information on circuits and drops in the system to create a user-friendly operator interface. For ease of use operation, the database refers to these entries with user-defined names.

The MDTS central workstation monitors the operation of the network modems and maintains a record of alarm conditions. Functions are provided which permit the user to selectively enable or disable each monitor function, set high and low limits for alarm processing and check the current state of each monitored point. A total of 14 signals are included in the monitoring function. This includes 10 EIA leads, 2 analog signals, and 2 auxiliary inputs.

From the controller, the operator can command an individual Modem Wrap Around Box, WRB/1, or a group of WRB/1s to perform interruptive tests on the network. The "wrap-around" devices enable the user to equip each modem, regardless of manufacturer, with central alarm and remote testing capabilities.

MDTS tests include digital and analog loopbacks, bit error rate tests, polling tests, analog level measurements and self tests. The system also provides an automatic disconnect feature for controlling a "streaming" modem or terminal. This

feature can be enabled or disabled from the MDTS console.

In order to equip the modems with intelligent capabilities, Digilog's WRB/1s electrically surround existing modems within the network. WRB/1 provides a secondary channel over the same communications lines used for the network. The wrap box interfaces with a wide variety of 4-wire, leased-line modems that operate in the range of 1200 to 9600 bps.

The MDTS Expansion Unit, MDTS/XP, provides the necessary interface and control for networks requiring more than 32 Modem Wrap Around Boxes. This modular unit expands the system's capacity to 512 wrap boxes. The MDTS controller interfaces with up to 2 expansion units. This doubles the number of lines the system can handle.

Currently available, the MDTS controller ranges in price from \$4,000 to \$16,000 excluding wrap boxes depending upon network configuration. Individual wrap boxes cost \$865 per modem.

DIGILOG ANNOUNCES PC-BASED NETWORK DIAGNOSTIC TEST SYSTEM Digilog Network Control Division, announced its new Network Diagnostic and Test System (NDTS), an easy-to-use network control system for alarming, monitoring, and test access.

The NTS overlays existing networks and uses an IBM PC as the system controller. NDTS accesses RS-232C, V.35 and VF circuits and can accommodate 256 lines. From the PC console the operator has centralized control for monitoring fault alarms and network status, testing system circuits, and performing A/B switching.

NDTS utilizes a database which identifies circuits and equipment with user-defined names rather than difficult-to-remember codes. The database also provides a comment field which permits the user to store up to 200 characters describing each circuit. By entering the user-defined circuit name, the operator has instant information on the circuit and any comments or problems.

The system provides user-selectable alarm information for the EIA and VF interface. Upon detection of an alarm, the system will post the circuit identification, a description of the alarm that was detected and a date-time stamp both to the CRT and the system printer. Through the CRT console the operator may then access the circuit for monitoring or testing to determine the exact nature of the problem. Once the problem has been identified he may then decide to utilize the NDTS A/B switching feature to restore his or her circuit to operational status.

For ease of use, NDTS also provides a series of "test busses" and a test equipment access matrix which will automatically connect the proper test equipment to the circuit under test. The operator can also request a "snapshot" of an alarming circuit. NDTS will display the RS-232C signal levels or state of activity, the transmit and receive analog levels and the current position of any A/B switches.

Initial deliveries of NDTS are scheduled to commence in July 1985. The purchase price is approximately \$800 per line, depending upon network configuration.

DOELZ NETWORKS INTRODUCES PACKET SWITCH FOR LARGE NETWORKS Doelz Networks, Inc; 18581 Teller Avenue, Irvine, CA

92715-1693; 714-851-2223.

At Interface '85, Doelz Networks introduced its **Esprit One** virtual circuit packet switch, a high-performance, high-speed switch for wide-area and global communication networks.

The Esprit One incorporates a single coherent network architecture, the foundation for all Doelz Networks' products. Doelz Networks' family of products form data transportation paths that transfer information from origin to destination without format or protocol conversion. The virtual circuits are bidirectional and independent of differences in media, speed, attached devices, and their protocols.

The Esprit One can switch up to 16,000 concurrent virtual circuits to operate as the communication hub for a data network; it can be linked with up to 99 other Esprit One switches to form the backbone of a larger network with more than 500,000 users, and it can be connected to the company's Elite One to serve as the switch between Elite One Network Links to provide a data distribution system.

Esprit One supports multiple concurrent protocols, including ASYNC, BISYNC, SNA, SDLC, and X.25. In addition, it provides security via passwords and restricted user groups, end-to-end error control, internal diagnostics, port contention and integral network management. It supports local port data transfer rates up to 19.2K bps and network trunk data transfer rates up to 72K bps; and it switches at 2M bps in full redundant mode independent of loading.

The Esprit One is compatible with Doelz's other products, including the Elite One multipoint concentrator switch, which provides a modular approach to creating and expanding networks. They all use the same network control capability. The combination of Esprit One and Elite One units provide a highly responsive and cost effective distributed packet network.

Network reliability and data integrity are ensured by fault tolerant construction; which features triple switching with majority vote logic and a dual data bus. If either bus fails, the remaining bus can continue switching operations at 90 percent of the rated switching capacity.

Individual power supplies are provided for each functional element to limit the effect of a power loss to a single functional element. Battery backup is standard to protect configuration memory in the event of power loss.

Continuous data transmission is provided by automatic alternate routing which contains both primary and secondary data transmission paths. If the primary path fails, data is automatically redirected through the network over the secondary path.

The switch ensures rapid and responsive data transmission through use of short packets and a selectable-by-port, automatic-repeat-request function. This approach allows error correction on a by-user basis and eliminates data disassembly and reassembly at each node along the transmission path.

Integral switching and contention is used to provide a variety of users with access to the network. Four customer-programmable priority levels for access to the transmission link enable the mixing of interactive and batch traffic. Priorities

are customer-selectable on a port-by-port basis via the network manager.

In conjunction with the Elite One concentrator switch, virtual multidrop networks for both synchronous and asynchronous applications can be accommodated over the same network link. Each network link also features self healing.

The Esprit One consists of proprietary printed circuit boards, each of which contains a 10M Hz MC68000 microprocessor and up to 1M bit of RAM. The proprietary real-time operating system is universal to Doelz Networks product family.

Basic unit price including redundant switching and dual bus is \$42,000. Delivery is 90 days ARO.

DOELZ NETWORKS DEMONSTRATES MULTIPOINT CONCENTRATOR SWITCH Doelz Networks demonstrated its **Elite One multipoint concentrator switch** at Interface '85.

The switch employs a technology and architecture that is the basis for all Doelz Networks' network products. The Elite One consists of 3 Doelz Networks' proprietary printed circuit boards in a compact cabinet. Each networking interface module (NIM) contains a 10-MHz MC68000 microprocessor, 256K-byte EPROM, and 128K bytes of RAM. A proprietary real-time operating system is universal to the entire Doelz family of products.

The capabilities required to create an open network system are inherent in Doelz Networks products' architecture and include switching, contention, data concentration, multiplexing, multidrop configuration, handling multiple protocols, and 4 customer-defined priority levels.

The company's products use combined circuit-switching and packet-switching techniques to establish a virtual path between origin and destination ports.

A virtual multidrop network option is available with the Elite One for applications requiring interactive terminal access from geographically separated facilities into a central computer. This virtual multidrop scheme supports multiple dissimilar protocols over a single Network Link for increased information transfer through the network at reduced modem and line costs.

A Doelz network is created by connecting several Elite One nodes to form a Network Link or by interconnecting a series of Network Links with Doelz Networks' Esprit One high-speed, high-performance concentrator switch.

Doelz Networks' approach allows efficient use of bandwidth on all available transmission media, control, and maintainability through integral network management and rapid service restoral through a "self-healing" capability.

The Doelz product performs several functions simultaneously: virtual switching, data traffic management, data priority, data packaging, and overall network management.

A 4-level, customer-programmable, multiple-priority scheme enables mixing interactive and batch traffic. This is achieved with a traffic-optimization algorithm in each priority level, ensuring that critical data is transmitted first.

End-to-end error control is activated during all transmission

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over the virtual path, and it can be switched off on a port-by-port basis when it interferes with external error-control methods.

Integral network management is also provided. Messages are broadcast to test for integrity and collect performance information, allowing the network manager to control the network. The network contains comprehensive diagnostics for hardware and software at the unit and network levels. They can be exercised from any part of the network, and sections of the network being serviced can be tested before being returned to operation.

A self-healing feature reconfigures the network using a standby segment to ensure continuous data transmission through the network despite transmission or component failure.

The Elite One product supports all traditional networking transmission media, including both analog and digital transmission up to 72K bps. Data is transmitted and managed over continuous bidirectional transmission paths that are independent of transmission media, attached devices and their protocols.

All Elite One nodes handle port speeds up to 9.6K bps for multiple concurrent asynchronous, synchronous, SNA, SDLC, and X.25 protocols. The interface can be RS-232C, V.35, or integral modem.

A single Elite One node accepts asynchronous or synchronous rates up to 9.6K bps and supports 4 to 16 user ports. Interconnected Elite One units form a Network Link that accommodates up to 60 nodes.

Prices for the Elite One start at \$4,500 for an 8-port unit and \$5,640 for the virtual multipoint option. Product availability is less than 30 days ARO.

BELLSOUTH, SIECOR ANNOUNCE NEW CORPORATION FiberLan, Inc; P.O. Box 12726, Research Triangle Park, NC 27709; 919-544-1029.

BellSouth Corporation and Siecor Corporation today announced the formation of an equally owned new corporation, called **FiberLAN Inc.**, that will design and install fiber optic local area networks (LANs).

FiberLAN Inc's initial organization will be comprised of Siecor FiberLAN, a former Siecor unit, along with personnel from BellSouth.

F. Ray McDevitt has been named president and chief operating officer of FiberLAN Inc. Roy Moore, BellSouth assistant vice president, technical planning and development, will serve as chairman. Other key individuals are Dr. J. Richard Jones, vice president, engineering and development; Mike English; vice president, operations; and W. Bart Bielawski, vice chairman of the board.

Though primarily a nonmanufacturing, systems integration/engineering organization, FiberLAN will also conduct applied engineering research to meet specific customer needs.

BellSouth and Siecor officials said FiberLAN Inc would aim its marketing efforts nationwide toward medium and large organizations such as corporations and governments.

FIBRONICS INTRODUCES PROTOCOL CONVERTERS LINKING

IBM 3270s TO LANs Fibronics International Inc; 325 Stevens Street, Hyannis, MA 02601; 617-778-0700.

Fibronics new **PASCII** (say Pass Key) **series of protocol converters** provides a means for linking IBM 3270 components to LANs, PBXs, and switched networks. It also supports modems and multiplexers and is transparent to BSC and SNA/SDLC.

Currently there are 4 members of the PASCII family. The single-port **FC3000** provides an ASCII RS-232C display terminal attachment to an IBM 3274 or an IBM 4331 Display Printer Adapter. The pass-thru feature allows communication with an ASCII host, and the Doubler option allows for both an IBM coax terminal and an ASCII terminal to be attached through one coax cable.

The **FC3008** allows IBM users to connect up to 8 coax ports of their IBM 3274 and convert them to RS-232C for the attachment of ASCII displays, printers, and personal computers. This unit allows each port to be reconfigured for either terminal or printer emulation and includes a diagnostic and monitoring facility, as well as a built-in 8-port coax multiplexer.

The single port **FC3001** deconverter enables the user to attach an IBM 3278/79, 3178/79 or compatible coax display terminal to an RS-232C line, accessing modems, multiplexers, data switches, LANs, and PABXs, etc. Additional PASCII capabilities include the attachment of a serial or parallel printer to the FC3001 for terminal hard copy output. The FC3001 also allows the user to attach directly to a local 3274 control unit. The FC3001, when used in conjunction with the FC3000/3008, allows for the remoting of an IBM 3278 or plug compatible terminal. In addition, this unit enables the user to attach an IBM coax terminal to an ASCII host, emulating the most popular ASCII terminals.

The **FC3500** allows attachment of an ASCII RS-232C serial or parallel printer to an IBM controller, and provides access into an IBM 3270 system of laser printers, line printers, ink-jet printer, bar-code generators, and plotters. To further enhance attachment capabilities, the unit will support any hard copy device through the use of a generic print mode.

A unique PASCII option allows for an IBM coax terminal and an FC3500, or an FC3001 to attach to the controller through a single coax cable via the Fibronics Coaxial Doubler. Another option allows the simultaneous transmission of voice and data over twisted-pair wire.

PASCII Series Category A compatible multiplexer prices range from \$500 to \$1,000 per port.

FORTE RELEASES IMPROVED FORTENET PACKAGE Forte Data Systems; 2205 Fortune Drive, San Jose, CA 95131; 408-945-9111.

Forte Data Systems is now offering an upgraded version of its micro-to-mainframe file transfer series that enables personal computer users to move mainframe data files at data rates from 4,500 to 6,000 characters per second. Depending on the installation, data transmission speeds greater than 6,000 cps can also be achieved.

The enhancement has been applied to the ForteNet TSO and CMS products. The ForteNet software packages permit complete mainframe files to be downloaded to an IBM PC, XT, AT, or compatibles via a 3270 network and then outputted

in PC-DOS formats. Conversely, data developed on the PC can be transferred to the mainframe for storage, centralized processing or for distribution to other PCs on a network.

The file transfer product also provides online display of the system status line. Errors occurring on the mainframe are **immediately** brought to the attention of the user. Many products only display the file name and character count of the data being transferred. The user thus is not apprised of errors or other problems that may interrupt the transfer.

For operation, the personal computer must be outfitted with the FortePJ, which provides 3278/79 emulation, or ForteGraph, which converts the PC into an IBM 3279 S3G color graphics terminal. The ForteNet software handles the transfer of both text and binary files, and supports both fixed and partitioned datasets with either fixed or variable record formats. Prices for ForteNet TSO and ForteNet CMS remain unchanged, at \$1,000 for a site license. Current ForteNet customers can obtain the new software at no charge from their distributor.

FORTE'S FORTELINK SNA PROVIDES REMOTE MICROS WITH ACCESS TO MAINFRAMES Forte has also announced its first of a family of remote micro-to-mainframe software products that enables personal computer users in **remote locations** to transfer data to and from company mainframes with the same ease afforded local users. Called ForteLink SNA, it provides the connection to Forte's file transfer package, ForteNet, allowing remote micros to obtain information residing in host data files and to tap into mainframe applications programs. Thus, IBM PCs, PC/ATs, PC/XTs, and PC compatibles can emulate remote 3274/3276 controllers, functioning as members of an existing 3270 network with attached display stations and printers.

With ForteLink SNA, users can shift between up to 4 concurrent host terminal sessions, through the use of "hot keys." A fifth session, operating in background, converts the PC printer into a 3287 system printer in Logical Unit type 1 or type 3 mode. IBM 3287 emulation permits printer output from the host to be captured to a disk for producing a PC-DOS file or the information can be routed to a PC printer. In addition, screen captures can be performed to a local disk drive or the output can be sent to a locally attached printer.

The ForteLink SNA interface card occupies only a half-card expansion slot in the PC, and the product is fully PC/AT compatible and supports PC-DOS 3.0. ForteLink SNA can communicate with the mainframe over leased or switched lines, at transmission speeds up to 9600 bps. Other features included are a host addressable 3287 printer, the support of 24 program function keys and full-screen host applications support. ForteLink SNA is priced at \$695.

FUJITSU INTRODUCES 14.4K-BPS TRELIS CODED MODEM Fujitsu America, Inc; 3055 Orchard Drive, San Jose, CA 95134; 408-946-8777.

Fujitsu announced the addition of a full-duplex 14.4K-bps trellis-coded modem at the recently held Interface '85 trade show. The new modem, the **M1926L**, is a compact standalone unit for use on 4-wire leased lines. It can also operate at fallback speeds of 9600, 7200, or 4800 bps, in full compliance with CCITT V.29. A built-in six-channel multiplexer allows up to six 2400-bps channels to be transmitted simultaneously

over a single leased telephone line.

The M1926L may be used in various system configurations, such as point-to-point, multipoint, or multipoint polling. The Trellis-coded modulation in the transmitter adds redundancy to the signal so that erroneous noise can be cancelled in the receiver. A Viterbi algorithm scheme in the receiver corrects possible bit errors over the line.

In addition, this modem features an automatic adaptive equalizer that adapts to transmission line characteristics on a continuous basis for optimizing performance. It is designed to handle bridge dropouts of up to 2 seconds. In addition to LED indicators, the M1926L provides a liquid crystal display that allows a nontechnical operator to monitor operation, check signal quality, perform tests, and change strap settings. Diagnostics test 6 different loops and complete network bit error rate. A built-in eye pattern generator can be used with an external oscilloscope for transmission troubleshooting.

Available in OEM quantities only. The new units carry a list price of \$6,875.

GANDALF OPENS PACXNET TO IBM 3270 USERS Gandalf Data, Inc; 1019 South Noel Avenue, Wheeling, IL 60090; 312-541-6060.

Gandalf is offering the **COAX 3270**, an IBM terminal network interface for its PACXNET data network which gives IBM terminal users access via simple keystrokes to either an IBM network or an asynchronous host network. Through several simple keystrokes, an IBM 3278/79 can be disconnected from the IBM host, configured to look like a particular ASCII terminal such as DEC VT100, and connected to an asynchronous resource such as an IBM PC, a DEC VAX, or to a dial-access network such as Dow Jones. It can be also used to access remote IBM systems via protocol converters such as the IBM 7171 Attachment Unit or via Tymnet.

The COAX 3270 ASCII to 3270 converter supports IBM 3278/3279/3178/3179 terminals, local or remote 3274 attached controllers, and IBM PCs in 3270 mode. It can be located at the workstation or at the 3274 controller. In IBM mode or power-off state, the COAX 3270 is transparent to the data exchange. In ASCII mode, the COAX 3270 converts keyboard sequences to ASCII characters for transmission at data rates up to 9600 bps, and converts received characters for display on the CRT. It emulates the DEC VT100/102, HP 26XX, LSI ADM 3A, IBM 3101, and TV 925 in conversational mode and is fully compatible with Gandalf PACXNET networking products. Configuration is via a user-friendly terminal menu where preset or custom emulations can be selected. An option for an addressable asynchronous printer port is also available. Standalone models are priced at \$695 (quantity one).

GANDALF INITIATES MODEM BUYBACK FOR NEW 2400-BPS MODEM Gandalf has instituted a buyback policy to advertise the release of a new 2400-bps modem offering. The company announced at Interface '85 that it will repurchase any users' 1200-bps full-duplex modem. North American 212 modem owners will receive a \$200 credit when they trade in their current modems on a one-for-one basis for Gandalf's **Access Series SAM 24**. This incentive plan only applies to SAM 24 modems purchased directly from Gandalf sales representatives.

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The Gandalf Access Series SAM 24 is an auto dial-/auto-answer, synchronous/asynchronous modem compatible with CCITT V.22 bis, AT&T 212 and AT&T 103 modems. It includes an automatic adaptive equalizer for high reliability, menu-driven setup, selectable cryptic mode, and extensive diagnostics such as remote loopbacks, status LEDs and a test pattern generator with error detector. The SAM 24 automatically adjusts its speed to match the speed of the other modem. This allows users to upgrade their communication links to 2400 bps in a phased manner.

Standalone units are priced at \$795 US/\$995 CDN (quantity one) and a rackmount version is also available at \$725 US/\$925 CDN (quantity one).

GANDALF ADDS HIGH-SPEED SYNCHRONOUS LOCAL MODEM TO LINE-UP Gandalf has also released a rackmount version of its LDS 260 synchronous local modem. Designed for synchronous file-to-file transfer applications over privately owned or leased lines at distances up to 2.4 miles. The rackmounted LDS 260 modem, **RM3260**, can be supplied at 56K bps or 50K bps at the time an order is placed. The unit supports speeds from 19.2K bps to 256K bps and can be ordered at any speed in that range for an additional charge. RS-232C and V.35 interfaces are available. Both point-to-point and multipoint operation are supported. Up to 14 rackmounted LDS 260s fit into one 19-inch LDS 3000 rack.

Available immediately. The RM3260 has a single-unit purchase price of \$655.

GDC INTRODUCES DATX INTEGRATED OFFICE SYSTEM General DataComm Industries, Inc; Middlebury, CT 06762-1299; 203-758-1118.

General DataComm Industries, Inc, has announced the new DATX Integrated Office System (IOS), which dovetails both data and voice signals and permits them to be transmitted simultaneously over existing twisted-pair telephone wiring. The DATX IOS permits conversion of an existing PBX system to a combined data/voice system without rewiring the existing building, or discarding the existing voice PBX and replacing it with a costly data/voice PBX. The DATX IOS can be integrated into a fully controlled remote office network through the use of GDC's Megamux and Netcon.

The DATX IOS consists of a DATX 2000 and the DATX Switching System. The DATX 2000 provides access between remote terminals and a CPU, and currently will transmit both asynchronous and synchronous data at speeds up to 19.2K bps with complete transparency and integrity of data/voice communication. The DATX Switching System provides communication links for up to 1,320 terminations, expandable in 24-channel increments from a base capacity of 360 lines for both the DATX 2000 and DATX Switching System. The present design permits transmission at 9.6K bps, and future upgrades will accommodate transmission of both asynchronous and synchronous data to speeds of 19.2K bps.

GEISCO INTRODUCES MARK*NET SERVICE ENHANCEMENTS General Electric Information Services Company; 401 North Washington Street, Rockville, MD 20850; 301-340-4000.

General Electric Information Services Company (GEISCO), a leading provider of enhanced telecommunications services, announced enhancements to its **MARK*NET Service** at INTERFACE '85. The MARK*NET Service enhancements

consist of offerings in value-added networking, intelligent networking, and microintegration products and services.

Two of the new offerings which were introduced and demonstrated by GEISCO at INTERFACE '85 are **QUIK*WARE**, an electronic software ordering and administration system; and DealerTalk, a field communications support system.

Combining MARK*NET Service with Apple Macintosh, DealerTalk provides electronic mail service, electronic bulletin board, and a text database for quick access to technical and sales information. Apple Computer is currently introducing its version, called **AppleLink**, to support its dealers across the United States.

GEISCO also demonstrated MARK*NET's 200-city, dial-in service for both 3270 Bisynchronous terminals and other devices in emulation mode.

Some of the other offerings that were demonstrated by GEISCO include: **Connector**, a mechanism for transferring mainframe data to micros for use with popular spreadsheet applications; **File Transfer Utility (FTU)** which allows the transmission of microcomputer programs, word processing text, and data files to micros; **PC FORM and Menu**, a facility for creating full-screen entry forms with built-in communication interfaces; and **Softran Services**, an electronic software management and distribution system which helps control the distribution of personal computer software throughout an organization.

GEISCO ANNOUNCES 3270 SUPPORT FOR MARK*NET General Electric Information Services Company (GEISCO) introduced a MARK*NET 3270 Bisynchronous (BSC) Service which connects a 3270 system user's terminals and hosts together via the GE MARK*NET Information Services telecommunication network. The 3270 BSC connection allows 3270 Information Display System station clusters to communicate using BSC protocol with 3270-compatible hosts through MARK*NET Service. The IBM 3270 Display Stations connected to the GE Information Services network can access 3270 applications on one or several hosts, which eliminates the need for duplicate equipment, communication facilities, and network management.

A user can gain access to the network via dedicated access connections at any of 62 U.S. cities, or at any of 200 U.S. cities via dial-up access connections.

The Display System Connection offers the following features: connectivity through dedicated leased-line, single- and multidrop connections via full-duplex communication facilities, or public dial (switched) connections via half-duplex, 2-wire switched facilities; transmission speeds of 2400-to-9600 bps for dedicated connections and 2400-to-4800 bps for dial connections; MARK*NET Access at 62 major U.S. locations for dedicated connections, and 200 major U.S. locations for public dial connections; and complete network management capabilities.

The 3270 BSC host connection has the following features: dedicated connections via full-duplex communication facilities; transmission speeds of 2400, 4800, 9600, and 19,200 bps for dedicated connections; MARK*NET Access Connections at 10 major U.S. locations providing nationwide coverage for dedicated host connections; and host

connection configuration parameters which offer preconnection assistance to accomplish host configuration.

One of the major advantages of MARK*NET 3270 BSC Service is support at a device level for allowing connections to multiple hosts simultaneously from a single controller.

Additional advantages of this service include: ability of terminals attached to a controller to access different host resources simultaneously; network access validation procedures prevent users from reaching restricted host resources; facilities management of leased lines and modems is included; 3270 BSC polls are not transmitted through the network, thus avoiding response time degradation and additional kilocharacter charges; and the ability to install service quickly with the use of leased line avoidance modems for connecting host resources and regular 3270 BSC local telephone support for controllers.

GTE TELENET ANNOUNCES X.25 DIAL-UP SERVICE FOR PERSONAL COMPUTER USERS GTE Telenet Communications Corporation; 12490 Sunrise Valley Drive, Reston, VA 22096; 703-689-6000.

GTE Telenet has announced a new service, called X.25 dial, which is designed to allow PCs and terminals fitted with a commercially available interface board or specially built modem to dial Telenet and communicate at up to 4800 bps. GTE Telenet claims it is the first company to offer this new service. The X.25 dial offering is a preliminary version of the Consultative Committee on International Telephone and Telegraph (CCITT) Recommendation X.32. X.25 dial is currently being field-tested in Boston, Chicago, Los Angeles, New York, San Francisco, and Washington, DC. New cities will be added to the service area following field tests.

X.25 dial service will be especially advantageous, according to GTE, for occasional terminal users on the network—those who need to communicate only a few hours per week. At the same time, the service extends the error-detection capabilities of X.25 to the connection between the user's terminal and the network. It assures synchronous, error-free communications over the entire communications system.

Personal computers can communicate through X.25 dial with multiple hosts on a full-duplex basis, which will allow them to make better use of their built-in processing capability. Previously, PCs gained access to public data networks by emulating slower-acting asynchronous terminals, which communicate one character at a time. Computer users will need only an X.25 interface to take advantage of this new Telenet service. Several brands of X.25 interface boards for terminals are commercially available. Modems with built-in X.25 interface capability are also available.

NEW GTE TELENET SERVICE AIDS IBM SNA NETWORK USERS Companies with IBM computers and terminals using the synchronous data link control (SDLC) protocol can now take advantage of GTE Telenet's new SDLC service for reliable and cost-effective long-distance data communications. The new service offers the same reliability and response as a dedicated leased line, while adding these advantages: cost-effective access to hosts for small remote users that cannot justify a leased line; configuration flexibility that allows a company's network to grow without disrupting any of its existing components; full compatibility with SNA networks,

requiring no changes to existing hardware, software or user procedures; enhanced management support through the sophisticated network monitoring capability of Telenet's Network Control Center.

GTE Telenet currently carries data communications among IBM mainframes and terminals using the 3270 bisynchronous and X780 protocols. The service offers the ability to establish individual communications for each terminal in a cluster to a different host computer connected to the Telenet network.

The new service will allow SDLC protocol users to connect to Telenet through local leased lines in many cases. The SDLC protocol is converted to an X.25 protocol for transmission over the public data network, then reconverted to SDLC at the receiving point. The conversion takes place either at the Telenet network node through packet-switching software or on the customer's premises through special hardware.

GTE TELENET ANNOUNCES NEW LINE OF PROCESSORS GTE Telenet has unveiled a new line of processors for improved and more cost-effective data communications over public and private networks. The new equipment is compatible with existing GTE Telenet-based networks and can be used to economically extend their operational range. The new products include a packet transit switch offering significantly faster throughput than previously available models; a new low-cost packet assembler/disassembler (PAD) capable of supporting both synchronous and asynchronous communications protocols; a low-cost X.25 concentrator that concentrates up to 8 lines; and a series of network management and control equipment offering improved price/performance over existing units.

The new TP4/II-4860 line of transit switches supports networks that carry a high volume of traffic on backbone trunks. The product contains 2 central processing units, one to carry out administrative functions while the other handles the transit functions exclusively. The new TP3/II-3006 PAD adds support to private networks by interfacing telecommunications protocols—asynchronous, 2780/3780, 3270 BSC, and 3270 SDLC—to any X.25 network. The unit is easy to install and fits into existing X.25 networks without hardware or software modifications. The TP3/II-3025 concentrator allows concentration of multiple GTE Telenet TP3 X.25 network processors and is available in 4- or 8-port unit. The new TP5/II Series of network control processors combine the hardware of Prime Computer, Inc and the network management software of GTE Telenet to provide full network management and control capabilities.

HARRIS INTRODUCES CHALLENGER SERIES; REPLACES IBM 3270 SYSTEMS Harris Corporation Information Terminals Group; 16001 Dallas Parkway, P.O. Box 400010, Dallas, TX 75240; 214-386-2000.

Harris' new **Challenger Series** family of terminal controllers, color and monochrome displays, and printers are **truly plug compatible** replacements for IBM 3270 equipment. The old Harris 9000 was 3270-compatible at the systems level, but could not be mixed with IBM computers like the Challenger.

The Challenger family consists of the H274-41A/41C/61C, which replace the IBM 3274-41A/41C/61C controllers; the H178, 179, and 180, which are IBM 3178, 3179, 3180

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compatible; and the H168, 187, and 188 printers, replacements for the 3287 and 3289; also available for Challenger is the H270 PC, a 3270-compatible personal computer aimed at the IBM 3270 PC.

The H274-41A/41C both supports up to 32 devices. The H274-61C is listed as only supporting 16 terminals/printers, but Harris offers a field upgrade kit that allows the unit to handle 32. All controllers attach Harris and/or IBM terminals/printers, plus the IBM PC. The latter unit cannot be interfaced with IBM controllers. The remote 41C/61C controllers support SNA/SDLC and BSC protocols, and operate at speeds up to 56K bps (SNA) or 9600 bps (BSC). A 16-port H274-41C/61C sells for \$7,200, and the 41A carries a \$16,500 price tag for 32 ports.

The H179 terminal has a 14-inch CRT, a 122-key keyboard, extended highlighting, keystroke record/playback, and displays 7 colors. Price is \$2,195. The H180 is offered with 14- or 15-inch CRTs, vertical scrolling, and a row-and-column indicator, and costs \$1,795. The H178 has a 12-inch CRT, and costs \$1,525.

The H187 and 168 are dot-matrix printers with 200- and 400-cps print speeds, respectively; H187 costs \$5,100 and the 168 is priced at \$6,600. The H188 is a letter-quality printer priced at \$5,364.

The H270PC supports 256K bytes of RAM, has a color monitor, and comes with either two 360K-byte diskette drives or a single 360K-byte diskette drive and a 10M-byte hard disk drive. Price is \$6,995.

INNOVATIVE ELECTRONICS OFFERING FULL IBM 3287 EMULATION Innovative Electronics, Inc; 4714 NW 165th Street, Miami, FL 33014; 305-624-1644.

Innovative Electronics announced the **MC 80/700**, a compact protocol converter that allows performance, low-cost printers and other hard-copy output devices to be used in an IBM 3270 environment by emulating the IBM 3287 printer. The MC 80/700 increases productivity, performance, and total system resources without the need for major capital layout or sacrifices in functionality.

The MC 80/700 is self-contained and user installable, requiring no modifications to either the printer or the cluster controller. A standard Type A coax connection into the IBM 3274/76 (or compatible) cluster controller is all that is required to link the IBM mainframe. Because the MC 80/700 connects directly to the cluster controller, it is compatible with all IBM environments whether BSC or SNA/SDLC.

The MC 80/700 supports BSC as well as SNA LU1 and LU3 IBM data streams. Output is selectable in a formatted mode of 40, 64, or 80 characters per line, or in an unformatted mode of up to 132 characters per line. The MC 80/700 also supports transparent mode of operation, which allows the attachment of virtually any ASCII output device required for specialized host applications. The MC 80/700 is priced at \$1,495.

LEAR SIEGLER UNVEILS ADM 12PLUS TERMINAL Lear Siegler, Inc; 901 East Ball Road, Anaheim, CA 92805; 714-778-3500.

The new **ADM 12plus** terminal from Lear Siegler features an 80- or 132-column display and expanded editing and programming capabilities. This block mode terminal is

compatible with the TeleVideo 925, 950, 912, and 920 terminals, along with the Lear Siegler ADM 2, ADM 12, and the ADM 31. The terminal features programmable cursor keys for word processing programs such as WordStar, a variable format display memory, variable speed vertical scrolling and horizontal scrolling. The ADM 12plus provides 2 pages of 80-/132-column by 24-line display memory (plus 25th status line), or a choice of wide- and long-page memory configurations. A 4-page memory option is also available to double the standard memory formats and add a 158-column by 48-line "Super Page" display memory format.

The ergonomically-designed ADM 12plus terminal features 16 nonvolatile, programmable function keys (shiftable to 32 functions) and 400 bytes of dynamically allocated function key memory. Additional features include auxiliary port and independently set data rates, and a 12-inch green or amber screen. Options include a 14-inch screen, 20-mA current-loop, RS-422 interface, and international keycap sets.

Priced at \$745 in single quantities, the ADM 12plus will be available for shipment in spring 1985.

LEE DATA INTRODUCES IBM 3179 REPLACEMENT Lee Data Corp; 7075 Flying Cloud Drive, Eden Prairie, MN 55344; 612-828-0300.

Lee Data's new **Model 2130 color terminal** is an IBM 3179 replacement product with a 14-inch CRT and a 7-color display capability. The 2130 also replaces Lee's old Model 1230, a 4-color terminal also aimed at 3179 markets. The new 2130 costs \$2,066, about \$129 less than the 1230.

ITT COURIER ANNOUNCES TRUE PLUG-COMPATIBLE IBM 3178 REPLACEMENT ITT Courier Terminal Systems, Inc; P.O. Box 29039, Phoenix, AZ 85038; 602-894-7000.

The new **ITT 1778** is an IBM 3178 replacement which can plug directly into an IBM 3274/3276 controller or an ITT 9000. This is the first ITT product that can be used with IBM controllers.

The 1778 has a 12-inch CRT displaying 1920 characters, a tilt and swivel screen, and a detached 92-key data entry or typewriter-style keyboard. The terminal is offered with a green phosphor monitor for \$1,550; an amber unit sells for \$1,600.

LOCAL DATA'S VERSALYNX/3278 APPROVED BY TYMNET Local Data Corp; 2771 Toledo Street, Torrance, CA 90503; 213-320-7126.

Local Data's **VersaLynx/3278 protocol converter** has been certified by Tymnet for connection of IBM 3178/3278 display stations to the Tymnet public data network. Tymnet provides access to both 3270 and Async/X.25 applications from more than 500 local-call areas for ASCII terminals and personal computers, as well as IBM 3270 and 3270-compatible terminals. The VersaLynx is connected between an IBM 3278 (or equivalent) display terminal and an asynchronous 1200-/2400-bps modem. The user dials a local number to access the Tymnet public data network to initiate the connection to a host computer. Tymnet provides protocol conversion within its network to allow connection to the IBM host computer using either BSC or SNA 3270 communication. Tymnet also enables VersaLynx/3278 users to access async and X.25 hosts, such as the online services provided by Dow Jones and Lockheed Dialog.

In addition to the Tymnet display operations, a low-cost printer

can be attached to the VersaLynx, which is addressable as if it were attached to an inexpensive ASCII Televideo 925 CRT. Tymnet's protocol conversion service enables 3270 applications to address printers as if they were IBM 3287s.

MICOM/INTERLAN MERGER INTRODUCES INSTANET/PLUS LAN MICOM Systems Inc; 4100 Los Angeles Avenue, Simi Valley, CA 93062; 805-583-8600 • MICOM/Interlan, Inc; 155 Swanson Road, Boxboro, MA 01719; 617-263-9929.

MICOM acquired Interlan March 1, 1985 and announced Instanet/Plus on March 5, 1985. Instanet/Plus combines MICOM's INSTANET data PABX network and Interlan's NET/PLUS Ethernet LAN. The merged company announced no new products that combine INSTANET and NET/PLUS, thus INSTANET/PLUS is a concept and a statement of marketing direction.

NCR COMTEN & AT&T JOINTLY ANNOUNCE COMTEN'S PLAN TO DEVELOP INTERFACE FOR AT&T'S DIGITAL MULTIPLEXED INTERFACE (DMI) NCR Comten Inc; 2700 Snelling Avenue North, St. Paul, MN 55113; 612-638-7777.

NCR Comten and AT&T jointly announced at Interface '85 that NCR Comten intends to develop an interface to connect NCR Comten data communication systems to the **Digital Multiplexed Interface (DMI)** of AT&T-IS System 75 and System 85 digital PBXs. The NCR Comten interfaced together with the AT&T-IS DMI promises to provide cost-effective, flexible networking between mainframe and Private Branch Exchange (PBX) equipment for the data communication user.

NCR Comten's DMI interface will be through hardware and software enhancements to NCR Comten's data communication systems. Using a single interface cable, the NCR Comten DMI interface will allow up to 23 data channels attached to an AT&T System 75 or System 85 PBX to connect to host computer applications throughout a communication network. The data terminals use existing telephone wiring to connect to the AT&T Information Systems' System 75 or System 85 PBXs.

NCR Comten and AT&T-IS demonstrated the networking options provided by connecting a Comten 3690 Communications Processor and an AT&T System 75 PBX. According to NCR Comten, the joint connectivity demonstration between an AT&T System 75 PBX and the Comten 3690 Communications Processor is an example of the future connectivity capabilities NCR Comten will provide when it develops a DMI interface.

In January, AT&T-IS and NCR Comten concluded joint connectivity certification testing using all digital communication and the standard RS-232C interface. As a result of these tests, customers are given a high degree of assurance that AT&T's System 75 and System 85 using twisted-pair wiring will connect properly with the Comten 3690 Communications Processor.

NEC UNVEILS TRELLIS-CODED 19.2K-BPS MODEM NEC America, Inc; 8 Old Sod Farm Road, Melville, NY 11747; 516-753-7000.

A new modem designed to operate at 19.2K bps and featuring a built-in 8-channel mux, and diagnostic test capabilities has been developed by NEC America, Inc. The **DSP 19200M Data Modem** provides synchronous transmission at 19.2K/16.8K/14.4K/12K/9600-bps rates, async/sync conversion, and

diagnostic tests such as addressable analog/digital loopbacks, bit error rate, and polling. The new modem is designed for operation over 4-wire, Type 3002 leased telephone lines with D1 conditioning, using an Orthogonally multiplexed QAM technique developed by NEC.

Available for a single-unit purchase price of \$1,200, the DSP 19200M Data Modem is scheduled for initial delivery in July 1985.

OCEAN DATA INTRODUCES NETWORK MANAGEMENT SYSTEM Ocean Data Systems, Inc; 6000 Executive Boulevard, Rockville, MD 20852; 301-881-3031.

Ocean Data Systems, Inc (ODSI) demonstrated its **Medius Network Management System** at Interface '85. Designed for use in companies with medium-to-large-scale communication networks, the Medius system offers a wide assortment of sophisticated features. These features include: automatic fault detection and analysis; continuous network monitoring; interactive color displays that depict network status and show condition changes at multiple levels of detail; proprietary network processors for transparent operations; and extensive database/decision-support facilities.

The Medius system includes both hardware and software components. Central-site system hardware includes a Digital Equipment VAX processor as the Network Management Computer (NMC), a logging printer, and an operator workstation. A basic system also employs Network Diagnostic Units (NDUs), dispersed throughout the network, for automatic monitoring of network circuits.

Software includes facilities for automatic default detection and analysis and an interactive color-graphics display of system and subnetwork status. Software also provides the ability to track faults as incidents that can be monitored until corrected. Centralized control of a full range of diagnostic tests, control of local and remote switches, trouble-ticket management, collection and display of network performance statistics, and a user-friendly operator interface are other important attributes of Medius software.

The NDUs permit all diagnostic tests to be carried out under central control regardless of terminal, modem, or line types being monitored. With a digital interface operating at speeds up to 19.2K bps, the NDU continuously monitors multiple data-circuit conditions. These conditions include receive-carrier status, RTS/terminal streaming, signal quality, modem, and terminal power failure. They also monitor external alarm conditions such as power supply or air conditioning failure, intrusion, or fire. The Network Management Computer continuously polls the NDUs for status-change reports that can result in alarms and diagnosis.

Each NDU in the network is preprogrammed to establish levels for the acceptable operation of each modem. Information is maintained regarding device connectivity, maintenance/repair and alternate routing details. Based on this information, an industry-unique software model of the network is maintained within the Network Management Computer. Comprehensive diagnostic tests may be performed by Medius NDUs on request from the central operator's console. These include analog/digital interface monitoring, online error rate testing, polling, and loopback tests for analog and digital interfaces.

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Medius' combination of NDUs and central network intelligence also permits interactive graphic viewing of network conditions by the operator at 3 levels of detail. These include a **cartographic view** which shows a full geographic, user-definable overview of the entire network; **schematic view** which produces schematic representations of user-specified subnetworks; and **site context view** which expands network details to show configurations of individual devices (modems, switches, control cards) at any specific site.

In addition, the Medius Network Management System supports a 5-mode, fault-identification architecture to facilitate ease of operation by nontechnical users. This 5-mode architecture comprises: a system definition mode which defines network components and their connectivity; an idle mode which continuously monitors selected network signals via normal alarm scanning; an incident-handling mode which allows the operator to modify, display, or create system incident reports; a statistics mode for generating statistic displays in either chart or tabular form; and a database inquiry mode for extracting network information on a standard, preplanned, or ad hoc basis.

Available immediately, Medius system pricing averages \$1,200 to \$1,400 per circuit.

PARADYNE OFFERS PIXNET PROTOCOL CONVERTER Paradyne Corp; 8550 Ulmerton Road, Largo, FL 33541; 813-530-2000.

Paradyne is now offering 2 protocol converters that allow low-priced async devices to be incorporated into their **Pixnet** communications network. **Models 9403-01 and 9403-02** permit async terminals to appear as IBM 3277 devices communicating in Pixnet's 94776 protocol.

Pixnet makes remote terminals appear to be locally connected, and identifies the terminals at time of connection by type, eliminating the need to dedicate ports to terminals. Model 9403-01 supports 4 ports and costs \$4,900; 9403-02 is an 8-port unit selling for \$5,900.

PENRIL DEVELOPS DATALINK SERIES MODEMS & AUTO DATA 300/1200 MODEM Penril DataComm; 207 Perry Parkway, Gaithersburg, MD 20877; 301-921-8600.

A new family of high-performance modems have been introduced by Penril DataComm. Dubbed **Datalink**, the new series consists of the **DLX 224**, a 2400-bps model; the **DLX 227**, a 4800-bps model; and the **DLX 229**, a 9600-bps model. The first in the series, the DLX 224, is a 2400-bps 2-wire, full-duplex, intelligent modem. It's CCITT V.22 bis compatible with additional AT&T 212A and 103 operating modes at 1200 and 300 bps, respectively. Datalink Modems offer both the Hayes compatible command set and the Penril Auto Data mode of operation. The series features a 32-character liquid crystal display (LCD) and front panel switches that allow the operator to access all operational features including full diagnostics.

Designed for handling both dial-up and leased line operations, the new Penril family features automatic adaptive equalization for providing optimum data integrity. In addition, the Datalink modems are available in both standalone and rackmount versions.

Penril has also introduced a new Hayes compatible modem called the Penril Auto Data 300/1200. In addition to emulating

the Hayes auto-dial function, this new Penril offering provides AT&T 212A compatibility. Dual data rates of 300 or 1200 bps are supported for full-duplex applications. The Auto Data 300/1200 supports automatic dialing and call origination or termination directly from the keyboard, eliminating the need for a telephone set. The operator can set the dial mode to generate tone (DTMF) or pulse dial signals at fast or slow pulse rates depending upon the requirements. Both help and directory screen instructions are included to assist the operator.

Scheduled for delivery during the second quarter of 1985, Datalink Model 224 has a purchase price of \$895, Model 227 has a purchase price of \$1,395, and Model 229 retails for \$1,795.

RACAL-MILGO EXPANDS NETWORK MANAGEMENT LINE TO INCLUDE MATRIX SWITCHING Racal-Milgo; 8600 NW 41st Street, Miami, FL 33166; 305-592-8600.

Racal-Milgo has introduced the **CMS (Communications Management Series) Matrix Switch** to its line of network management and diagnostic control systems. The product is designed for use in data communication networks where reliability and minimum downtime are especially critical requirements.

The CMS Matrix Switch provides system redundancy for all major network DCE/DTE devices. In the event that any device fails, the CMS Matrix Switch can restore the network to full operating capacity in a matter of seconds by reallocating port assignments from the failed unit to its designated back-up spare. The switch can also provide end-to-end central-site monitoring, testing, and control of remote locations.

The CMS Matrix Switch supports all major data communication interfaces, including RS-232C, V.35, analog, and current loop. It is completely protocol-transparent, supporting both synchronous and asynchronous data at speeds of up to 76.8K bps. Up to 16 mainframe units can be interconnected, for a maximum of 3840 V.24, analog, and current loop ports, or 960 V.35 ports. In addition, up to 63 remote matrix switches can be configured for central-site control.

In its basic configuration, the CMS Matrix Switch consists of mainframe units and interface port cards controlled by a single operator CRT. The CMS Matrix Switch is available for delivery in April. The basic configuration starts at \$40,000, with add-on components and options priced separately.

T-BAR ANNOUNCES AVAILABILITY OF ADVANCED NETWORK MANAGEMENT SYSTEM T-Bar Incorporated; 141 Danbury Road, P.O. Box T, Wilton, CT 06897; 203-834-8227.

T-Bar, a leading manufacturer of switching and control equipment, introduced and demonstrated the PMS/1060 Performance Measurement System at Interface '85.

T-Bar's PMS/1060, in combination with T-Bar's switching products, is a hardware/software solution that provides users with centralized control of their networks. This enables them to analyze performance and to identify and correct problems ranging from poor response time to equipment and facility failure.

The PMS/1060 lets the data manager know the status of the entire network at all times. It continually monitors, measures, and displays in real-time such essential

performance indicators, message response times, normal or degrading; message volume and activity; and number and type of system errors for each terminal or application in the system. It can save time and money by isolating underutilized lines and terminals, uncovering potential service problems, keeping detailed records and providing information for planned future growth.

The PMS/1060 makes it possible for protocol changes to be downloaded without the need to disconnect problem hardware or change firmware. This unique characteristic, Dynamic Downloading (DDL) allows switching between protocols by simply entering a software command. Competitive products require unplugging boards and proms to change protocols and line probes, thus requiring their performance measurement systems to go off-line.

Secondly, the PMS/1060 allows for selective or continuous monitoring. Combining the system with T-Bar's VSM (Virtual Switch Matrix) makes it possible to implement Dynamic Line Monitoring (DLM) in random or sequential modes.

In addition, the distributed processor incorporated in the PMS/1060 utilizes the latest technology. The multiprocessor PMS/1060 allows users to pay for as much processing power as needed and provides for "graceful" degradation in the event of a failure. Competitive products typically feature a single processor and are, therefore, more sensitive to catastrophic failures.

The PMS/1060 uses the latest in database management systems incorporating UNIX and C language.

Real-time color console displays allow users to generate online system profiles from individual or multiple display consoles simultaneously. It can monitor from 16 up to 512 lines with multiple protocol capability including SNA 3270, 3270 BSC, Async, and Honeywell VIP. Capability for packet switching X.25 will be available in the third quarter of this year.

Multiple levels of "zoom" help users immediately identify system element failures. Terminal responses, for example, can be verified to see the amount of time it takes for a transaction and what needs to be refined to improve response efficiency. Because the PMS/1060 is application-oriented, users can define precisely what applications should be monitored.

The PMS/1060 is being offered now as a freestanding unit or with T-Bar's VSM data communication matrix switching systems controllable from a single CRT.

T-Bar also offers **DAS/1061**, an optional **Data Analysis System**. With the DAS, it is possible to keep cumulative records automatically of the customer's system performance and operations. Reports can be generated to spot underutilization of lines or excess equipment capacity for elimination or possible use elsewhere in a customer's system. These reports can be displayed on CRT color displays, projected on large-scale screens or printed in multicolors with ink-jet printers.

Used with T-Bar's RS-232, Wideband or T-1 VSMs, accumulated data can be directly applied to configure the system for minimizing downtime and for maximizing utilization.

The PMS/1060 and DAS/1061 will be integrated into T-Bar's Overload data system resource manager as its performance measurement and data analysis modules to "anticipation" of the threshold alarm signaling that already exists in all T-Bar switching equipment.

In an exclusive arrangement with Thomson-TITN of France, original developer of the product, T-Bar will market PMS/1060 in all countries except France. The PMS/1060 is already installed and operating at customer sites, both in the U.S. and in France.

Delivery is 120 days ARO. The price of the PMS/1060 ranges from \$55,000 to \$640,000 for systems with from 16 to 512 line capacity, respectively.

TIMEPLEX ADDS ASYNCHRONOUS CARD TO LINK/1 Timeplex, Inc; 400 Chestnut Ridge Road, Woodcliff Lake, NJ 07675; 201-391-1111.

Timeplex is now offering an **async channel card** for its Link/1 T-1 multiplexer, which produces 4 I/O ports per card and handles data rates to 19.2K bps. Prior to the new Quad Asynchronous Module, async inputs could be handled by external multiplexer or by employing a synchronous card and oversampling the input. The Quad Module is offered with RS-232C/V.24, RS-422/V.11, RS-423/V.10, and MIL-Std-188-114 unbalanced interfaces, and is priced at \$1,750.

TIMEPLEX REDUCES PRICES ON TRU/BLU PROTOCOL CONVERTERS In another announcement, Timeplex trimmed the prices on 3 models of its TRU/BLU Protocol Converter product family. The reductions average approximately 10 percent for the TB74, TB78, and TB87 models. TRU/BLU permits low-cost ASCII terminals, printers, and personal computers to emulate IBM 3270 devices.

The TRU/BLU 74 emulates the 3274 cluster controller and up to nine 3278 synchronous terminals or printers. In addition, up to 9 printers, attached to each terminal via a printer port, can be individually addressed. A 3-port BSC or SNA/SDLC unit now costs \$3,500; a 9-port unit has been reduced to \$9,000.

TRU/BLU 78 allows a personal computer or asynchronous terminal to provide a full-screen emulation of a 3278 terminal. The TB78 connects to the cluster controller via a coaxial cable; a second RS-232 port offers the flexibility of mixed hosts, permitting the asynchronous terminal, under operator control, to connect to a minicomputer or modem. The TB78 now sells for \$1,535.

The TB87 permits ASCII printers to connect to the IBM type "A" coax ports on 3274/3276 controllers, and adapts an ASCII printer (RS-232) serial or Centronics/Data Products (parallel) to the IBM coax. The attached printer appears as a 3287 type character printer or 3289 line printer. The cost of the TB87 is \$1,755, a reduction of approximately 11 percent, while that of the TB87 which supports only a serial interface is now \$1,425.

UNINET ANNOUNCES MESSAGE SERVICE UNINET, Inc; 10951 Lakeview Avenue, Lenexa, KS 66219; 913-541-4400.

UNINET, Inc has introduced Worldlink, an integrated messaging service with worldwide access and message

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distribution. Worldlink is a completely expandable messaging service that provides support for CCITT X.400 recommendations and text-to-voice capabilities. Worldlink features include user-friendly access and an online help program that explains and identifies the prompts that can be used with any of the command functions, command flexibility that can be used according to individual preference, a store-and-forward communication interface to the Telex network, plus courier or postal delivery for those message recipients not currently registered as a company's Worldlink user. Worldlink is said to be competitively priced such that users can experience an attractive cost savings when compared to conventional messaging services such as Telex.

■ CALENDAR OF EVENTS

□ April 1985

Apr 15-18—USTSA INTELEXPO • Washington, DC **Contact** 312-782-8597.

Apr 15-21—TECHNOTRON '85 • Lima, Peru **Contact** 52-8140.

Apr 17-24—Hanover Fair '85 • Hanover, West Germany **Contact** 201-534-9044.

Apr 24-26—Land Mobile Expo • Las Vegas, NV **Contact** 303-694-1522.

□ May 1985

May 6-11—ICA National Conference • Dallas, TX **Contact** 214-233-3889.

May 8-10—Conference on ISDN/Future Networks 85 • Atlantic City, NJ **Contact** 617-232-3111.

May 13—International Teleconferencing Association Annual Meeting • Madison, WI **Contact** 703-556-6115.

May 13-16—Teleconferencing & Interactive Media '85 • Madison WI **Contact** 608-262-2831.

May 14-19—ASIA TELECOM 85 • Singapore **Contact** 022 99 51 11.

May 20-21—NTT International Symposium 85 • Tokyo, Japan **Contact** 212-867-1511.

May 20-23—11th Videoshow & Video Production Conference • Los Angeles, CA **Contact** Lisa Welp; 203-743-2120.

May 21-23—IEEE Vehicular Technology Conference • Boulder CO **Contact** 303-492-5151.

May 21-23—USTA/USTSA Western Showcase • Las Vegas, NV **Contact** 202-872-1200.

May 28-30—Telecommunications Trends & Directions • Hyannis, MA **Contact** 202-457-4937.

May 29-June 2—17th Annual ITVA Conference • New Orleans, LA **Contact** Inez Wehrli; 214-869-1112.

□ June 1985

Jun 3-6—NCTA Annual Convention • Las Vegas, NV **Contact** 202-775-3550.

Jun 4-6—AFCEA Annual Convention • Washington, DC **Contact** 703-425-8525.

Jun 11-14—VENCOM '85 • Caracas, Venezuela **Contact** 703-685-0600.

Jun 12-14—INFO/WEST—Communications & Computer Trade Conference • Anaheim, CA **Contact** 203-964-0000.

Jun 17-21—UTC Annual Meeting • Minneapolis, MN **Contact** Larry Harrison; 612-937-8599.

Jun 23-26—ADCU Annual Conference • Washington, DC **Contact** 612-881-6803.

Jun 24-26—Telecon East Teleconferencing Show • New York, NY **Contact** 415-820-5563.

Jun 24-26—ICC '85 • Chicago, IL **Contact** Dr. John Johannesen; 312-627-6854.

□ July 1985

Jul 1-5—14th Annual ACUTA Conference • Banff, AB **Contact** Gordon Morrison; 403-284-7555.

Jul 15-18—1985 National Computer Conference • Chicago, IL **Contact** 703-620-8926.

□ August 1985

Aug 26-29—APCO/FCCA National Conference • San Diego, CA **Contact** 619-236-7044.

Aug 27-29—INTERCONNECT '85 • San Mateo, CA **Contact** 312-782-8597.

□ September 1985

Sep 8-11—CICA Annual Conference • Edmonton, AB **Contact** 416-499-4222.

Sep 9-11—Eighth Annual Federal Computer Conference • Washington, DC **Contact** 617-358-5301.

Sep 16-20—FOC/LAN 85 • San Francisco, CA **Contact** 617-787-1776.

Sep 16-20—TCA Annual Conference • San Diego, CA **Contact** 818-960-1838.

Sep 17-19—CARIBECOM '85 • San Juan, PR **Contact** 703-685-0600.

Sep 17-20—Telocator Annual Conference • Las Vegas, NV **Contact** 202-659-6446.

Sep 26-28—EIA International Mobile Communications Show & Conference '85 • New Orleans, LA **Contact** 202-457-4935.

• END

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communications systems

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UPDATING MATERIAL

March 1985

In addition to this newsletter, March updating material includes the reports described below. Please see the Communications Systems volumes to refer to these reports.

Technology Reports • describe technology for the communication/telecommunication environment:

- The **Key/Hybrid Telephone Systems** report explores key and hybrid telephone systems concepts, differences, and applications and guides the prospective user on how to evaluate and select a telephone system.

- The **Shared Tenant Services—Smart Buildings Are Here** report explores this emerging technology, what it offers the user, the issues involved, and planning considerations.

Survey Reports • provide profiles at-a-glance by product type:

- The **Data Communication Terminals** report summarizes the characteristics of **384 models** marketed by **99 vendors**.

- The **Key/Hybrid Telephone Systems** report summarizes the characteristics of **101 models** marketed by **33 vendors**.

Product Reports • comprehensive, detailed analytical reports that evaluate key communication products.

- The **Anderson Jacobson IOX, Northern Telecom Meridian DV-1, and Tele/Resources TR/150 Series** reports describe and evaluate these leading-edge **digital PBX systems**. The Meridian DV-1, an evolutionary product, was just announced by Northern Telecom.

Please Route To:

- The **AT&T-IS Merlin, NEC Electra Family, and Northern Telecom Vantage** reports describe and evaluate these mainstream key telephone system products.

- The **Winterhalter DataTalker** report describes and evaluates this important family of protocol converters.

- The **American Satellite, MCI Telecommunications, RCA Cylux, and Tymnet** carrier service reports are revised to reflect the latest changes and pricing.

- The **Burroughs CP3682 and CP9500 Communication Processors, Datapoint ARC Network and ARC Systems, IBM 3800 Series Modems, Paradyne MP Series Modems and DCX Series Multiplexers, Sperry UTS 4000, and Telex TC 270 Series** reports are also revised to reflect the latest changes and pricing.

ANNOUNCEMENTS

■ SPOTLIGHT

HARRIS INTRODUCES NEW INTEGRATED VOICE/DATA SWITCH PLUS NEW CLUSTERED TERMINAL SYSTEMS Harris Corp; Melbourne, FL 32919; 305-727-9100.

At a well-orchestrated press conference held in New York City on February 12, Harris Corporation introduced 2 clustered systems and a data/voice switch—all designed to increase its market share in the small-to-medium-sized office environment. The new products include the **Harris 9300 Work Group System**, the **Lanier Concept 6000**, and the **Harris 20-20 Integrated Network Switch**. The **Harris 9300 Work Group System**, is basically a clustered-terminal system that handles file sharing and provides communication gateways to IBM host mainframes via 3270/RJE emulation; and/or allows multiple 9300s to interface with the Harris Net local area network. The central component is the 9300 system unit, a

microprocessor-based controller that interfaces up to 16 Harris PC workstations, IBM Personal Computers, or IBM 3178/3278/3279-like terminals in any combination. Also provided is a letter-quality printer, a workstation printer, and a band printer.

The System Unit coordinates and controls the interaction between the locally attached terminal devices, as well as units accessed via its communication gateway. It runs under the Harris-licensed Network Operating System (NOS), an interactive menu-oriented program that provides sequential, relative, and indexed file organizations and access methods, and supports virtual memory management. The 9300 can be fitted with up to 2 million characters of main storage and 1G byte of virtual address space. Disk storage ranges from 37M bytes to 132M bytes.

The 9300s principal application, in our opinion, is to provide

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integrated personal computing support that allows users to share resources. These resources can include a general file server for large local databases and PC disk backup; print servers for accessing the attached printers; and print spoolers for handling deferred printing. The 9300 also allows a standard PC to support multiple session windows, with applications access to local and/or remote hosts.

The communication gateway services provided by the 9300 permits local and remote access to IBM mainframes, or attachment to the Harris Net local area network. IBM protocols supported include 3270 SNA/SDLC and BSC, 2780/3780 BSC and HASP, and SNA RJE. Network support for SNA LU6.2, which permits peer-to-peer addressing to transfer documents and runs host-based DIOSS and PROFS program products, is planned. Also in the future is support for Wang's Office Systems Interchange, which supports file and document transfers.

The 9300 is scheduled for June 1985 delivery. A configuration including a 9300 Systems Unit, 1M-byte RAM, 37M bytes of virtual address storage, and a Harris Net interface will cost about \$11,000.

The **Lanier Concept 6000** is a clustered network controller that offers terminals service much the same as the Harris 9300. For example, the 6000 also functions as a file server and shares system resources such as printers, disk drivers, and data communication services.

The 6000 is built around a Central Network Server that furnishes the terminal control, database management, and communication services. The server can be configured with between 256K to 1024K bytes of RAM and 28M-, 50M-, 67M-, and 100M-byte Winchester disks. The system runs under the H-DOS or XENIX operating systems, and supports the XENIX Application Library, HDOS business applications, and a package called Library Services. The latter works with the XENIX database and provides a relatively simple means for retrieving data. Users merely specify the search criteria (such as keywords or phrases) and the database is searched. No predefined search criteria is employed.

The Server can interface up to 28 workstations, consisting of the Lanier Concept 1000, 1200, and 1400 Series, and a new mini-network controller called the concept 4000. The 4000 supports up to 6 workstations, and provides database management, file, and peripheral-resource sharing and word processing. The unit has 256K bytes of RAM and 10M or 28M bytes of Winchester disk, and runs under H-DOS.

The communication facilities of the **Concept 6000** includes DEC VT100, TTY-ASCII, IBM 3270, and 3780 emulation, and both BSC and SNA/SDLC protocol support. The system also supports DISOSS or PROFS sessions for compatibility with IBM's office automation software. Text Saver, Lanier's new communication converter for documents created on a Wang OIS system, allows similar compatibility with Wang office equipment.

Workstation support is provided by Lanier Business BASIC, EZ-Spell, EZ-Task, EZ-Mail, business graphics, Data Manager II word processing, and vertical industry packages. The 6000 can also act as an applications processor, performing several background tasks simultaneously.

Concept 6000 will begin deliveries in April 1985. A sample

configuration consisting of a 6000 Server, 1M bytes of RAM, and 96M bytes of disk costs about \$22,000.

The **Harris 20-20 Integrated Network Switch** is designed primarily for handling voice but is also acceptable for data. The 20-20 functions like a PBX by providing services as simple as desk-to-desk dialing, and can also serve as a sophisticated networking processor that can establish least-cost routing and alternate routing paths employing private and public facilities.

The 20-20 comes in 4 cabinet sizes: a single-cabinet system houses up to 384 configurable ports; 2 cabinets hold 960 ports; 3 cabinets provide 1,536 ports; and 4 cabinets, 1,920 ports. Each cabinet has 3 equipment shelves plus a shelf for control logic. The 20-20 can be configured with redundant control logic, which also requires a separate shelf and reduces accordingly the number of available ports. Each shelf requires its own power supply. When redundant control logic is specified, redundant power is provided automatically. The customer, however, **does not** have the choice of choosing **only** redundant control logic or redundant power. **Both** must be purchased together.

The 20-20 supports a dial plan that allows it to be configured in almost any fashion. Dialing plans can be split, modified, or combined as required to function as a standalone switch in a single network, or as multiple switches in several networks. Up to 16 virtual networks or distinct numbering plans can be specified for each user.

The 20-20 can be configured for as many as 255 trunk groups and 2,000 route patterns. Users can specify time-of-day and day-of-week routing; off-hook queuing with simultaneous queuing on multiple routes; and lookahead routing to ensure calls are not blocked at distant routes. The user can also specify direct inward system access and traveling class mark.

As part of the alternate or least-cost routing, the switch automatically will divert calls out of the private network and into public facilities if necessary. When testing that all routing facilities are available, the routing logic also reserves the facilities to prevent another call from "seizing" them. The 20-20 also permits the user to decide whether the alternate route should be employed.

Other 20-20 control facilities include circuit directionalization, circuit turndown, route cancellation, route shipping, call gapping, code blocking, and cancel alternate routing. With Circuit directionalization, individual trunk circuits in a group may be put in a "busy" condition to outgoing traffic, yet programmed to allow incoming calls on those circuits. The Circuit turndown allows individual trunk circuits in a group to be programmed to return "busy" to both incoming and outgoing call traffic. The circuits may also be optionally arranged to provide a permanent seizure to distant locations.

Route cancellation allows calls that normally use a particular facility to be temporarily redirected to another facility. With Route skipping, call traffic may be diverted from a particular facility and advanced to the next available choice in the normal routing pattern. Route skipping acts as a "facility turndown," automatically causing the system to attempt an alternate route. Call gapping reduces the number of calls sent to a specified location during a given length of time.

Blocked calls may be given reorder tone or intercept treatment. With Call blocking, calls to a specified location can be blocked and given a reorder tone or recorded announcement intercept treatment. Up to 20 numbers may be entered in the code block table for the switch. Cancel alternate routing prevents overflow traffic from advancing past the initial choice in a route pattern. Calls that would normally advance past the first choice in the route pattern are given intercept treatment.

The 20-20's common control facilities consist of dual Intel 8086 processors, redundant 1M-byte RAM cards, a 10M-byte Winchester hard disk drive, and a 5.25-inch diskette drive. The most frequently used instructions are held in RAM, and the less frequent on the Winchester. The diskette is used for system functions. The 20-20 switch matrix provides 512 time slots to switch PCM voice inputs and data. Up to 4 switch matrices can be used to provide 1,920 fully available, nonblocking time slots/ports. By employing PCM as the voice quantization method, the 20-20 will accept data inputs at speeds up to 9600 bps.

The data rate output of the 20-20 is T1 (1.544M bps), with the frame compatible with AT&T D4 specifications. For foreign links, the CCITT standard speed of 2.048M bps is supported, as is the signaling. Harris claims that the 20-20 will also meet ISDN and DMI standards for interfacing a PBX to ACCUNET facilities.

The 20-20 is available now. Prices range from about \$218,000 for a 300-port switch to \$960,000 for a 1,920-port version.

NCR COMTEN ANNOUNCES 5620 COMMUNICATIONS PROCESSOR

NCR Comten; 2700 Snelling Avenue North, St. Paul, MN 55113; 612-638-7777.

NCR Comten announced the **5620**, a small, low-cost communication processor that performs all the functions of a large-scale system for a small or remote network site. According to the announcement, the 5620 is the first of the company's new generation of communication processors.

The 5620 is based on the NCR32 microprogrammable processor chip. Its architecture is implemented using TTL logic and NMOS/CMOS VLSI proprietary components. The VLSI components were designed by Comten and manufactured by NCR. Memory uses 256K-bit dynamic RAM chips with a cycle time of 200 nanoseconds. Memory size can range from 1M to 4M bytes.

When fully configured, the 5620 can support 32 half- or full-duplex lines at 9600 bps and 2 host computers. The host computers can be either IBM S/370 compatible systems or NCR computers. Individual line speeds of up to 64K bps are supported, with automatic baud rate detection (ABRD) for up to 19.2K bps. It can support any combination of asynchronous, BSC, and SDLC line protocols.

The IBM Channel Interface Adapter (CIA) is implemented on 2 14x21-inch logic boards. The IBM CIA is also based on the NCR32, microprogrammed for the channel adapter function. It attaches to a byte or block multiplexer channel on an IBM S/370-compatible host and provides direct access to the 5620 memory. It contains 64 soft-addressed subchannels that need not be contiguous.

The NCR CIA is also implemented on two 14x21-inch

boards, but is based on the Motorola 68000. It attaches to the standard NCR 16-MHz bit serial link channel and also has direct access to the 5620 memory.

The 5620 can include an integrated 10M-byte Winchester disk drive for program loading, but can also be loaded from a host over an ICA channel or from a remote site through communication link. The operator interface is through an operator panel or optional operator console. Power-up or reset initiates self-test programs; an error code is displayed to indicate a failing board and type of error.

The 5620 runs under the COS 2/20 operating system, and can run the same software that Comten has developed for its 3600 line of communication processors. Other software that can run on the 5620 includes Advanced Communication Function/Network Control program (ACF/NCP), Multiple Access Facility (MAF), MAF with Remote Host Option (MAF/RHO), Subarea Routing Manager (SRM), Communications Network Systems (CNS), and the Comten X.25 Interface to packet-switched networks. Network management and control software includes the Communications Alerting Facility (CAF) and Network Support Services.

In addition, the 5620 can run the Comten Communications Access Method (CAM) software, which allows the user to run network application programs with the other system software. CAM provides terminal control and a SSCP (System Service Control Program), thus applications can run independently of the host processor. For example, terminals connected to a 5620 can intercommunicate through the 5620 without accessing the host.

The 5620, obviously, competes with the IBM 3710 Network Controller. Unlike the IBM 3710, the Comten 5620 can function as a local or remote front-end processor as well as a concentrator. The IBM 3710 can function **only** as a concentrator. In an SNA network, the 5620 appears as Physical Unit (PU), Type 4. The 3710, on the other hand, looks like a cluster controller or PU Type 2 on SNA. The 3710 cannot run the same software as IBM offers for the IBM 3705 and 3725 Communication Controllers. Also, the 3710 requires a 3705/3725 for connection to a host processor.

Both the 5620 and IBM 3710 can support up to 32 data communication lines at speeds up to 64K bps. Both provide RS-232C/V.24, V.35, and X.21 electrical interfaces. However, the 5620 is also available with RS-449/422/423, MIL-STD 188-114, and NCR DLC interfaces. Memory on the IBM 3710 is limited to 512K bytes as compared to 1M to 4M bytes on the 5620. A 10M-byte Winchester disk is optional on the 5620; the 3710 includes an integral diskette. An operator's console is optional on the 5620; an operator can configure, operate, and analyze a 3710 from a user-supplied IBM 3101 or equivalent terminal. Both systems can handle SDLC, BSC, and start-stop protocols.

The 5620, like other Comten processors, supports the CAM program that allows running applications independently of the host processor. Terminals connected to the 5620 can intercommunicate without establishing a session through the host processor. For terminals connected to a 3710 to intercommunicate, a session must be established through VTAM on the host processor to which the 3710 is connected through a 37X5 front end, a significant limitation. The NCR

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Comten 5620 is more powerful and considerably more versatile than the IBM 3710. Of course, only Model 1 of the 3710 has been announced, other models may offer more power and flexibility.

The 5620 is also considerably less expensive than the 3710. For a configuration that supports 27 lines, 26 RS-232C low-speed lines, and a V.35 high-speed line, the total purchase price is \$1,250 per line for the 5620 and \$3,770 per line for the 3710. Ports can be added to the **5620** in 16-line increments at a price of about **\$425 per port**. Ports added to the **3710** are priced at **\$1,000 per port**.

Both systems are scheduled for delivery in second quarter, 1985. Purchase prices for the NCR Comten 5620 are as follows: \$16,000 for a base 5620 communications processor with 1M byte of memory; \$8,000 for an additional 1M-byte memory increment (up to 3 can be added); \$3,000 for a 10M-byte Winchester disk; \$1,200 for an Operator's Console with Display/Keyboard; \$10,000 for an IBM or NCR Channel Interface Adapter (CIA), \$1,500 for a Communications Base Cabinet for up to 16 lines, about \$400 for a mechanical assembly for 8 lines, \$500 for Processor Interface Board for 8 lines, \$725 for a Character Processor for 8 lines, and \$500 for a dual-port RS-232C interface. The COS 2/20 Operating System is bundled with the hardware.

■ ANNOUNCEMENTS & NEW PRODUCTS

AMDAHL ADDS VOICE CARD TO MODEL 2211 T-1 MULTIPLEXER Amdahl Communications Systems Division; 2500 Walnut Avenue, Marina Del Rey, CA 90291; 213-822-3202.

Amdahl has officially released its long-removed **voice facility** for the **Model 2211 T-1 multiplex**. **Data Decisions** learned of this new facility **last summer** and published a description of it in report 910-A358-2211.

The new voice card is a dual-channel unit employing CVSD and providing data rates of 16, 32, 48, or 64K bps each. At 64K bps, the voice card will pass modern data rates up to 9600 bps. The voice card can be terminated directly at a PBX, supporting direct PBX-to-PBX communication. Price for the dual-port unit is \$1,600.

AMDAHL ANNOUNCES NEW 4705T HIGH-SPEED COMMUNICATION PROCESSOR AND ENHANCEMENTS FOR 4705E Amdahl; 1250 East Arques Avenue, P.O. Box 470, Sunnyvale, CA 94086; 408-746-6000.

Amdahl's new **4705T** supports high-speed transmission up to 2.048M bps and users can mix voice and data transmissions at speeds up to 768K bps. Enhancements for the 4705E include support of 64 half-duplex or 32 full-duplex lines on a single communication scanner at speeds up to 9600 bps and connection to 6 host processors. Previously, the 4705E could connect to up to 4 hosts and the first Communication Scanner Type 3 was limited to 48 lines.

The 4705T incorporates Amdahl's new voice Input/Output Module that is also included in its 2211 Synchronous Time-Division Multiplexer (TDM) with a 4705E within the same cabinet. The voice Input/Output Module permits 2-way communication over 44 voice and/or data lines at rates up to 2.048M bps including T1 rates of 1.544M bps. Rates of data lines can range from 4.8K bps to 768K bps. The voice lines can be used to link local and remote automatic telephone switchboards without using dedicated trunk lines. The trunk

interface to conventional high-speed links can range from 56K to 2.048M bps. Because the new facilities are implemented with a separate box, the 4705T has all the facilities and performance of a 4705E. It can attach up to 352 half-duplex communication lines. Memory ranges from 256K to 1M bytes. The system includes a touch-activated operator panel and provides online and standalone diagnostics.

The 3705T can run under the IBM 3705 ACF/NCP Versions 3, 2, and 1 Releases 2.1 and 3.0. An Amdahl benchmark indicated it has about 2.4 times the performance of a 3705-II.

The purchase price for the 4705T Base Unit with 256K-byte memory and high-speed voice and data attachment is \$42,000. Monthly payment is \$1,905 under 2-year lease and \$1,135 under 4-year. Monthly maintenance for 24 hours per day, 7 days per week.

The features and options except for the high-speed features are the same as those for the 4705E. The purchase price is \$1,000 for a high-speed synchronous I/O module (2 lines); \$680 for asynchronous I/O module (1 line); \$1,430 for Voice I/O module (2 lines); \$800 for integrated limited distance data set (1200 to 64K bps); and \$1,300 for integrated limited distance data set (600 to 9600 bps), which combines up to 4 synchronous channels.

The 4705Ts have already begun delivery.

AMDAHL ENHANCES ITS 4410E and F NETWORK PROCESSORS Amdahl Communications Systems Division; 2500 Walnut Avenue, Marina Del Rey, CA 90291; 213-822-3202.

The **4410E and F** extend the 4410 line of X.25 Network Processors. The 4410E supports a throughput of up to 900K bps and the 4410F supports a throughput of 1.35M bps. The new systems improve the price/performance of the 4410 line. Both use the standard 4410 operating software and are compatible with the older systems.

New software options add flexibility in addressing non-Amdahl PAD devices. Also, load-sharing for internode traffic has been improved.

The 4410 offers an efficient and flexible way to interconnect user devices through an X.25 network. A single 4410E or F can be used for a small network or they can be combined to support more than 10,000 PADs or other end points.

The purchase price begins at \$120,000 for a 4410E and \$150,000 for 4410F. The purchase price for an accelerator kit to upgrade a 4410 to a 4410F is \$40,000. Both models are available for delivery now.

ASC TO PROVIDE REMOTE NEW SERVICE American Satellite Company; 1801 Research Boulevard, Rockville, MD 20850; 301-251-8399.

American Satellite Company announced it has signed a contract with The Financial Times to provide remote newspaper printing service between London and the U.S. The contract signing makes American Satellite the **first** U.S. common carrier to provide customer-dedicated International Business Satellite service (IBS) since Intelsat offered it in the U.S. in early 1984. Prior to its inception, international business communication was routed through international gateway stations and terrestrial interconnections before reaching its final destination in the U.S.

Under the terms of the contract, American Satellite will install

and operate an earth station in Bellmawr, New Jersey which will be used by The Financial Times to receive transmission for remote printing of the newspaper. Through a working agreement, which ASC has established with British Telecom International (BTI) for service to the U.K., transmission will originate in London and will be routed over Intelsat's Atlantic Ocean Region satellite.

The Financial Times is currently printed in London, England and Frankfurt, Germany, and shipped to U.S. subscribers by air from Frankfurt. Printing the paper in the U.S. will provide better availability to its growing number of readers. Service is expected to begin in July of this year.

American Satellite Company has announced the closing of a \$35 million leveraged lease transaction. The lessor is CitiCorp Multilease (SEF), Inc and debt was provided by a syndicate of banks led by Bank of America.

The transaction includes transponders on the WESTAR V Satellite, which American satellite owned as part of a 20 percent ownership position in the WESTAR Satellite System. The company will launch 2 wholly owned satellites in August 1985 and 1986, which will operate at C- and Ku-band frequencies.

ATLANTIC RESEARCH INTRODUCES PACKET TERMINAL SYSTEM Atlantic Research Corp; 5390 Cherokee Avenue, Alexandria, VA 22314; 703-642-4000.

Atlantic's new **XPERT Packet Terminal System** is designed specifically for X.25 networks and extends the benefits of packet switching all the way to terminal users. The XPERT is 4 terminals in 1, and can interact with up to 4 different host computers at the same time. The XPERT terminal emulates IBM 3270, DEC VT100, graphics, and ASCII devices while attaching directly to an X.25 network. With a couple of keystrokes, the user can flip back and forth between multiple data sources and applications.

XPERT, priced at \$2,995, requires no PAD or protocol converters; the X.25 terminal emulation functions reside in the terminal. Local hosts, terminals, personal computers, and dial-in ports can connect to the packet network through XPERT. Error protection is provided for all transactions. XPERTS are configured individually or in clusters to spread the cost of network access and printers over many workstations. Remote diagnostics separate operator errors from system malfunctions, then pinpoint real faults to a specific component for quick replacement. XPERT operates on Telenet, Tymnet, Accunet, and other public and private networks.

AT&T-C800 SERVICE BILLING CHARGES PROPOSED AT&T Communications; 295 North Maple Avenue, Basking Ridge, NJ 07921; 201-221-2000.

AT&T has proposed reducing from 60 to 30 seconds the average minimum amount of time for which AT&T 800 Service subscribers are billed. If approved by the FCC, the change would be phased in across the country beginning April 1, 1985.

Currently, AT&T 800 Service subscribers who offer toll-free calling to their customers are billed monthly for a minimum of 60 seconds for each incoming call if the average duration of all calls is less than 60 seconds. If the length of all calls averages more than 60 seconds, customers are billed for

actual usage. Under the proposed change, subscribers to the service would be billed a minimum of 30 seconds for each incoming call if the average duration of all calls is less than 30 seconds. If the length of all calls averages more than 30 seconds, customers would be billed for actual usage. Subscribers benefiting from the change might include those using AT&T 800 Service for credit-checking purposes or for commercial security systems that, when triggered, automatically dial an attendant at a central location.

In a separate filing, AT&T also asked to revise certain one-time, nonrecurring charges for obtaining or changing AT&T WATS or AT&T 800 Service. For instance, the cost of processing service orders for starting or changing either service would be standardized at \$99. Currently, such charges range from \$51.80 to \$120. AT&T filed the new rates in response to an FCC request for updated material supporting one-time, nonrecurring charges. If allowed by the FCC, these changes also would take effect April 1, 1985.

DISCOUNTED LONG DISTANCE SERVICE ANNOUNCED

AT&T also announced a special optional pricing plan that would give frequent callers a 15-percent discount on interstate long-distance calls in return for a \$25 monthly fee. The plan, called **AT&T PRO America**, would prove especially attractive to customers whose direct-dialed interstate long-distance bills average \$167 or more a month, according to the company. In filing with the FCC, the company asked that the plan take effect on March 29.

The 15-percent discount would apply to direct-dialed, AT&T Long Distance Service calls, regardless of time-of-day or day-of-week. The savings would be in addition to the normal 40-percent discount offered on calls made during the evening and 60-percent discount applied to calls made during nights and weekends. The rates would apply to interstate calls within the continental U.S. and between the continental U.S. and Alaska, Hawaii, Puerto Rico, and the U.S. Virgin Islands. The AT&T PRO America discount would not apply to intrastate long-distance, international, third-number billed, credit card, person-to-person, or collect calls. The plan also includes a one-time service charge of \$10, which would be waived for customers who subscribe during the first 90 days of the plan's availability in their area. Availability of AT&T PRO America in specific areas would depend on arrangements with local telephone companies for billing service. The companies serving the majority of customers have indicated to AT&T that they would be prepared to handle billing for the plan when it takes effect.

AT&T COMMUNICATIONS AND GLOBAL CARRIERS PLAN TO CONSTRUCT LIGHTWAVE UNDERSEA CABLE

Representatives from AT&T and 21 global telecommunication companies and administrations today gave their initial approval to a draft agreement to construct and maintain the first undersea cable to span the Pacific Ocean with laser-powered, digital lightwave communication technology. Final approval to implement these plans must be obtained from the governments of the administrations involved in the project, including the FCC.

The fiber-optic system, to be called **Hawaii 4/Transpac 3**, will be the fourth cable between the U.S. mainland and Hawaii and the third from Hawaii to the Western Pacific. The system will cost approximately \$593 million and is tentatively

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scheduled to begin service on December 31, 1988.

The system will bring the benefits of high-capacity digital technology, including a wide variety of voice, data, television, and video teleconferencing services to this region to meet rapidly growing telecommunication needs. The new lightwave system will stretch nearly 7,200 nautical miles across the Pacific. The first 2,250 nautical mile leg of the cable will connect Point Arena, California with Makaha, Oahu, Hawaii. From Hawaii, the cable will extend to a branching unit approximately 2,900 nautical miles from Makaha. That unit will permit the cable to split into 2 legs extending some 850 nautical miles to Agana, Guam, and about 1,200 nautical miles to Boso, Japan.

The U.S. international service carriers will own about 63 percent of Hawaii 4/Transpac 3, which will be able to transmit the equivalent of approximately 37,800 simultaneous telephone calls. The Hawaii 4/Transpac 3 system will include nearly 250 undersea regenerators located approximately 30 nautical miles apart. These regenerators will recreate rather than amplify communication signals, resulting in higher-quality, noise-free transmission.

The cable system is designed to operate at 280M bits of information per second, transmitted over 2 working pairs of hair-thin glass fibers.

AT&T COMMUNICATIONS INTRODUCES CUSTOMER-CONTROLLED RECONFIGURATION SERVICE AT&T Communications has announced a service function called **Customer Controlled Reconfiguration** that will enable its Accunet T1.5 Service subscribers to change the arrangements of their high-speed, high-capacity circuits themselves. Accunet T1.5 Service is a terrestrial digital service that can transmit information at the rate of 1.544M-bps.

Customer Controlled Reconfiguration will allow subscribers to get the most economic use of their private data, voice, or video networks by arranging each of the 24 64K-bps transmission paths available within an Accunet T1.5 circuit to best suite their specific needs. It also will give them the flexibility to reconfigure their private networks from their own terminals whenever they choose without asking AT&T to do it for them. For example, a subscriber using Customer Controlled Reconfiguration could configure his Accunet T1.5 network for voice traffic during the day and data traffic at night. Currently, Accunet T1.5 subscribers whose transmission needs vary as their traffic patterns change must place one or more service orders with AT&T to do the reconfiguration. The field charge is \$375 per month for each circuit termination using Customer Controlled Reconfiguration. The function is available at AT&T Communication offices in major cities.

AT&T COMMUNICATIONS ADDS PUERTO RICO TO DIAL-IT 900 SERVICE Dial-It *900 is now available to customers in Puerto Rico for a variety of information and polling activities.

The dial-up information offering on the Caribbean island is being provided through an agreement between AT&T and the telecommunication companies in Puerto Rico. In addition to Puerto Rico, AT&T Dial-It 900 Service is available in the 48 contiguous United States, Alaska, Hawaii, the Virgin Islands, Canada, and some 60 additional foreign locations.

Dial-It 900 Service allows sponsors to provide 2 types of programs. The first is either live or prerecorded information such as national sports reports or the Dial-A-Shuttle service, which allows callers to hear live conversations with space shuttle astronauts.

The second feature is the polling service that allows callers to dial a 900 Service number to express their preferences on a variety of questions, such as what movie is deserving of an Academy Award or what college football team should be awarded the national championship.

Customers in the 50 states, Puerto Rico, and the Virgin Islands who dial 900 Service numbers will be charged 50 cents for the first minute of the call and 35 cents for each additional minute, plus tax.

Coin telephone calls, operator-assisted calls, calls from hotels and motels, and credit card calls cannot be made to 900 Service numbers. Organizations sponsoring Dial-It 900 Service programs earn no proceeds from these calls.

Callers also may dial 1-900-555-1212 for an updated report on all Dial-It 900 Service programs currently available. There is no charge for this call.

AT&T-IS UNVEILS NEW MERLIN MODELS AT&T-IS Information Systems; 100 Southgate Parkway, Morristown, NJ 07960; 201-898-8000.

Two new models of the AT&T Merlin Communications System have been announced. The new models are the **Model 3070**, designed for businesses with up to **30 outside lines** and **70 phones**, and the **Model 1030** for firms with up to **10 outside lines** and **30 phones**. Depending upon the number of lines and phones ordered, an average price for the Model 1030 is approximately \$11,500. The average price of a Model 3070 is approximately \$18,750.

According to the company, the most exciting new feature is "line pooling," which permits outside lines to be grouped so they can be shared by a number of people. "Pooling" allows for more efficient use of outside lines and helps keep down costs. Other new features include call coverage, which permits people to answer calls for persons with whom they do not share lines; night service, which permits after hours calls to be answered from any extension; and personalized speed dialing, which will provide each user with up to 22 numbers that can be stored and then dialed by using a 3-digit code.

AT&T-IS ALSO ANNOUNCES NEW TRADING TURRET AT&T-IS also unveiled the **Universal Turret**, a new communication system designed to meet the needs of bankers and financial traders. The new system provides a display of up to **180 lines**, and allows users to access any line (whether idle, busy, or ringing) or many lines simultaneously without involving a PBX operator. The AT&T Universal Turret comes in 7 models ranging from **30 to 180 lines**. The microprocessor-based system offers advanced architecture and digital logic, which allows users to easily expand or modify the system as required. It also permits using adjuncts such as headsets, pagers, and loudspeakers.

The AT&T Universal Turret is available during a controlled introduction, and it will be generally available beginning April 19, 1985. The new system costs between \$2,675 and

\$27,525, depending on the size and circuit capacity of the unit ordered.

AT&T INFORMATION SYSTEMS ANNOUNCES TWO MULTIPLEXER AND NETWORK CONCENTRATORS FOR VOICE/DATA USE

AT&T-IS has announced 3 new products (all produced by Tellabs), which can be used to concentrate voice/data channels over public/private networks. The new products are the **718 Stat Mux**, a statistical multiplexer with capacity for up to 32 channels of data; the **719 Networker**, a combination statistical multiplexer and data packet switcher for routing multiple remote locations into a central control; and the **735 T-MUX**, a time-division multiplexer that digitizes and routes voice and video as well as data over high-speed, high-capacity T-1 lines at a data rate of 1.544M bps.

The 718 Stat Mux handles from 4 to 32 channels of asynchronous and synchronous data, with the ability to add channels up to its full capacity in modular steps. The device can support data communication speeds of up to 9.6K bps on each channel, with virtually error-free performance. It offers the flexibility to work with coaxial, fiber optic, satellite, and metallic transmission facilities.

The 719 Networker is intended for use with DATAPHONE II Level IV. It allows users to reconfigure all multiplexers from a central location and sends all error conditions to the diagnostic system. The 719 Networker is a standalone 32-channel computer port concentrator for local network use, or can be used to tie Stat Muxes into a single transmission facility. Up to 250 networks can be tied together.

The 735 T-MUX is a time-division multiplexer for medium to large businesses with the voice and data traffic to justify a T-1 facility. The main unit can accommodate up to 64 channels, with 128 channels possible through the addition of an expansion unit. Voice-channel inputs are digitized for high-quality transmission, even at narrow bandwidths. The 735 T-MUX also accepts input from its own asynchronous channel card or from the 718 STAT MUX and the 719 Networker for cost-effective asynchronous communication.

The 718 and the 719 was generally available in March; the 735 T-MUX will be generally available in April. The 718 ranges in price from the basic unit at \$3,200 to a fully loaded unit at \$9,000. The 719 Networker ranges in price from the basic unit at \$5,000 to a fully loaded unit at \$19,000. The 735 T-MUX ranges in price from the basic unit at \$11,000 to a fully redundant, 128-channel unit at \$72,000.

CASE RIXON UNVEILS DCX812 STAT MUX Case Rixon Communications, Inc; 2120 Industrial Parkway, Silver Spring, MD 20904; 301-662-2121.

A new statistical multiplexer designed for use with Hewlett-Packard, Tandem, and Wang minicomputers has been introduced by CASE Rixon. The **DCX812** consists of a single-circuit card and supports up to 8 asynchronous terminals. It features a maximum data rate of 9500-bps per channel with an aggregate rate of 19.2K bps.

The new DCX812 is compatible with the DCX line of networking and switching systems. Intended to eventually replace the older DCX815 multiplexer, the DCX812 includes the following options: local echo; an inactivity timer; flow control translation; HP, Wang, and Tandem special flow

control systems; and 9 level codes available on a per-channel basis.

CASE RIXON OFFERING DSE FOR DDS APPLICATIONS The new CASE Rixon **500A Data Service Unit (DSU)** is designed specifically to allow terminals to interface with AT&T Communications' DDS at speeds of 2400, 4800, and 9600 bps. The 500A can be used in point-to-point and/or multipoint applications, and includes an integral CCITT V.54-compatible test pattern generator. A full-range automatic equalizer eliminates the need for an optional build-out pad to be selected during installation where selection depends on the length of the local loop. The 500A is priced at \$799.

CODEX AND RACAL-MILGO SETTLE PATENT DISPUTE Codex Corporation; 20 Cabot Boulevard, Mansfield, MA 02048; 617-364-2000.

Codex Corporation has announced the final settlement to a long-running patent dispute with Racal-Milgo, which resolves almost a decade of patent-related litigation between the 2 firms. The settlement includes a worldwide cross-license of both vendor's modem and multiplexer patents, the termination of all litigation, and the payment of \$8.3 million to Codex by Racal-Milgo.

The litigation was initiated in January 1976 with 2 suits filed by Milgo; 1 against a Codex modem customer for infringement of Milgo patents, and the other filed against Codex to invalidate Codex's basic patent on the modulation scheme used in international standard (CCITT V.29) 9600-bps modems. The Milgo patents were subsequently ruled invalid, the Codex patent was upheld in England, and Racal Milgo was ordered to pay over profits made on infringing modems.

COHERENT OFFERING SPEECH PLUS DATA MULTIPLEXER Coherent Communications Systems Corp; 60 Commerce Drive, Hauppauge, NY 11788; 516-231-1550.

Coherent's new **DSM-32 Digital Speech Plus Data Multiplexer** is designed for 56K- or 64K-bps facilities, and employs a unique version of the Adaptive Differential Pulse Code Modulation (ADPCM) quantization technique to provide toll-quality voice at 32K bps and pass modem signals to **9600 bps**. The latter is twice the data rate permitted with conventional ADPCM and rivals the data handling offered by the 64K-bps PCM method.

For use on 64K-bps circuits, the DSM-32 can be strap-configured to provide either three 9600-bps data ports or one 19.2K-bps and one 9600-bps data channel in addition to the digital voice channel. For 56K-bps circuits, the DSM-32 will provide either one 19.2K-bps or two 9.6K-bps data channels. Each data channel includes request-to-send and carrier detect control circuits. Regardless of the trunk speed, the DSM-32 provides 3 separate secondary low-speed (up to 150 bps) data channels.

The derived voice channel is provided with a 2- or 4-wire interface with E & M signaling. Other signaling capabilities are available upon request. An optional echo suppressor and tone disabler are also available for use with satellite circuits. Front panel pushbutton-activated tests of both the local and remote equipment and the transmission facility are provided for diagnostic use. Other LEDs indicate Link Synchronization, Power On, and the status of the E & M leads.

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The DSM-32 is available with 3 trunk interfaces: CCITT G.703, V.35 (AT&T DSU), or X.21. Alternate interfaces are available upon request. The unit can be used with an optional cabinet for standalone operation or is suitable for mounting in a standard 19-inch rack enclosure. The DSM-32 costs \$2,245.

COMDESIGN ENHANCES HIGH-END TS-600 SWITCH MUX ComDesign, Inc; 751 South Kellogg Avenue, Goleta, CA 93117; 805-964-9852.

ComDesign has recently expanded its **TS-600 Switching Statistical Multiplexer** with several new features. With the addition of Synchronous Channel Option and a Dual Link Option, the enhanced TS-600 benefits users with increased flexibility and compatibility.

The Synchronous Channel Option adds synchronous capability for a choice of either synchronous or asynchronous connections. It allows up to 4 out of 8 input channels (or up to a maximum of 16 out of 32) to operate synchronously or asynchronously, handling a range of protocols in transparent mode and statistically multiplexing selected protocols in a nontransparent mode. Synchronous operation is not available on the first 4 channels. Channels with synchronous operation can be configured for ASYNC, SDLC, or EBCDIC BISYNC protocols. SDLC protocol is used with IBM SNA 3270 terminals, IBM SNA RJE devices, and many other devices. The EBCDIC BISYNC protocol is used connecting IBM Bisync 3270 terminals and IBM 3780, 2780, and 2770 RJE devices.

Both full-duplex and half-duplex media are supported. All common synchronous speeds from 1200 through 9600 bps can be used, as well as externally clocked synchronous devices up to 9600 bps. Each end of a synchronous connection can have different characteristics, allowing speed conversion, full-/half-duplex conversion and DCE/DTE conversion. The user can control end-to-end delay by specifying the blocksize parameter for each synchronous port. This parameter recreates an input SDLC or BISYNC message after a configurable number of characters have been received. It does not require receipt of the entire message that enhances response time.

The Dual Link Option permits TS-600 units in a point-to-point application to be connected by 2 composite links. Throughput between the 2 locations is maximized by automatic load balancing between the 2 links. In addition, the second link can be used for back-up in the event of primary link failure. Links are independently configured and/or tested, and are capable of different speeds, with both links able to run simultaneously at 19.2K-bps each. One line can be taken out of service and tested without interrupting data traffic. In the event of link failure, all data is automatically rerouted to the functioning link.

COMSAT FILES WITH FCC TO ADD TWO INTERNATIONAL EARTH STATIONS Communications Satellite Corporation; 950 L'Enfant Plaza, S.W., Washington, DC 20024; 202-863-6800.

COMSAT World Systems Division has announced that it has filed 2 applications with the FCC to construct international IBS earth stations in Chicago and the San Francisco Bay area. The 9-meter COMSAT antenna in Chicago will operate at 11/14, 12/14 Ghz with data rates ranging from 64K bps to 2.048M bps, with higher bit rates available.

The San Francisco Bay Area COMSAT 13-meter antenna will operate at 6/4 Ghz with rates ranging from 64K bps to 2.048M bps. Both teleports will contribute to the new, totally integrated digital business services program that will enable major urban areas access to international points in the Atlantic Ocean Region via the INTELSAT System.

The new DIGITAL EXPRESS services will be totally digital with enhanced quality, offering a variety of international communications services on both full-time, part-time, and occasional use basis.

Both of the planned teleports are scheduled to begin operations in 1986.

DIVERSIFIED DATA RESOURCES OFFERING LOW-COST 32-PORT HYDRA PROTOCOL CONVERTER Diversified Data Resources, Inc; 25 Mitchell Boulevard, Suite 7, San Rafael, CA 94903; 415-499-8870.

DDR's new **Hydra II-E** is a 32-port version of the Hydra II direct-channel attach protocol converter/controller used to interface asynchronous ASCII terminals/printers/personal computers to IBM mainframes. Like its predecessor, the E-model attaches directly to the byte multiplexer channel on the IBM mainframe (S/370, 303X, 43XX), and emulates an IBM 3272/3274 controller with 3278/3279 terminals and 3286/3287 printers attached. The Hydra II-E is available in rackmounted or standalone versions and sells for \$13,900 for 32 ports, and \$7,900/\$9,000 for 8- and 16-port versions, respectively. For those requiring 64 ports, that configuration sells for \$16,900.

FORTE RELEASES IMPROVED FORTENET PACKAGE Forte Data Systems; 2205 Fortune Drive, San Jose, CA 95131; 408-945-9111.

Forte Data Systems is now offering an upgraded version of its micro-to-mainframe file transfer series that enables personal computer users to move mainframe data files at data rates from 4,500 to 6,000 characters per second. Depending on the installation, data transmission speeds greater than 6000 cps can also be achieved.

The enhancement has been applied to the ForteNet TSO and CMS products. The ForteNet software packages permit complete mainframe files to be downloaded to an IBM PC, XT, AT, or compatibles via a 3270 network and then outputted in PC-DOS formats. Conversely, data developed on the PC can be transferred to the mainframe for storage, centralized processor, or for distribution to other PCs on a network.

The file transfer product also now provides online display of the system status line. Errors occurring on the mainframe are **immediately** brought to the attention of the user. Many products only display the file name and character count of the data being transferred and the user is not apprised of errors or other problems that may interrupt the transfer.

For operation, the personal computer must be outfitted with the FortePJ, which provides 3278/79 emulation, or ForteGraph, which converts the PC into an IBM 3279 S3G color graphics terminal. The ForteNet software handles the transfer of both text and binary files, and supports both fixed and partitioned datasets with either fixed or variable record formats. Prices for ForteNet TSO and ForteNet CMS remain unchanged, at \$1,000 for site license. Current ForteNet

customers can obtain the new software at no charge from their distributor.

GANDALF ADDS REMOTE TERMINAL ACCESS AND AUTOCALL TO PIN 9101E X.25 MULTIPLEXER

Gandalf Data, Inc.; 1019 South Noel, Wheeling, IL 60090; 312-541-6060.

Users of the **PIN 9101E X.25 multiplexer** will be able to access the unit's console from any point in the network thanks to a new remote access facility. In addition, the new autocal feature will route an incoming call to a predefined destination. PIN 9101E is designed to provide access to X.25 packet-switched networks for asynchronous terminals or computer systems with asynchronous ports. Up to 16 asynchronous devices, running at speeds from 50 to 9600 bps, can be connected via RS-232C/CCITT V.24, V.28 interfaces to the network through a single synchronous link. It is certified for operation on major packet-switched networks worldwide.

The new remote console access feature will enable users to configure their units or perform various maintenance checks from any location in the network. For system security, a password protection function has also been added. This feature also facilitates service by enabling maintenance personnel to check configurations and perform diagnostic testing without actually having to travel to the site.

Auto-call adds further flexibility to the PIN 9101E. Now the unit can be used by personnel who may be totally unaware of the networks addressing requirements. Calls can be automatically sent to a preset destination on a channel-by-channel basis by the system manager. A fully prompting operator interface allows the system manager to control all aspects of configuration and operation via simple English language dialog.

The PIN 9101 is available in 4- or 8-channel standalone units or 4- to 16-channel rackmount versions at prices ranging from \$2,650 to \$5,250. Existing 9101s can be upgraded to the new facilities for \$100.

GDC UNVEILS HIGH-SPEED MULTIPLE ACCESS UNIT

General DataComm Industries, Inc.; One Kennedy Avenue, Danbury, CT 06810; 203-797-0711.

GDC has introduced the **MAU-3** high-speed multiple access unit for use in polled synchronous digital networks. The MAU-3 can be used as a modem-sharing or port-sharing device and allows multiple combinations of up to 4 Data Service Units (DSUs), local area data sets, or terminals to share a common communication device in a polling network. Also, the MAU-3 unit can be expanded by cascading one or more units. Additional features include antistreaming, internal or external timing, and synchronous operation up to 512K bps. Currently available, the MAU-3 carries a list price tag of \$1,395.

GTE ANNOUNCES MICRO-EXCHANGE ELECTRONIC KEY TELEPHONE SYSTEM

GTE Communications Systems Corporation; 2500 West Utopia Road, Phoenix, AZ 85027; 602-582-7000.

GTE has announced the **Micro-Exchange**, an advanced key telephone system. A fully modular system, the Micro-Exchange is composed of 3 elements: user-programmable 16-button telephones, plug-in feature packages, and the feature service unit. The system is designed for businesses with 8 to 32 employees through 5 cartridge feature packages

that plug into the feature service unit. Each package adds to the system's flexibility by providing various service upgrades while retaining lower-level functions. In all, more than 50 service features will be offered through the 5 plug-in feature packages, including speed calling, message waiting, and call announcing. Customers can choose any one or more of the Micro-Exchange's 5 plug-in feature packages, depending on the company's individual needs.

The Basic Networking Package became available in February, and provides key system service with 10 buttons for line pick-up, and an automatic line privacy feature. Other features in the Networking Package include conferencing for up to 5 intercom parties, and flexible ringing. A timed hook switch flash provides easy access to PBX features. Distributed microprocessor control along with the plug-in feature modules will permit system upgrading so that users can add advanced functions.

The Call Announcing Feature Package, to be available by late April, provides 14 new features, including call forwarding and speed calling, in addition to call announcing. Other feature packages scheduled to be available in 1985 and 1986 are Flex Feature, Facilities Management, and ACD/Silent Messaging. The Flex Feature package provides programmable buttons for flexible line assignment as well as speed dialing. The package also includes direct station selection (DSS) to simplify calling other stations. Availability is planned for early in the 3rd quarter, 1985.

The Facilities Management package offers station message detail recording (SMDR), a time and alarm display, and buttons to control heat, light, security systems, or similar facility management systems. Availability is scheduled for 1986.

The ACD/Silent Messaging package includes automatic call distribution and enhanced display features such as call-source display, "please call" messages, and user prompting. Availability is planned for 1986.

The system's station instrument contains 16 buttons, allowing easy access to system lines and features. Options such as built-in speakerphone and dialed number display also are available.

The Micro-Exchange will be available in 3 versions: 4 lines with 8 stations, 10 lines with 20 stations, and 16 lines with 32 stations. Each model has 6 intercom paths. Two-pair station wire is used.

Micro-Exchange system pricing is volume-dependent. Typical price for a 16-button station instrument is \$110 and for a 4x8 system equipped with 8 station instruments and a Basic Feature Package Cartridge, the average cost is \$169 per station. The Micro-Exchange system will be marketed through GTE Communication Systems, GTE Supply, independent telephone companies, and authorized GTE distributors.

INNOVATIVE ELECTRONICS OFFERING IBM 3270 BSC/SNA PROTOCOL CONVERSION

Innovative Electronics, Inc.; 4714 NW 165th Street, Miami, FL 33014; 305-624-1644.

Innovative's new **MC 800 protocol converter** allows up to 24 asynchronous ASCII devices (terminals/printers) to communicate with an IBM or equivalent host computer using either SNA/SDLC or BSC protocols. The MC 800 emulates

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an IBM 3274 or 3276 controller with IBM 3278/3279 terminals attached, and is ideally suited for computer facilities with numerous remote sites employing only one or two 3270 terminals per site.

Full-screen mapping is performed by the MC 800. Data displayed on the asynchronous terminal will be the same as an IBM. Screen updating is optimized so that it is practical to operate remote full-screen applications at low data rates. The MC 800 comes in port configurations of: 5, 7, 8, 9, 12, 16, 20, and 24 ASCII ports. The MC 800 supports over 100 different types of asynchronous terminals (including color support) KSR devices, and personal computers. Also, the MC 800 is user configurable to support all standard asynchronous data rates up to 19.2K bps. Prices for the MC 800 start at \$3,600 for the 5-port unit.

M/A-COM LINKABIT ANNOUNCES T1 MULTIPLEXER
M/A-COM Integrated Digital Communications Group; 3033 Science Park Road, San Diego, CA 92121; 619-457-2340.

M/A-COM's new **TMX 144 data compression T1 multiplexer** can handle up to 546 low-speed asynchronous inputs for transmission over a T1 link at 1.544M bps, and can compress the data contained in 6 T1 links over a single T1 line. Carrying the marketing name **Trunk Master**, the unit works with twisted pairs, microwave, satellite, fiber optics, and telephone lines. Using twisted-pair wiring, data can be transmitted up to 18,000 feet without a repeater. A 72-port TMX144 costs \$3,500; 144-port sells for \$7,000.

NCR COMTEN ANNOUNCES A NUMBER OF NEW NETWORKING PRODUCTS NCR Comten, Inc; 2700 Snelling Avenue, St. Paul, MN 55113; 612-638-7777.

NCR Comten also announced the **Comten 2200 Matrix Switch**, **Comten Network Gateway**, and **Comten NCR/ACS** in addition to the **Commander Series Modems** following article and the **5620 Communications Processor**, described in the SPOTLIGHT section of this newsletter.

The **2200 Matrix Switch**, an electronic switching device, interconnects communication processors and modems in any configuration without requiring physical recabling. The matrix can support up to 512 DTE ports (Communications Processor Connections) by 512 DCE ports (modem connections), and supports both RS-232C and V.35 electrical interfaces.

The matrix is software-controlled from the matrix switch console. Through a simple command/response dialog, the user can diagnose network faults. The matrix switch uses 2 printers: one generates trouble or line status reports and the other maintains an audit trail of all activities on the system. The switch provides an operator alert when continuous self-testing detects a failing board.

The user can select familiar names (up to 16 characters long) to identify communication lines and processor ports. The switch automatically logs all network changes and provides a field of network resources.

The purchase price of the 2200 Matrix switch is \$300 to \$380 per DTE or DCE port. It is scheduled for availability in second quarter 1985.

The **Comten Network Gateway (CNG)** can interconnect up to 8 independent SNA networks. An indefinite number of networks can be interconnected using multiple CNGs.

The CNG is a software product that runs on a communications processor under the COS operating system Release 3 or above and the ACF/NCP Release 3E. The CNG provides the same function as SNA System Network Interconnection (SNI) that IBM introduced with its ACF/NCP 30. Like SNI, CNG allows a user to divide a large SNA network into smaller networks and interconnect them. This increases the number of network addresses available because addresses can be reused from one network to another. It also simplifies network regeneration by isolating network changes in the changing network and the gateway.

The Comten CNG requires ACF/TCAM V2R4 or ACF/VTAM V1R3 or above running on the IBM host processor.

The initial license fee is \$2,200 and \$400 for the monthly continuing license fee. The program is scheduled to be available second quarter 1985.

The **Comten NCR/ACS** extends the communication facilities available with the NCR Comten 3600 Communications Processors to NCR VRX hosts. The hardware and software features in the Comten 3600s are now compatible with both NCR VRX and IBM S/370-compatible hosts.

The NCR/ACS components include the VRX Interface Module (VIM), Comten Communications Access Method (CAM), and the VRX Comten Support (VCS). VIM is a software interface for the Bit Serial Link (BSL) Channel Interface Adapter (CIA). It runs in the Comten 3600 and interfaces network terminal device protocols to the NCR host.

CAM is also a program that runs in the Comten 3600 with ACF/NCP. CAM supports vendor- and customer-written communication application programs. It includes an SSCP (System Service Control Program) to establish and control communication sessions, activate and deactivate network components, display network information, and recover from errors.

VRX VCS consists of a set of COBOL application programs that reside on the NCR host to allow the host console operator to perform control functions on the 3600 Communications Processor. The operator can load or dump local and remote 3600s, initiate and process traces, and execute network control utility programs. The host must be an NCR 8500/8600 VRX system running Telecommunications Access Method (TAM) or an IBM S/370-compatible system.

Comten NCR/ACS supports NCR 7900-1/7900-4/796-101/2600, TTY-compatible, and IBM 2741 asynchronous terminals; NCR 2950/Stores III/V/TRACS, IBM BSC 3270-compatible, and IBM 370/B5 point-to-point BSC terminals; and NCR 7950, IBM 3270-compatible, and IBM 3767 SDLC SNA terminals.

The license fee is \$195 per month for VIM. The initial license fee for CAM is \$3,025 with \$550 per month continuing license fee. The VCS license is free. The purchase price of the Bit Serial Link is \$8,000. It is also available for lease under monthly, 2-year, 3-year, and 4-year contracts.

VRX VCS is scheduled to be available second quarter 1985.

Three models of the 7160 Commander modems are

available and are functionally equivalent to current models.

NCR COMTEN ENHANCES 7160 SERIES MODEMS NCR has superseded its 7160 series of diagnostic modems with enhanced models. The new **Comten 7160 Commander** series features a 32-character LCD front panel display that provides SNA and non-SNA network users with online diagnostic information. The following new features are included with the Commander modems: diagnostic information for remote sites, signal-level reporting, diagnostics on multiplexed lines, tail-circuit diagnostics, and **full compatibility** with current NCR and IBM software. Eleven message types are displayed on the front panel LCD display and include line characteristics, status, signal quality, and configuration details.

Diagnostics for both local and remote sites in SNA and non-SNA network environments are supported by the Commander modems. Diagnostics at the control modem include transmit level, receive signal quality, receive signal level, hit count, DTE activity, and configuration. Diagnostics at the tributary include receive signal level, receive signal quality, hit count, configuration, self-test results, DTE interface, and optional diagnostic testing features. The diagnostic tests can be initiated through the host software or by a switch on the front panel.

The Comten 7160 Commander series are high-speed modems designed for synchronous transmission at up to 9600 bps over dedicated or switched lines. Three models are currently available: **Comten Commander 7164-0100**, **7164-0200**, and **7165** modems. The Comten 7164-0100 and Comten 7164-0200 are functional equivalents to older Comten 7164 modems with the addition of the front panel readout. The Comten 7165 Commander series modem combines the capabilities of the current Comten 7165-0100 and 7165-0200 into one unit. The new Comten 7165 modem can be configured for point-to-point or multipoint applications with 1 switch setting. In point-to-point configurations, a multiplexer feature in the enhanced Comten 7165 modem permits data multiplexing to multiple data terminal equipment (DTE) through subchannels that share a single communication line. In multipoint configurations, the new Comten 7165 permits separately addressed secondary modems to operate on 1 communication line under the control of 1 Comten 7165 primary modem.

The Comten 7160 Commander series are scheduled for availability during the second quarter of 1985. Prices for the Comten 7164 models start at \$3,700 and prices for the 7165 start at \$5,800 for single-quantity purchases.

NORTHERN TELECOM ANNOUNCES NEW DMS-10 MODELS, FEATURES Northern Telecom, Inc.; 259 Cumberland Bend, Nashville, TN 37228; 615-256-5900.

Northern Telecom has introduced a new version of its **DMS-10** digital central office switching system, the **DMS-10S**, which is designed to serve up to **200 telephone lines**. The DMS-10S has been accepted by the Rural Electrification Administration (REA). The system occupies less than 9 square feet of space, requires minimal engineering, and can be installed by the customer. The DMS-10S can be delivered 14 weeks from the date of an order. The new system offers a full range of modern telephone switching features, including duplicate integrated CPU/network shelves, the latest custom calling

features, local area message accounting, and others. Optional features include a digital carrier module shelf, office carrier module shelf that interfaces with the Remote Equipment Module, subscriber carrier module shelf interface to the DMS-1, and a satellite switching office that will be available this year. An additional cabinet is available to increase the size of the office to 450 lines. The DMS-10S handles smaller switching requirements than the DMS-10, which serves up to 10,000 lines, and the DMS-10M, which serves up to 2,000 lines.

In another announcement, Northern Telecom announced that it can provide **equal access** as a feature on its DMS-10 digital C.O. switching systems. The equal access feature permits telephone customers to reach alternate long-distance carriers without dialing lengthy authorization codes. Long-distance carriers can be reached through subscription to the service or on a per-call basis. The equal access feature is currently available as part of the DMS-10 300-series generic software. It will be available in the 200-series generic software package in the second quarter of 1985.

NORTHERN TELECOM ALSO UNVEILS ENHANCED DMS-250 Integrated Business Network (IBN) package, an enhancement that combines advanced digital private branch exchange (PBX) features with the DMS-250 digital tandem switching system. The IBN package is the first in a series of value-added services being developed by Northern Telecom for its multifunction DMS-250 system. The DMS-250 IBN, a hardware-software package, will permit specialized and resale common carriers to offer PBX and long-distance services from a single switch. The IBN package is designed to assist carriers in addressing the telecommunication needs of major business accounts.

Northern Telecom's DMS-250 digital tandem switching system has been marketed since 1981 to specialized and resale common carriers for use in long-distance networks. The switch is a member of Northern Telecom's DMS-100 Family of digital switching systems that are used by Bell operating companies and independent telephone companies for central office communications traffic. Northern Telecom's DMS-250 uses the same basic hardware set as other members of the DMS-100 Family, but has software developed to accommodate the switching requirements of interexchange carriers.

Scheduled for availability in late 1985, Northern Telecom's DMS-250 IBN will support standard telephone terminals, Northern Telecom's SL-100 electronic business set and multiple attendant consoles.

OCTEL COMMUNICATIONS ENHANCES ASPEN VOICE MAIL SYSTEM Octel Communications Corporation; 1841 Zanker Road, San Jose, CA 95112; 408-947-4500.

Software enhancements to the **Aspen** voice message system have been announced by Octel Communications Corporation. Aspen will now support listen-only mailboxes, special mailboxes that will provide a "bulletin board" so that various announcements can be stored and played to any caller dialing a particular mailbox access number. Selectable return-to-operator has also been added to the Aspen voice message system. When users press the "0" key to request

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human assistance while using Aspen, they will now be answered by the person most able to help them. Aspen achieves this by transferring the call to any 1 of 30 different extensions in the company when the caller depresses "0." The appropriate extension is selected automatically by Aspen based on which mailbox or system port the caller was using at the point of requesting assistance. This feature is especially useful in large organizations with widely dispersed facilities in either a campus or a multistory building. It is also useful when different specialists are needed to assist callers with different types of questions. Other enhancements include the support of PBX forced authorization codes to track use of voice message system outcalling, improved system diagnostics to enhance serviceability and system reliability, and new system management statistics.

The statistics package allows a system manager to print out detailed information on the utilization of the voice message system. This information is useful for planning system expansions, cost chargebacks, and assessment of usage patterns.

Octel Communications is including most of these enhanced capabilities at no extra charge, and a free upgrade to this release of software is being provided for all existing Octel customers. Pricing for new systems will remain at the current price levels, which range from \$55,000 for a 4-port, 7-hour system to \$145,000 for a 24-port, 43-hour system.

PARADYNE ANNOUNCES FDX 2400 AUTODIAL MODEM

Paradyne Corporation; P.O. Box 1347, 8550 Ulmerton Road, Largo, FL 33540; 813-530-2000.

Paradyne has introduced a 2400-bps, full-duplex, autodial modem designed for 2-wire Public Switched Telephone Network (PSTN) applications. Dubbed the **FDX 2400**, the new modem automates call connection, information transfer and disconnection for synchronous and asynchronous host/terminal or terminal/terminal applications. Dual RS-232C ports provide continuous access and use of synchronous and asynchronous terminals for synchronous host/terminal communication and traditional asynchronous information retrieval.

Standard features include auto-originate/auto-answer and reverse calling modes, auto-rate speed selection, tandem and alternate dialing with tone and trunk/circuit busy recognition, Hayes emulation, call progress monitoring, and extensive diagnostics. The FDX is designed for direct access to the PSTN and is compatible with AT&T 212A, 113, 103; and CCITT V.22A/B and V.22 bis standards.

The FDX 2400's automatic adaptive equalizer, combined with selective compromise equalizers, maintain data integrity over the wide range of circuit conditions encountered in dial-line applications. The FDX 2400 supports current low-speed applications while transitioning the dial network user to 2400 bps. The FDX 2400 is scheduled for delivery during the first quarter of 1985 at a single-unit purchase price of \$805.

ROLM DELAYS DELIVERY OF ROLMBUS-295

Rolm Corporation; 4900 Old Ironsides Drive, Santa Clara, CA 95050; 408-986-1000.

Rolm Corporation has pushed back by 10 months the delivery of a high-capacity bus for its CBX II line due to longer-than-anticipated development time required for the hardware and software in the system.

In late 1983, the **Rolmbus-295** option for the company's CBX II digital PBX product line was promised for delivery at the end of 1984. Deliveries have not yet been made and a tentative shipment date has now been rescheduled for sometime this fall. The Rolmbus-74, which represents the base system, has been available since the earliest shipments of the CBX II system.

Rolm said it was off target with its projected shipment date for the Rolmbus-295 and is now looking at an October, 1985, delivery date. Rolm has the high-capacity bus working in-house at this time. However, it is not known exactly when the Rolmbus-295 will undergo beta testing or when customers who have already placed orders for the CBX II with the optional Rolmbus-295 can expect to receive the product.

SBS ANNOUNCES CIRCUIT-SWITCHED DIGITAL CAPABILITY AND ENHANCED SKYLINE SERVICES

Satellite Business Systems; 8283 Greensboro Drive, McLean, VA 22102; 703-442-5000.

Satellite Business Systems has announced a new public circuit-switched digital service capability called **SBS DataService**. The new offering to be made available with **SBS Skyline Network Service**, will provide high-speed switched data and video. It will be offered in all areas of the contiguous U.S. covered by the SBS Network, beginning April 2, 1985. In contrast to private digital offerings, which require dedicated long-haul lines between customer locations, SBS DataService uses dedicated short-haul tails and on-demand satellite capacity for long haul. Data rates of 56K bps and 1.344/1.544M bps are offered.

Charges consist of the cost of leased tails and associated equipment charges, plus satellite transmission fees. Features of SBS DataService include full-duplex on-demand transmission, end-to-end customer-initiated diagnostics, flexible calling options, and direct, 7-digit dialing. Features are controlled by the customer, using on-premises equipment.

Data is transmitted over a terrestrial line to an **SBS Network** earth station, where it is switched and routed. The transmission is relayed by an SBS satellite to another SBS Network earth station, then over another terrestrial link to the receiving location. As the transmission is completed, a special device with a light-emitting diode (LED) display, the SBS Selector 500, informs the customer of the call status.

SBS DataService customers will have a customer-initiated end-to-end diagnostic facility, which is a simple key pad function of the SBS Selector 500. A built-in bit-error-rate tester in the microprocessor-controlled SBS Selector 500 lets users check system integrity from point of origination to termination. In many cases, no additional digital testing equipment is required. SBS DataService offers a variety of switched data transmission options, including point-to-point, stationary broadcast, and unique mobile broadcast. The latter feature lets users in a conference call change point of transmission to different nodes at a touch of the SBS Selector 500 key pad. Rapid dial and RS-366 auto-dial features are also available as is zero-digit dialing. This feature permits a signal from the digital termination equipment (DTE) to initiate a link between 2 DTEs, and terminate the link when transmission is completed. Customers have the ability to transmit data to any other SBS DataService customer.

SBS EXPANDS NETWORK SERVICES As of March 15, 1985, the SBS Network long-distance service was expanded to Salt Lake City. The new SBS earth station in Salt Lake City will provide 3 interstate Skyline services for business customers—Skyline WATS, Skyline Toll-Free, and Skyline Network Service. A fourth service—Skyline Long Distance—will be offered later this year.

The Salt Lake City earth station includes a 7.7-meter antenna for communication with SBS satellites and related communication processing equipment. The Salt Lake City earth station joins the SBS Network of 22 earth stations and switching centers in major metropolitan areas. The SBS Network also provides long distance telephone service for Alabama customers through an earth station and switching center in conjunction with the Brindlee Mountain Telephone Company at Arab, AL.

Skyline Long Distance, the SBS interstate telephone service for residential and business customers, will be offered in Salt Lake City later this year when SBS completes installation of a high-capacity digital switching center in the city.

TECHLAND NOW OFFERING IBM 5251 EMULATOR FOR IBM PC AT Techland Systems Inc; 25 Waterside Plaza, New York, NY 10010; 212-684-7788.

Techland, the maker of the Blue Lynx emulator line of protocol converters/emulators, is now offering adapter boards and software that allow an IBM PC/AT to emulate IBM 5251 remote terminal functions and 3270 terminal functions in remote, coax, and gateway environments. The **BlueLynx 3270 SNA/SDLC** links a PC/AT to an IBM 43xx, 30xx, or 370 mainframe using synchronous or asynchronous protocols over leased or switched lines. BlueLynx 3270 Remote comes bundled with the BlueLynx 3270 Keyboard, Datareader, and utility software, all for \$945.

The **BlueLynx 3270 Coax** links a PC/AT to an IBM 43xx, 30xx, or 370 mainframe in the local environment. BlueLynx 3270 Coax comes bundled with the BlueLynx 3270 Keyboard and is priced at \$1,295. The BlueLynx 3270 Gateway allows a single local area network PC/AT to act as a 3274 controller and communicate synchronously with IBM mainframes through modems. Up to 32 supported mainframe sessions can be distributed to other ATs in the LAN. BlueLynx Gateway comes bundled with Datareader and the BlueLynx 3270 Keyboard, all for a base price of \$1,195. The BlueLynx 5251 links a PC/AT to an IBM S/34, S/36, and S/38 using synchronous protocols over leased or switched lines. Price is \$745.

NEW MULTICHANNEL CONCENTRATOR FROM TELEPROCESSING PRODUCTS TeleProcessing Products, Inc; 4565 East Industrial Street, Building 7K, Simi Valley, CA 93063; 805-522-8147.

A multichannel concentrator has been released by TeleProcessing Products. Dubbed the **TP-600**, a new device supports the addition of 2 secondary asynchronous channels to the primary data channel. The TP-600 provides low-speed, secondary channels similar to those found in medium-speed synchronous modems. The device utilizes the dead time between primary data channel blocks to interleave the secondary channels.

The TP-600 features main synchronous channel data rates to 9600 bps with secondary asynchronous data rates of 75, 110, 150, and 300 bps. In addition, the unit is equipped with

an antistreaming timer, extensive front panel indicators, and the ability to operate in a multipoint configuration. The TP-600 is unit-one priced at \$1,495.

TI EXPANDS SILENT 700 TERMINAL FAMILY Texas Instruments Incorporated, Data Systems Group; P.O. Box 809063, Dallas, TX 78350; 800-527-3500.

Two new additions to the Silent 700 Series of portable data terminals have been announced by Texas Instruments. The new terminals, **Model 703 RO** and **Model 707 RO**, are compact units designed for users with receive only data applications such as data logging, personal printing, and remote message receiving.

The Model 703 RO features a standard RS-232C interface and is intended for 300-bps direct connection to a host computer. The Model 707 RO can be plugged into a phone and AC outlet; is compatible with AT&T 103 modems; and features an online switch and an auto-answer modem for unattended operation. Both models print at a 45-cps rate and have selectable line lengths of 80 or 132 columns. Additional features include bidirectional printing with underscore and descenders, a 20-million-character user-replaceable print head, full ASCII character set, and 1,000-character-receive buffer.

The suggested list price for Model 703 RO is \$495 and \$595 for Model 707 RO. Both terminals are available through existing channels of distribution for the Silent 700 series of terminals.

TYMNET EXPANDS ITS ASYNC-TO-3270 SERVICE Tymnet Inc; 2710 Orchard Parkway, San Jose, CA 95134; 408-942-5214.

Tymnet has expanded its Async-to-3270 service, which offers customers who use ASCII terminals and personal computers economic dial-up access to IBM 3270 applications. Via Tymnet's 2400-bps dial-up Async service, users with DEC VT100s, IBM 3101s, and other popular terminals and PCs can access full-screen 3270 applications on the Tymnet public data network at twice the speed previously available.

As part of Tymnet's expanded 3270 access, several new features have been added. The 3270 CMT printer support now supports printers attached to the DEC VT100 and the Tymshare Scanset Models 410 and 415 as separately addressable 3287 printers, and the 3270 Public Multidrop Service version of the Tymnet Native Mode service provides communication between 3270 terminals and 3270 applications via publicly shared multidrop lines. It allows Tymnet customers to take advantage of the savings derived from sharing access resources. In addition, Tymnet's new **3270 SDLC Switched Virtual Call (SVC)** capability allows SDLC terminal devices to access multiple hosts and individual 3270 Displays to select their host destinations independently.

TYMSHARE INTRODUCES MODEL 931 & 932 MODEMS Tymshare, A Division of the Information Systems Group of McDonnell Douglas; 20705 Valley Green Drive, Cupertino, CA 95014; 408-446-6000.

Tymshare has developed 2 new modems designed for 2400-bps asynchronous dial-up service along with 1200-bps data transmission. **Models 931** and **932** will be marketed under the Tymnet name and are currently priced at \$845 and \$995, respectively.

The 932 auto-dial modem will be used to implement

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Tymnet's 2400-bps outdial service, enabling a host computer to connect to the Tymnet public data network and download data without an operator present. This new service will be available in Tymnet's high- and medium-density cities.

Tymshare's 931 and 932 are V.22 bis-compatible, and operate over ordinary dial-up lines at 2400 bps full-duplex in synchronous and asynchronous modes. An automatic 1200-bps, AT&T 212A-compatible fallback mode enables Models 931 and 932 to accept data from either 1200-bps or 2400-bps modems. Other features include automatic adaptive equalization, local and remote diagnostics, and support for all existing half- and full-duplex protocols, including HDLC, SDLC, X.25, and Teletex.

UDS UNVEILS 9600 FP DATA MODEM Universal Data Systems; 5000 Bradford Drive, Huntsville, AL 35805; 205-837-8100.

A new fast-polling 9600-bps modem designed for use on multipoint networks has been released by Universal Data Systems. The **9600 FP** modem features automatic adaptive line equalization that allows 4-wire full-duplex private line operation over Type 3002 unconditional leased lines. The digital adaptive equalizer compensates for the effects of delay and amplitude distortion that cause intersymbol interference in the received signal. With an 8-ms RTS/CTS delay, the 9600 FP modem supports one of the fastest turnaround times in the modem marketplace.

The 9600 FP features front-panel location of a 10-position rotary switch that facilitates user-selection of the talk/data mode, the initialization mode, or any of 8 test modes. The 9600 FP supports a fallback rate of 4800 or 7200 bps. Mixed rate network operation allows independent tributary modems to transmit to the host modem at either 9600, 7200, or 4800 bps. In addition, the 9600 FP features anti-streaming, which prevents the 9600 FP from remaining in the transmit mode and unnecessarily locking up the entire network. Diagnostic support is also provided by the 9600 FP. Built-in test features include local digital loopback, remote activated digital loopback, and 511 test pattern generation/checking. The 9600 FP lists for \$1,995.

WESTERN DATACOM OFFERS NEW AUTODIAL MODEM Western DataCom; 5083 Market Street, Youngstown, OH 44512; 216-788-6583.

The new **424 Autodial** 2400/1200/300-bps modem with autodialer, is now available from Western DataCom. Designed for installation within any VA series chassis for central site operation, the 424 interconnects with V.22 bis modems at 2400 bps and AT&T modems operating at 1200 or 300 bps. The unit offers plug-in compatibility with other Western DataCom products for field-upgrading. Add-on functions include asynchronous protocol translation, remote-activated diagnostics, 3-channel asynchronous multiplexing, and a dial-up computer security system.

Compatible with AT&T 212A modems, the Western DataCom product offering is direct-connect registered and features a single serial port for both dialer and modem. Standard features include voice/data applications support, manual/automatic operation, originate/answer operation, and high-/low-speed operations. Auto-dialer features include Hayes AT command compatibility, memory for a telephone number up to 32 digits, and pulse or tone dialing with automatic tone detection. The 424 Autodial

2400/1200/300-bps full-duplex modem is priced at \$925 with volume discounts available.

WU AND U.S. POSTAL SERVICE EXTEND MAILGRAM SERVICE CONTRACT Western Union; One Lake Street, Upper Saddle River, NJ 07458; 201-825-5000.

Western Union Corporation has announced today that its principal subsidiary, The Western Union Telegraph Company, and the United States Postal Service have negotiated an amendment extending their Mailgram service contract.

Mailgram service combines Western Union's switching and transmission facilities and the Postal Service's local delivery capability. Mailgram messages are sent electronically to post offices throughout the United States and Canada for printout in a blue-and-white letter format and delivery with the next business day's mail. These messages may be originated in several ways, including telephoning Western Union or transmitting the messages via Telex terminal, word processor, or magnetic tape. Under the new agreement, service will continue to be provided indefinitely, subject to termination on 2 years' notice. Also, the Mailgram service fee paid to the Postal Service will be increased to 60 cents per message from 37 cents, which is the fee that has been in effect since 1976.

■ CALENDAR OF EVENTS

□ February 1985

Feb 14-15 - 4th Annual Texas Telecommunications Conference • Houston, TX **Contact** 713-224-1177.

Feb 25-28 - MEXCOM '85 • Mexico City, Mexico **Contact** 703-685-0600.

□ March 1985

Mar 4-5 - Dataquest Telecommunications Technology Conference • Dallas, TX **Contact** Jewel Peyton; 408-971-9000.

Mar 4-7 - INTERFACE '85 • Atlanta, GA **Contact** 617-449-6600.

Mar 4-7 - 16th Annual Convention & Radiocomm '85 • Vancouver, BC **Contact** Brenda Petherick; 416-483-5176.

Mar 5-7 - FOSE '85 • Washington, DC **Contact** 703-683-8500.

Mar 6-8 - Integrated Services Digital Networks Conference • Atlantic City, NJ **Contact** 617-232-3111.

Mar 10-13 - 57th ENTELEC Conference • San Antonio, TX **Contact** 214-867-7755.

Mar 18-19 - Intelligent Buildings & Information Systems Conference • Fort Lauderdale, FL **Contact** 303-444-7799.

Mar 18-20 - COMTEL '85 • Dallas, TX **Contact** Joe Fuluio; 214-458-7011.

Mar 25 - 4th Annual Conference of IEEE Computer & Communications Societies • Washington, DC **Contact** 301-589-8142.

Mar 27-29 - TCA Northwest Teleconference • Seattle, WA **Contact** 206-522-3100.

□ April 1985

Apr 3-5 - 20th Annual Meeting of NABER • Tarpon Springs, FL **Contact** 202-887-0920.

Apr 9-12 - International Trade Exhibition: Communications Tokyo 85 • Tokyo, Japan **Contact** 202-377-4642.

Apr 9-12 - Comunicasia/Infotechasia • Singapore **Contact** 01-486-1951.

Apr 10-12 - 1985 Tri-State Telecommunications Exhibition • Pittsburgh, PA **Contact** 412-782-1624.

Apr 14-17 - 63rd NAB Conference • Las Vegas, NV **Contact** 202-887-0920.

Apr 15-18 - USTSA INTELEXPO • Washington, DC **Contact** 312-782-8597.

Apr 15-21 - TECHNOTRON '85 • Lima, Peru **Contact** 52-8140.

Apr 17-24 - Hanover Fair '85 • Hanover, West Germany **Contact** 201-534-9044.

Apr 24-26 - Land Mobile Expo • Las Vegas, NV **Contact** 303-694-1522.

May 1985

May 6-11 - ICA National Conference • Dallas, TX **Contact** 214-233-3889.

May 13 - International Teleconferencing Association Annual Meeting • Madison, WI **Contact** 703-556-6115.

May 13-16 - Teleconferencing & Interactive Media '85 • Madison, WI **Contact** 608-262-2831.

May 14-19 - ASIA TELECOM 85 • Singapore **Contact** 022 99 51 11.

May 20-23 - 11th Videoshow & Video Production Conference • Los Angeles, CA **Contact** Lisa Welp; 203-743-2120.

May 21-23 - IEEE Vehicular Technology Conference • Boulder, CO **Contact** 303-492-5151.

May 21-23 USTA Western Showcase • Las Vegas, NV **Contact** 202-872-1200.

May 28-30 - Telecommunications Trends & Directions • Hyannis, MA **Contact** 202-457-4937.

May 29-June 2 17th Annual ITVA Conference • New Orleans, LA **Contact** Inez Wehrli; 214-869-1112.

June 1985

Jun 3-6 - NCTA Annual Convention • Las Vegas, NV **Contact** 202-775-3550.

Jun 4-6 - AFCEA Annual Convention • Washington, DC **Contact** 703-425-8525.

Jun 11-14 - VENCOM '85 • Caracas, Venezuela **Contact** 703-685-0600.

Jun 17-21 - UTC Annual Meeting • Minneapolis, MN **Contact** Larry Harrison; 612-937-8599.

Jun 23-26 - ADCU Annual Conference • Washington, DC **Contact** 612-881-6803.

Jun 24-26 - Telecon East Teleconferencing Show • New York, NY **Contact** 415-820-5563.

Jun 26-24 - ICC '85 • Chicago, IL **Contact** Dr. John Johannesen; 312-627-6854.

July 1985

Jul 15-18 - 1985 National Computer Conference • Chicago, IL **Contact** 703-620-8926.

August 1985

Aug 26-29 - APCO/FCCA National Conference • San Diego, CA **Contact** 619-236-7044.

• END

Data Decisions™ NEWS

communications systems

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UPDATING MATERIAL

February 1985

In addition to this newsletter, February updating material includes the reports described below. Please see the Communications Systems volumes to refer to these reports.

Survey Reports • present succinct product profiles by product type:

- The **Digital Data Communication Test Equipment** survey report summarizes the characteristics and features of **120 models** from **36 vendors**.

Product Reports • comprehensive, detailed analytical reports that evaluate key communication products:

- The **Codex 2600 Series Modems** report describes and evaluates this new family of advanced high-performance modems for dedicated networks.
- The **DCA Irma Family Emulators** report describes and evaluates this significant family of protocol converters/emulators.
- The **Digital Equipment VT100/VT200 Video Display Terminals** and **DECnet DNA** reports are revised to reflect the latest changes to this prominent family of communication terminals and network architecture, respectively.
- The **Harris Digital Telephone Systems 400/1200 PBX Series** and **ITT 3100 Series** reports describes and evaluates these important PBX systems.
- The **Hewlett-Packard AdvanceNet** report describes and evaluates H-Ps new OSI-oriented network architecture.

Please Route To:

- The **RCA Americom** report is revised to reflect the latest changes to this domestic satellite service.
- The **3M EMT Series Facsimile Transceivers** report is revised to reflect the latest changes in the product line and pricing of this prominent family of facsimile transceivers.
- The **Timeplex Link/1** report is revised to include the latest changes to this mainstream T1 multiplexer.
- The **Ungermann-Bass Net/One** report is revised to reflect the latest changes including a fiber-optic LAN to this prominent family of baseband and broadband local area networks.
- Revised software communication reports include: **ADR ROSCOE**, **ADR VOLLIE**, **Cincom Environ/1**, and **Westinghouse WESTI**.

ANNOUNCEMENTS

■ SPOTLIGHT

NORTHERN TELECOM UNLEASHES NEW PRODUCT BARRAGE Northern Telecom, Inc; Integrated Office Systems; P.O. Box 1222; Minneapolis, MN 55440; 800-328-6760.

Another solution to the problem of integrating voice and data communications has been offered by Northern Telecom. The 2 major products announced were the **Integrated Data Voice System (IDVS)** and the **Meridian SL PBX product family**. An integrated voice/data terminal, the Meridian 4020, was announced, as were several digital telephone instruments, also under the Meridian banner. Northern Telecom also announced a high-speed local area network (LAN) that can connect to the Meridian SL product line, as well as a LAN to interconnect IBM Personal Computers.

The IDVS is designed to accommodate up to 100 users, and supports 2.56M-bps data rates to each station connected to the IDVS. A new workstation, called the Meridian 4020, connects to this high-speed line, called **LANLink**. The 4020 has a Motorola 68080 microprocessor, 128K to 1M bytes of RAM, telephone handset with tone dial pad, 3270-compatible keyboard, windowing software, and graphics capabilities. The IDVS operates via 2 20M-bps buses (each requiring only 2 twisted pairs of wires), a packet-switched one for data and a nonblocking circuit-switched one for voice applications. System functions are controlled by a single 68010 using a disk cartridge backup system. Applications processors are connected to the network for various information processing requirements. Major components of IDVS are housed in floor-mounted cabinets. The various system operations are

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housed in specialized circuit board modules called System Resource Units (SRU). A single system controller is provided; no redundant CPUs are offered. Application processors are built around either the 68010 or Intel 80286 microprocessors. According to Northern Telecom, there is no limit to the number of application processors that can be attached to the system's buses.

Software support on the IDVS is extensive. Among the supported operating systems are UNIX V.5, MS-DOS, Concurrent DOS, CP/M, and a proprietary Northern Telecom OS called XMS, which handles voice and data call processing, as well as system administration and maintenance. Application packages supported in the initial release include an office automation product from Quadratron Systems; 2 relational database products, Informix and File-It; and a computer-based instruction program. Programming languages supported include Cobol, Fortran, Basic, Pascal, and C, as well as 3 programming tools: Animator, a Cobol debugger; EMACS, an equipment maintenance and control system; and Cogen, a program generator. Northern Telecom said it will bring out additional applications to satisfy market demands.

The IDVS can connect to the company's Meridian SL PBX product line, and in this capacity functions as a sophisticated gateway for numerous data environments. It can support 3274/3278/3280 bisynchronous, 3274/3776/NPDA running in SNA/SDLC, Digital Equipment VT-100, and Levels 1, 2, and 3 of the X.25 packet switching standard. It can operate either as a standalone system or part of an SL-1/SL-100 operation.

Currently in operation at approximately 20 beta sites, the IDVS is scheduled for production deliveries mid-1985. An entry-level system, described by Northern Telecom as a Primary Processor with 2M bytes of memory, an Application Processor with 1M bytes of memory, 2 40M-byte hard disk drives, analog interface with 16 standard 2500-type telephones (not included in price), 7 telephone C.O. lines, 20 Meridian 4020s, 2 RS-232C connectors, LANLink interface, XMS and UNIX operating systems, and call processing software, will cost approximately \$39,000. The Meridian 4020 terminal will cost \$1,395.

The second part of the announcement was essentially the company's extension of its 10-year-old SL series of PBX products. Now known as the **Meridian SL** systems, the "new" products are in fact still the same, but with a new addition—a 40M-bps packet-switched network using twisted-pair wires. "Loosely coupled" processors can be connected to this network for additional applications support. The network connects to a Meridian SL system via a Packet Transport Controller. This device connects to the SL processor via a high-speed Command Status Link, and to the SL switching equipment via a T1 digital trunk. Bandwidth on the network can be dynamically allocated for the desired application, and the network controller is fully redundant.

Applications supported by loosely coupled processors include a directory; voice and text messaging; forms development; a routine called Access, which provides automatic data call setup; a conferencing program called Share; a computing capability with a UNIX-based operating system; and applications for word processing, calendar, and

database management. An extensive resource management capability includes Lanstar, a LAN for IBM Personal Computers; and interface support for asynchronous/synchronous communication, 3270 emulation, IBM Systems 34/36/38 support, outgoing modem pooling, and X.25 PAD support.

Northern Telecom also introduced several new digital telephones for the Meridian SL PBXs. The Meridian 2030 has 11 programmable function keys, handsfree operation, LCD display, and a plug-in data adapter. The Meridian 2040 has 18 programmable buttons, a headset adapter but not handsfree operation, and the plug-in data interface. The Meridian 3000 is a highly sophisticated unit, compared to the Meridian 2000 series units, and features a touch-sensitive membrane keyboard, handsfree operation, LCD display with a full range of display messages and prompts, 6 line buttons, and a 100-number speed call list. All sets connect to the Meridian SL system via a single pair of wires; the sets communicate with the switch at 512K bps.

The Meridian SL-1 PBX will be available in the third quarter of 1985. Existing SL-1s can be retrofitted to the Meridian version in the field. The larger Meridian SL-100 systems will be available by the middle of 1986. The new Meridian 2000 and 3000 station sets will be available by the middle of 1985. Although pricing was not available, the 2000 series should cost between \$295 and \$395 for the 2030, and \$495 to \$595 for the 2040. The Meridian 3000 should range between \$750 and \$900 to be competitive. Pricing for the Meridian SL PBXs was expected to be comparable to current SL systems.

■ ANNOUNCEMENTS & NEW PRODUCTS

NEW AT&T TECHNIQUE BOASTS T1 VOICE CHANNELS
AT&T Communications; 295 North Maple Avenue, Basking Ridge, NJ 07921; 201-221-2000.

AT&T Communications has announced a new compression technique that can double the number of voice channels a T1 circuit can carry from 24 to 44 simultaneous conversations.

The new bit compression technique, called M-44 Multiplexing Service, squeezes voice channels into a smaller space on the T1 line. For data transmission, M-44 is limited to 4800-bps or slower modem channels. M-44 will not work with nonmodem digital data. The new compression technique resides in the equipment attached to both ends of leased T1 lines, marketed as AT&T's Accunet T1.5 Service. Competing equipment vendors that market T1 multiplexers without the M-44 technique are expected to incorporate the specifications published by AT&T for M-44 into future releases of their equipment.

M-44 multiplexers leased by AT&T cost \$500 per month in addition to the tariffed Accunet T1.5 line charges, which now average \$320,000 for a typical 1,000-mile line. M-44 Multiplexing is available immediately.

SUPPORT FOR AT&T ISDN STANDARD GROWS AT&T Information Systems; 100 Southgate Parkway, Morristown, NJ 07960; 201-898-8000.

AT&T has proposed an **Integrated Services Digital Network** standard for integrated voice/data terminals (IVDTs). The proposal was submitted for consideration as a standard to the T1D1 committee of the Exchange Carriers Standard

Association, the U.S. channel for input to Europe's Consultative Committee on International Telephony and Telegraphy (CCITT), the original proponent of ISDN.

The proposed interface has already received support from 5 systems and semiconductor manufacturers, including Intel Corp, Santa Clara, CA; Rockwell International Corp, Pittsburgh, PA; Advanced Micro Devices Inc, Sunnyvale, CA; Wang Laboratories Inc, Lowell, MA; and Hewlett-Packard Co, Palo Alto, CA; Siemens Corporation, Boca Raton, FL, has also announced its support for AT&T's Digital Multiplexed Interface (DMI) standard, an ISDN gateway for PBX systems.

Some observers saw the move as designed to outflank the development of specific ISDN standards by AT&T competitors, while others saw it as a means of setting up the IVDT market for an upcoming AT&T product introduction. It is generally agreed that AT&T wants the United States' public network to migrate to ISDN, these announcements are designed to promote that migration.

The voice/data terminal interface specification proposed by AT&T is consistent with all the standards for the trunk side and the station side of an ISDN network. AT&T's interface would contain 2 clear channels capable of operating at 64K bps each, both of which can be used for voice or data transmission, and one 16K-bps transmission, and one 16K-bps channel reserved for signals containing all necessary setup information for the switches. The interface architecture is similar to that of AT&T's Digital Multiplexed Interface (DMI), an interface between host computers and PBXs also backed by Hewlett-Packard and other computer manufacturers. DMI has 23 clear channels of 64K bps each and one 64K-bps signaling channel, and will be upgraded to full ISDN compliance as it evolves.

Both architectures embody the fundamental ISDN concept of separating voice and data transmission streams from the signaling information. Because of the separation, ISDN networks will be able to transmit everything—voice, data, video—digitally, thus enabling any device, whether it's a standard telephone, integrated terminal, facsimile, or printer, to interface with the network the same way.

AT&T-IS ENTERS FACSIMILE MARKET AT&T Information Systems Inc has entered the facsimile market with a product acquired from Ricoh Co Ltd, Tokyo, on an OEM basis. The company plans to initially sell and lease the product exclusively through its direct sales force.

The facsimile machine will be called the FAX 3510D, and conforms to the International Consultative Committee on Telephone and Telegraph's Group 3 standards. It can transmit a page of copy in 20 seconds and weighs less than 30 pounds in a 12x17-inch box. It features thermal printing, automatic feed of up to 30 pages, pretransmission self-diagnostics, 40,000 dots-per-inch resolution, remote polling, and turnaround polling to allow transmission and reception in the same phone call, the company said.

FAX 3510D became available in January at a price of \$3,495. Various lease options will be available.

AT&T PICTUREPHONE SERVICE SLIDES, BUT ITS VIDEOCONFERENCING SERVICE THRIVES AT&T Information Systems; 100 Southgate Parkway, Morristown, NJ 07960;

201-898-8000 • AT&T Communications; 295 North Maple Avenue, Basking Ridge, NJ 07921; 201-221-2000.

AT&T Information Systems has closed 6 of its 11 Picturephone Meeting Service (PMS) facilities it had set up for video conferencing because of low demand and high costs. Public meeting rooms in Boston, Chicago, Detroit, Houston, Los Angeles, and Pittsburgh have closed in the past 3 months. The 5 remaining public facilities in Atlanta, New York, Philadelphia, San Francisco, and Washington will remain open. The company also said that demand for private meeting rooms, typically purchased by large corporations and installed on their premises, has been below expectations.

Plans for as many as 16 public PMS rooms were thwarted by the trend toward using public video-conferencing facilities located in hotels.

Although the company is now reevaluating its PMS program, it is continuing to sell private conferencing rooms. Costs have dropped 20 to 25 percent over the past year, with private rooms currently selling for around \$325,000.

On the other hand, AT&T Communications Inc has said the conferencing market for them is in "terrific shape." The division provides a transmission service to connect video-conferencing rooms, whether public or private, installed by AT&T-IS or another company. The company had 50 rooms using the network by the end of 1984 and expects to double that during 1985.

Prices for video conferences using Accunet Reserved 1.5 service have dropped significantly. A typical call from New York to San Francisco that cost about \$1,600 per hour 3 years ago now costs \$750 per hour during business hours and \$480 during off hours.

AT&T Communications plans to expand its video-conferencing network to 42 U.S. cities by the end of 1985, and hopes to have its new Skynet satellite-based video-conferencing and high-speed data-transmission service in operation by mid-1986.

AVANTI OFFERING INTEGRATED CSU FOR T1 MUX Avanti Inc; Aquidneck Industrial Park, Newport, RI 02840; 401-849-4660.

Avanti Communications has announced an integrated T1 DSU/CSU for its UltraMux Multiuser. Called the **Integrated Service Unit (ISU)**, it will also be offered with the company's TPAC T-1 Access Unit. The integrated CSU/DSU will free users of AT&T Communication's Accunet services from the need to use individual units in order to meet the new FCC Part 68 requirements.

The most significant feature of Avanti's integrated unit is that it guards against outages caused by a CSU failure. This is accomplished through full redundancy of both the DSU and CSU and with automatic switchover. In addition, the integration of the CSU function into the UltraMux extends single point network control of this critical element.

Included is the full range of local and remote loopbacks as well as automatic sensing of both DC or inband Telco loopbacks. Unique 64K-bps clear channel encoding circuitry allows automatic detection and generation of B8ZS codes, yielding an additional 192K bps of user bandwidth when the services become available. The ISU fully complies with all

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applicable Part 68 and Pub. 62411 requirements. No price has been set as yet for the ISU.

AVATAR ANNOUNCES EXCLUSIVE MACRO LANGUAGE FOR PA100 TURBO

Avatar Technologies Inc; 99 South Street, Hopkinton, MA 01748; 617-435-6872.

Avatar Technologies has introduced a new macro language facility for its **PA100 Turbo protocol converter** that adds spreadsheet-like capabilities to host applications without requiring additional host software. Macros can also be used to automate any host application or procedure performed by PA100 Turbo. Avatar's exclusive macro language facility complements Turbo's extensive local processing capabilities, such as file transfer and selective data capture, and enhances its 3270 terminal emulation.

Turbo's file transfer includes a host software component that speeds transfers between IBM PCs and CICS, TSO, or CMS. With selective data capture, users can define templates that extract specific host data fields for use in PC applications. Selective data capture allows the manager to create a template that extracts from the host application only the fields of data needed; a single macro command provides the ability to locate a specific piece of host data, compare it to other information, update the information, and simultaneously print out the results of the operation. The price is not currently available.

BELL REGIONAL COMPANIES TO SELL SHARED TENANT SERVICES

BellSouth Corporation; 675 West Peachtree Street, Atlanta, GA 30375; 404-420-8600 • Nynex Corporation; 355 Madison Avenue, New York, NY 10017; 212-370-7400 • Pacific Telesis; 140 New Montgomery Street, San Francisco, CA 94105; 415-542-9000 • US West; 7800 West Orchard Road, Englewood, CO 80111; 303-793-6500.

The Department of Justice has recommended that BellSouth Corp and Nynex Corp be allowed to enter the real estate business and that they be allowed to provide shared-tenant services through their real estate subsidiaries.

The regional Bell holding companies were previously allowed to market shared-tenant services only through their telecommunication equipment subsidiaries. They are still restricted from providing information and interexchange services as part of their shared services packages.

US West Inc and Pacific Telesis Group will have to obtain further court approval if they want to provide shared-tenant services through their already approved real estate subsidiaries. Bell Atlantic Corp has applied to the Justice Department to enter the real estate market as well. U.S. District Judge Harold H. Greene must approve the Justice Department's recommendations.

CARROLL TOUCH ANNOUNCES NEW STAT MUX PROTOCOLS

Carroll Touch; P.O. Box 1309, Round Rock, TX 78680; 512-244-3500.

Carroll Touch is now offering an async/sync composite link along with 7- or 8-bit protocol for its line of statistical multiplexers. **Bi-Link** and **Q-Link** are 2- and 4-port, respectively, statistical multiplexers that allow either 2 or 4 terminals to share a phone line and a pair of modems. Designed for full-duplex operation with point-to-point or dial modems, the link series feature switch-selectable intelligent flow control on the terminal ports and can be set to XON/XOFF or CTS/Busy, with Busy at high or low position. Optional flow control is offered for HP Enq/Ack.

Both Bi-Link and Q-Link multiplexers have dynamic buffer allocation, ARQ (automatic repeat request), error correction, local and remote loopback, front panel diagnostic indicators, and feature auto-baud and auto-dial modem signal command passthrough. Aggregate data rates of up to 19.2K bps can be accommodated with the Carroll Touch Bi-Link, and up to 28.8K bps with Q-Link.

Bi-Link and Q-Link are priced at \$750 and \$1,195, respectively. Backed by a 1-year warranty, both products are available through Carroll Touch's national dealer/distributor network.

CIE SYSTEMS ANNOUNCES CIE-7100 TERMINAL

CIE Systems, Inc; 2515 McCabe Way, Irvine, CA 92713; 714-660-1800.

CIE Systems has announced the availability of a low-cost data entry terminal that emulates the IBM 3101 display terminal. The new **CIE 7100** is targeted at businesses with multiple-terminal environments and features a 14-inch diagonal nonglare screen with tilt display, a 25-line x 80- or 132-column format and an independent bidirectional RS-232C printer port.

The new terminal also emulates DEC VT100 and Hewlett-Packard 2622A terminals and is intended to serve as a companion terminal to the IBM PC/AT or the CIE 680 family of multiuser systems. Priced at \$695, the terminal utilizes the CIE 7800's 83-key keyboard layout. The 84-key PC/AT keyboard is optionally available.

DYNAPAC AWARDED NORTHERN TELECOM CONTRACT

Dynatech Packet Technology; 6464-General Green Way, Alexandria, VA 22312; 703-642-9391.

Dynatech Packet Technology (DYNAPAC), has entered into an OEM Procurement Agreement with Northern Telecom's Integrated Office Systems, whereby Northern Telecom will purchase certain items of communication equipment that will include the **Dynapac Multi-PAD X.25s** and the **Multi-Switch X.25s**. Dynapac has also agreed to design, engineer, and manufacture a special PAD to be used with Northern Telecom's SL-1 and SL-100 private branch exchange systems. The approximate value of this contract is estimated at \$2.5 million over a 2-year period.

FCC OKS CANCELLATION PENALTIES ON AT&T PRIVATE LINES

Federal Communications Commission (FCC), Common Carrier Bureau; 1919 M Street NW, Washington, DC 20554; 202-632-6600.

The FCC has given AT&T permission to begin applying stiff penalties on large private-line customers who cancel orders for circuits shortly before or shortly after the lines are put into service.

The penalties, which AT&T calls project liabilities, will apply to orders for 9 or more voice-grade private lines between the same points scheduled for installation during a single month. AT&T will charge for orders canceled as early as 65 days before installation and the penalty will increase to a maximum of \$1,043 as the installation date nears. Another charge will apply to orders canceled immediately after installation.

AT&T's decision to assess the fines exclusively on large private-line users was justified, according to the FCC, because processing the larger orders is more costly and the fines are designed to deter the "speculative ordering" that is

typically limited to larger customers. The commission added that AT&T had provided adequate cost-support data to justify the size of the penalties.

At the same time, the FCC said that AT&T's customers should not be penalized if the company failed to complete circuit orders on schedule. The commission noted that AT&T has modified the plan to allow customers to cancel orders without paying fees if AT&T has postponed the service date, and to calculate cancellation fees from the scheduled operating date rather than from the actual service date.

The commission, acting through its Common Carrier Bureau, rejected criticisms of the tariffs leveled by large users and other common carriers (OCCs). They charged that the penalties would over-compensate AT&T for the effects of canceled orders and that the proposal arbitrarily penalized large users. Although the FCC agreed that AT&T's backlog of private-line orders could be partly responsible for cancellations, the commission noted the company had modified its tariff to account for the effects of the backlogs.

GANDALF ENHANCES X.25 PACKET-SWITCHING MULTIPLEXER Gandalf Data, Inc.; 1019 South Noel, Wheeling, IL 60090; 312-541-6060.

Gandalf has extended its **PIN 9101E X.25** multiplexer with the addition of several new features. The enhancements include a remote console access feature and an auto-call feature.

The new remote console feature enables users to access the PIN 9101E console from any location in the network, configure units, or perform various maintenance checks, and perform diagnostic testing. A password protection function has also been added to reinforce system security. Auto-call further extends PIN 9101E flexibility by automatically routing incoming calls to a predefined destination. Calls can be automatically sent on a channel-by-channel basis. An operator-prompted interface provides the system manager with a plain-language dialog for controlling all aspects of configuration and operation.

The enhanced PIN 9101E is available in 4- or 8-channel standalone or 4- to 16-channel rackmounted versions. Pricing ranges from \$2,650 to \$5,250 depending upon the model. Software upgrades with the new features are available to existing PIN 9101E users for an end-user fee of \$100 plus any applicable service charges.

GANDALF UNVEILS SAM 224 MODEM Gandalf has introduced a new 2400-bps auto-dial/auto-answer, asynchronous/synchronous modem for general-purpose business use. The **SAM 224** joins Gandalf's SAM 212A and SAM 201 AT&T-compatible modems. This new full-duplex dial modem is designed to cut the cost of accessing databases and improves system and user productivity. The SAM 224 includes an automatic adaptive equalizer for improved reliability and comprehensive diagnostics such as local and remote loopbacks, status LEDs, and a test pattern generator with error detector. The unit also includes user-friendly dialog for easy set-up and has a selectable cryptic mode to facilitate installation.

SAM 224 operates in accordance with the CCITT V.22 bis standard and is compatible with AT&T 212 and 103 modems. Automatic speed adjustment allows users to upgrade to 2400 bps in a phased manner. Standalone SAM 224 units are

priced at \$795 for a single unit. A rackmount version is available for a single-unit price of \$725. Deliveries are scheduled for March 1985.

GE INTERCONNECT PBX BUSINESS ENDS; TOUGH COMPETITION CITED General Electric Information Services Co.; 401 North Washington Street, Rockville, MD 20850; 301-340-4000.

General Electric decided to terminate its PBX sales and marketing after a disappointing 5-year effort.

The company, attributing its pullback to changes in competition and market structure, said its Integrated Communications Services Operation will no longer handle the distribution of PBXs.

Increased competition, pricing pressure, and changing distribution patterns of PBX manufacturers, which are believed to have favored telephone companies over interconnect contractors, were cited as key reasons for the company's decision.

The company will, however, continue to service PBX systems—its existing base as well as new systems installed by end users but not provided by GE—and will continue to sell, lease, install, and maintain a wide line of computer products including CRTs, multiplexers, modems, and personal computers. It is also actively involved in the shared-tenant communication industry.

GTE ENHANCES TELEMAIL SERVICE GTE Telenet Communications Corporation; 8229 Boone Boulevard, Vienna, VA 22180; 703-442-1000.

GTE Telenet has beefed up its electronic mail offerings by adding 2-way telex and hard-copy delivery capabilities to its Telemail electronic mail service. The company also announced that it is establishing less expensive international Telemail links and is embarking on a campaign to promote an international standard for electronic messaging.

The 2-way telex capability is being offered through agreements with RCA Global Communications Inc and Computer Communications Inc, 2 international record carriers.

Telenet's new hard-copy delivery service, called TelemailXpress, is scheduled to be available in the first quarter of 1985. With the service, Telenet will deliver hard copies of computer-generated letters that are laser-printed and inserted into the first-class mail stream. TelemailXpress also will send less expensive messages overnight through Express Mail. Prices for a 1-page letter will range from \$2 to \$5. The company plans to interconnect its domestic electronic mail system directly with the Canadian Envoy 100, the Canadian post office's electronic mail service, during the first half of 1985.

Telenet also announced its campaign promoting the X.400 standard for electronic message handling. Telenet claims to be the first to use the software-based standard.

GTE TELENET ANNOUNCES TELEMAILXPRESS OPTIONS GTE Telenet has introduced 2 new delivery options for its **TelemailXpress electronic mail delivery service**. The new options include business-quality laser-printed letters and overnight messages. Costs for the 2 postal delivery features will range between \$2 and \$5 for a 1-page TelemailXpress letter or overnight message. The drafted letters and

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messages will be routed electronically to the nearest TelemailXpress processing location for print-out and delivery to the U.S. Post Office.

Intended to expand the scope of the Telemail service, the laser-printed letters will be printed at one of 14 locations across the U.S. and posted through first-class mail. The messages will be printed at 1 of 4 locations and posted through express mail. TelemailXpress letters can be printed with the sender's signature and a variety of corporate art such as logos, names, addresses, and phone numbers. In addition, the TelemailXpress overnight messages will allow for next-day delivery of time-sensitive information.

INNOVATIVE ELECTRONICS OFFERING FULL IBM 3287 EMULATION Innovative Electronics, Inc; 4714 NW 165th Street, Miami, FL 33014; 305-624-1644.

Innovative Electronics' **MC 80/700** is a compact protocol converter that supports high-performance, low-cost printers and other hard copy output devices in the IBM 3270 environment. By emulating the IBM 3287 printer, the MC 80/700 accommodates popular, high-speed dot-matrix or letter-quality printers as well as various high-performance line printers at a cost significantly below comparable IBM products and still achieve higher printing performance.

The MC 80/700 is self-contained and user-installable, requiring no modifications to either the printer or the cluster controller. A standard Type A coax connection into the IBM 3274/76 (or compatible) cluster controller is all that is required to link to the IBM mainframe. Because the MC 80/700 connects directly to the cluster controller, it is compatible with **all** IBM environments whether BSC or SNA/SDLC.

The MC 80/700 supports BSC as well as SNA LU1 and LU3 IBM data streams. output is supported in a formatted mode of 40, 64, or 80 characters per line, or in an unformatted mode of up to 132 characters per line. The MC 80/700 also supports a "transparent mode" of operation to accommodate virtually any ASCII output device required for specialized host applications. The price of the MC 80/700 is \$1,495.

ITT INTRODUCES FIBEROPTIC DISTRIBUTION TERMINAL ITT Corporation, Electro-Optical Products Division; 99 Hartwell Street, West Boylston, MA 01583; 617-835-6082.

A new **Fiberoptic Distribution Terminal (FDT)** has been added to ITT's Valtec Fiberoptic product line. The modular distribution terminal is designed around the company's rackmounted organizer and protects up to 144 pigtail splices and then routes them, via a self-contained patch panel, to the transmission equipment. A patch panel module is mounted above the organizer body and the entire assembly is enclosed in a cabinet measuring 10.5 inches high for the 72-fiber capacity and 17.5 inches high for the 144-fiber capacity.

Standard patch panel designs are available with biconical or Amphenol bulkhead connectors or other commonly used connectors. The patch panel offers a test point, independent of the transmission equipment, for the fiberoptic cable. This allows the user to pinpoint problem areas and assign maintenance responsibility. In addition, the patch panel facilitates networking applications by providing a logical and convenient distribution site. The unit is totally accessible from the front and the cabinet is designed to allow the cable

to enter from the top **or** the bottom. It can be mounted in 19- or 23-inch equipment racks. The FDT holds up to 6 aluminum splice trays for either loose tube, ChannelMax (multiple fiber per tube), or open channel cable designs. Each of these trays is equipped to provide strain relief for up to 24 spliced fibers. The number of fibers in the user's cable will determine the number and type of splice trays provided.

MCI MAIL SERVICES GOES WORLDWIDE MCI Communications Corp; 1133 9th Street NW, Washington, DC 20036; 202-872-1600.

MCI Communications Corp, out to improve the appeal of its MCI Mail service, has announced the addition of worldwide letter delivery and reduced telex-interface charges.

The service, called **World Letter**, allows MCI Mail subscribers once restricted to domestic-only delivery to send printed messages worldwide from a computer terminal. Messages for delivery outside the United States will be sent to Regie Des Postes, (the Belgian postal service) in Brussels, Belgium, where they will be printed out by laser printers.

MCI charges subscribers by the "MCI ounce," which contains 7,500 characters. International delivery costs \$5.50 per MCI ounce through a postal service, and between \$12 and \$30 for overnight courier delivery, depending on the distance between the country of destination and Brussels.

International instant delivery is not yet available, but for those who want instant delivery, MCI is substituting the telex network connections it acquired along with Western Union International Inc, now known as MCI International Inc. Since many businesses rely on the slower and more expensive telex machines, it is essential to provide connectivity to that network from electronic mail services. A price reduction on the company's Telex Dispatch service is a further incentive for users to upgrade their equipment from telex machines to computers, and concurrently from MCI International to MCI Mail as the carrier. Telex rates for MCI subscribers have been reduced by as much as 38 percent, bringing the rate for domestic messages originated in MCI Mail and delivered by telex down to about 25 cents per minute.

NEW 2400-BPS ERROR-CORRECTING MODEMS FROM MICROCOM Microcom, Inc; 1400A Providence Highway, Norwood, MA 02062; 617-762-9310.

The availability of a new line of CCITT V.22 bis compatible 2400-bps modems has been announced by Microcom. Providing full-duplex operation over dial-up lines, the new products incorporate the Microcom Networking Protocol (MNP). MNP corrects transmission errors caused by line interference or poor circuit quality by retransmitting lost or incorrect data. All the new 2400-bps modems offer full-featured auto-dial and auto-answer functions.

Five versions of the 2400-bps error-correcting modem will be available. The new offerings include the **ZX/2400**, **SX/2400**, **Era2 2400**, **PC/2400**, and **MacModem 2400**. The ZX/2400 joins the ZX/1200 modem to provide error-free transmission combined with Hayes software compatibility. A standalone upgrade to the existing SX/1200, the SX/2400 offers auto-dial, auto-redial, and auto-answer.

Optional rackmount packaging is available. The Era 2 2400 modem is a 2400-bps modem for use with IBM PC systems. This new modem employs MNP and allows dissimilar systems supporting MNP to transfer files. Other features

include English-language commands for selecting operating parameters and a provision for unattended operation. In addition, the PC/2400 modem is a standalone modem bundled with software for the IBM PC. Finally, the MacModem 2400 is a higher-speed enhancement to the existing MacModem 1200 modem for use with Apple's Macintosh computer system. Similar to Era 2 products, both PC/2400 and MacModem 2400 support user-created functions, automatic dialing, terminal emulation, and unattended operation.

All of the new 2400-bps modems support MNP and can operate as standard CCITT V.22 bis, AT&T 212A, or 103 compatibles. Scheduled for availability during the first quarter of 1985, the new modems range in price from \$799 to \$999.

PARADYNE INTRODUCES 9403 PROTOCOL CONVERTERS Paradyne; P.O. Box 1347, 8550 Ulmerton Road, Largo, FL 33540; 813-530-2000.

Paradyne's new **9403 protocol converters** allow users to add a wide variety of low-cost asynchronous devices, including Paradyne's 7811 asynchronous terminals, to systems incorporating Paradyne's PIXNET communication network. PIXNET eliminates traditional teleprocessing overhead by making remote devices appear as local devices to the host.

The 9403 protocol converters permit asynchronous devices to appear as local 3277 devices by communicating in PIXNET's 9476 protocol, providing full PIXNET capabilities including: point-to-point and multipoint applications, CPU and applications switching, data compression, and full-duplex Synchronous Data Link Control (SDLC).

The 9403 provides system flexibility by identifying terminals at time of connection by type, rather than requiring dedicated ports. Terminals may be located remotely using leased or dial-up lines and operated in conjunction with multiplexers. Transmission is from 2400 to 9600 bps. Model 9403-01 has a PIXNET line and 4 ports that support 3 terminals and a printer. The 8-port Model 9403-2 has a PIXNET line and supports 7 terminals and a printer.

Paradyne's 9403 protocol converters are available for immediate delivery. Prices are \$4,900 for Model 9403-01 and \$5,900 for Model 9403-02.

TECHLAND SYSTEMS ANNOUNCES BUNDLING NEW KEYBOARD WITH ALL BLUELYNX 3270 PRODUCTS Techland Systems; 25 Waterside Plaza, New York, NY 10010; 212-684-7788.

Techland Systems has announced that it is now bundling its BlueLynx 3270 keyboard with the full line of BlueLynx 3270 terminal emulation products for PCs. The BlueLynx 3270 keyboard provides users with a fully functional keyboard for mainframe sessions, along with enhanced capabilities in the PC mode. The keyboard features a full 122-key design with 24 function (PF) keys across the top of the keyboard for mainframe sessions, 10 of which function as F1-F10 keys in the PC mode.

The keyboard also has color coded function keys corresponding to IBM's 3270 products, thus eliminating the need for user retraining. Removable keycaps accommodate special character keysets. The price is \$425.

TECHLAND INTRODUCES PORT-SHARING UNIT Another new Techland product is **Multilynx**, a port-sharing device that allows the attachment of 8 phone lines to a single

mainframe computer communication port. Available for \$1,990, MultiLynx can offer firms requiring additional communication ports a substantial savings over installing extra ports, which can run as high as \$3,500 each.

MultiLynx enables an IBM S/34 or S/36 with 4 ports to support up to 32 concurrent remote users, while a S/38 equipped with 8 ports can support as many as 64 remote users. Model DP280 MultiLynx has 1 connector "in" and 8 connectors "out." When the "in" connector is attached to the host's communications port, up to 8 switched or leased line modems, or modem eliminators in any combination may be attached to the "out" connection.

TECHLAND ANNOUNCES NEW DATA SECURITY PRODUCTS FOR MICRO-TO-MAINFRAME COMMUNICATIONS Techland Systems' new **BlueLynx data security line**

includes an inexpensive dial-up communication product with a high-level of data security. The **BlueLynx 3270 Remote** with data security allows users of IBM personal computers to communicate with an IBM or IBM-compatible mainframe running SNA. The new product supports IBM SNA/SDLC protocols and provides exact emulation of IBM's Cryptographic Feature 3680.

Techland also unveiled a new BlueLynx data security product designed for standalone IBM personal computers, which limits the use of confidential applications, corporate data, and spreadsheets to specific authorized users on specific PCs. The new product identifies and gives security clearance to both the user and the remote PC, preventing hackers and unauthorized personnel from initiating a session with the host computer. It also supports the totally secure use of low-cost, dial-in lines to corporate mainframes by employing IBM Standard Data Encryption to prevent hackers or professional data thieves from eavesdropping or intercepting data; and it limits the use of secure, encrypted disks to specific PCs, effectively preventing the pirating of proprietary software or information from one firm to another.

The new BlueLynx data security products include a metal and epoxy enclosed plug-in board that meets the National Bureau of Standards' data encryption standard. Any effort to tamper with the board or remove it from the PC's card slot automatically destroys the user access keys stored in the module. Users in the standalone environment can produce encrypted files that can be safely stored or transmitted via public communication networks. Secured files can be transferred between individuals if sender and receiver exchange encryption keys. BlueLynx 3270 remote sells for \$2,195, while the security package including adapter board and software costs \$995.

TECMAR ANNOUNCES A MICRO-TO-IBM INTERFACE Tecmar, Inc; 6225 Cochran Road Solon, Cleveland, OH 44139-3377; 216-349-0600.

Tecmar has added a new micro-to-mainframe communication board, named **PowerLink**, to the company's existing line of personal computer peripherals. PowerLink is designed to emulate IBM 3278 and 3279 terminals, which access a mainframe system. This emulation allows a user's PC to access a mainframe system. This emulation allows a user's PC to access 3270 applications on a mainframe while concurrently running PC applications. The file transfer software enables the PC to access and move large

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mainframe databases to the PC. These files can be viewed and manipulated, then transferred back to the mainframe or stored on the PC.

The design of the interface board features direct memory access (DMA) for instantaneous screen updating, and enables quick transfer of data between the mainframe and PC. This high-performance file transfer is further enhanced with the use of a batch file support capability. Multiple files may be transferred by the creation of a batch file, then executed with just a few keystrokes.

PowerLink has a special windowing feature that enables the user to view 1 host session containing information from a mainframe, 1 PC-DOS session from the personal computer, and 2 electronic notepads. Within the window formats, users can select from 10 separate screen profiles with 1 to 4 windows per screen. The electronic notepads can be used to combine information from the mainframe and a PC file, allowing the user to generate personalized reports with fewer keystrokes. International keyboard mapping is standard, with more than 14 foreign keyboard layouts. PowerLink costs \$1,099.

VISUAL TECHNOLOGY INTRODUCES NEW FAMILY OF DEC-COMPATIBLE TERMINALS Visual Technology Incorporated; 540 Main Street, Tewksbury, MA 01876; 617-851-5000.

A full line of display terminals designed to emulate DEC's VT200 Series has been announced by Visual Technology. The **Visual 220, 240, and 241** terminals are alphanumeric and graphics terminals. The Visual 220 is an alphanumeric terminal with a 14-inch tilt and swivel display and 30 user-programmable function keys. In addition, the Visual terminal has both a home key on the keyboard and a 25th status line with time of day clock. The Visual 220 is fully compatible with the DEC VT220 and supports all DEC standard features and functions including the keyboard, multiple languages, LED indicators, and programmable character sets. Visual 220 options consist of an amber display and an additional set of programmable characters.

A monochrome graphics terminal, the Visual 240 uses the same 14-inch display as the 220 and emulates the Tektronix 4010/4014 and ReGis code sets with 800x290 lines of resolution. The Visual 240 also supports 15 nonvolatile programmable function keys (30 total), an additional auxiliary port for a bit pad or mouse, and an option for 16 gray scales.

The Visual 241 incorporates most of the 240's features with the additional advantage of color graphics. Up to 16 simultaneous colors are available from a choice of 64. Furthermore, the Visual 241 offers support for a variety of peripherals including non-DEC printers, plotters, and bit pads. As price-performance alternatives to DEC VT200 display terminals, the new Visual terminals are competitively priced at \$995 for the Visual 220; \$1,695 for the Visual 240; and \$2,195 for the Visual 241.

VISUAL TECHNOLOGY UNVEILS TELEVIDEO TERMINAL Visual Technology is also offering a Teletideo 925-compatible display terminal. The new Visual 925 alphanumeric terminal completely emulates the Teletideo 925 while incorporating a number of additional features. In addition to the Teletideo 925 standards, the Visual terminal has programmable function keys, line-graphics capability,

and a menu-style set-up. Other features include a 25th status line with time of day clock, moveable 30mm keyboard, and a tilt/swivel package with a small footprint.

Scheduled for initial delivery during the first quarter of 1985, the Visual 925 terminal has a purchase price of \$595.

WESTERN DIGITAL UNVEILS KEY TO DATA SECURITY Western Digital Corporation; 2445 McCabe Way, Irvine, CA 92714; 714-863-0102.

Personal computer users can now control or prohibit access to stored or transmitted data files with the use of the **WD2200 Data Security board** introduced by Western Digital. The board incorporates the National Bureau of Standards approved WD2001 data encryption chip from Western Digital, and transfers data at 1.3M bps. The board is used in environments where sensitive information is routinely handled by personal computers, such as in the banking, accounting, and insurance industries. It is aimed at businesses concerned with the security of personnel, payroll, product planning, or engineering design information stored on shared-file or standalone systems.

Designed for use with the IBM PC, XT, AT, or compatibles, the Data Security board automatically encrypts or decrypts data while remaining transparent to the applications software. The board software provides the utilities to perform a variety of unique features including automatic encryption and decryption of files transparent to application software such as Lotus or Wordstar. This is done by entering certain commands and securing the chosen drive by entering an 8-character alphanumeric code (key). Any file data sent to or from the secured drive is then automatically encrypted or decrypted. The Data Security board protects data on diskettes, hard disks, and tape drives, even during transmission in a local area network or over phone lines. The price is \$95 in OEM quantities. An alternate source for the product is Okiok Data Ltd of Canada, who is the originator of the hardware and software design.

WESTERN DIGITAL GUARANTEES LINK LEVEL CERTIFICATION FOR GERMAN NETWORKS Western Digital has received notification that its VLSI implementation of the X.25 Packet Switching Communications Controller, the WD2511, meets the certification requirements for Germany's Datex-L and Datex-P networks. WD2511 is a VLSI integrated circuit complying with the universal CCITT X.25 standard. System manufacturers can expect savings of up to 8 months of development time by choosing Western Digital's WD2511 in place of software for the data link layer of their computer system, as the WD2511 is fully programmed, tested, and certified.

Western Digital's WD2511 is in use worldwide in wide-area public and private networks. In addition to the German networks, the WD2511 has also passed the certification tests for several United States X.25 networks including Telenet, Tymnet, and Uninet networks. Certification assures systems manufacturers using the WD2511 that the link level of their product will meet the data transmission requirements for operation on the networks.

WINTERHALTER ANNOUNCES SNA/SDLC PROTOCOL FOR DATATALKER LINE Winterhalter Incorporated; 3853 Research Park Drive, Ann Arbor, MI 48104; 800-321-7785 or 313-662-2002.

Winterhalter has announced an **SNA/SDLC protocol** for its

DataTalker line of micro-to-mainframe data communication links. The DataTalker line includes the **DataTalker II**, a front-end processor compatible with most micros and operating systems, the **DataTalker/PC** and the **DataTalker/PC+** models that are compatible with the IBM PC, the **DataTalker/Coax**, a coaxial link for the IBM PC and compatibles, and the **DataTalker/Mac**, a 3270 emulation link for the Apple Macintosh. All DataTalker models allow the micro to emulate either the 3270 or 3780/2780 terminal systems. The SNA/SDLC protocol is available now on all models except the DataTalker/Mac. The new SNA/SDLC software costs \$495.

ZENITH RELEASES Z-22 DISPLAY TERMINAL Zenith Data Systems; 1000 Milwaukee Avenue, Glenview, IL 60025; 312-391-8949.

The newest addition to the Zenith line of terminals is the **Z-22**. Capable of communicating in both block and conversation mode, the Z-22 features full editing capabilities along with a host and printer port that can be independently set to different data rates.

Compatible with Lear Siegler's ADM II and Televideo's 914 terminals, the **Z-22** also features a low profile, detached keyboard. Cursor control keys are in a "T" format to simplify operation and the 10 nonvolatile function keys can be programmed by the user or loaded from the host computer. The tilt/swivel 12-inch monitor displays data formatted in 80 columns and 25 lines. A Screen Saver feature blanks the screen after 15 minutes of noncontinuous use to prevent "burned in" on the nonglare monitor. All cords and cables are removable and connect to the base of the housing to facilitate portability. In addition, the Z-22 includes an Auto-Logon feature that permits users to program up to 10 different data source passwords or phone numbers from the keyboard for a total of 250 characters.

Available for a suggested retail price of \$649, the Z-22 is distributed through the ZDS distribution network, retail outlets, North American HeathKit Electronics Centers, and through the Heath mail order catalog.

■ CALENDAR OF EVENTS

□ February 1985

Feb 14-15 - 4th Annual Texas Telecommunications Conference • Houston, TX **Contact** 713-224-1177.

Feb 25-28 - MEXCOM '85 • Mexico City, Mexico **Contact** 703-685-0600.

□ March 1985

Mar 4-5 - Dataquest Telecommunications Technology Conference • Dallas, TX **Contact** Jewel Peyton; 408-971-9000.

Mar 4-7 - INTERFACE '85 • Atlanta, GA **Contact** 617-449-6600.

Mar 4-7 - 16th Annual Convention & Radiocomm '85 • Vancouver, BC **Contact** Brenda Petherick; 416-483-5176.

Mar 5-7 - FOSE '85 • Washington, DC **Contact** 703-683-8500.

Mar 6-8 - Integrated Services Digital Networks Conference • Atlantic City, NJ **Contact** 617-232-3111.

Mar 10-13 - 57th ENTELEC Conference • San Antonio, TX **Contact** 214-867-7755.

Mar 18-19 - Intelligent Buildings & Information Systems Conference • Fort Lauderdale, FL **Contact** 303-444-7799.

Mar 18-20 - COMTEL '85 • Dallas, TX **Contact** Joe Fuluio; 214-458-7011.

Mar 25 - 4th Annual Conference of IEEE Computer & Communications Societies • Washington, DC **Contact** 301-589-8142.

Mar 27-29 - TCA Northwest Teleconference • Seattle, WA **Contact** 206-522-3100.

□ April 1985

Apr 3-5 - 20th Annual Meeting of NABER • Tarpon Springs, FL **Contact** 202-887-0920.

Apr 9-12 - International Trade Exhibition: Communications Tokyo 85 • Tokyo, Japan **Contact** 202-377-4642.

Apr 9-12 - Comunicasla/Infotechasia • Singapore **Contact** 01-486-1951.

Apr 10-12 - 1985 Tri-State Telecommunications Exhibition • Pittsburgh, PA **Contact** 412-782-1624.

Apr 14-17 - 63rd NAB Conference • Las Vegas, NV **Contact** 202-887-0920.

Apr 15-18 - USTSA INTELEXPO • Washington, DC **Contact** 312-782-8597.

Apr 15-21 - TECHNOTRON '85 • Lima, Peru **Contact** 52-8140.

Apr 17-24 - Hanover Fair '85 • Hanover, West Germany **Contact** 201-534-9044.

Apr 24-26 - Land Mobile Expo • Las Vegas, NV **Contact** 303-694-1522.

□ May 1985

May 6-11 - ICA National Conference • Dallas, TX **Contact** 214-233-3889.

May 13 - International Teleconferencing Association Annual Meeting • Madison, WI **Contact** 703-556-6115.

May 13-16 - Teleconferencing & Interactive Media '85 • Madison, WI **Contact** 608-262-2831.

May 14-19 - ASIA TELECOM 85 • Singapore **Contact** 022 99 51 11.

May 20-23 - 11th Videoshow & Video Production Conference • Los Angeles, CA **Contact** Lisa Welp; 203-743-2120.

May 21-23 - IEEE Vehicular Technology Conference • Boulder, CO **Contact** 303-492-5151.

May 21-23 USTA Western Showcase • Las Vegas, NV **Contact** 202-872-1200.

May 28-30 - Telecommunications Trends & Directions • Hyannis, MA **Contact** 202-457-4937.

May 29-June 2 17th Annual ITVA Conference • New Orleans, LA **Contact** Inez Wehrli; 214-869-1112.

□ June 1985

Jun 3-6 - NCTA Annual Convention • Las Vegas, NV **Contact** 202-775-3550.

Jun 4-6 - AFCEA Annual Convention • Washington, DC **Contact** 703-425-8525.

Jun 11-14 - VENCOP '85 • Caracas, Venezuela **Contact** 703-685-0600.

Jun 17-21 - UTC Annual Meeting • Minneapolis, MN **Contact** Larry Harrison; 612-937-8599.

Jun 23-26 - ADCU Annual Conference • Washington, DC **Contact** 612-881-6803.

Jun 24-26 - Telecon East Teleconferencing Show • New York, NY **Contact** 415-820-5563.

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Jun 26-24 - ICC '85 • Chicago, IL **Contact** Dr. John Johannesen;
312-627-6854.

July 1985

Jul 15-18 - 1985 National Computer Conference • Chicago, IL
Contact 703-620-8926.

August 1985

Aug 26-29 - APCO/FCCA National Conference • San Diego, CA
Contact 619-236-7044.

• **END**

Data Decisions™ NEWS

communications systems

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UPDATING MATERIAL

January 1985

In addition to this newsletter, January updating material includes the reports described below. Please see the Communications Systems volumes to refer to these reports.

Technology Reports • describe technology for the communication/telecommunication environment:

- The **Digital PBX—The Office Connection** report explores PBX concepts and applications, compares PBX and LAN technologies, and offers guidelines for evaluating, selecting, and installing a PBX system.

Survey Reports • provide profiles at-a-glance by product type:

- The **Private Branch Exchanges—PBXs** report summarizes the characteristics of 97 PBX models marketed by 29 vendors.

- The **Key Telephone Systems—KTS** report summarizes the characteristics of 44 key system models marketed by 18 vendors.

Product Reports • comprehensive, detailed analytical reports that evaluate key communication products:

- The **AT&T Network Systems Datakit** report describes and evaluates this local area network sold through interconnect firms such as RBOC subsidiaries.

- The **AT&T-IS Net 1000** report reflects the latest developments with this controversial VAN.

- The **DCA Netlink** report describes and evaluates DCA's latest entry in the T1 multiplexer market.

Please Route To:

- The **Paradyne VHS/MPX Series and Challenger Series Modem** report describes and evaluates Paradyne's latest modem product lines.

The **Codex CS Series Modems, Codex 600 & 670 Series Multiplexers, GTE Telenet TP 3000 & TP 4000 Series, GTE Telenet TP 5000 Series, IBM 3101 Display Terminal, IBM 3770 Series, and Sperry DCA** reports are revised to reflect the latest changes and pricing.

Also, the following software reports were revised: **Mathematica MPGSWIFT, Polygon INTERCOMM, Software AG COM-LETE, and Tone TONE-3/TONE-4.**

Product reports for Volume 4 include a report on Centrex plus leading PBX systems including **AT&T-IS Horizon (hybrid), Dimension Series, and Systems 75 & 85; American Telecom Focus; CXC Rose; Digital Transmission 580; Ericsson Prodigy & MD110; GTE Omni Series; Hitachi DX Series; InteCom IBX; IPC Technologies DPX; Mitel SX Series; NEC NEAX 12A & 2400; Northern Telecom SL-1 & SL-100; Rolm CBX Series; Siemens Saturn/SD Family; United Technologies/Lexar UTX; and Ztel PNX.**

ANNOUNCEMENTS

■ SPOTLIGHT

DATA DECISIONS ADDS TELECOMMUNICATIONS & EXPANDS COMMUNICATIONS SYSTEMS TO FOUR VOLUMES Data Decisions; 20 Brace Road, Cherry Hill, NJ 08034; 609-429-7100.

Data Decisions proudly announces the expansion of **Communications Systems** to 4 volumes with this supplement. Dedicated to product information on the telecommunications industry, Volume 4 will substantially expand our coverage of telecommunication products and services, satisfying your voice information needs. Volume 4 will contain detailed

product reports on leading PBXs, ACDs, Key Systems, Call Accounting/Least Cost Routing Systems, etc. It will also include product surveys that will contain information on all products within a specific industry segment, such as PBXs. And it will satisfy the information needs of those who seek an understanding of telecommunication technology and, its practical applications through technology reports which will contain guidelines to the selection, acquisition, installation, and support of telecommunication products. A glossary defines common as well as somewhat esoteric industry terminology.

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The initial contents of Volume 4 focuses on PBX systems to satisfy an intense demand for information about these "hot" products. Subsequent supplements will also contain reports on other important telecommunication products including integrated voice/data workstations, voice messaging systems, automatic call distributors, key telephone and hybrid systems, call accounting/least cost routing systems, etc., broadening the scope of Volume 4 to provide comprehensive coverage of the telecommunication industry.

You will find our editorial **product analysis** and **detailed pricing** to be important assets of all product reports. A hard-hitting analysis defines target applications, cites competitive advantages and disadvantages, and pinpoints product limitations and strengths within the perspective of practical applications. Detailed pricing allows you to configure a system within close proximity to actual cost (minus installation charges which vary according to each installation).

We are confident that we will satisfy your telecommunication information needs, as well as your existing data communication information needs with our 4 volume **Communications Systems**, which for the first time, provides the essential information you've been looking for but were unable to find. We are enthusiastic about contributing to your information needs, and look forward to a long and mutually rewarding relationship.

INFOTRON ANNOUNCES INFOSTREAM T1 MULTIPLEXER

Infotron Systems Corp; Cherry Hill Industrial Center, Cherry Hill, NJ 08003; 609-424-9400.

Last year, our internal sources revealed that Infotron was working on an **advanced T1 multiplexer** to replace its T mux, Infotron's OEMed version of the Datatel DCP 9100. The new product's specifications called for a TDM that handles voice and data, is configured and controlled via a terminal, handles multiple T1 links, and operates in a drop-and-insert configuration. Furthermore, the new product was to interface with Infotron's IS 4000, a data PBX that has been on the market for about 2 years. Well, the new mux, called **InfoStream**, has arrived and our sources were correct.

The InfoStream multiplexer can be configured with up to 128 channels which can be any combination of data or voice. The unit will support dual T1 links, with drop-and-insert projected for the second quarter of 1985. InfoStream will also support such advanced facilities as priority channel selection, where high-priority channels will receive access to the T1 link regardless of the traffic load; automatic reconfiguration based on time of day; and failed-point bridging, which automatically routes the T1 data stream past a failed intermediate node used with ring and/or drop-and-insert configurations.

Separate dual-channel cards support asynchronous and synchronous channels. Asynchronous data rates are selectable from 50 to 19,200 bps, with code structures of 5, 6, 7, and 8 data bits. Up to 4 control signals per channel can be selectively passed. Synchronous data rates are 56, 112, 224, 448, 672, and 768K bps.

The voice cards, also dual-channel units, employ PCM or ADPCM quantization to convert analog voice inputs to digital and the converse. PCM requires 64K bps (a full T1

subchannel), while ADPCM uses only 32K bps. ADPCM, incidentally, is the technique required by AT&T Communications for interfacing non-PCM channels to the ACCUNET T1.5 network facilities. If InfoStream is used with ACCUNET, up to 24 voice channels can be configured under PCM and 44 channels with ADPCM. Infotron allows PCM cards to be upgraded to ADPCM via an add-on adapter module. A unique feature of InfoStream allows voice channels to be routed over the public telephone network (DDD) rather than T1 circuit.

InfoStream can be configured with 1 or 2 T1 links. Link speeds can be 1.544M bps for North American and Japanese markets, or 2.048M bps for the rest of the world. The latter is called the CCITT service and can be configured as 32 64K-bps channels. The U.S. version of InfoStream also meets the AT&T D4 extended frame format (Fe) specifications required for interfacing with ACCUNET T1.5.

InfoStream is configured for redundant central logic, link interface, and power supplies. The central logic performs internal diagnostics and initiates an automatic switchover in case of a failure. In the event of a link interface failure, a changeover to a link interface occurs without rewiring, either automatically or manually via the console control. Redundancy is applied to the power supplies in a load-sharing fashion so that if either supply fails, the other is able to carry the full load. Failure of any redundant device causes an alarm message to be sent to the system console.

Full prices for InfoStream are not yet available, but a 64-channel system is priced at \$45,000; 128-channel system is priced at \$78,000.

■ ANNOUNCEMENTS & NEW PRODUCTS

LAN FROM AST RESEARCH, INC SUPPORTS ENTIRE IBM PC FAMILY

AST Research, Inc; 2121 Alton Avenue, Irvine, CA 92714; 714-863-1333.

The new 3.1 version of the **AST-PCnet II LAN** operating system supports all members of the IBM PC family, including the PC, PC/AT, PC/XT, PC Portable, and PCjr. The 3.1 software is completely compatible with PC-DOS 3.0. This complete compatibility makes it possible for a 20M-byte disk on the PC/AT to be used as a shared storage device with PCjr operating as a workstation. The 3.1 software supports partitions on a shared hard disk into logical portions or virtual volumes allocated to a specific user.

The company also announced support for Microsoft's new Networks LAN operating system on AST-PCnet II. AST-PCnet II is a CSMA-CA collision avoidance baseband LAN using twisted pair wire. Its data rate is 800K bps, and its network capacity is 160 PCs. Cable length is limited to 2,500 feet.

Volume shipments began in December 1984. The suggested list price of the AST-PCnet II 3.1 version is \$495 per node.

AT&T ANNOUNCES HIGH-SPEED DATA & VIDEO TO CANADA

AT&T Communications; 295 North Maple Avenue, Basking Ridge, NJ 07920; 201-221-2000.

AT&T has announced the availability of video teleconferencing and high-speed data transmission to points north of the U.S.-Canadian border through AT&T's International AccUNET Reserved 1.5 Service. AT&T is bringing the service

to the Canadian border via facilities located at the Peace Bridge in Buffalo, NY, a major border crossing point for communication services. Telecom Canada, an association for 10 telecommunication companies, also started offering a cross-border video teleconferencing service that will link up with the AT&T high-speed digital in the United States.

International Accunet Reserved 1.5 Service is a digital, 2-way offering that moves information at 1.544M bps. The service can provide a wide range of voice, data, and full-color, full-motion video services. With the service, U.S. customers can now originate full-color, full-motion video teleconferencing calls to Canada from 32 cities. Public and private video teleconferencing rooms in the U.S. will interconnect with Telecom Canada's Conference 600 Service, currently available in Toronto and Ottawa. Other locations scheduled for the future include Quebec, Vancouver, Calgary, Edmonton, and London, Ontario.

Customers in the U.S. will be charged Accunet Reserved 1.5 Service rates to the international border crossing point for video teleconferencing calls placed to Canada. For example, a customer in Chicago placing a 1-hour call to Montreal will be charged \$328 for transmission to the Peace Bridge crossing point. The customer in Montreal will pay a member company of Telecom Canada \$400 in Canadian currency for the Conference 600 Service connection to the border crossing point. U.S. customers using a public video teleconferencing room also will pay room and set-up charges. Customers can arrange to use International Accunet Reserved 1.5 Service to Canada by calling 1-800-323-6672.

ACCUNET SERVICE TO FRANCE IS NEXT AT&T has also announced its intention to take its high-speed digital service for data and video teleconferencing transmission across the Atlantic to France. In a filing with the Federal Communications Commission, AT&T sought to extend its expanding International Accunet Reserved 1.5 Service network from New York to Paris on January 12, 1985.

The proposed service will be provided by AT&T in partnership with the French Ministry of Posts, Telecommunications, and Telediffusion (PTT). International Accunet Reserved 1.5 service would allow customers in 32 U.S. cities to originate video teleconferences or data transmission to various locations in France.

AT&T is proposing to transmit the service to France over satellite circuits leased from the Communications Satellite Corp (COMSAT). COMSAT is the U.S. representative to Intelsat, the International Telecommunications Satellite Organization. The service will be provided from New York via an earth station in West Virginia, to an Intelsat Atlantic region satellite. Another earth station in Bercenay, France, will receive the transmission and send it on to Paris. AT&T's International Accunet Reserved 1.5 Service to the United Kingdom is provided via the seventh transatlantic undersea communication cable, TAT-7.

Customers in the United States will be charged \$450 per half hour for AT&T's portion of the transatlantic service. Users outside of New York will pay additional domestic Accunet Reserved 1.5 Service charges from the originating city. Customers who use public video teleconferencing facilities

will also be charged set-up and service fees. A similar rate schedule for customers in France will be determined by the French PTT.

If the proposal is approved by the FCC, France will become the third nation accessible through International Accunet Reserved 1.5 Service. On April 12, AT&T began offering the service to London, and on October 1, the company received authorization to provide the service to Canada.

AT&T-IS ANNOUNCES LOW-COST FACSIMILE TRANSCEIVER AT&T Information Systems; 100 Southgate Parkway, Morristown, NJ 07960; 201-898-8326.

AT&T's new **FAX 3510D facsimile transceiver** is a Group 3 machine with a 20-second-per-page transmission rate. The new machine has a resolution of 200x200 dots per inch, performs remote and turnaround polling and provides terminal identification (both local and remote) on transmit and receive documents. It also has local and remote diagnostics.

The 3510D is a compact unit, measuring 12x17 inches and weighing less than 30 lbs. It has a 30-document auto-feeder, an automatic document log, and employs thermal printing. Purchase price is \$3,495.

AT&T TELETYPE OFFERS PROTOCOL CONVERTER TO LINK PERSONAL COMPUTERS TO IBM 3270 AT&T Teletype Inc; 5555 Touhy Avenue, Skokie, IL 60077; 312-982-2000.

AT&T Teletype's new **SSI Irma** is a software/hardware package that allows the AT&T PC 6300, IBM PC, or PC/XT, and compatible models to interface with AT&T Teletype's Model 5540 cluster controller. The latter unit emulates IBM 3274C models and supports either BSC or SNA/SDLC. The SSI Irma package allows the personal computer to emulate an AT&T Teletype 5548 or 5549 display units, that in native mode emulate the IBM 3278/3279 displays and attach to the 5540.

The SSI Irma emulation package includes an easily installed circuit card, the Irma emulator program on a diskette, and instruction/reference manuals. The circuit card can be installed in any available slot in the personal computer, and the software includes the 3278 emulator and 2 file transfer utilities. This package provides 5548/49 functions with file transfer capabilities, plus the standalone processing power of the personal computer.

Personal computers equipped with SSI Irma easily fit into an existing 3270 network by attaching directly into the 5544 or 5546 controller ports. There is no need for an additional modem or communication line support. The 5540 emulation adapter requires no additional mainframe software or special network configuration.

The SSI Irma package operates independently of the personal computer, permitting it to remain in constant communication with the 5540 cluster controller and interact with the personal computer on request. Communication protocol between the adapter and the cluster controller is SSI (Standard Serial Interface), the same used with a 5540 display. The SSI Irma operating program is stored on the cluster controller diskette, and is downloaded to the circuit card. The Irma software is on an IBM-compatible diskette, and runs in the personal computer. The firmware on the

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adapter circuit card is primarily for self-test and download routines. List price for the entire package is \$1,195.

NEW PAD ANNOUNCED BY BBN COMMUNICATIONS BBN Communications Corporation; 70 Fawcett Street, Cambridge, MA 02238; 617-497-2800.

BBN Communications Corp, a subsidiary of Bolt Beranek and Newman, Inc, has introduced a new line of **IBM-compatible packet assemblers/disassemblers** for interfacing IBM equipment with BBN Communications packet networks. According to the vendor, the new **Model C/10 PAD** supports IBM host and terminal equipment employing IBM's SNA/SDLC, 3270 bisynchronous, 2780/3780 bisynchronous protocols, and asynchronous transmissions. Designed to attach directly to IBM equipment, the C/10 PAD accommodates up to 32 BSC/SDLC synchronous multidrop lines. Data traffic is concentrated over 1 or 2 X.25 links operating at speeds up to 64K bps.

Polling and selection of remote peripherals is performed locally by the C/10 PAD, eliminating polling traffic from the X.25 network. Monitoring and control of the C/10 PAD is accomplished from a locally attached terminal or from a centralized network control facility. Remote diagnostics support is provided by a dedicated service port on the C/10 PAD. Scheduled for delivery in April, a 4-line C/10 PAD configuration has a purchase price of \$4,350. A 32-line C/10 PAD configuration sells for \$24,500.

CASE-RIXON ANNOUNCES 8100 OPENLINE MULTIPLEXER CASE-Rixon Communications; 2120 Industrial Parkway, Silver Spring, MD 20904; 301-622-2121.

CASE-Rixon is aiming its newly released **8100 Openline** multiplexer at both domestic and international markets. Based on the Motorola 68000 chip, the new multiplexer can incorporate up to 5 modules. This enables the unit to alternately function as a 5- or 9-port statistical multiplexer; an 8-port networking multiplexer; a switching multiplexer; an 8-port X.25 unit for packet-switching networks; or an IBM 3274 protocol converter for asynchronous terminals. In addition, an Opengate gateway card for the multiplexer allows for connections into the CASE DCX line of networking products.

The basic 8100 Openline unit, called the 81X desktop communication processor, is priced at \$1,320. The various plug-in modules carry the following price tags: \$1,680 for the 8110 Protocol Converter; \$1,030 for the 8130 statistical multiplexer; \$1,320 for the 8140 networking multiplexer; \$1,740 for the 8150 switching multiplexer; and \$1,320 for the 8160 X.25 PAD. Initial deliveries for the 8100 Openline basic unit and 8130, 8140, and 8150 modules have begun. The 8110 and 8160 modules are scheduled for delivery in February.

CONCORD DATA SYSTEMS OFFER A STARTER SYSTEM FOR ITS BROADBAND TOKEN BUS LAN Concord Data Systems; 303 Bear Hill Road, Waltham, MA 02154; 617-890-1394.

Concord Data is now offering a starter system that allows customers to evaluate its **Token/Net LAN** for their applications. Token/Net is a broadband LAN that implements the IEEE 802.4 token bus network standard. The starter kit consists of 4 Token/Net Interface Modules (TIMs), translator head-end, and broadband cable kit. A TIM includes an RF modem that operates at 5M bps, media access unit for

the IEEE 802.4 token passing protocol, control unit to provide management functions, and user interface ports.

Concord Data also has the individual controller components available for its Token/Net LAN. The controller components are available as a 3-board set with system software/firmware. The controller (the TIM unit) consists of an access unit, an RF modem, and a control unit.

The access unit implements the IEEE 802.4 token bus access protocol, maintains ring, transmits data, and receives data. It uses a bit-slice microprocessor to handle aggregate data rates up to 10M bps, and it is available with 16K, 32K, or 64K bytes of RAM.

The Token/Net high-speed RF modem is designed to the IEEE duobinary AM-PSK modulation standard. The RF modem operates at 5M bps and is frequently agile over 6 6-MHz CATV channel pairs.

The Token/Net Control unit controls the modem, supervises the access unit, and executes initialization and station management functions. It implements in firmware the IEEE Logical Link Control, ISO/NBS Transport Level, Session level, and port application level.

Purchase price is \$16,000 for the starter kit, \$3,950 for a 4-port TIM 220 expandable to 12 ports in 4-port increments at \$995 (per 4-port increments) and \$3,485 for a nonexpandable 4-port TIM 200. Annual maintenance prices are 10 percent of the purchase prices. All units are available now.

DATAPoint ANNOUNCES ARC NETWORK SUPPORT FOR IBM PC/AT AND TERMINAL EMULATION FOR IBM PC & PC/XT Datapoint Corporation; 9725 Datapoint Drive, San Antonio, TX 78284; 512-699-7542.

The **ARC network support** for the **IBM PC/AT** consists of an adapter card that plugs into an expansion slot of the PC/AT. The adapter card is called the Intelligent Network Executive—PC (INX-PC) and allows the PC/AT to function as an applications processor on ARC. It is a user-installable option.

The PC 8220 terminal emulation package allows an IBM PC or PC/XT to act as a Datapoint 8220 terminal. The software, supported by the Datapoint RMS or DOS operating system, allows the IBM PC user to access the Datapoint office automation, data processing, and communications resources.

Purchase price is \$695 for the INX-PC adapter card plus \$75 for the software and \$175 for the PC 8220. Both products are available now.

DATASTREAM 874 CONTROLLER NOW SUPPORTS 44 ACTIVE SESSIONS Datastream Communications, Inc; 2520 Mission College Boulevard, Santa Clara, CA 95050; 408-986-8022.

Datastream has significantly **enhanced its Model 874 SNA Controller** with a facility that maintains up to 44 active sessions. The 874 emulates the IBM 3274 with attached 3278/IBM PC terminals and 3287 printers, and allows ASCII terminals and PCs to replace the IBM products. Up to 24 devices can be attached to the 874.

Multiple session support in native-mode 3270 operation is limited to the IBM 3290 plasma display and IBM 3270 PC

operation. The multisession feature extends this facility to most personal computers and ASCII terminals, as well as the Datastream 178 or 878 displays. The 874 also allows a serial printer, attached CRT, or personal computer to access the IBM host via a single controller port. This increases productivity by eliminating the delays associated with routing for shared printers. The multiple session facility is brand new and no price has been released as yet.

DIGITAL EQUIPMENT EXPANDS ETHERNET TO INCLUDE BROADBAND AS WELL AS BASEBAND VERSIONS

Digital Equipment Corporation; Maynard, MA 01754; 617-264-1669. Digital announced **DECOM**, a new **Broadband Ethernet Transceiver** (RF modem), which is fully compatible with its line of Ethernet hardware and software products. Digital also announced **DEFTR**, a broadband Ethernet frequency translator to operate as the headband of a broadband network. End-to-end cable length is limited to 3,800 meters (over 2 miles).

Broadband Ethernet can be used to interconnect VAX-11, PDP-11, and Professional 300 computer systems. They can also be connected to the Ethernet service modules provided by Digital: router, gateways to X.25 and SNA, terminal server products, and DELNI multiplexer. These Ethernet products run under Digital's DECnet Phase IV networking software.

Baseband Ethernet can be interconnected with broadband Ethernet through a gateway. Both versions support a data rate of 10M bps and up to 1,024 nodes. Broadband Ethernet requires a frequency bandwidth of 18 MHz.

Broadband Ethernet network can be designed using either a single cable or dual cables. The single cable version does not require the DEFTR translator.

Purchase price is \$4,250 for the DECOM and \$4,500 for DEFTR. Both will be available in the second quarter of 1985.

DIGITAL PATHWAYS ADDS ENCRYPTION & RANDOM PASSWORD GENERATORS TO SECURE NET

Digital Pathways, Inc.; 1060 East Meadow Circle, Palo Alto, CA 94303; 415-493-5544. Digital Pathways has significantly enhanced the **Secure Net** product line with the addition of random password generators and data encryption devices to its Defender dial-in/call-back system. The **Defender II** dial-in/call-back access system can serve as the front end for up to 16 host computers, and requires the user to phone in from a specific telephone number and enter a unique identification code. The user then hangs up, and Defender calls the user back at the authorized number. Defender II also maintains a database of computer users from remote locations for management information purposes. Purchase price is from \$3,600 to \$10,000 depending on the number of hosts supported.

The passwords facility allows authorized users to access the host computer from any telephone. Each user is issued a small "key," which can be inserted into a pocket-sized display device. Together they have the ability to produce random passwords unique to the user. The Defender II requests this password and if valid, it connects the user to the host. The password changes each time the user accesses the Defender II, so a user must have his/her unique key to be permitted access to the host. If a key is reported lost or stolen, a security officer can delete that key's passwords from the system or take other steps to deal with

attempts at unauthorized access. The price for a display unit is \$115, and \$50 for keys.

Digital Pathways' encryption devices can be used at either security level described above. The devices' firmware follows the recently announced standards for message authentication and data encryption. While the call-in/dial-back and direct-dial systems protect the system from unauthorized use, these encryption devices protect the integrity of the data itself, which is particularly important where funds are being transferred. The encryptor sells for \$1,000 per line.

DIGITAL PATHWAYS ANNOUNCES SOUNDWARE FOR VOICE MESSAGE MANAGEMENT

Digital Pathways has introduced a new communication product line called the **SoundWare series**. These products allow an IBM PC/XT or compatible personal computer to perform intelligent telephone answering and management activities as well as other voice communication functions. SoundWare products also have many of the features of computer phones in addition to a voice file transfer capability between 2 PCs equipped with the products. The SoundWare series includes a voice communication card called **Communicard**, telephone management software called **VoiceMate**, and programming software called **SoundTools**.

Communicard requires only a half slot in the IBM PC/XT or compatible card cage. In the IBM PC/XT, there are 2 half slots, and in most cases, these slots are not used. The card can be placed in a full slot if the 2 half slots are being used. A Touch-Tone telephone handset or microphone is used to input voice messages. The Communicard records high-quality voice on a hard disk. (A 10-megabyte disk will record approximately 45 minutes of voice.)

VoiceMate is used with the Communicard to provide an individual telephone management system which includes: message greeting; message playback; a phone directory with auto-dial capability; password recognition to prevent unauthorized access; remote owner access for message playback; an audit trail; voice file transmission; Touch Tone dialing and Touch Tone decoding. With these functions, individuals and organizations can use their personal computers as intelligent phone systems with the added features of message and phone directory management. VoiceMate can also transmit a voice file to another PC containing a Communicard and VoiceMate without modems. This allows PC users in small offices or large departments to transmit dictation files, telephone messages, or any other voice/sound files to another compatible PC. VoiceMate includes a remote access feature which allows users to dial their PCs, and play back all or some of the messages. Security is also ensured by requiring the local user to enter a valid access code before greetings, messages, and voice files can be reviewed. The same access code is required to delete or rename voice files. A fast forward feature allows quick access and review of messages. VoiceMate can function while the users perform other tasks with their PCs such as word processing or spreadsheet analysis.

For individuals who want to develop their own software applications which include voice recording capabilities, Digital Pathways provides SoundTools programming tools

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and documentation to accomplish this. The package can be used with several programming languages including MS Basica A, C, Assembly, and MS Pascal.

VoiceMate and SoundTools software require an IBM PC/XT (or compatible) computer (VoiceMate requires 128K bytes of internal RAM memory), a 10M-byte hard disk, and an operating system utilizing PC-DOS 2.1 or better. The speech sampling rate is 7 KHz, and a compression ratio of 2:1 is achieved utilizing modified ADPCM (Adaptive Delta Pulse Code Modulation).

The SoundWare Series will be distributed through Digital Pathways' direct sales force to OEMs, systems houses, application developers, distributors, dealers, and large end users, and is available now. SoundWare includes the Communicard, a diskette with VoiceMate and SoundTools software, a modular telephone cable and user reference manual, and will cost \$449. The Communicard has a 1-year warranty.

EMULEX INTRODUCES COMMXCHANGE DATA SWITCH

Emulex Corp; 3545 Harbor Boulevard, Costa Mesa, CA 92626; 714-662-5600.

Emulex's new **CommXchange DSO1 data switch** allows connection of large groups of terminals to single or multiple host computer networks through simple keyboard commands. The new switch supports 180 terminal-to-computer port connections, or 360 lines. Expansion units can be added for an additional 480 connections, or 960 lines. The CommXchange is compatible with virtually any type of computer or asynchronous terminal and performance is not affected as the number of users is increased.

An extremely compact system, the CommXchange measures 12.25 x 17.5 x 20.5 inches (H x W x D). The basic system includes a central unit, power supply, and central board set. The power supply is packaged separately and measures 5.25 x 17.5 x 17.5 inches (H x W x D).

The CommXchange can be configured with complete redundancy for fail-safe operation. The backplane is fully redundant as a standard feature, and redundant central boards, expansion bus boards and power supplies can be added as options. The standard battery-backup feature ensures that configuration parameters will be saved in the event of a power failure, and system alarms are provided to report component failures.

Installation is simple and can be handled by a maintenance department or telephone installation crew. It connects through ordinary telephone lines and connectors using a variety of methods such as telephone punch blocks, telephone jacks, 50-pin connectors, and RS-232 distribution panels.

The CommXchange is also easy to configure, enabling network managers to develop an efficient data system to fit their current needs. A supervisory control board, located within the central unit, provides menu-driven software for step-by-step instructions on routing terminal lines to designated computers. With this basic procedure, system parameters are easily changed on-site and new lines can be added and existing lines reconfigured while the switch is operating.

The CommXchange allows several part-time users to share

a port, increasing the number of lines that can be added to a host system. Simple terminal keyboard commands provide users access to available computers. Only active terminals are connected to ports and if all ports are in use, a terminal requesting connection is placed in a waiting queue until one becomes free. A terminal can select any of 45 types of destinations by using 8-character symbolic names or specific line numbers. Destinations can be single or multiple groups of computer ports, dial-out modems, printers, personal computers, or many others. Access privilege lists are configured into the switch to prevent users from connecting to unauthorized destinations. The network log records unauthorized access attempts and password protection is also available for additional security. Software language is user-friendly, so extensive training is not required to implement the system.

Automatic backup switching is provided for high system availability. In case of computer failure or service, all incoming calls can be automatically switched to a preassigned backup computer by the CommXchange.

Phone bills can be reduced through use of the CommXchange since remote users do not have to redial each time they need access to the computer. The unit gives local and remote users the choice of waiting in queue or making an alternative computer selection, automatically notifying them of their status.

With speeds of up to 9600 bps on all lines, the Emulex DS01 has one of the highest throughputs in the industry. All lines can run continuously at this speed with no degradation. Bandwidth rating is 6.336M bps (660 connections x 9600 bps).

List price for a typical Emulex CommXchange standard unit is \$15,000, consisting of the central system, redundant power supplies and redundant central board sets.

GANDALF INTRODUCES DATA SWITCH FOR LOCAL/WIDE AREA NETWORKS

Gandalf Data; 1019 South Noel, Wheeling, IL 60090; 312-541-6060.

Gandalf recently introduced **PACX 2000**, a new **data switch** designed specifically to handle star networking of personal computers, word processors, microcomputers, etc. The PACX 2000 can interconnect stations or connect them with corporate mainframes.

The PACX 2000 is software controlled and built around a 16-bit microprocessor technology. The system supports asynchronous data rates up to 19.2K bps, with a link rate to 64K bps. The maximum configuration consists of 8 nodes with 896 connections per node, bringing to 7168 the total number of terminals attachable. The PACX 2000 is menu-driven and has extensive diagnostics and reporting facilities. It also provides 4 levels of system security, and allows for the use of user passwords, service passwords, and restriction codes. The PACX 2000 is priced at about \$200 per connection.

ADVANCED DIGITAL SERVICE NETWORK FROM GTE SPRINT

GTE Sprint Communications Corporation; 800 Airport Boulevard, Burlingame, CA 94010; 415-692-5600.

GTE Sprint is getting ready to launch a **nationwide satellite network** that utilizes digital technology for long-distance telephone communication. The coast-to-coast satellite-earth

station network will be designed to carry regular telephone calls, television signals, and data. Traffic will be relayed through transponders on Spacenet I, a domestic hybrid satellite using both the C-band and new Ku-band radio frequencies.

Four earth stations are currently being placed in service. These include earth stations in San Ramon, CA (near San Francisco); in Redlands, CA (near Los Angeles); in Franklin, NJ (near New York City); and in Woodbine, MD (near Washington, DC). Seven other earth stations will be added during the first half of 1985. These additions include sites in Pearl City, Hawaii (near Honolulu); Orlando, FL; Sultan, WA (near Seattle); Burton, TX (near Houston); Algonquin, IL (near Chicago); Griffin, GA (near Atlanta); and Denver, CO.

IBM ANNOUNCES PC AT/370 FOR THE 3270 International Business Machines (IBM) Corporation; Information Systems Group • National Accounts Division; 1133 Westchester Avenue, White Plains, NY 10604; 914-696-1900 • National Marketing Division; 411 Northside Parkway, Atlanta, GA 30327; 404-238-2000.

IBM has introduced personal computer for its 3270 information system that is faster, has greater auxiliary storage and more versatility than the existing 3270 PC. The **PC AT/370** functions as 3 workstations in 1, has 4 times the diskette storage capacity, and can execute System/370 instructions about 25 percent faster.

The PC AT/370 can function as a System/370 Conversation Monitor System workstation, as a 3278/3279 display, and as a standard PC AT personal computer. Users can switch operating modes by a single keystroke. The new PC also sports a 1.2M-byte diskette drive (versus a 360K-byte unit in the XT/370) and a standard 20M-byte fixed disk that can be expanded to 40M bytes. This is also twice the capacity of the XT/370.

The PC AT/370 runs under the Virtual Machine/Personal Computer 1.1 control program and therefore should be compatible with most VM/CMS application programs. Users can also transfer files and programs between the host and PC. The PC AT/370 is priced at \$9,795.

IBM REALIGNS TO BRING ROLM INTO THE FOLD International Business Machines Corporation, Armonk, NY.

Now that Rolm Corporation has been merged into the IBM organization, the computer giant has announced several internal realignments aimed at getting Rolm comfortably settled. Effective January 1, 1985, Rolm became a major part of the new Telecommunications Products division, which will be responsible for IBM's efforts in the voice and PBX marketplace.

The major changes center around the **Information Systems and Communications Group (IS/CG)**, which previously included 4 divisions: Communications Products, Entry Systems, Information Products, and System Products. The new Telecommunications Products division joined Communications Products and Entry Systems, while Information Products and System Products became part of an entirely new organization, the Information Systems and Products Group (IS/PG).

Stephen B. Schwartz, formerly President and CEO of Satellite Business systems, was made head of the new Telecommunications Products unit, and was succeeded at SBS by Marvin

L. Mann, an IBM vice-president and general manager of an IBM business unit in Lexington, KY. IBM vice-president Frank Metz, Jr, formerly a senior executive with Information Systems and Communications Group, became the group executive in charge of Information Systems and Products Group. C. Michael Armstrong continues as group executive in charge of IS/CG.

INNOVATIVE ANNOUNCES ASCII-TO-IBM 3270 PROTOCOL CONVERTER Innovative Electronics Inc; 4714 NW 165th Street, Miami, FL 33014; 305-624-1644.

The **MC-80/600-1** is the latest protocol converter from Innovative that allows a DEC VT100 or compatible terminal to emulate an IBM 3277/3278. The protocol converter replaces the IBM 3274-51C cluster controller and lets the ASCII terminals communicate with the host processors under the BSC protocol.

The MC-80/600-1 supports full-screen mapping and character displays of 480, 960, and 1920 characters. It also supports all screen formatting. The unit provides 16K bytes of RAM and 2 serial I/O ports. The basic unit costs \$1,295.

INTEL INTRODUCES SINGLE CHIP CONTROLLER TO INTERFACE DEVICES TO LANS Intel Corporation; 2700 San Tomas Expressway, Santa Clara, CA 95051; 408-496-9630.

Intel's **82588 single-chip controller** is a VLSI component for interfacing devices to LANs. It supports the proposed IEEE 802.3 LAN standard for personal computers as well as IBM PC Network and STARLAN protocols. Its data rate is 1M bps. The network access protocol is CSMA/CD. STARLAN is a network protocol under development by Intel in conjunction with AT&T and other system OEMs for use over installed telephone wiring.

The 82588 is a flexible chip allowing some customization for specific applications such as electronic mail, database applications, and resource sharing. The initial price of the 82588 chip is \$45 in quantities of 1,000 chips. Volume shipments will begin in second quarter 1985.

IQ TECHNOLOGIES INTRODUCES SMART SWITCH BOX IQ Technologies, Inc; 11811 NE First Street, Suite 308, Bellevue, WA 98005; 206-451-0232.

The availability of the **Smart Switch Box (SSB1000)** has been announced by IQ Technologies. Designed to connect a modem and 2 peripheral devices to a single computer, the Smart Switch Box contains 1 computer port and 3 peripheral ports. SSB1000 employs the same basic logic circuitry as the vendor's Smart Cable product which insures the correct RS-232 interconnection between a range of computers and peripherals.

The logic circuitry automatically reconfigures the interconnect pattern each time different computer and peripheral equipment is connected to any of the 4 ports. In addition, the Smart Switch Box alerts the user when a particular piece of equipment is disabling data transfer. The Smart Switch Box package includes 2 6-foot ribbon cables with both male and female DB25 connectors.

LEE DATA & VISUAL TECHNOLOGY PLAN MERGER Lee Data Corporation; 7075 Flying Cloud Drive, Eden Prairie, MN 55344; 612-828-0300.

Lee Data Corporation and Visual Technology have reached a preliminary agreement concerning the **merger of Visual**

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Technology into a wholly-owned subsidiary of Lee Data. The planned merger provides for the exchange of one half share of Lee Data common stock for each share of Visual Technology's 4.9 million shares of outstanding common stock. Under the terms of the preliminary agreement, Visual Technology has granted Lee Data an option to acquire 1.4 million shares of Visual Technology's common stock at \$2.75 a share. This option expires on March 31, 1985. Also, in connection with the preliminary agreement, Visual Technology's banks are expected to increase their credit facility from \$19 million to \$22 million, and on completion of the merger, to increase the facility from \$22 million to \$25 million with this additional \$3 million of credit guaranteed by Lee Data. Final terms and conditions are under negotiation with the banks. In addition, Lee Data has agreed to make available to Visual Technology \$3 million of additional funding. Once the merger has been finalized, Lee Data's national sales force will market Visual Technology products including its asynchronous terminals, the commuter portable computer, and the Visual 2000 multiuser system along with Lee Data's line of IBM-compatible terminals and workstations.

MCI BEGINS TEST FOR SERVICE TO FRANCE MCI Communications Corporation; 1133 9th Street NW; Washington, DC 20036; 202-872-1600.

MCI International Inc, a subsidiary of MCI Communications Corp has begun tests in January that will eventually allow it to offer **service to France**.

The company recently asked the FCC for special permission to utilize 4 voice-grade half-circuits, which it will partially acquire from the Communications Satellite Corp. The tests will run 3 months and began January 2.

The French Post Telephone and Telegraph administration (PTT) has agreed to participate in the tests with MCI, but the agency has not yet granted the company permission to provide permanent service to France, said a company spokeswoman. The purpose of the tests, which will both originate and terminate traffic to France, is to ensure that MCI's connections meet international standards.

MCI has also asked the FCC for permission to activate circuits that would allow it to provide service to the United Kingdom and from Brazil directly to the United States. The company now routes calls to Brazil through Belgium. Service between the United States and the United Kingdom has been tested and the company is now prepared to serve the country on a permanent basis, said the spokeswoman. MCI now offers service to Belgium, Brazil, Argentina, East Germany, Greece, the United Arab Emirates, South Africa, and Algeria. It has been testing service to the United Kingdom, Australia, and Spain, the spokeswoman said.

MICOM ANNOUNCES REPLACEMENT FOR IBM 3274 MODEL 61C Micom Systems Inc; 20151 Nordhoff Street, Chatsworth, CA 91311; 805-583-8600.

Micom's new **Micro7400 protocol converter** is a 16-channel unit that emulates the 3274-61C and allows ASCII terminals and personal computers to access IBM mainframes as a 3270 device. The Micro 7400 supports BSC or SNA/SDLC and provides emulation software that makes the attached ASCII terminals appear to be IBM 3278 and 3279 terminals, and 3287 printers.

The Micro 7400 supports switching between 2 IBM hosts or between an IBM host and up to 8 asynchronous computer ports. It features automatic logon, inbound priority levels, banner and broadcast messages, and security feature. The unit is also available with integral modems operating at 2400, 4800, and 9600 bps. The cost is \$5,650.

MICOM INTRODUCES PLUG-IN CONCENTRATOR PAD

Micom has announced the availability of a new concentrator packet assembler/disassembler (PAD) that provides local network support for X.25 packet data network access. With Micom's new **Micro800/X.25i Concentrator PAD**, Micro600 Data PBX-based Instant local area networks can have built-in gateways to X.25 packet-switched data networks. The integral PAD lets Micro600 users utilize X.25 networks to link their Micro600s to terminals, computers, and other Micro600s.

The Micro800/X.25i is designed to handle packet data from up to 16 terminals or computer ports and performs the necessary packet assembly/disassembly and protocol processing to access an X.25 network. The Micro800/X.25i can also communicate with local host computers supporting X.25 software, providing up to 16 full-duplex logical data channels over a single hardwired connection to 1 X.25-supported computer port. Compatible with CCITT Recommendations X.3, X.25, X.28, and X.29, the Micro800/X.25i supports both permanent and switched virtual circuits. In addition, a built-in Command Facility which is accessible through either a Command Port or the X.25 network, supports managerial functions, such as setting or changing terminal channel configuration data, performing network diagnostics, and collecting network operating statistics.

The Micro800/X.25i is a Micro600 plug-in card module implementation of Micom's Micro800/X.25 Concentrator PAD which is certified by Telenet, Tymnet, and Uninet in the United States, and various other public packet networks worldwide. An 8-channel Micro800/X.25i sells for \$2,500 and a 16-channel version is \$4,200.

NCR UNVEILS NEW CLUSTER CONTROLLER/WORKSTATION SYSTEM NCR Corp; 1700 Patterson Boulevard, Dayton, OH 45479; 513-449-2000.

NCR continues its penetration into the local-area network market with a new clustered terminal system called **WorkSaver 3000**. The new system can support up to 64 NCR workstations plus related peripherals, and can also function as a file server and print server for the company's WorkSaver 100, 200, and 300 workstations when used in LAN configurations.

The WorkSaver 3000 employs a 16-bit architecture and runs under the CTOS operating system. The auxiliary storage is comprised of 2 50M-byte fixed disks and a removable 5M-byte cartridge disk drive for loading the operating system. The 3000 transmits data between workstations and controller over coaxial cable at speeds up to 1.8M bps. The basic WorkSaver 3000 consists of the aforementioned operating system and auxiliary storage, and can support up to 16 workstations. The price is \$48,300. NCR permits up to 4 clustered systems, supporting a total of 64 workstations.

NEC UNVEILS NEW MODEMS & NETWORK CONTROL SYSTEM NEC America, Inc; 8 Old Sod Farm Road, Melville, NY 11747; 516-753-9700.

NEC has added 2 new modems and a network control and management system to its line of communication products. The new offerings include the **NEC DSP2430II triple modem**, the **NEC Data Modem N1230**, and the **Network Control and Management System (NCMS)**.

The NEC DSP2430II is a triple modem with auto-dial, auto-logon capabilities and is AT&T compatible at 300 and 1200 bps. It conforms to CCITT V.22 bis at 2400 bps.

The DSP2430II modem allows the user to store up to 12 separate phone numbers with optional logon messages. The logon sequence can be interactive, responding to prompts from the host and may be protected (not displayed) and for security purposes. A high degree of security is provided via the Password Entry feature. The user can program a password of up to 8 characters to prevent unauthorized use of the modem and access to its stored telephone numbers and automatic logon procedures. Additional features include: nonvolatile CMOS memory; tandem (remote) automatic dialing, and second dial tone detect for PBX dialing.

The NEC Data Modem N1230 is an AT&T-compatible modem that provides compatibility with a variety of personal computers and industry standard terminals. A 1200-bps, full-duplex modem, the N1230 includes a Hayes-compatible mode which allows it to operate with a range of major data communication software. The N1230 responds directly to commands from the PC, making dial-up connections in the most effective way. In addition, the N1230 supports a full complement of built-in test features.

The Network Control and Management System is an entry level system that provides automatic network control and management functions for networks from 1 to 16 central site lines. The system operates with the NEC SPN series modems at operating speeds from 2400 to 9600 bps. In addition, they operate in point-to-point, multipoint, split channel, and tandem configurations. The NEC Network Control and Management System also provides continuous monitoring of the communication network and automatically alerts the system operator of network problems. This allows the network operator to easily identify, isolate, and resolve specific communication problems. Trouble ticket and network management report generation capabilities are included in the basic NCMS.

NOVELL ANNOUNCES V4.6 OF NETWARE LAN OPERATING SYSTEM Novell, Inc; 1170 North Industrial Park Drive, Orem, UT 84057; 801-226-8202.

Version 4.6 of **NetWare** offers **enhancements** to the previous Version 4.54. Version 4.6 supports the IBM PC/AT as a server and workstation and the PC-DOS 3.0 operating system. It provides drivers for disks from third-party vendors such as Tallgrass, Davong, Alloy, Mountain, and others. NetWare/Remote, another V4.6 enhancement, allows remote PCs to connect to a network and appear to be locally connected. NetWare/Remote supports all NetWare products.

The PC/AT offers 40M bytes of storage. Novell's disk subsystems support the PC/AT with up to 150M bytes of storage.

Novell advertises its NetWare as an operating system that serves all "LAN kind." It does serve a substantial number: IBM PC Network, Corvus Systems OMNINET, Gateway G-Net, PROTEAN proNET, 3Com EtherLink, Nestar Plan 2000, Davong MultiLink, SMC ARC-PC, Televideo Personal Mini, and Novell S-Net networks.

Purchase price is \$1,495 for NetWare 4.6.

PANASONIC UNVEILS NEW PHONES, MODEMS Panasonic Corporation; One Panasonic Way; Secaucus, NJ 07094; 201-348-7000.

Panasonic has announced its new **VA-208 small key telephone system**, the VA-208, which is designed to accommodate 2 central office lines and up to 8 extensions. Simple enough for do-it-yourself installation, modular plugs connect the key service unit to each of the 8 extensions. The KSU features a 90-number auto-dial memory which is common to each extension. In addition, each extension has a 10-station memory dialer and a special 3-station emergency telephone dialer for fire, police, or medical. Users can page or dial out to other phones in the network. For privacy, a security switch prevents one extension from hearing a conversation on another. A lamp indicator notes when a line is free, busy, has an incoming call, or has the caller on hold. Music on hold is also available. The system has programmable toll restriction, 3-party conference call capability, last number redial, tone/pulse dialing, and battery memory back-up (batteries included). Each extension is desk or wall mountable. Options include line cards for 2 standard single-line telephones, and a door monitor for security. The VA-208 key system became available in December 1984 starting at \$899.95 suggested retail price, which includes the key service unit and 4 extensions. Fully configured for 8 extensions, the VA-208 has a suggested retail price of \$1,600.

The company has also introduced 3 new automatic modems, **Models KX-D4130, KX-D401 and KX-D402**, which are designed for use with any telecommunication system featuring an EIA RS-232C port and modular telephone jack. Each modem is also fully compatible with AT&T 103- and 113-type modems. The KX-D4130 is an integrated telephone featuring a built-in modem as well as an auto-dialer and speakerphone. Models KX-D401 and DX-D402 are automatic modems which can be added to existing telephones or computer equipment.

The new modem phone, model KX-D4130, can transmit and receive information at a rate of 300 bps, is equipped with an RS-232C port, and is fully modular. When left unattended, the modem has an auto-answer function which, when activated, can receive data automatically on a 24-hour basis. The modem is also originate/answer switchable. The KX-D4130 has a 24-station automatic dialer built into it with the capacity to store up to 30 digits in each station. An auto-redial function will redial busy numbers 15 times every 10 minutes to place a call. A tone detector pause function provides access to alternative long distance services. The KX-D4130 also has a hands-free speakerphone with on-hook dialing capability, so the user never has to lift the handset to verify modem connection or to converse while operating a computer. The KX-D4130 modem phone became available in December 1984 at the suggested retail price of \$199.95.

Model KX-D402 is a high-speed modem which can operate

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at speeds of 300 or 1200 bps. While in the receive mode, the KX-D402 has an auto-selector for 300/1200 bps. This fully-modular unit also has an auto-answer function to accept incoming data transmissions when left unattended. The KX-D402 is originate/answer switchable and has LED indicators for online, answer, carrier, auto-answer, and power. A self-diagnostics function is included so users can be sure the modem is functioning properly at all times. The KX-D402 will be available in March 1985 at the suggested retail price of \$299.95.

The KX-D401 modem transmits and receives data at a speed of 300 bps, and is also equipped with an auto-answer function to receive information on a 24-hour basis when left unattended. Originate, answer, and auto-answer/power controls are provided as well as LED indicators for auto-answer, data, carrier, answer, and power. The KX-D401 automatic modem became available in November 1984 at the suggested retail price of \$99.95.

PATHWAY DESIGN ANNOUNCES NETPATH LAN GATEWAY TO HOST FOR NETWORKED PCS Pathway Design, Inc; 177 Worcester Street, Wellesley, MA 02181; 617-237-7722.

NetPATH provides a series of **SNA and BSC gateways** to provide communication between multiple PCs on LANs to a variety of IBM hosts. The netPATH software runs on a network gateway and supports 32 concurrent host sessions through emulation of IBM 3270, 3770, and 2780/3780 controllers and attached terminals. A single gateway can support multiple users sharing a modem and common telephone lines to access different host data sets in both RJE and interactive modes.

The netPATH gateway requires an IBM-compatible PC running PC-DOS or MS-DOS with 1 diskette, 128K bytes of memory, and Pathway Design's Communications Adapter. The netPATH gateway can operate with various LANS using the Novell NetWare/S; Corvus OMNINET, 3Com Etherlink, Orchid Technology, PCnet, Davong MultiLink, and Televideo Personal Mini. NetPATH allows the PCs located on the LANs to communicate with IBM hosts over dial-up, leased, point-to-point, or multidropped lines.

The IBM hosts are the IBM/370-compatible systems (30XX and 43XX processors), 8100, and Series 1. Host applications include CICS, CMS, DSTPRINT, ISPF, JES2, and TSO/SPF. Multiple hosts can be accessed by adding gateways to LAN and configuring the logical unit to the required gateway.

Purchase price of the netPATH gateway is \$1,995. It will be available in January 1985.

RENEX MARKETING PROTOCOL CONVERTER ALLOWING IBM 3270 TO EMULATE ASCII TERMINALS; PROVIDES DUAL DATA PATH Renex Corp; Suite 500, Springfield, VA 22150; 203-451-2200.

Renex's new **Bi-path protocol converter** enables IBM 327X display stations to emulate such ASCII terminals as the DEC VT100 or IBM 3101. Bi-Path also allows the 3278 terminals to operate in native mode simply by switching between modes via a toggle switch on the protocol converter's front panel.

The Bi-Path is inserted between the coaxial cable connection linking the cluster controller with the display. The protocol converter has 2 communication ports, one for the 3270 controller and the other to an ASCII host, hence

"bi-path." When the protocol is switched to ASCII, the 3278 display appears to be powered off the host. The list price of Bi-Path is \$699.

SYTEK ANNOUNCES LICENSING OF LOCALNET/PC PROTOCOLS Sytek; 1225 Charleston Road, Mountain View, CA 94039-7225; 415-966-7330.

Sytek will begin licensing its **LocalNet/PC protocols** first quarter 1985. These are the same protocols licensed by IBM for use in the PC network. The LocalNet/PC protocols expands those offered in the Ethernet specification; providing for routing data between devices on one network and among multiple networks, providing error recovery, and performing other services. End-user oriented network commands are defined. Users can identify IBM PCs on the network with names instead of complex network addresses.

According to a Sytek spokesman, the LocalNet/PC protocols are operating system and application independent. Thus, it can be used with operating systems from various vendors.

License fee is \$5,000 for a LocalNet/PC protocol specification package.

TECHLAND SYSTEMS OFFERING HOTKEY & MULTIWINDOW CAPABILITIES TO ITS IBM 5251 TERMINAL EMULATOR Techland Systems, Inc; 25 Waterside Plaza, New York, NY 10010; 212-684-7788.

Techland is now offering its **BlueLynx 5251** terminal emulation package with a **new hotkey feature** that allows IBM PC users to exit quickly and easily from the 5251 emulator session to work on PC programs, then hotkey back to the same place in the 5251 session. The new package also allows users to run a single DOS session concurrently with a 5251 session, with the ability to copy information from the 5251 session to the PC session. For example, information could be transferred from the 5251 screen to a document format in a word processing application. Users hotkey by hitting the PC's "ALT" key and numeric keys "one" and "two" to move from the 5251 session to DOS.

The new package also provides the facility to do multipartitioning and to specify the size of a window. Users wishing to run 2 sessions at once can, for example, use the full size of the screen for the 5251 session and a small inset window for the second partition.

The BlueLynx 5251 is a hardware/software combination which allows the IBM PC or XT to emulate a 5251 model 12 remote workstation for interactive communication with Systems/34, System/36, or System 38. The PC appears to the host as a 5251 model 12 and a 5256 dot-matrix printer to both user and host, and operates on switched, leased point-to-point, or multipoint lines. The purchase price is \$745.

TELECOM CANADA MEMBERS INITIATE NEW DATAROUTE RATES Telecom Canada; 770-410 Laurier Avenue West, Ottawa, ON K1P 6H5; 613-560-3024.

Seven Telecom Canada member companies have introduced new rates for the nationwide **Dataroute data network**. The new rates feature a price reduction range from 2 to 28 percent for service at speeds of 4.8, 9.6, 19.2, and 56K bps. For customers using lower-speed service, the rates mean price increases. These include an average of 7 percent for asynchronous circuits up to 1200 bps, and

increases ranging from 4 to 8 percent for synchronous circuits.

The new rates will affect users across Canada except in areas served by Bell Canada and the British Columbia Telephone Company. Both companies filed rates in September with the Canadian Radio-Television and Telecommunications Commission (CRTC), and expect a decision early in 1985. Other rate increases include 4 percent for an option called Lower-Speed Service Deriving, and for the Dataroute service charge. Dataroute provides dedicated digital transmission on a leased basis for a flat monthly fee to customers who tend to be medium-to-heavy users of data communication.

TELEPROCESSING PRODUCTS INTRODUCES ASYNC/SYNC CONVERTER TO CONNECT ASYNC TERMINALS TO DDS Teleprocessing Products Inc; 4565 East Industrial Street, Simi Valley, CA 93063; 805-522-8147.

Teleprocessing Products introduced its **TP201**, a new **asynchronous-to-synchronous converter** that connects on an async terminal or computer to a synchronous modem or DDS link. The TP-201 matches the received data to the modem or DDS clock, and operates at strap-selectable async data rates of 1200/2400/4800/9600 bps. The TP-201 can also receive its power from the modem or DSU.

The converter is suitable for polled, switched, or dedicated systems. It can hold the RTS control signal high to the modem or DSU while data is in the converter to prevent loss of data. The unit also features loopbacking for fault isolation. The TP-201 lists for \$295.

TELEVIDEO ANNOUNCES SNA PACKAGE FOR PERSONAL MINI Televideo Systems, Inc; 550 East Brohawn Road, San Jose, CA 95112; 408-974-0255.

TeleVideo has announced a new **PM/SNA package** for the Personal Mini that provides both IBM 3270 and 3770 SNA emulation for the Personal Mini product family. The TeleVideo Personal Mini is an IBM PC compatible, multiuser computer system, and is available in 3 models, PM/4T, PM/16T, and PM/16, with each model catering to different business needs.

PM/SNA is comprised of the 2 components: the communication software, which consists of 2 pieces: the host interface module and device emulation module, and the communication hardware, which consists of the SDLC interface adapter. This adapter is an IBM PC bus-compatible card. It will operate in any PC-compatible computer.

The 3270 emulation of PM/SNA allows as many as 15 personal computers connected to the Personal Mini to communicate with IBM mainframe applications simultaneously. It emulates an IBM 3270 Display System which includes an IBM 3274 control unit with attached 3278 display unit and 3287 printer, and an IBM 3770 batch terminal. The 3770 emulation of PM/SNA provides the means for file transfer between the Personal Mini and the IBM mainframe.

When PM/SNA is run in a Personal Mini system, one personal computer functions as the IBM 3274/3770; this one personal computer must be dedicated to this function. Any PC compatible can operate as this "communication server." Any serial or parallel printer attached to the Personal Mini

can be used to emulate the IBM 3287 printer in both local copy and/or host address printer modes. For easy installation, PM/SNA provides a menu-driven utility. Diagnostics, online trace, and error-logging functions are also provided to solve any installation problems. PM/SNA costs \$1,995.

TELEX ADDS TWO TERMINALS TO TC 270 SERIES Telex Computer Products, Inc; 6422 East 41st Street, Tulsa, OK 74135; 918-627-1111.

Telex has added a **monochrome** and a **color terminal** to its **TC 270** line of IBM 3270-compatible terminals and cluster controllers. The new **Telex Model 080** is a 15-inch monochrome terminal with a character display capacity of 1920, 2560, or 3440 characters. The color terminal, **Model 179**, replaces the IBM 3279. Like all Telex terminals, the new offerings can connect to Telex or IBM cluster controllers. The 080 is priced at \$2,195, and the 179 lists for \$2,295.

NEW DIGITAL/CHANNEL SERVICE UNITS FROM UDS Universal Data Systems; 5000 Bradford Drive, Huntsville, AL 35805; 205-837-8100.

Universal Data Systems (UDS) announced the availability of 2 new DSU/CSU devices. The new offerings comprise the **DDS-9.6, 9600 bps, DSU/CSU**; and the **DDS-56, 56K bps DSU/CSU**. The new models are compatible with the present AT&T 500 Series DSU and CSU equipment. Both the DDS-9.6 and the DDS-56 operate over 4-wire, unloaded, twisted-pair cable systems and the Digital Data Service (DDS) point-to-point and multipoint networks. The DDS-9.6 provides for full-duplex serial synchronous or asynchronous data communication at 9.6K, 4.8K, and 2.4K bps. The DDS-56 provides for full-duplex serial synchronous data communication at 56K bps. Both the UDS DDS-9.6 and the DDS-56 can also act as limited distance modems. The typical distance for the DDS-9.6 is 25 miles, while the DDS-56 is 3 to 9 miles on unloaded twisted-pairs.

In addition, the new units are equipped with diagnostic capabilities for isolating problems in the data communication path. Built-in test features include self-test, local line loopback, and remote terminal loopback. The purchase price of DDS-9.6 is \$850 and the DDS-56 lists for \$895.

VEN-TEL RELEASES 2121 MODEM MODULE Ven-Tel, Inc; 2342 Walsh Avenue, Santa Clara, CA 95051; 408-727-5721.

Ven-Tel's 300/1200 bps **OEM-2121 modem** has been designed for terminal and PC manufacturers and other OEMs and systems integrators. Based on proprietary CMOS technology, the new modem card measures under 15 square inches. The OEM-2121 FCC certified under part 68, is a complete auto-dial, auto-answer modem, fully implementing the Hayes-compatible "AT" command set. It enables manufacturers to utilize the modem with a variety of available communication software packages.

In addition, the OEM-2121 is designed to minimize power consumption, requiring only +15 and +12 volt power supplies. Connections to the system are at logic levels; either a header or RJ-11 jacks may be used for the telephone line connection.

VOICEMAIL VOICE MESSAGING INTEGRATED WITH DIGITAL EQUIPMENT ALL-IN-1 Voicemail International, Inc; 3350 Scott Boulevard, Building 49, Santa Clara, CA 95051; 408-496-6555.

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Voicemail International, has announced the integration of its voice messaging system with Digital Equipment Corporation's **ALL-IN-1 Office and Information System Version 2**. With this capability users can check all their incoming messages (both in text and voice) through a single source. ALL-IN-1 Voice Messaging Support software displays Voicemail messages on an ALL-IN-1 terminal along with the recipient's electronic mail. When a voice message is received, ALL-IN-1 Voice Messaging Support automatically sends a short text message to the user's in-box for electronic mail. This message includes the caller's name, the called party's name, the length of the message and the time and date it was received. The recipient can listen to the voice messages at random by simply entering a command at the terminal, which will cause an assigned phone to ring and deliver the message.

ALL-IN-1 Voice Messaging Support software will be available from Digital in the United States in the spring of 1985 as an option to the ALL-IN-1 Office and Information System, Version 2. The Voicemail and ALL-IN-1 systems are connected by a DMR11 communication link.

VMX SECURES CONTRACTS WITH 3 BOCS FOR VOICE MESSAGING EQUIPMENT

VMX, Inc.; 1241 Columbia Drive, Richardson, TX 75081; 214-699-1461.

VMX has landed contracts with 3 Bell operating companies for its **Voice Message Exchange** voice messaging system as part of an overall push by the company to strengthen its position in the BOC market. The new contracts, which are expected to be followed by additional BOC deals, are with Illinois Bell Telephone Company, Pacific Bell, and Southwestern Bell Telephone Company.

According to the Modified Final Judgment, however, telcos are currently prohibited from offering service enhancements, such as voice messaging, from the central office. Although the company would not comment on speculation that it is positioning the Voice Message Exchange as a network enhancement through the BOC deals, VMX president W. Dal Berry said VMX is "forging a strong working relationship with the Bell operating companies and their subsidiaries at the moment."

Under the agreement with Illinois Bell, VMX is shipping and installing a 64-port Voice Message Exchange. The system, according to a VMX spokesman, is being integrated with an ESS 1A Centrex switch to provide voice messaging, automatic call answering and message waiting indications to 5,000 Illinois Bell employees at the company's Chicago headquarters.

The deal with Pacific Bell calls for VMX to add a second 64-port voice messaging system to the telco's main Los Angeles facility following on the heels of a newly installed 64-port system at Pacific Bell's San Francisco headquarters.

The 2 systems are to be tied together via VMX's Voicenet II wide-area network, according to the spokesman. Together the 2 systems are expected to serve 10,000 employees at the 2 locations.

VMX said it has already installed a 48-port Voice Message Exchange in the central office Centrex system serving Southwestern Bell Telephone's new St. Louis headquarters.

■ CALENDAR OF EVENTS

□ January 1985

Jan 22-24 - 13th Annual BICS International Conference • Tampa, FL **Contact** 813-974-2403.

Jan 29-31 - Communications Networks Conference • Washington, DC **Contact** 617-897-0700.

Jan 30-Feb 1 - 25th Annual Texas CATV Convention & Trade Show • Austin, TX **Contact** 512-474-2082.

□ February 1985

Feb 3-6 - ABA Telecomm • New Orleans, LA **Contact** 202-467-4338.

Feb 4-6 - 1985 Office Automation Conference • Atlanta, GA **Contact** Helen Mugnier; 703-620-8926.

Feb 5-6 - 1985 Arizona Cable Television Association Annual Meeting • Phoenix, AZ **Contact** 602-257-9338.

Feb 12-13 - UTC Common Carrier & Fiber Optics II Symposia • Washington, DC **Contact** 202-457-1151.

Feb 12-14 - M/C EXPO '85 • Anaheim, CA **Contact** 213-826-6070.

Feb 12-14 - USTA Southwestern Showcase • New Orleans, LA **Contact** 202-872-1200.

Feb 14-15 - 4th Annual Texas Telecommunications Conference • Houston, TX **Contact** 713-224-1177.

Feb 25-28 - MEXCOM '85 • Mexico City, Mexico **Contact** 703-685-0600.

□ March 1985

Mar 4-5 - Dataquest Telecommunications Technology Conference • Dallas, TX **Contact** Jewel Peyton; 408-971-9000.

Mar 4-7 - INTERFACE '85 • Atlanta, GA **Contact** 617-449-6600.

Mar 5-7 - FOSE '85 • Washington, DC **Contact** 703-683-8500.

Mar 6-8 - Integrated Services Digital Networks Conference • Atlantic City, NJ **Contact** 617-232-3111.

Mar 10-13 - 57th ENTELEC Conference • San Antonio, TX **Contact** 214-867-7755.

Mar 18-20 - COMTEL '85 • Dallas, TX **Contact** 214-661-0476.

Mar 25 - 4th Annual Conference of IEEE Computer & Communications Societies • Washington, DC **Contact** 301-589-8142.

Mar 27-29 - TCA Northwest Teleconference • Seattle, WA **Contact** 206-522-3100.

□ April 1985

Apr 3-5 - 20th Annual Meeting of NABER • Tarpon Springs, FL **Contact** 202-887-0920.

Apr 9-12 - International Trade Exhibition: Communications Tokyo 85 • Tokyo, Japan **Contact** 202-377-4642.

Apr 14-17 - 63rd NAB Conference • Las Vegas, NV **Contact** 202-887-0920.

Apr 15-18 - USTSA INTELEXPO • Washington, DC **Contact** 312-782-8597.

Apr 15-21 - TECHNOTRON '85 • Lima, Peru **Contact** 52-8140.

Apr 17-24 - Hanover Fair '85 • Hanover, West Germany **Contact** 201-534-9044.

Apr 24-26 - Land Mobile Expo • Las Vegas, NV **Contact** 303-694-1522.

□ May 1985

May 6-11 - ICA National Conference • Dallas, TX **Contact** 214-233-3889.

May 14-19 - ASIA TELECOM 85 • Singapore **Contact** 022 99 51 11.

Data Decisions News

May 21-23 - IEEE Vehicular Technology Conference • Boulder, CO **Contact** 303-492-5151.

May 21-23 USTA Western Showcase • Las Vegas, NV **Contact** 202-872-1200.

May 29-June 2 17th Annual ITVA Conference • New Orleans, LA **Contact** Inez Wehli; 214-869-1112.

June 1985

Jun 3-6 - NCTA Annual Convention • Las Vegas, NV **Contact** 202-775-3550.

Jun 4-6 - AFCEA Annual Convention • Washington, DC **Contact** 703-425-8525.

Jun 11-14 - VENCOM '85 • Caracas, Venezuela **Contact** 703-685-0600.

Jun 23-26 - ADCU Annual Conference • Washington, DC **Contact** 612-881-6803.

Jun 26-24 - ICC '85 • Chicago, IL **Contact** Dr. John Johannesen; 312-627-6854.

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