

IBM Network Station Family of Thin Clients
Access for today, flexibility for tomorrow



IBM NetVista thin clients

**Continued Leadership in Thin Client
Computing**

**Windows-based Terminal (WBT)
Standard 1.5**

Thin Client Marketing

Consultant Predictions / Observations

■ Aberdeen Group

- ▶ *By 2003, thin clients will have grown to nearly **30% of all desktop platforms.***
- ▶ *About **80% of the world's users** could benefit from thin clients.*

■ Gartner Group

- ▶ ***Half of all applications** will be running on thin clients by 2001.*
- ▶ *By 2001, browsers will become the primary development platform.*
- ▶ *Thin clients can **save businesses 80% in support staff costs** and the devices have a **25%-35% lower cost of ownership** as compared to PC's.*
- ▶ ***IBM remains the only thin client vendor in Gartner's 'Magic Quadrant'**, a distinction IBM has held since November '97.*

■ Giga Information Group

- ▶ *One of the **top three desktop trends** emerging in the computer industry is the shift from desktop computer to thin client.*

■ IDC

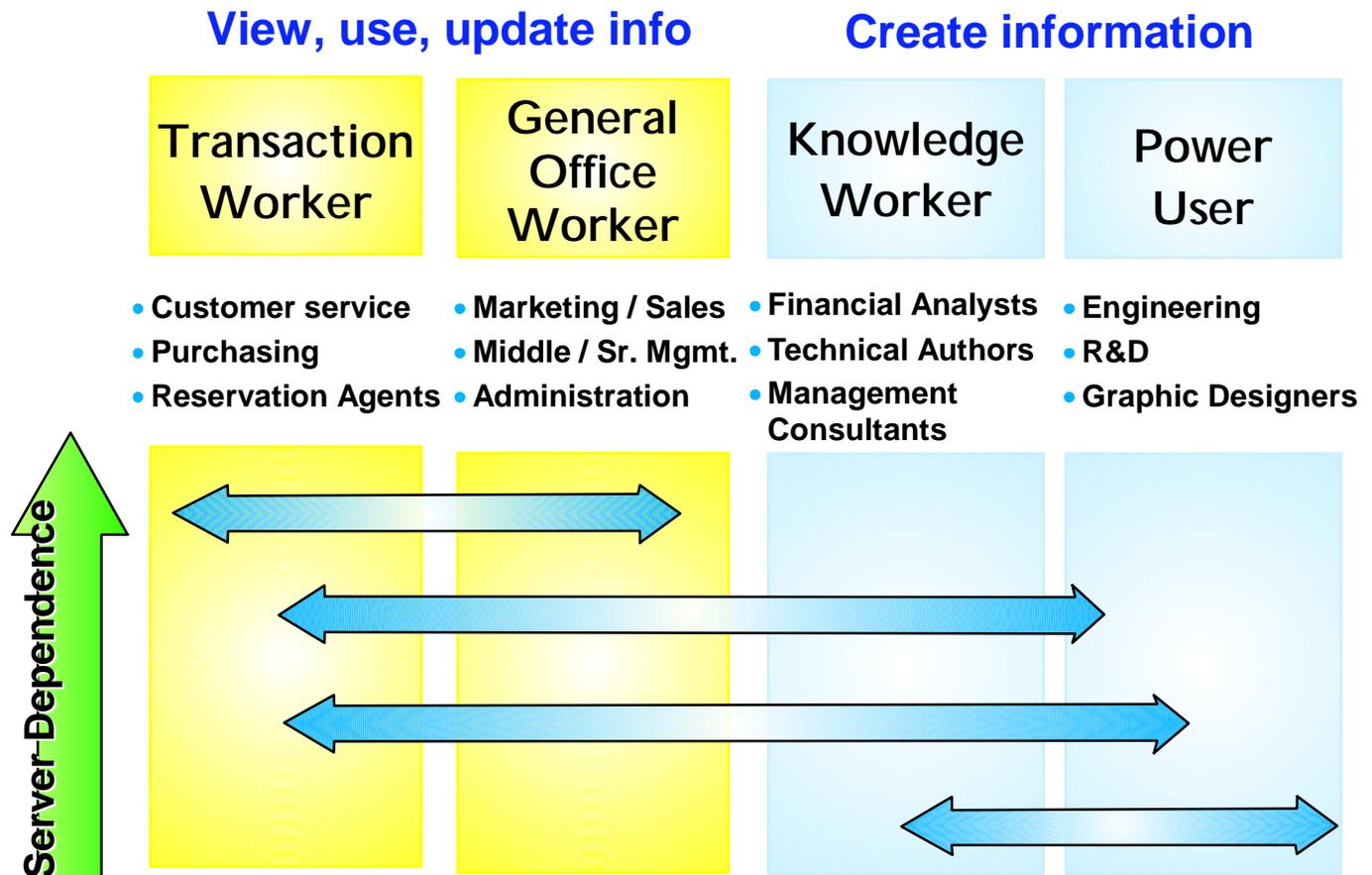
- ▶ *Industry-wide **thin client shipments in 1H99 increased 83%** over same period last year. **IBM a Market leader...***



IBM Clients: Spectrum of Users, Uses

Tailor the right mix of clients for your users

- User Categories
- Representative Users
- Thin Clients
- ThinkPad
- PC 300
- IntelliStation

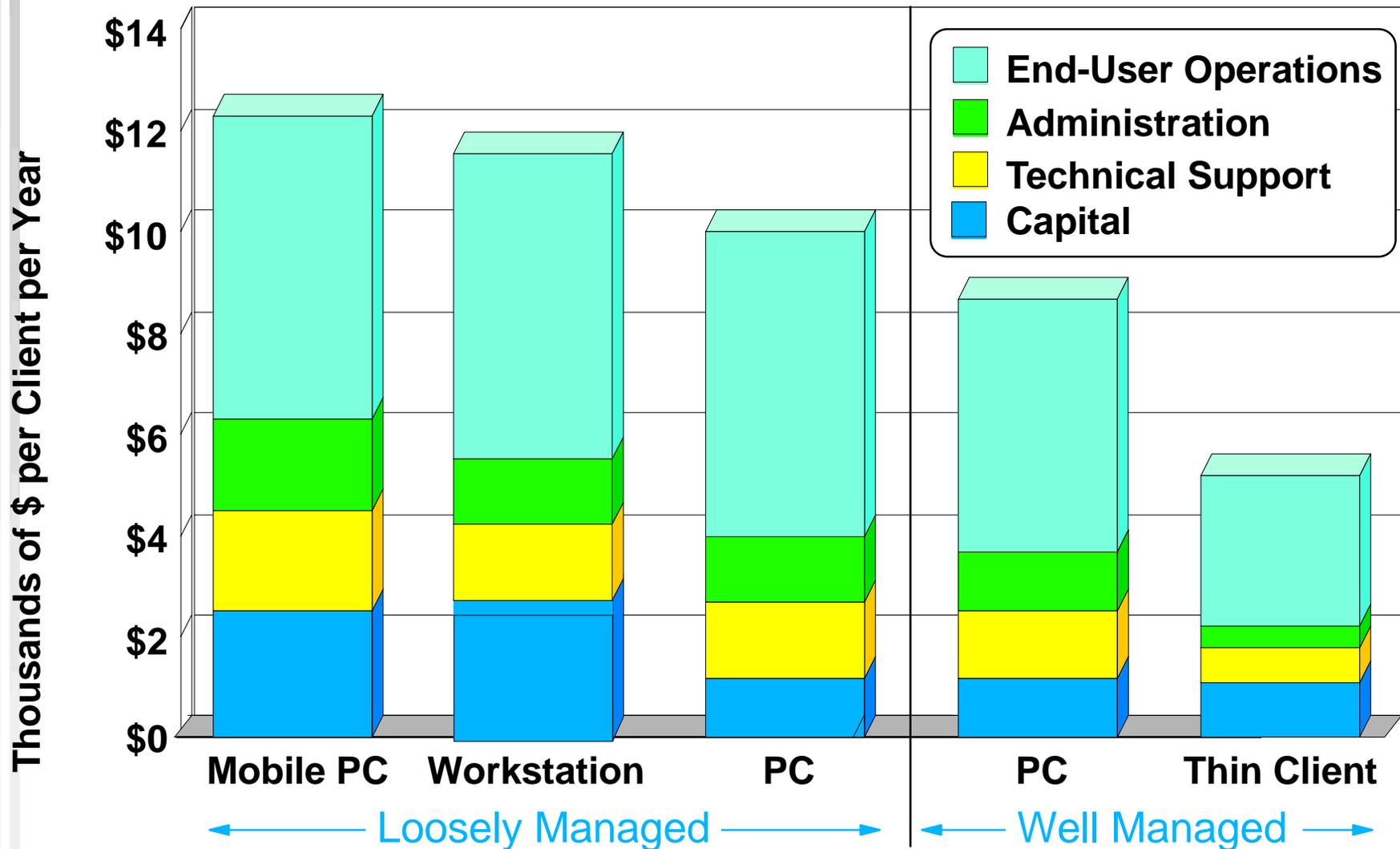


- Your users don't all do the same thing or have the same needs
- Tailor a mix of IBM clients to meet the needs of your users
- 'Client portfolio' provides best fit, lowers Total Cost of Ownership

Source for 4 User Categories: GartnerGroup, Input Research, Lotus

TCO of Networked Clients

IBM can reduce costs of Networked Clients

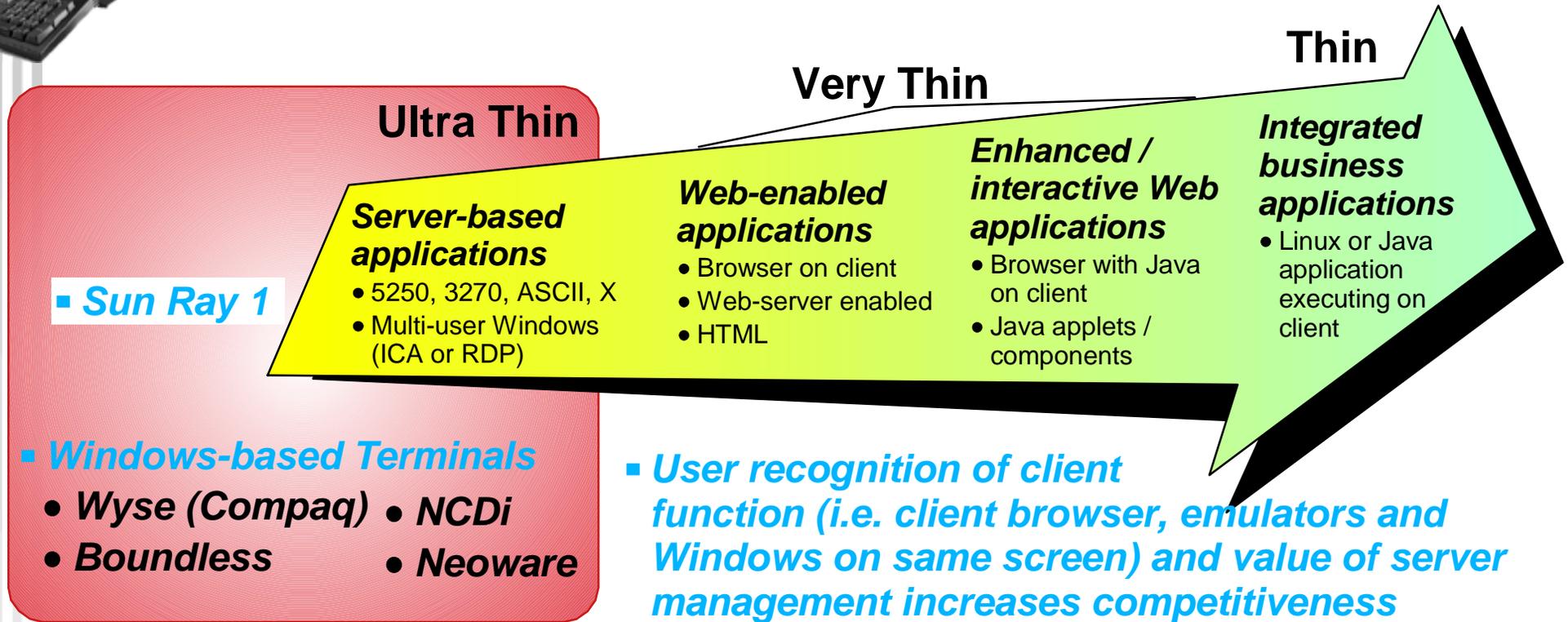


Note: Workstation TCO assumes similar capital costs to a Mobile PC with the non-capital costs of a loosely managed PC.



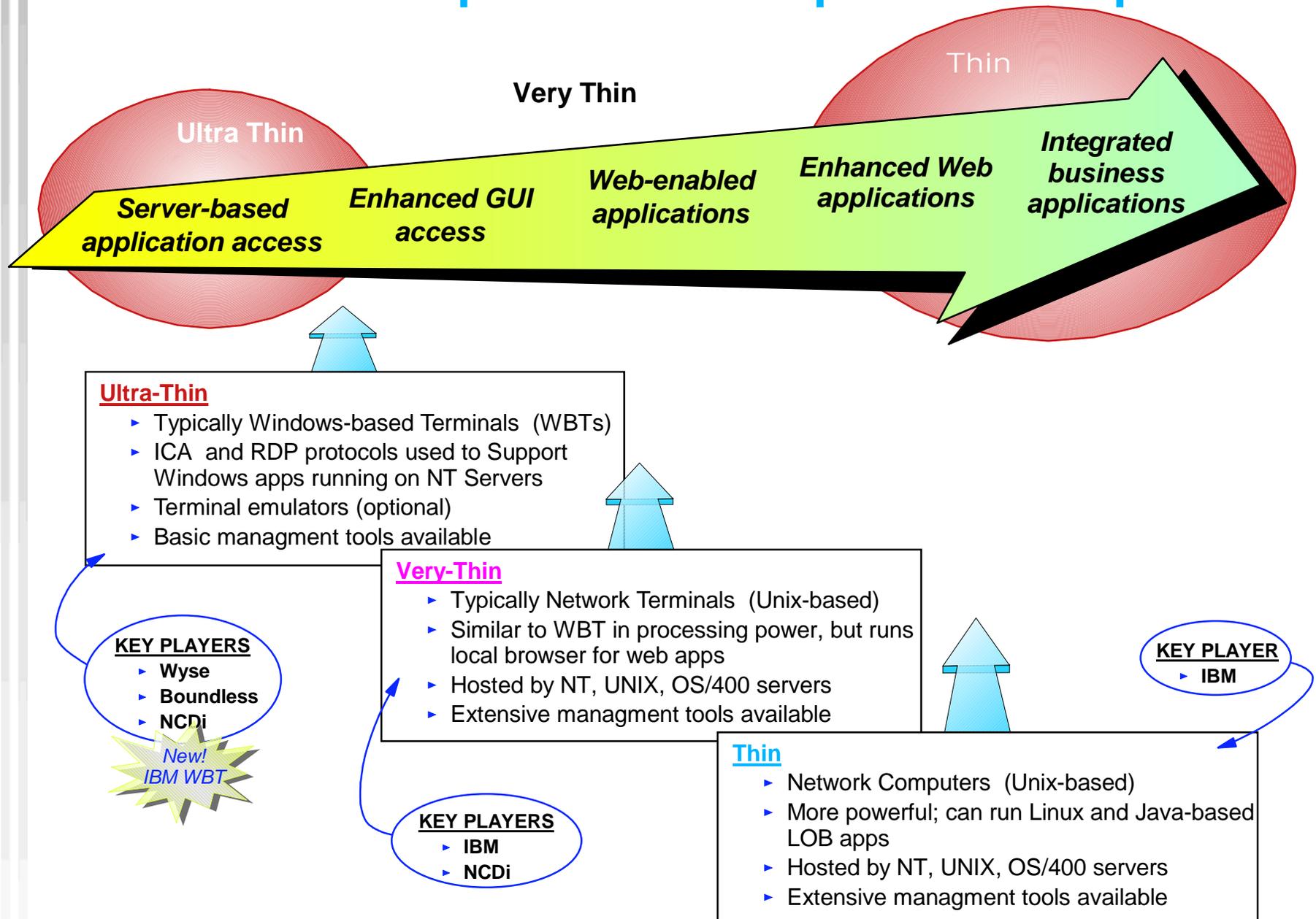
Thin Client Solution Spectrum

IBM and representative Thin Client competitors



- **Primary competitors are clustered in the WBT / Ultra Thin space**
 - ▶ A WBT is not a WBT - WBT 1.2 users need new software for WBT 1.5
- **IBM has the capability to migrate across software environments**
 - ▶ WBT or NSM Express to NSM V2R1 or Linux; NSM V2R1 to Linux
 - ▶ Install now, change operating environments as your needs evolve
- **Only IBM has full range of Thin Clients, PC, server, services options**

Thin Client Spectrum - Competitive Perspective





Client-Side Thin Client Software

■ UNIX variants (NetBSD, FreeBSD, Linux)

- ▶ Supports local execution of browser, mail client, Java, Linux apps
- ▶ Greatest flexibility for customization
 - Can drive need for more memory and computing power
- ▶ Richest function for thin-clients
- ▶ Includes *IBM's Thin Client Manager*

■ Windows CE (Windows-based Terminals)

- ▶ Basic thin-client functionality (limited to ICA, RDP, emulators)
 - Browser--Future
- ▶ Used in most thin-client competitors' offerings
- ▶ Proprietary architecture; usage tightly controlled by Microsoft
- ▶ 1Q00 re-branding as "Windows-based Terminal - Standard"

■ Other Implementations

- ▶ Sun Ray Desktop Architecture
 - EVERYTHING runs on the server, including graphics rendering
 - Proprietary Sun solution, requires separate dedicated network infrastructure
- ▶ Embedded NT
 - MS announced intent to offer branded as "WBT-Professional"
 - Availability uncertain; expected to add \$300 - \$500 cost per client



Server-Side Thin Client Software

■ Thin Client Manager for AS/400, AIX, Windows NT

- ▶ **IBM solution supports broadest range of host environments**
 - Most scalable thin-client solution
 - Richest set of management tools and capabilities
 - Perceived to be targeted at more complex and sophisticated installations

■ Multi-User Windows

- ▶ **Windows NT 4.0 - Terminal Server Edition (TSE)**
 - Basic terminal functionality
 - Broad adoption, large experience base
 - Robustness and scalability can be questioned
- ▶ **Windows 2000 Server (NT-TSE replacement due Feb.17, 2000)**
 - Multi-user moved to base kernel; standard with all W2K Server variants
 - Represents expanded commitment by Microsoft to thin-client computing
- ▶ **Citrix MetaFrame (NT-TSE add-on)**
 - ICA client lets users run apps residing on Windows servers
 - Features and function extension; used in 95% of TSE deployments
- ▶ **WBT Manufacturer's Thin-Client Management Tools**
 - Rudimentary update tool offered by most WBT suppliers
 - Include WyseWorks, ThinPath, Viewpoint Administrator, Insight Manager

■ Sun Ray Enterprise Server Software

- ▶ **Proprietary solution; requires homogeneous Sun environment**



Thin Client Competitors



- ▶ Market-share leader; currently shipping only WBTs (3000 Series)
- ▶ Has endorsed new MS WBT standards
- ▶ Often Linked to Citrix resellers; OEM supplier to Compaq



Wyse 3350SE



- ▶ OEMing WBT (T1000) and Linux (T1500) boxes from Wyse
- ▶ Not actively promoting thin-clients; T1500 still not shipping



Compaq T1000



- ▶ Trying to stop market losses with ThinPATH mgmt software
- ▶ Little success as it only works with WBTs from NCDi
- ▶ Still offering X-terminals (Explora line)
- ▶ Just projected negative income for 8th consecutive quarter



ThinSTAR 300



- ▶ Low-powered Capio WBT has cheap initial price -BUT-
- ▶ Optional features quickly drive up cost
- ▶ Market-share dropped from 6.2% to 4.8% last year (IDC)



Capio 325



- ▶ Neoware is struggling, facing de-listing on NASDAQ
- ▶ Attempted to grow share by merging with MTX (on hold)



NeoStation 2300



- ▶ Sun is trying to stage a comeback after JavaStation's failure
- ▶ Sun Ray is an interesting solution, but only in unique circumstances



Sun Ray 1



Introducing the... IBM NetVista thin client for Windows-based Terminal Standard 1.5 (N2200w)

- **Based on the versatile Series 2200**
 - ▶ Superior graphics performance
 - ▶ Legacy-free system
 - ▶ Highly configurable
 - ▶ Very small footprint
 - ▶ Very low power
 - ▶ Very high reliability
- **First WBT 1.5 implementation in the marketplace**
 - ▶ Fully compliant with WBT Standard 1.5 specification
 - ▶ Superior performance/ function to WBT 1.2
- **Full complement of client side function**
 - ▶ RDP 5.0, ICA 3.0+, Emulators, IE4.0 browser with Media Player(future)
- **Maintain up-to-date client flash images from central server**
- **Offer customers with unique flexibility and investment protection**
 - ▶ Transition to NSM or Linux



IBM NetVista Thin Clients

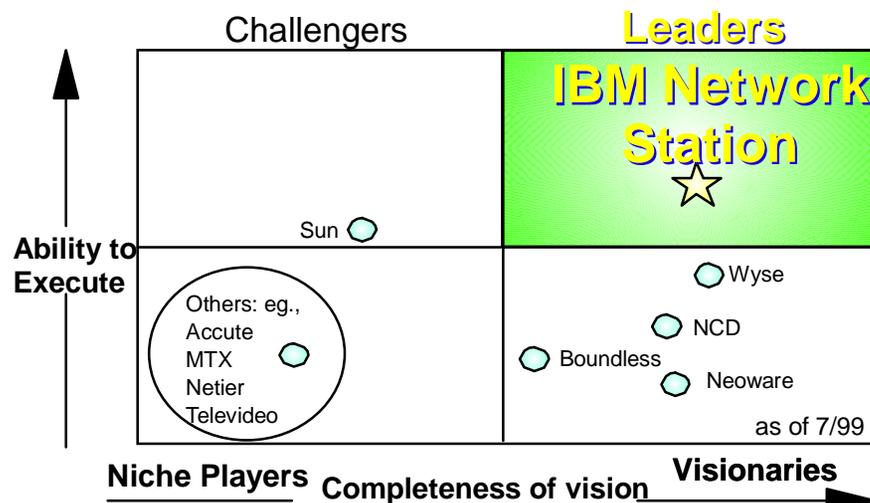
Industry-proven Leadership



★ EDITORS' CHOICE ★
November 9, 1998



"The IBM NC solution edges ahead of the other thin-client offerings"



Gartner Group Thin Client 'Magic Quadrant'
IBM Network Station - 'Leader' 3 consecutive years!

Source: Gartner Group's Datapro--Gartner Group Symposium, October, 1999



"... for its performance, flexibility, and management capabilities."

March 1, 1999



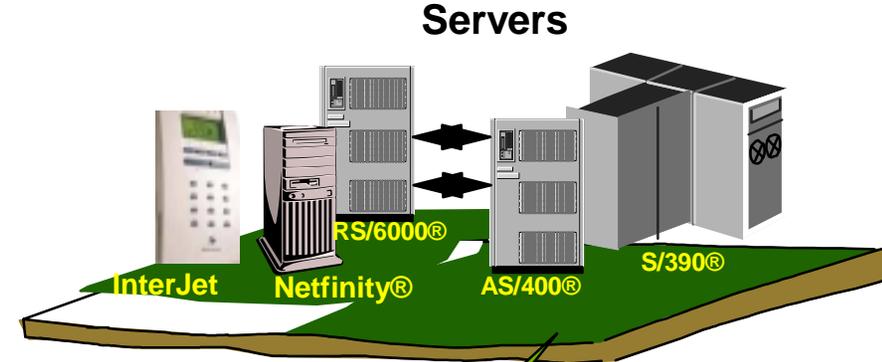
PC Magazine -- Thin Client Review---March 2000

- IBM Network Station 'Among the most versatile thin clients on the market'
- 'Easy to handle, and extremely flexible'
- Both the S/2200 and S/2800 received '4 out of 5' and faired well against competitors

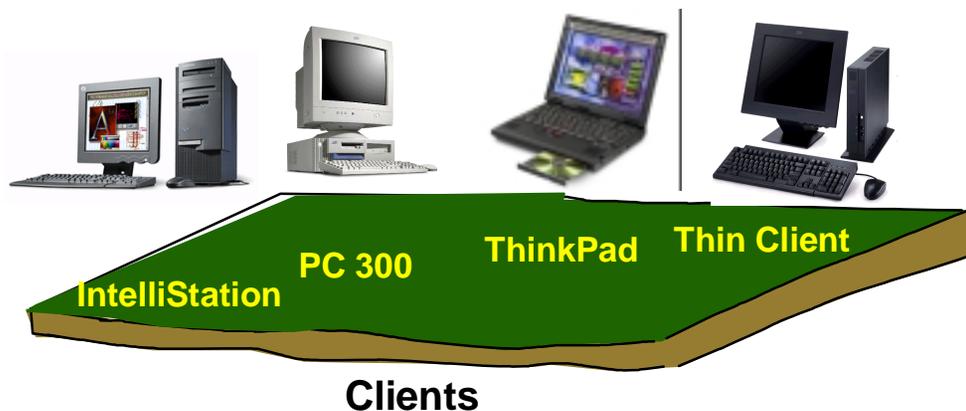


Delivering Complete Customer Solutions

- Complete portfolio of client devices
- Wide range of server offerings
 - ▶ InterJet>>>Netfinity>>>S/390
- Leverage existing applications, data, systems, and skills
 - ▶ Fast/ Flexible Application deployment
- Reliable, scalable, secure, and manageable
 - ▶ Centralized management
- Reduced complexity and cost of ownership



- Software
- Networking
- Services
- Security



*It's About e-business
...not Just Technology!*

Conclusions...

- ★ **Only IBM supports the entire thin-client spectrum:**
 - ***Robust WBTs, Linux, and TCM thin-clients***
 - ***'Easy to use' and 'easy to manage' characteristics***
 - ***Access to Windows, server, web-enabled, and integrated business apps***
 - ***Complete solutions, from clients to servers and applications to financing***
 - ***IBM has the best-fit solution for any thin-client need!***

- **Most thin-client vendors are now focused on the WBT environment**
- **WBTs are good for basic application access -- but cannot support a local browser or Java**
- **Local browser will become increasingly important for application delivery and performance--ie. Multimedia**
- **Large heterogeneous environments with diverse apps demand Linux or NSM thin-clients**
- **Thin-clients continue to gain momentum with Microsoft, Citrix, and chip enhancements**
- **Inexpensive, managed PCs may confuse customers considering thin-clients**
- **Remember that managed PCs offer a totally different value proposition than thin-clients**
- **Cost of acquisition is typically 10-14% of the full Total Cost of Ownership (TCO)**



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