

MODELS

Non-Disruptive Backup
Solution for Sun Solaris

Non-Disruptive Backup
Solution for Compaq Tru64
UNIX

The Ultimate in Data Storage and Backup for Enterprise UNIX Environments

Due to the rapid growth of information across the enterprise, and the need for ever-increasing volumes of data storage, data backup is a major challenge for IT organizations. The backup window decreases, as the demand for more available storage and simple backup procedures becomes more urgent. The Non-Disruptive Backup Solution for Sun Solaris and Compaq Tru64 UNIX is a pre-tested configuration of hardware, applications, backup software, and services that permits backup with minimal disruption to production applications. It provides the ultimate integrated storage and backup solution for businesses that operate 24 * 7, eCommerce, and businesses with business-critical applications. Because it simplifies backup management and facilitates storage consolidation, the solution delivers quantifiable business benefits by eliminating dependency on a backup window, while providing the consolidation, redundancy, and manageability benefits of tape automation.

Elimination of the Backup Window and Simplification of Backup Management

The Non-Disruptive Backup Solution uses Compaq *SANworks* Enterprise Volume Manager (EVM) to automatically schedule offline backup of an Oracle database and create, in background mode, an independently addressable point-in-time copy for use in backup. The point-in-time copies are either mirror images (clones), or virtual copies (snapshots) of active production volumes. This parallel processing offers workload compression and the ability to perform non-disruptive backup while maintaining normal business operations. The Non-Disruptive Backup Solution includes database and backup application scripts, thereby automating a formerly manual process, and simplifying the backup implementation.

The process for implementing the backup is automated and proceeds as follows:

1. Briefly quiesce the Oracle application.
2. Create a snapshot or clone of the data.
3. Restart the application and continue business operations.
4. Mount the snapshot or clone on the backup server.
5. Backup the snapshot or clone to tape.

The Non-Disruptive Backup Solution delivers all the components necessary for implementing the above process, including characterization, sizing, and performance data, and is "SAN-ready," to allow for future growth. It provides a backup infrastructure for SAN (loop and switched fabric) based primary storage and both SAN and SCSI (direct attached) secondary storage environments.

Seamless Integration/Investment Protection

The Non-Disruptive Backup Solution integrates smoothly into existing Oracle environments. A significant component in the Compaq Enterprise Network Storage Architecture (ENSA), the Non-Disruptive Backup Solution ensures simple, centralized backup management, as well as the highest level of availability for production storage systems.

To facilitate seamless integration into existing environments, Installation, Start-up, and EVM Deployment Services are available from Compaq Global Services.

Storage Consolidation

The sharing of storage across Windows NT, Sun Solaris, and Compaq Tru64 UNIX environments is facilitated by the Non-Disruptive Backup Solution. Because the solution supports heterogeneous environments, different operating systems can share a single storage array – using the RA8000, MA8000, ESA12000 or EMA12000.

Hardware, Software, and Characterization Components

The Non-Disruptive Backup Solution consists of the following components:

- Fibre Channel RA8000, MA8000, ESA 12000, or EMA12000 with HSG 80 controller and ACS (array controller software) version 8.5 F/S
- Choice of backup library: TL891, TL895, or ESL9326D
- Choice of SCSI or Fibre Channel SAN interconnect for secondary storage:
 - SCSI: Ultra Wide SCSI Host Bust Adapter
 - Fibre Channel SAN: Enterprise Backup Solution for Data Centers
- Compaq SANworks Enterprise Volume Manager
 - Enterprise Volume Manager for Compaq Tru64 UNIX version 1.1
 - Enterprise Volume Manager for Sun Solaris version 1.1
- Customizable scripts for applications and backup software (Oracle, Legato NetWorker®, VERITAS NetBackup)
- Usability data: configuration, performance, sizing, and characterization
- Optional value-added services

These components are integrated to provide the Compaq StorageWorks Non-Disruptive Backup Solution for multivendor UNIX. Compaq is able to successfully integrate these "best-in-class" components and offer superior technology to solve the business problems of (1) eliminating the backup window, (2) simplifying backup implementation and management, and (3) consolidating storage across multiple operating environments.

Operating System Support

Sun Solaris version 2.6/2.7
Compaq Tru64 UNIX version 4.0f, 4.0g

Applications Support

Oracle version 8i

Backup Software Support

Legato

Legato Networker v5.51 for Tru64 UNIX / Solaris
Legato Smartmedia v1.2-2 for NT/Tru64 UNIX / Solaris
Oracle client –Tru64 UNIX / Solaris v2.1.2

Veritas

VERITAS NetBackup v3.2 for UNIX
VERITAS NetBackup for Oracle application agent

Enterprise Volume Manager

Enterprise Volume Manager (EVM) is web-based software that manages controller-based clone and snapshot operations. EVM can be used to meet business continuance requirements by minimizing application downtime. All backup operations are done on the clone or snapshot, minimizing performance impact on the production system. There are separate versions for Compaq Tru64 UNIX and Sun Solaris.

Tape Products

TL891: Available as a stand-alone tabletop unit or as a scalable/stackable rackmount unit, with a removable 10 cartridge magazine, integrated barcode reader, and two Compaq DLT 35/70 drives. The TL891 base unit offers 700GB of compressed storage capacity in a small 4U height, and up to 6.3TB in a multi-unit library. Performance is 36GB/hr to 180GB/hr (native), providing transfer of up to 1TB in less than six hours. For use in SCSI environments

TL895: Offers multiple terabytes of automated DLT backup for mission-critical data. Backs up to 6.7TB of data in a single, standalone library. Performance is 36GB/hr to 126GB/hr (native). Highest reliability of any DLT automation device with two million mean swaps between failures (MSBF). For use in SCSI environments and with EBS for Data Centers.

ESL9326D: Provides the ultimate in high-capacity unattended backup and restore for the enterprise. With 326 slots and up to 16 Compaq 35/70 DLT drives, the ESL9326D offers up to 22.8TB of data storage (using 2:1 compression) and native transfer rates up to 288GB/hr. For use in SCSI environments and with EBS for Data Centers.

Enterprise Backup Solution for Data Centers (EBS): Provides consolidated backup of multiple servers over high speed, independent Fibre Channel storage network to centrally attached SCSI tape libraries. EBS for Data Centers supports the TL891, TL895 and ESL9326D.

Compaq RAID Arrays with HSG80 Controller

RAID Array 8000 (RA8000): Midrange, Fibre Channel based, primary storage for departments. Scales to 864GB per cabinet or 2.6TB in a single system. Features support of multiple mirror sets, multi-host support, and no-single-point-of-failure architecture.

Enterprise Storage Array 12000 (ESA12000): Enterprise class, Fibre Channel based, primary storage. Scales to multiple terabytes. Features support of multiple mirror sets, multi-host support, and no-single-point-of-failure architecture.

MA8000 / EMA12000: MA8000/EMA12000 is the packaging upgrade to the current RA8000/ESA12000 solutions for storage consolidation on a SAN. MA8000/EMA12000 supports the same features as the existing RA8000/ESA12000 including heterogeneous server and OS platforms; StorageWorks HSG80 Fibre Channel Controllers; SANworks data and storage management software and maximum single system configuration of up to 72 drives. The maximum system configuration requires only one cabinet due to the new modular controller (Model 2200) and drive shelves (Model 4200). The new packaging increases the system modularity and footprint economy without requiring changes to the existing SAN infrastructure or the HSG80.

Interconnects

SCSI: The TL891, TL895, or ESL9326D may be direct-attached to a backup server via SCSI.

Fibre Channel Hubs: The Fibre Channel Hub 7 and Fiber Channel Hub 12 provide up to seven and twelve multi-mode Fibre Channel connections for attaching to hosts and storage (primary and secondary). The storage hub is a rackmountable unit with a 1U form-factor.

Fibre Channel SAN Switches: The Compaq StorageWorks Fibre Channel SAN Switch/8 and Fibre Channel SAN Switch/16 are high-performance, scalable switch fabrics designed for creating SANs with Compaq StorageWorks RAID Array 8000, ESA 12000 storage systems and EBS for Data Centers:

- Eight (Fibre Channel SAN Switch/8) or 16 (Fibre Channel SAN Switch/16) 1Gb/s non-blocking Fibre Channel connections for high data throughput
- Pre-configured with fabric operating software, WEB Based Management Tools, and Zoning software
- Dynamic path rerouting in the event of a link failure
- General 10km link distance support for switch to switch connections

Prerequisites

For Sun Solaris

Sun Solaris Server

- Sun Solaris server for EVM (may also be the application server and/or backup server)
- Sun Solaris server for use as backup server
- Host Bus Adapters
- Fibre Channel SBUS HBA/64 for Sun (JNI)

For Compaq Tru64 UNIX

AlphaServer

- Tru64 UNIX AlphaServer for EVM (may also be the application server and/or backup server)
- Tru64 UNIX AlphaServer for use as backup server
- Host Bus Adapters
- Fibre Channel HBA for Tru64 UNIX, KGPSA-BC (LP7000)
- Fibre Channel HBA for Tru64 UNIX, KGPSA-CA (LP8000)

Ultra SCSI FWD HBA, KZPBA

Standard Warranty

A three-year parts warranty, one-year onsite warranty, and one-year labor warranty cover the Non-Disruptive Backup Solution.

Note: Certain restrictions apply. Consult the Compaq Customer Support Center for details. In Canada, please consult the Product Information Center at 1-800-567-1616.

Extended Service Options

Extended Warranty: 24 * 7 warranty protection

Installation and Startup Service: provides routine connection, configuration, and system health-check service.

The service includes:

- Configuration and assembly of hardware components
- System verification testing

SERVICE & SUPPORT, CAREPAQ AND WARRANTY INFORMATION

Software Product Services

- Standalone telephone support
- Rights to new license version
- Media and documentation updates

Hardware Product Services

- Installation services
- On-site maintenance (includes warranty support)
- Response time upgrades during the warranty period
- Post-warranty coverage
- RAID setup and performance consulting via statement of work

For additional hardware installation and maintenance information, please refer to the URLs listed below:

http://www.compaq.com/services/hardware/hw_installation.html Please note that this Web site is available in English only.

http://www.compaq.com/services/hardware/hw_maintenance.html. Please note that this Web site is available in English only.

Warranty Upgrade Options

- Response - Upgrade on-site response from next business day to same day 4-hours
- Coverage - Extend hours of coverage from 9 hours x 5 days to 24 hours x 7 days
- Duration - Select duration of coverage for a period of 1, 3, or 5 years

CarePAQ Information

Sample part numbers:

- FM-**XHW-36, 3 year, uplift to 5 x 9, Next Day Response
- FM-**4HR-36, 3 year, uplift to 5 x 9, 4-hour Response
- FM-**724-36, 3 year, uplift to 7 x 24, 4-hour Response

** represents a two digit product specific code

- CarePAQ is defined as an upgrade to the product warranty attribute, available for a specific duration and hours of coverage.
- CarePAQ is not available for less than the product's warranty duration.
- CarePAQ is available for sale anytime during the warranty period for most products, but the commencement date will be the same as the Warranty Start Date (delivery date to end user customer). Proof of purchase may be required.
- CarePAQ services are prepaid.

For additional CarePAQ (hardware & software) information, as well as orderable part numbers, please refer to the URL listed below:

<http://www.compaq.com/services/carepag/index.html> Please note that this Web site is available in English only.

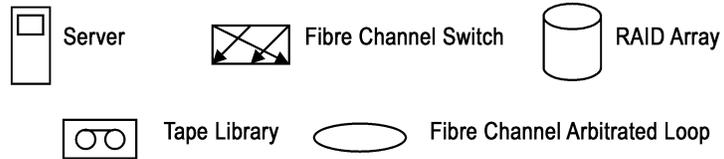
Components

The following brick level options/components do not have individual CarePAQs. These items will be included in product CarePAQs into which they are installed.

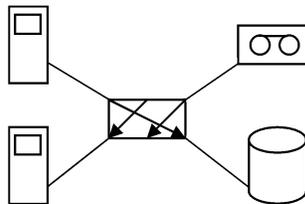
Disk Drives	Tape Drives	CD/DVD ROM	SCSI Hubs in SBBs	Adapters
Bus Converters	Backplane RAID Controllers	Power Supplies	Cabling	Fans

CONFIGURATION QUICK REFERENCE GUIDE

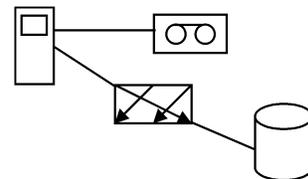
Backup Infrastructure Diagrams:



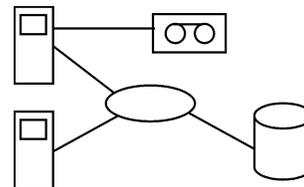
1: Disk-Fibre Switch / Tape-EBS Switch



2: Disk-Fibre Switch / Tape-Direct SCSI



3: Disk-FCAL / Tape-Direct SCSI



The following will be supported as valid solution configurations using EVM for Sun Solaris or Tru64 UNIX, the RA8000, MA 12000, ESA12000, or EMA12000 with ACS 8.5 (F or S), and Oracle v8i:

Supported Configurations

Infrastructure	OS	Backup Application	Tape Library
Disk-Fibre Switch Tape-EBS Switch	Tru64 UNIX	Legato NetWorker v5.51 VERITAS NetBackup v3.2	TL891 TL895 ESL9326D
	Sun Solaris	Legato NetWorker v5.51 VERITAS NetBackup v3.2	TL891 TL895 ESL9326D
Disk-Fibre Switch Tape-Direct SCSI	Tru64 UNIX	Legato NetWorker v5.51 VERITAS NetBackup v3.2	ESL9326D TL895 TL891
Disk-Fibre Loop Tape-Direct SCSI	Tru64 UNIX	Legato NetWorker v5.51 VERITAS NetBackup v3.2	ESL9326D TL895 TL891

SPECIFICATIONS

Non-Disruptive Backup Solution for UNIX

The Non-Disruptive Backup Solution is a pre-tested installation that includes the following Compaq and non-Compaq products. Refer to the QuickSpecs or Detailed Descriptions for the individual Compaq product.

Compaq Hardware

- **Primary Storage Array**
 - RA8000 with HSG80 controller(s) and ACS 8.5 F or S
 - MA8000 with HSG80 controller(s) and ACS 8.5 F or S
 - ESA12000 with HSG80 controller(s) and ACS 8.5 F or S
 - EMA12000 with HSG80 controller(s) and ACS 8.5 F or S
- **Disk Drives**
 - Hard disk drives, 36GB, 7200rpm, UWSE
 - Hard disk drives, 18GB, 10,000rpm, UWSE
 - Hard disk drives, 9GB, 10,000rpm, UWSE
 - Hard disk drives, 9GB, 7200rpm, UWSE
- **Backup Server**
 - Sun Solaris: Sun SPARC server
 - Tru64 UNIX: Compaq AlphaServer
- **Host Bus Adapters**
 - Sun Solaris: Fibre Channel SBUS HBA/64 for Sun (JNI)
 - Tru64 UNIX: Fibre Channel HBA for Tru64 UNIX, KGPSA-BC (LP7000)
 - Fibre Channel HBA for Tru64 UNIX, KGPSA-CA (LP8000)
 - Ultra SCSI FWD HBA, KZPBA
- **Interconnects**
 - Fibre Channel SAN Switch/16 with Fabric Software
 - Fibre Channel SAN Switch/8 with Fabric Software
 - Fibre Channel Hub, 12 port
 - Fibre Channel Hub, 7 port
 - Fibre Channel Tape Controller-II
- **Secondary Storage DLT Automation**
 - TL891 Tape Library
 - TL895 Tape Library
 - ESL9326D Tape Library

Compaq Software

- Compaq SANworks Enterprise Volume Manager Software
 - Enterprise Volume Manager for Sun Solaris version 1.1
 - Enterprise Volume Manager for Compaq Tru64 UNIX version 1.1
- Compaq StorageWorks Command Console version 2.2 or later

Third Party Software

Legato

Legato Networker v5.51 for Tru64 UNIX / Solaris
Legato Smartmedia v1.2-2 for NT/Tru 64 UNIX / Solaris
Oracle client –Tru64 UNIX / Solaris v2.1.2

Veritas

VERITAS NetBackup v3.2 for UNIX
VERITAS NetBackup for Oracle application agent

QUICKSPECS

NON-DISRUPTIVE BACKUP SOLUTION COMPONENTS

Select one from each item # to assemble the solution

Item	Item Descriptions	Base SKU	Quantity
1	EVM Software for Tru64 UNIX v1.1	180608-B21	
	EVM Software for Sun Solaris v1.1	160095-B21	
2	ACS 8.5F Controller Software	128697-B21	
	ACS 8.5S Controller Software	160091-B21	
3	OS Platform Software Kit for Tru64 UNIX	380553-001	
	OS Platform Software Kit for Sun Solaris	380554-001	
4	RA8000 Rack with 1 HSG80 Controller	380660-B21	
	RA8000 Rack with 2 HSG80 Controllers	380670-B21	
	RA8000 Pedestal with 1 HSG80 Controller	380550-B21/B22	
	RA8000 Pedestal with 2 HSG80 Controllers	380560-B21/B22	
	ESA12000 with 1 Chassis and 2 HSG80 Controllers	380580-001/002	
	ESA12000 with 2 Chassis and 2 HSG80 Controllers	380600-001/002	
	ESA12000 with 2 Chassis and 4 HSG80 Controllers	380620-001/002	
	EMA12000 Model D14 42U CTO cabinet, 3 controller shelves, 9 x 4254 drive shelves (14 x 1" drives, dual bus)	175990-B21	
	EMA12000 Model S14 36U CTO cabinet, 1 controller shelf, 6 x 4214 drive shelf (14 x 1" drives, single bus)	175991-B21	
	MA8000 22U cabinet, 1 controller shelf, 3 x 4254 shelves (14 x 1" drives, dual bus)	175992-B21	
5	EMA12000 Model D10 42U cabinet, 1 controller shelf, 3 x 4250 shelves (10 x 1.6" drives)	175994-B21	
	Hard Disk Drives	Choose number, capacity, rpm, and shelf height suitable to application configuration	
6	<i>AlphaServer DS20E, 500 MHz CPU, 256 MB, Tru64 UNIX Backup Server</i>	DA-56NRA-DA	
7	Fibre Channel HBA for Tru64 UNIX, KGPSA-BC (LP7000)	380574-001	
	Fibre Channel HBA for Tru64 UNIX, KGPSA-CA (LP8000)	168794-B21	
	Fibre Channel SBUS HBA/64 for Sun (JNI)	123503-001	
8	Fibre Channel SAN Switch / 16 with Fabric Software	158223-B21	
	Fibre Channel SAN Switch / 8 with Fabric Software	158222-B21	
	Fibre Channel SAN Switch / 8 - EL)	176219-B21	
	Fibre Channel Hub, 12 port	295573-B22	
	Fibre Channel Hub, 7 port	234453-001	
9	FC Optical Short Wave GBIC	380561-B21	
10	Fibre Channel Optical Cable	234457-B21 - B25	
11	Ultra SCSI FWD HBA, KZPBA	KZPBA-CB	
	Fibre Channel Tape Controller II ³	152975-001	
12	TL891 Tape Library	120876-B21 -B22	
	TL895 Tape Library	349350-B22 -B27	
	ESL9326D Tape Library	146205-B23 -B28	
13	Legato NetWorker Software Solutions Kit for EBS	163162-B21	
	VERITAS NetBackup Software Solutions Kit for EBS	163163-B21	