Protect your data.
Against anything.

COMPAQ

Inspiration Technology

Why Compaq?

> Complete range of data protection solutions for all of your needs, from Direct Attached Storage (DAS) to Storage Area Network (SAN) environments

> Award-winning, proven solutions that are optimized to work with all Compaq hardware components as well as third-party software

> High investment protection, from departments to data centers

> Expert, responsive service and support

> Integrated management features, such as *SANworks*™ Tape Storage Management Console (TSMC) by Compaq and *Compaq Insight Manager*™ help to reduce administration costs and lower TCO

> Built on industry standards so users can leverage existing infrastructure

> As the visionary leader in storage solutions, Compaq enables efficient, managed storage and lowest total cost through *StorageWorks*™ Enterprise Network Storage Architecture (ENSA-2) by Compaq, which encompasses the integration of Network Attached Storage (NAS), SAN and DAS solutions

Table of Contents

Always prepared

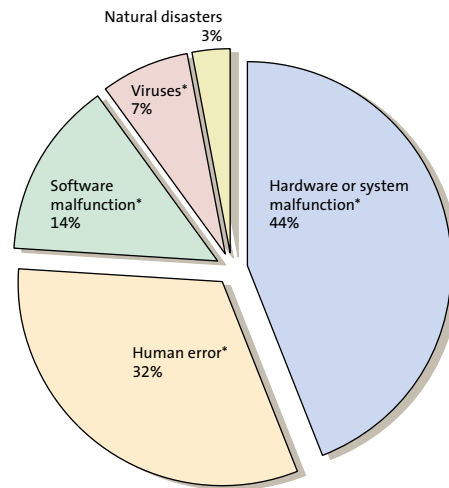## The risks and costs of data loss

Ensuring that your business can survive the unexpected

In today's competitive marketplace, companies require 24x7 access to mission-critical applications and vast amounts of information. Any loss of this vital information can result in dire business consequences, including lost revenue, lost customers and missed business opportunities. That's why companies worldwide are turning to Compaq for worry-free data protection and retention. Compaq delivers industry-leading solutions that reduce risks, lower costs and protect mission-critical operations from any sort of disaster.

As a proven leader in the storage industry, Compaq provides complete data protection and retention solutions that meet the specific needs of your business. With this range of affordable solutions, you can protect the valuable data of a small business or workgroup, and then easily transition the infrastructure to meet departmental and data center requirements. You can meet immediate storage demands and anticipate explosive data growth. And if a disaster strikes — whether it involves human error, hardware failure or a natural disaster — Compaq solutions will enable you to recover quickly and efficiently.

To ensure rock-solid data protection, Compaq can help you design the ideal backup strategy for your organization. This includes selecting the best tape devices and connection types that can meet your current and future needs without a significant investment. In addition to the low cost of the solutions, tape automation itself saves valuable IT resources, enabling your administrators to focus on core business needs. Plus, you can protect your business against the hard costs of downtime, which can range from $1,000 to $130,000 per minute.[1] Best of all, you get the peace of mind that your data will always be there when you need it. You get the confidence of easy recovery — from anything.

Common causes of data loss

Natural disasters
3%

Viruses*
7%

Software malfunction*
14%

Hardware or system malfunction*
44%

Human error*
32%

These incidents, which account for 97 percent of lost data, can be mitigated by using StorageWorks data protection solutions. Source: CBL Data Recovery Technologies, Inc.

Complete protection

Our multi-level data protection strategy

Protecting your business with superior backup and recovery

When it comes to protecting your business-critical information, Compaq has you covered. Our tape backup and restore solutions are part of a complete, multi-level data protection strategy. You can start with RAID systems that protect against simple device failures. And then you can expand to more robust solutions for protection against hardware failures, software malfunctions, human errors and natural disasters. Only Compaq offers this comprehensive strategy for protecting your information and ensuring quick, complete recovery from any catastrophic event.

Understanding your data protection needs

To identify the appropriate backup and restore solution for your environment, you should consider your specific needs:

> Is the environment growing and likely to need more capacity soon?

> How do you want to connect additional storage to your network?

> How will you manage all of the storage devices and the data on your network? Is storage consolidation an option?

> If the environment is 24x7, when will a performance slowdown cause the least disruption?

Choosing a solution

In many departmental and workgroup situations, stand-alone tape drives and tape libraries are connected directly to the server appliance, providing the server with fast backup speeds and exclusive use of the tape devices. This is known as a Direct Attached Storage (DAS) solution. In enterprise situations, multiple servers commonly share a large tape library device through the existing storage network. This provides the benefit of an automated solution for reduced human error without affecting network performance during the backup and restore process.

Depending on the need or ability to share a tape library, a Storage Area Network (SAN) can also be used for backup and restore capabilities. This solution provides a dedicated communication network for storage, allowing for greater distance capabilities and greater speed. And since multiple servers can share a large automated tape library, the use of a SAN gives you increased asset utilization.

Multi-level data protection

Level		Protects against	Recovery time
1	RAID	• Device failure	Instant
	Mirroring	• Equipment failure	Instant
2	Snapshots	• Data corruption • User error	Seconds to minutes
	Replication and clones	• Equipment failure • Data corruption • User error • Site destruction	Seconds to minutes
3	Tape backup and restore	• Equipment failure • Data corruption • User error • Site destruction • Virus and hacker attacks	Minutes to hours
4	Data vaulting	• Equipment failure • Data corruption • User error • Site destruction • Virus and hacker attacks • Natural disasters • Catastrophic destruction	Hours to days

Cutting-edge technology

Our range of data protection solutions

Delivering tape storage that you can count on

Compaq offers a complete range of solutions for backup and recovery, ensuring robust protection for your most critical information. These solutions can meet the needs of virtually any storage environment —from the needs of fast-growing companies with expanding bandwidth, to established companies looking to update and grow their current infrastructures into a SAN.

Visionary architecture

When you choose Compaq as your partner for data protection, you're getting the help of the visionary leader in the storage. All *StorageWorks* data protection solutions are based on ENSA-2—six advanced technologies to help customers access, manage and protect their data anytime, anywhere. No matter what the storage environment, Compaq has the solution.

Total solutions

To meet your immediate storage needs, Compaq offers completely integrated data protection solutions that work right out of the box. These pre-tested configurations of hardware and software are designed to solve specific storage challenges, such as the need for continuous access to data, simplified backup operations and high data integrity. The solutions take care of your data protection, freeing you up to focus on your core business.

Implementation strategies

To get the most out of your storage investments, proper implementation is key. Compaq can help you implement a data protection strategy that meets the unique demands of your environment and ensures future scalability.
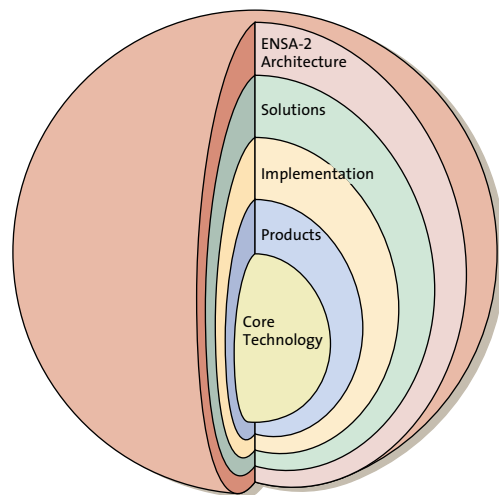
Flexible products

Whether it's a DAS or SAN-based solution you need, Compaq has the right product for you. You can find the perfect tape device for your small server farm, as well as an enterprise tape library for protecting terabytes of information in your data center.

Core technology

At the core of *StorageWorks* data protection solutions are cutting-edge, proven technologies, such as Advanced Intelligent Tape (AIT) and SuperDLT. With these technologies, Compaq raises the bar for performance, capacity and reliability.

The Compaq data protection philosophy

Our philosophy for data protection includes several inter-dependent levels. Our core technology provides a strong foundation for designing our products, which provide the building blocks for our implementation and solution strategies. The entire philosophy is rounded out by our ENSA-2 architecture.
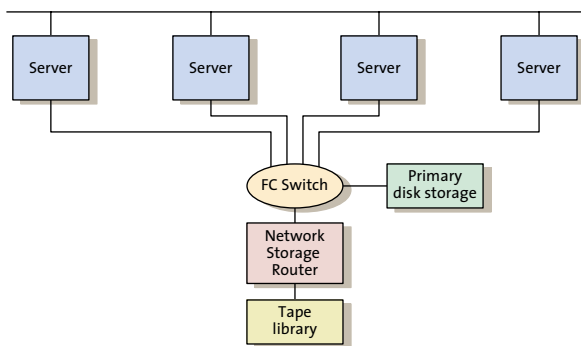
From DAS to SAN

How to plan your backup strategy

Designing a data protection solution that fits your needs

From workgroup to enterprise, Compaq can help you design the best backup strategy to meet all of your storage needs. You can choose from a range of DAS solutions that reliably store, back up and retrieve your critical data. And when you're ready, you can easily transition the solutions into a SAN-based environment—enabling you to maximize your storage investments.

SAN-based backups

For demanding enterprise environments that require the smallest of backup windows, SANs provide the perfect solution. Consolidating backups to a designated SAN reduces the time, effort and staff devoted to monitoring and management, which reduces your total cost of ownership. The SAN-based solution utilizes Fibre Channel technology to link multiple heterogeneous servers, running multiple operating systems, to a single tape library device. This creates an excellent, high-performance storage network backup and restore.
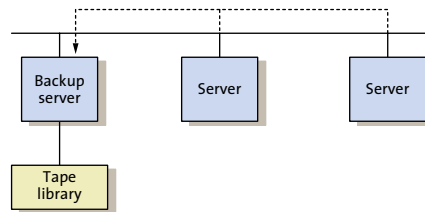
Sample configuration

With the SAN-based solution, all of your heterogeneous servers are easily protected by a single tape library.

DAS for network backups

To provide superior data protection for workgroups and departments, you can design a DAS solution where multiple servers share a large tape library device through the existing network. For easier management, a single backup server handles the backup and restore process. As a result, you get the benefit of an automated solution that reduces human error.
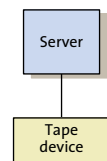
Sample configuration

By utilizing DAS for network backups, multiple servers can easily share a single tape library device.

DAS for single-server backups

To protect data for individual workstations and small workgroups, you can simply connect a stand-alone tape drive or tape library to your server appliance. This cost-effective solution provides the server with fast backup speeds and exclusive use of devices. Plus, when your storage needs change, you can scale this DAS configuration to a higher capacity solution.

Sample configuration

In this DAS configuration, a single server benefits from exclusive backups to a single tape device.

All-in-one data protection

SANworks Data Protection Suites for Backup and Restore by Compaq

Improving enterprise backup performance and management

For worry-free data protection, the *SANworks* Data Protection Suites for Backup and Restore deliver the perfect solution. These innovative suites enable you to easily support your DAS or SAN environment with popular third-party backup software, provided by Compaq. You can choose from suites with different backup applications and configurations, each designed to meet your individual needs. Plus, the suites give you the added bonus of the *SANworks* Data Protection Suite for Tape Utilities. With these tools for end-to-end storage management, you can get the most out of your backup strategy and lower your total cost of ownership.

Data Protection Suites for Backup and Restore are available in four editions supporting Microsoft Windows environments:

> **Single Server Edition –** for protecting a single server with a direct-attached tape device
> **Network Edition –** for protecting LAN clients using a dedicated backup server with a direct-attached tape device
> **Entry-Level SAN Edition –** for protecting isolated, application-centric SAN implementations in medium to large organizations
> **Corporate SAN Edition –** for protecting disparate departmental storage resources in a centrally managed corporate structure

Designed with flexibility in mind, the suites enable you to choose from industry-leading backup applications, including Computer Associates BrightStor ARCserve, VERITAS Backup Exec, Dantz Retrospect and CommVault Galaxy. You can also choose from the most popular software agents and options, including Microsoft Exchange, Microsoft SQL and Oracle agents, along with the ultimate tools from Compaq for ensuring total data protection.

For more information

To learn more about Data Protection Suites for Backup and Restore, visit:
www.compaq.com/products/sanworks/dps-br

To learn more about certified Compaq and third-party devices, visit the EBS compatibility matrix at:
www.compaq.com/ebs

For complete support of your backup needs, Compaq brings you industry-leading solutions from these strategic partners.

Help with implementation

SANworks Data Protection Suite for Tape Utilities by Compaq

Simplifying the creation and maintenance of a data protection strategy

The *SANworks* Data Protection Suite for Tape Utilities makes it easy to configure, implement and maintain a data protection strategy. This innovative, all-in-one package combines storage software utilities and comprehensive product information on *StorageWorks* tape backup and restore solutions. These tools can help you design and maintain the optimal strategy for protecting your business-critical information.

The software suite includes:

> **SANworks Tape Storage Management Console (TSMC) by Compaq –** A management tool that simplifies the installation and maintenance of *StorageWorks* tape drives, tape arrays and tape automation products. For example, TSMC provides both diagnostic and firmware upgrade tools for maintaining tape drives and tape libraries

> **StorageWorks Backup Sizing Tool by Compaq –** A performance-sizing tool that helps you select an appropriate backup solution for a particular environment, addressing the needs for performance, capacity, reliability, automation and cost

> *Compaq Insight Manager –* A comprehensive set of system management tools for Compaq servers, workstations and clients. The tools proactively monitor and manage system resources, saving time for administrators

> **SupportPaq –** Provides native drivers for Compaq tape drives and devices, controllers and host-bus adapters

> **Enterprise tape products –** Directory of information for all *StorageWorks* data protection solutions, including details on the Compaq DRTape Disaster Recovery Utility

> **Enterprise storage products –** Directory of information for all *StorageWorks* enterprise storage products

> **Technical documentation/customer advisories/white papers –** Information on product technologies, competitive analysis, "how-to" articles and related support materials

Additionally, the package includes a subscription service that provides updated versions of the Data Protection Suite for Tape Utilities up to three times per year.

For more information

To learn more about the *SANworks* Data Protection Suite for Tape Utilities, visit: www.compaq.com/products/storageworks/dataprotectsoft

Enterprise-class protection

StorageWorks ESL9000 family by Compaq

StorageWorks ESL9595SL Tape Library by Compaq

Ensuring high availability and scalability for your future enterprise needs

The *StorageWorks* ESL9000 family of SDLT tape libraries delivers unprecedented levels of flexibility, capacity and availability for the most demanding enterprise environments. To ensure 24x7x365 uptime, the ESL9000 family offers redundancy at the component level, with hot plug drives, redundant hot-swap power and cooling capabilities as well as redundant dual-input AC power. Plus, with an integrated PCI backplane and support for multi-unit scalability, the ESL9000 family provides the ultimate investment protection for growing storage needs.

StorageWorks ESL9595SL Tape Library by Compaq

> **Innovation –** New Capacity Upgrade Technology supports seamless upgrades in storage capacity in a matter of minutes

> **Flexible configuration –** Three models available with 400, 500 or 595 slots

> **Capacity –** 400, 500 and 595 slots and up to 16 Compaq SDLT drives for 44, 55 and 65.45 TB of native storage capacity (depending on model)

> **Performance –** Native backup performance up to 633.6 GB per hour

> **Scalability –** Pass-through capability supports up to four libraries, for a maximum of 250.58 TB of native capacity

> **Availability –** Continuous uptime via hot plug drives, hot-swap power supplies and cooling fans, as well as redundant AC power input, power supplies and fans

> **Support –** Microsoft Windows 2000, Microsoft Windows NT 4.0, Compaq *Tru64*™ UNIX, Netware, Compaq *OpenVMS*™

StorageWorks ESL9326SL Tape Library by Compaq

> **Capacity –** 326 slots and up to 16 Compaq SDLT 110/220 GB drives for 35.86 TB of native storage capacity

> **Performance –** Native backup performance up to 633.6 GB per hour

> **Scalability –** Pass-through capability supports up to five libraries, providing as much as 179.3 TB of storage

> **Availability –** Continuous uptime via hot plug drives, hot-swap power supplies and cooling fans, as well as redundant AC power input, power supplies and fans

> **Support –** Microsoft Windows 2000, Microsoft Windows NT 4.0, *Tru64* UNIX, Netware, *OpenVMS*

StorageWorks ESL9198SL Tape Library by Compaq

> **Capacity –** 198 slots and up to eight Compaq SDLT 110/220 GB drives for 21.78 TB of native storage capacity

> **Performance –** Native backup performance up to 316.8 GB per hour

> **Scalability –** Pass-through capability supports up to five libraries for up to 95.7 TB of native storage capacity

> **Availability –** Continuous uptime via hot plug drives, hot-swap power supplies and cooling fans, as well as redundant AC power input, power supplies and fans

> **Support –** Microsoft Windows 2000, Microsoft Windows NT 4.0, *Tru64* UNIX, Netware, *OpenVMS*

For more information

To learn more about the *StorageWorks* ESL9000 family, visit: www.compaq.com/storage/tapelibrarymatrix.html

To learn more about the *StorageWorks* ESL9595SL Tape Library, visit:
www.compaq.com/products/storageworks/esl9595sl

High-density solution

StorageWorks MSL5000 family by Compaq

*StorageWorks MSL5052SL
Tape Library by Compaq*

Providing reliable, scalable protection for growing companies

Featuring the latest automation technologies, the *StorageWorks* MSL5000 family of SDLT tape libraries provides the highest storage capacity with the smallest footprint, storing more than 1 TB of data per unit of rack space. Plus, the MSL5000 family is the first in its class to offer high availability with hot plug drives. This makes it possible to exchange or add drives without disrupting the backup or restore process—minimizing downtime and simplifying data protection. And with support for multi-unit scalability, the MSL5000 family enables easy expansion and investment protection.

StorageWorks MSL5052SL Tape Library by Compaq

> **Capacity –** 52 slots with up to four Compaq SDLT 110/220 GB drives for storing as much as 5.72 TB (within a compact 10U* form factor)

> **Performance –** Native transfer speeds up to 158.4 GB per hour

> **Scalability –** Modular multi-unit scalability supports up to four units in a rack, for up to 22.88 TB of native storage capacity. Also scalable with MSL5026 tape libraries for maximum flexibility.

> **Availability –** Hot plug drives and dual redundant power supplies assure high availability and reliability

> **Simplified management –** Includes a GUI-based control panel for easy operation, two mail slots for non-disruptive cartridge exchange and removable magazines for convenient off-site storage

StorageWorks MSL5026SL Tape Library by Compaq

> **Capacity –** 26 slots with one Compaq SDLT 110/220 GB drive for storing as much as 2.86 TB (within a compact 5U form factor)

> **Performance –** Native transfer speeds up to 79.2 GB per hour

> **Scalability –** Combine up to seven libraries, providing as much as 20.2 TB of storage

> **Availability –** Hot plug drives reduce downtime

> **Simplified management –** A GUI-based touch-screen panel for easy operation, a mail slot for non-disruptive cartridge exchange and removable magazines for off-site storage

For more information

To learn more about the *StorageWorks* MSL5000 family, visit: www.compaq.com/storage/tapelibrarymatrix.html

The StorageWorks MSL5026SL Tape Library has garnered the CRN Test Center award for its industry-leading technology.

*1U=1.75"

Reliable, scalable backup

StorageWorks SSL2020 AIT Library by Compaq

Delivering high-performance storage with unparalleled potential

Perfect for departmental and workgroup backups, the *StorageWorks* SSL2020 AIT Library offers incredible capacity and performance at an affordable price. This fully automated, hands-off tape solution gives customers the peace of mind of full data protection. Scalable and modular, the SSL2020 can be easily configured to provide high storage capacity and data transfer performance in a small space.

StorageWorks SSL2020 AIT Library by Compaq

> **Capacity –** 20 slots with up to two Compaq AIT 50 GB tape drives for storing up to 1 TB (within a small 4U form factor)

> **Performance –** Native transfer speeds up to 40 GB per hour

> **Scalability –** Combine up to five libraries, providing as much as 5 TB of storage (10 TB with compression)

> **Simplified management –** A removable magazine for off-site storage

> **Flexible configuration –** Tabletop and rackmount configurations available

> **Support –** Microsoft Windows 2000, Microsoft Windows NT 4.0, *Tru64* UNIX, NetWare, *OpenVMS*

For more information

To learn more about the *StorageWorks* SSL2020 AIT Library, visit:
www.compaq.com/storage/tapelibrarymatrix.html

StorageWorks
SSL2020 AIT Library by Compaq

Entry-level automation

StorageWorks DLT1 1280 SuperLoader by Compaq

Ensuring reliable, lights-out backups for corporate data

Ideally suited for unattended backups, the *StorageWorks* DLT1 1280 SuperLoader™ provides unmatched levels of capacity, reliability and performance for protecting any type of corporate data. The fully automated solution is perfect for workgroups, departments and remote offices, because it requires minimal attention from administrators. In fact, your IT staff can utilize Web-based administration features to manage backup activities from a remote location. Best of all, the modular design of the DLT1 1280 SuperLoader means that you can easily scale to next-generation drive technologies as your storage needs grow—enabling you to maximize your storage investments.

StorageWorks DLT1 1280 SuperLoader by Compaq

> **Capacity –** Two magazines and up to 16 cartridges for storing up to 640 GB (1.28 TB compressed), more than 60 percent greater than the nearest competitor

> **Performance –** Native transfer speeds up to 3 MBps; fast cartridge load time, averaging five seconds from anywhere in the magazine

> **Compatibility –** Utilizes DLT Type IV media and is backward-read compatible with the DLT 20/40 format

> **Simplified management –** Supports remote, Web-based administration via an Ethernet port

> **Flexible configuration –** 2U rackmount form factor fits into standard system racks; removable magazines and drive sled (DCA) for easy upgrade and repair; left and right magazines are identical, allowing magazines to be moved within autoloader to best suit needs

For more information

To learn more about the *StorageWorks* DLT1 1280 SuperLoader, visit: www.compaq.com/storage/tapelibrarymatrix.html

StorageWorks DLT1 1280 SuperLoader by Compaq

Superior enterprise storage

StorageWorks SDLT 110/220 GB Tape Drive by Compaq

StorageWorks SDLT 110/220 GB Tape Drive by Compaq

Extending rock-solid data protection to critical enterprise data

In another leap forward in Compaq storage innovation, the *StorageWorks* SDLT 110/220 GB Tape Drive offers the best performance and highest capacity required for growing enterprise environments. As compared to previous generations of DLT drives, companies can store up to 175 percent more data on a single piece of SDLT media, while enjoying up to an 83 percent increase in drive performance. And since the drive is compatible with DLT IV media, it provides valuable investment protection—enabling the easy recovery of data from previous generations of DLT tape drives. With enterprise-class reliability and capacity, the SDLT drive delivers the ideal storage solution for protecting mission-critical data.

StorageWorks SDLT 110/220 GB Tape Drive by Compaq

> **Capacity –** Up to 110 GB per tape (220 GB with 2:1 compression)

> **Performance –** Native data transfer rates up to 39.6 GB per hour

> **Compatibility –** Backwards-read compatible with DLT 20/40, 35/70 and 40/80 formats on DLT Type IV media

> **Flexible configuration –** Internal, external tabletop and rackmount configurations available

For more information

To learn more about the *StorageWorks* SDLT 110/220 GB Tape Drive, visit: www.compaq.com/storage/tapedrivematrix.html

High-end data protection

StorageWorks DLT drives by Compaq

Maximum performance and reliability for changing storage environments

StorageWorks DLT drives provide the robust reliability, performance and compatibility needed to protect growing environments—from departments to enterprises. Featuring high storage capacity and fast transfer rates, these drives make it easy to manage shrinking backup windows. Full read/write compatibility with previous versions of DLT media ensures maximum investment protection. And the DLT drives include an LVD SCSI interface for easy connectivity to Compaq servers. The result is a perfect, low-cost solution that can scale to meet changing storage needs.

StorageWorks DLT 40/80 GB Tape Drive by Compaq

> **Capacity –** Up to 40 GB per tape
> (80 GB with 2:1 compression)

> **Performance –** Native data transfer rates up to 21.6 GB per hour

> **Compatibility –** Backward read/write compatible with existing DLT media

> **Flexible configuration –** Internal, external tabletop and rackmount configurations available

StorageWorks DLT 20/40 GB Tape Drive by Compaq

> **Capacity –** Up to 20 GB per tape
> (40 GB with 2:1 compression)

> **Performance –** Native data transfer rates up to 10.6 GB per hour

> **Compatibility –** Backward read/write compatible with existing DLT media

> **Flexible configuration –** Internal, external tabletop and rackmount configurations available

For more information

To learn more about *StorageWorks* DLT drives, visit: www.compaq.com/storage/tapedrivematrix.html

StorageWorks DLT 40/80 GB Tape Drive by Compaq

Smart storage innovation

StorageWorks AIT drives by Compaq

Providing high capacity and performance in a space-saving design

A new standard for departmental backups, *StorageWorks* Advanced Intelligent Tape (AIT) drives deliver unmatched levels of reliability, capacity and performance—all within an extremely small form factor. The cutting-edge drives can be easily mounted in half-height drive bays. With optimized information access features, AIT drives are ready to handle the coming explosion of data storage management.

StorageWorks AIT 100/200 GB Tape Drive by Compaq

> **Capacity –** Up to 100 GB per tape
> (200 GB with 2:1 compression)

> **Performance –** Native transfer rates up to 43.2 GB per hour, making it the fastest-performing tape drive from Compaq

> **Compatibility –** Backward read/write compatible

> **Flexible configuration –** Internal, external tabletop and hot plug configurations available; AIT 100 GB data cassette and cleaning cassette included

StorageWorks AIT 50/100 GB Tape Drive by Compaq

> **Capacity –** Up to 50 GB per tape
> (100 GB with 2:1 compression)

> **Performance –** Native transfer rates up to 21.6 GB per hour

> **Compatibility –** Backward read/write compatible

> **Flexible configuration –** Internal, external tabletop, rackmount and hot plug configurations; AIT 50 GB data cassette and cleaning cassette included

StorageWorks AIT 35/70 GB Tape Drive by Compaq

> **Capacity –** Up to 35 GB per tape
> (70 GB with 2:1 compression)

> **Performance –** Native transfer rates up to 14.4 GB per hour

> **Compatibility –** Backward read/write compatible

> **Flexible configuration –** Offers LVD SCSI interface; internal, external tabletop and hot plug configurations available; AIT 35 GB data cassette and cleaning cassette included

StorageWorks AIT 35/70 GB IDE Tape Drive by Compaq

> **Ease of use –** Bundled with Dantz Retrospect backup software for a simple, out-of-the-box solution

> **Capacity –** Up to 35 GB per tape
> (70 GB with 2:1 compression)

> **Performance –** Native transfer rates up to 14.4 GB per hour

> **Compatibility –** Offers industry-standard IDE interface; designed for the Compaq *ProLiant*™ ML330e and *ProLiant* ML330G2 servers

For more information

To learn more about *StorageWorks* AIT drives, visit: www.compaq.com/storage/tapedrivematrix.html

StorageWorks AIT 100/200 GB Tape Drive by Compaq

Low-cost protection

StorageWorks DAT drives by Compaq

Ensuring high-performance backup at an affordable price

StorageWorks DAT drives offer the ideal high-performance, low-cost tape backup solution for small and medium-size businesses. And they can be easily utilized within a fully automated solution, the *StorageWorks* autoloader, which requires minimal administrative attention. With a long history of proven reliability, these drives enable companies to achieve the highest backup capacities possible while maintaining current DAT standards. Fast data transfer rates ensure the most challenging backup demands can be met. And by featuring read/write compatibility with digital data storage media (DDS), the DAT drives provide complete investment protection with a clear migration path for the future.

StorageWorks 20/40 GB DAT 8 Cassette Autoloader by Compaq

> **Capacity –** Up to eight cassettes with random access for storing anywhere from 140 GB to 160 GB (can be as much as 320 GB using 2:1 data compression)

> **Performance –** Fast cartridge load time, 58 seconds average from anywhere in the magazine

> **Compatibility –** Backward read/write compatible with DDS-2, DDS-3 and DDS-4 media

> **Flexible configuration –** Internal and external model configurations available, included 20/40 GB DAT 8 data cassette and cleaning solution

StorageWorks 20/40 GB DAT Drive by Compaq

> **Capacity –** Up to 20 GB per tape (40 GB with 2:1 compression)

> **Performance –** Data transfer rates up to 8.4 GB per hour

> **Compatibility –** Backward read/write compatible (with DDS-1, DDS-2 and DDS-3 drives) to protect DAT media investments

> **Flexible configuration –** Internal, external tabletop and hot plug configurations available for easy integration into existing environments

StorageWorks 12/24 GB DAT Drive by Compaq

> **Capacity –** Up to 12 GB per tape (24 GB with 2:1 compression)

> **Performance –** Data transfer rates up to 3.6 GB per hour

> **Compatibility –** Backward read/write compatible (with both DDS-1 and DDS-2 drives) to protect DAT media investments

> **Flexible configuration –** Fits in Compaq workstation and server bays or in an external SCSI Storage Expander II cabinet for a rackmounted solution

For more information

To learn more about *StorageWorks* DAT drives, visit:
www.compaq.com/storage/tapedrivematrix.html

StorageWorks 12/24 GB DAT Drive by Compaq

Ultra-dense storage

StorageWorks rackmount options by Compaq

Cost-effective, scalable protection for the busiest data centers

Featuring incredible scalability, *StorageWorks* rackmount tape enclosures are the perfect data protection solution for rack-dense data center applications. These cost-effective solutions enable the easy consolidation of multiple tape drives into an ultra-dense rackmount space. And they provide maximum performance for backup and archiving. From DAT to SDLT, the *StorageWorks* tape storage enclosures offer the ultimate level of flexibility for adding and expanding to new tape drive technologies.

StorageWorks 5U Rackmount Kit by Compaq

> **Capacity –** Up to four DLT or SDLT tape drives for storing as much as 440 GB of data (880 GB with 2:1 compression)

> **Performance –** Data transfer rates up to 158.4 GB per hour

> **Compatibility –** Supports previous generations of *StorageWorks* DLT tape drives, including the DLT 20/40, DLT 35/70 and DLT 40/80

> **Flexible configuration –** 5U rackmount enclosure for protection and manageability in data center environments

> **Support –** Microsoft Windows 2000, Microsoft Windows NT 4.0, *Tru64* UNIX, NetWare, *OpenVMS*, SCO/Caldera UNIX, Linux

> **Value –** Multiple configurations available offering a wide variety of price points and savings

StorageWorks 3U Rackmount Kit by Compaq

> **Capacity –** Up to two full-height or four half-height drives and autoloaders (or a combination) for storing as much as 320 GB of data (640 GB with 2:1 compression)

> **Performance –** Data transfer rates up to 86.4 GB per hour

> **Compatibility –** Supports all current *StorageWorks* tape drives, including DAT, AIT, DLT and SDLT

> **Flexible configuration –** 3U rackmount enclosure for easy manageability, supports addition of existing or future internal tape drives as needed

> **Support –** Microsoft Windows 2000, Microsoft Windows NT 4.0, *Tru64* UNIX, NetWare, *OpenVMS*, SCO/Caldera UNIX, Linux

> **Ease of use –** Slide-out drive trays and top access door for easy maintenance

> **Value –** Multiple configurations available offering a wide variety of price points and savings

For more information

To learn more about *StorageWorks* rackmount options, visit the page for your selected tape format: www.compaq.com/storage/tapedrivematrix.html

StorageWorks 5U Rackmount Kit by Compaq

Serverless backups

StorageWorks Network Storage Router M2402 by Compaq

Enhancing availability with serverless backups

Showcasing Compaq innovation, the *StorageWorks* Network Storage Router M2402 delivers the first "serverless" backup solution, which moves backup operations to your SAN—freeing up your backup server to run other mission-critical applications. Your backup applications simply utilize the storage router as the "data mover" in the backup process. Whenever snapshots are taken by your certified snapshot software, the router can move the snapshot data directly from disk to tape across the SAN.

As a Fibre Channel-to-SCSI bridge, the *StorageWorks* Network Storage Router M2402 enables you to easily connect SCSI-based tape devices to your SAN environment. This way, you can enjoy all of the benefits of a SAN—fast backup speeds, long-distance connections and sharing of storage devices—while maximizing your SCSI tape library investments. Plus, the router's modular design allows for easy upgrades to future technologies, such as iSCSI. The high-performance, high-density storage router allows you to make the most of all of your resources, giving you a strong foundation for supporting future growth.

StorageWorks Network Storage Router M2402 by Compaq

> **Availability –** Redundant, hot pluggable fans and power supplies

> **Functionality –** Provides a FC-to-SCSI connection that enables you to connect SDLT, DLT and AIT libraries to the SAN and support serverless backups

> **Capacity –** Up to two SDLT drives per SCSI port; up to four DLT or AIT drives per SCSI port

> **Scalability –** Up to 12 SCSI ports or up to six FC port

> **Easy management –** Includes Web-based management

> **Flexible configuration –** Rackmountable, utilizing just 1U of rack space

For more information

To learn more about the *StorageWorks* Network Storage Router M2402, visit:
www.compaq.com/products/storageworks/m2402

StorageWorks Network Storage Router M2402 by Compaq

Getting connected

StorageWorks interconnect products by Compaq

Expanding easily to SAN-based data protection

StorageWorks interconnect products offer affordable, high-performance solutions for SAN-based data protection. By offloading data traffic to a SAN, the primary network enjoys better performance. In fact, with Fibre Channel as the enabling technology, you can achieve backup speeds that reach 100 MBps. Simply choose from multiple SAN configuration options based on the different interconnect technologies: FC hubs, FC arbitrated loop switches (FC-AL) or FC fabric switches.

Fibre Channel SAN Director 64

> **Functionality –** Provides enterprise-class connectivity and availability features needed to support mission-critical applications and data center environments

> **Capacity –** Up to 64 ports per Director, which can scale to four Directors per cabinet (for a total of 256 ports)

> **Performance –** Up to 100 MBps bandwidth per port; 2 Gb upgradeable

> **Availability –** Provides redundant, hot-swap components; non-disruptive servicing; Hot Code activation technology; fault isolation and "call home" capabilities

> **Easy management –** Enables centralized fabric management through the *SANworks* Director Connectivity Manager (SDCM)

Fibre Channel SAN Switch Family

> **Functionality –** Enables you to connect multiple servers and tape devices onto a single SAN via full FC fabric-based switches

> **Capacity –** Supports SAN configurations of up to 20 switches, enabling SANs to scale to thousands of ports for investment protection

> **Availability –** Include redundant, hot-swappable components for high availability

> **Performance –** Up to 2 Gbps transfer speeds

> **Compatibility –** Backwards-compatible with earlier technologies for seamless integration; heterogeneous OS support for multi-vendor environments

Fibre Channel Arbitrated Loop Switch

> **Functionality –** Enables you to connect multiple servers and tape devices onto a single SAN via a low-cost FC-Arbitrated Loop (FC-AL) switch

> **Capacity –** Up to 11 FC connections

> **Performance –** Up to 100 MBps bandwidth per port

Fibre Channel Storage Hub 7

> **Functionality –** Enables you to connect multiple servers and tape devices onto a single SAN via a low-cost hub

> **Capacity –** Up to seven FC connections for centralized backup to up to six devices (single hub connections to servers and SDLT, DLT or AIT tape libraries)

> **Flexible configuration –** Rackmountable, utilizing just 1U of rack space

Fibre Channel Host Bus Adapter (HBA)

> **Functionality –** Occupies one server slot and links your server to any of the FC interconnect products (FC hub, FC-AL switch or FC SAN switch)

> **Performance –** Simultaneous full-duplex 2 Gbps Fibre Channel delivers up to 400 MBps performance

> **Compatibility –** Automatic speed negotiation capability which allows compatibility with 1 Gb

For more information

To learn more about *StorageWorks* interconnect products, visit:
www.compaq.com/storage/siteindex.html#tape

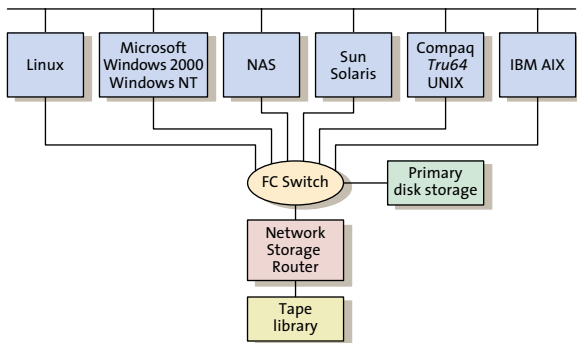*Fibre Channel SAN Switch Series*

Complete enterprise protection

StorageWorks Enterprise Backup Solution by Compaq

Streamlining backup through a consolidated storage solution

When you want to implement SAN-based data protection, *StorageWorks* Enterprise Backup Solution (EBS) provides a complete solution right of the box. EBS allows consolidated backup at local server speeds. It combines SCSI-based backup technology with Fibre Channel technology to link multiple heterogeneous servers, running multiple operating systems, to a single backup device. This creates an independent, high-speed network just for backup and restore.

How data protection works with EBS

1. When it's time for a scheduled backup, the backup and restore procedures begin immediately on each server—regardless of network activity.

2. Data is converted to Fibre Channel format via the host bus adapter in each server and transmitted directly from multiple servers to the Fibre Channel interconnect product (switch or hub).

3. From the switch or hub, data passes to a tape controller (*StorageWorks* Network Storage Router) where it is reconverted to SCSI for storage on your tape backup device.

4. The entire process bypasses your corporate network and takes advantage of the high speeds and longer distances of Fibre Channel technology.

For more information

To learn more about *StorageWorks* Enterprise Backup Solution, visit: www.compaq.com/ebs

Sample configuration

With the StorageWorks *Enterprise Backup Solution, all of your heterogeneous servers are easily protected by a single tape library.*

To bring you best-of-breed solutions, Compaq has developed partnerships with these leading backup software vendors.

Maximum data availability

SANworks software by Compaq

Enhancing your SAN with additional data protection

The very promise of an Open SAN—one that will support "any to any" and "many to many" connectivity—makes multi-vendor, open *StorageWorks* by Compaq the ideal product line for the Open SAN solution. That is why Compaq is planning support for the Open SAN with both product lines, *StorageWorks* and *SANworks* by Compaq, creating together the concept of business velocity.

SANworks Enterprise Storage Management Software by Compaq

SANworks software is a breed of management software designed to maximize business velocity and SAN accessibility. Businesses have long looked to industry-leading *StorageWorks* products to build more flexible storage environments. Now, *StorageWorks* and *SANworks* solutions work together to deliver unprecedented storage agility for Open SANs in the Internet age.

SANworks Enterprise Volume Manager by Compaq

This controller-based management tool with snapshot and clone-copy functions minimizes downtime during system backups and data migration. Parallel processing means that you can continue using your data while

running a variety of background tasks (such as data mining or migration, backups, upgrades, testing or work distribution). So you needn't interrupt business to protect against data loss.

SANworks Secure Path by Compaq

SANworks Secure Path by Compaq delivers high availability in mission-critical environments by maintaining connectivity between the server and storage. Secure Path monitors I/O paths, generates alerts on significant events and moves storage sets between paths to allow continuous access to data and provide maximum I/O efficiency.

SANworks Storage Resource Manager by Compaq

SANworks Storage Resource Manager is a Web-based event management and reporting application that enables IT managers to detect trends, predict problems and balance resources via automated reports and alerts on the capacity, consumption and availability of network-based storage.

For more information

To learn more about *SANworks* software, visit: www.compaq.com/sanworks

Support for the future

Exceptional service options

Ensuring success through service and support

Compaq services for *StorageWorks* products (subsystems and hardware options) allow you to choose the service level that is right for your organization—with on-site response times as fast as four hours, 9x5 or 24x7. Compaq services also offer basic installation and software support for both *StorageWorks* systems and *SANworks* software. The services are now available with three pricing options—price banding, configure-to-order and component pricing.

Compaq Global Services

Compaq Global Services offer comprehensive support for every computing need—including hardware and software installation support and complex IT management—plus a full portfolio of partner-assisted services. Compaq Global Services have received numerous awards that clearly demonstrate our commitment to provide the very best services to keep users up and running—all the time.

Compaq CarePaq Services

Compaq CarePaq℠ Services provide a complete, one-stop service solution with a single point of accountability. Easy to buy and easy to use, these services help ensure top performance for a full range of IT environments.

Compaq packaged services make it easy to choose the precise level of support you need, from basic to business-critical. Purchased with the product, these services come in two package variations. CarePaq Services are standard options and include warranty extension, installation, hardware service and software support. CarePaq Priority Services are integrated hardware and software support plans that ensure consistent coverage across system configurations.

CarePaq packaged services cover all key IT areas, including server hardware, storage hardware, software, installation and start-up services.

For more information

For more information on COMPAQ services, visit us online at: www.compaq.com/services/storage or www.compaq.com/services/carepaq

Putting it together

Superior protection for your business

Assuring the highest levels of reliability, performance and confidence

In this age of exponential data growth, Compaq is here to help. *StorageWorks* data protection solutions meet a wide variety of storage needs in varying environments, ensuring success for the future. All *StorageWorks* tape solutions and devices are thoroughly tested and qualified for Compaq servers and storage devices. This assures a level of reliability, performance and confidence that you can only get from Compaq.

Reduce operational costs

When you deploy *StorageWorks* data protection solutions, you can be sure that the process will be quick and easy. Your IT resources can save time with integrated management tools, which manage the actual backup and restore tasks. This frees up your administrators for more strategic initiatives.

In addition, you can:

> **Invest in what you need –** *StorageWorks* solutions scale to meet your increasing demands. You can configure the solution to fit your needs today knowing that you can meet future needs without a significant investment

> **Maximize application availability –** You no longer need to worry about your applications being down for long periods of time, costing you millions of dollars in potential revenue each hour

> **Automate to your requirements –** Eliminate the reliance on your vendor for costly service calls

> **Enjoy peace of mind –** *StorageWorks* solutions reduce your risk of losing data. Your systems are being backed up regularly and can be rapidly restored if the need arises

Enjoy one-stop storage shopping

Compaq offers complete storage solutions—tape media, drives and libraries as well as servers and software. So you can look to one company for all of your storage needs, from storage products to services.

For more detailed information on the entire range of Compaq products and services, visit the following sites:

> www.compaq.com/tapestorage
> www.compaq.com/storageworks
> www.compaq.com/storage
> www.compaq.com/ebs
> www.compaq.com/sanworks
> www.compaq.com/storage/continuity
> www.compaq.com/options
> www.compaq.com/services
> www.compaq.com/carepaq
> www.compaq.com/storage/ensa2vision.html

For more information on the full line of *StorageWorks* tape products, please visit: www.compaq.com/tapestorage

COMPAQ

Inspiration Technology