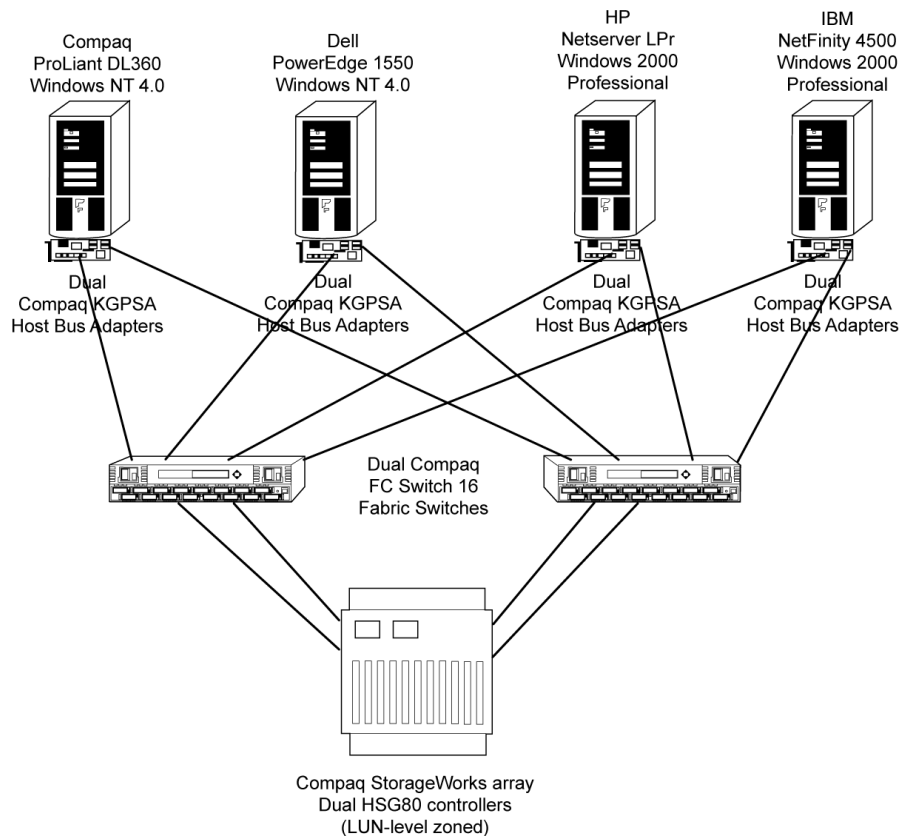


Overview



Introduction

Over the past fifteen years, server design has featured internal disk drives and may also include directly attached external disk cabinets. As a result, the organization's mission critical information is typically scattered over a large number of servers within the enterprise. The disk storage attached to the servers may be from different vendors and may have a variety of capacities and reliability characteristics. This makes storage (and the information it contains) difficult to reconfigure and makes the task of increasing capacity neither easy nor inexpensive.

This traditional paradigm of dedicated storage attached to specific servers cannot support demanding requirements in a cost-effective way (and perhaps, not at all). They are inflexible and expensive to manage. As a result, more users have turned to consolidated storage solutions (Storage Area Networks) that are shared across systems. These offer more efficient use of capacity, higher availability, and lower management costs because they are managed centrally. By consolidating storage environments, companies are looking to maximize the efficiency and flexibility of their IT operations. They hope to achieve better levels of service as well as lower costs. In the past, these two goals were usually contradictory. But the advancement of storage technology, along with dramatic declines in storage system pricing, has made achieving them possible.

The Reference Configuration for Consolidation 4 Intel®-based Windows Servers addresses the requirement of a customer with a mixed-vendor (Compaq, HP, IBM, etc.) Windows environment who wants to consolidate storage and centralize management. This configuration does not address the requirement for availability; availability (redundancy) can be added incrementally as the consolidation process proceeds.

The Reference Configuration for Consolidation, 4 Intel-based Windows Servers, is a tested configuration of hardware, management software, and installation methodologies intended for customers who can benefit by combining the data for multiple servers onto an easily managed, flexible, scalable SAN environment. The solution illustrates all components needed to build an easily managed Storage Area Network that can satisfy the storage needs of several servers.

Models Feature List

Reference Configuration for Consolidation: 4 Heterogeneous Intel-based Windows Servers

- Centrally managed, high performance Storage Area Network (SAN)
- Windows for heterogeneous Intel-based Windows servers (Compaq, HP, IBM, and Dell)
- Designed for Consolidation
- Configuration guidance

Overview

Customer Benefits

Storage Area Networks create a storage infrastructure that enables any-to-any connectivity among multiple distributed servers and storage systems. The benefits it brings to a customer include:

- Improved resource utilization
- Centralized Management
- Application scalability
- Data Accessibility
- Maximized Availability

Product Highlights

Platform, Software and Application Support

The Reference Configuration for Consolidation 4 Intel-based Windows Servers is tested with Windows NT/2K. Check <http://h18000.www1.hp.com/storage/index.html> for up to date platform information for ProLiant, multi-vendor and specific operating system version support.

NOTE: This Web site is available in English only.

Hardware Support

The Reference Configuration for Consolidation 4 Intel-based Windows Servers can be delivered with the customer's selection of Compaq cabinets; cabinets can be configured to contain a storage array, a switch, redundant power and other equipment including servers, depending on the customer's requirements. The Reference Configuration for Consolidation uses standard, fully supported Compaq hardware and software products. All supporting material, including technical support, configuration, and diagnostic functions are exactly the same as those used in the individual products.

- Compaq HSG80 Arrays (These storage systems deliver highly available storage capacity, excellent performance capabilities, and the ability to securely present storage simultaneously to multiple servers, The solution can support up to 10TB of disk and higher performance with optional controllers.
- 16- port Fibre Channel switch. Zoning, a switch feature, enables the SAN to grow to support additional switch, storage, and server connections.

SANworks Storage Management Software/SANworks Software

This configuration uses Compaq SANworks SecurePath to ensure storage-level high availability. SecurePath eliminates single points of failure in SAN paths and dynamically balances workload to reduce bottlenecks. Also for this configuration, the Compaq SANworks Command Console (SWCC) is used to manage, monitor SAN elements, allocate logical units to servers, and so forth. You can use any of the software products in the list below; links to web pages that completely describe all SANworks products are on the last page of this document.

The SANworks family of offerings provides an array of functionality designed to help you better manage your Storage Area Network and delivers the following IT values: operational efficiency, business flexibility, and increased customer service levels. Any of the products listed below can be used with this Migration Configuration. Of the products listed below, Compaq recommends that every SAN include the following:

- Management Appliance (or the SANworks Command Console)
- SecurePath

Management Appliance

SANworks Management Appliance provides a centralized point for managing and monitoring SAN elements, including Compaq switches and storage arrays, to simplify management tasks and reduce management costs.

Resource Monitor

- Provides continuous accurate event information and notification for Compaq arrays and switches
- Increases SAN availability
- Customizable event notification

Allocation Reporter

Reporting and billing application for determining the amount of storage and quality of service reserved by customers in a Storage Area Network (SAN) environment.

Network View

- Provides a graphical, unified view of large distributed SAN environments
- Topology and directory tree views of SAN storage devices and interconnects
- Auto discovery of SAN devices

Secure Path

- SAN-based high availability/performance solution
- Eliminates single points of failure in SAN paths
- Dynamically balances workload to reduce bottlenecks

Product Highlights

- Data Replication Manager**
- Real-time replication of business-critical data
 - Peer to Peer controller-based remote copy
 - Duplicate data centers tens to thousands of miles apart

- Enterprise Volume Manager**
- Reduces recovery time (read from snapshots/clones)
 - Eliminates backup window (backup snapshots/clones)

Virtual Replicator Windows storage virtualization solution

Enterprise Backup Solution Fibre Channel backup and restore solution targeted at customers who need data protection across multi-vendor platforms and heterogeneous operating systems

Command Scriptor Provides experienced IT managers with command-level control of Compaq StorageWorks systems equipped with HSG60, HSG80, HSZ70 and HSZ80 Array Controllers.

Documentation The Reference Configuration for Consolidation includes the following documentation, which is intended to describe all major features, their use, and to facilitate deployment of this solution.

- Technical White Paper describes the solution and implementation methodologies in detail.
- HSG80 Array Installation Manual, User Guide, and other standard product documentation.
- Switch/8 or Switch/16 Installation Manual, User Guide, and other standard product documentation.
- TL895 Installation Manual, User Guide, and other standard product documentation.

Solution Product Services

Compaq Customer Services provides the Compaq Storage Area Network (SAN) Implementation Service, which includes the following items:

1. Project Management
2. Pre-installation Consulting and Planning
3. Logical and Physical Design
4. Hardware Installation Configuration and Verification
5. Installation, Configuration and Verification of StorageWorks and SANworks Software
6. SecurePath SANworks Software Installed, Configured and Verified
7. Disk Configuration and Verification
8. Service Tools Installed, Configured and Verified
9. Verification Testing
10. Customer Orientation and Knowledge Transfer
11. Data Migration
12. Full Documentation

NOTE: For this Reference Consolidation SAN, this is not required because the SAN is based on a single switch. However, Compaq strongly advises that you consider purchasing this bundled service in order to ensure an efficient and successful implementation.

Solution Warranty The Reference Configuration for Consolidation is covered by a Standard Warranty and any enhanced warranty options. The Reference Configuration for Consolidation is a pre-tested integrated configuration that includes the following Compaq products. Refer to the QuickSpecs or Detailed Descriptions for the individual product specifications.

StorageWorks SAN Solution for Storage Consolidation Specifications

Systems	
Compaq ProLiant DL360	Windows® NT® V4.0 SP6a
Dell PowerEdge 1550	Windows NT V4.0 SP6a
HP NetServer LPr	Windows 2000 Advanced Server
IBM NetFinity 4500	Windows 2000 Advanced Server

Quantity Part Number

Operating System Support Windows NT, SP 6
Windows 2000 Advanced Server

Compaq Software SANworks Secure Path V3.1
Storage Works Command Console (SWCC)

Controller and Shelves	Connection from Storage to Fibre Hub/Switch	4	Fibre to Hub/ Switch
	M2200 Controller Shelf	1	135820-B21

StorageWorks Enclosure	Model 4354 – 1" drive bays, dual bus	3	190211-001
	OR Model 4314 1" drive bays, single bus	6	190209-001
	OR Model 4310 1.6" drive bays, single bus	6	174631-B21
	OR Model 4350 1.6" drive bays, dual bus	3	174630-B21
	HSG80 Controller – 256MB Cache	2	176622-B21
	RA8000 256MB Cache Upgrade (or any HSG80 based array)	2	380674-B21

Controller Software	(one per controller: redundant controllers must use the same version of ACS)		
	ACS V8.5P Controller FC-SW and DRM Software		128698-B21
	OR ACS V8.5S Controller FC-SW and Snapshot Software		160091-B21
	OR ACS V8.5F Controller FC-AL/FC-SW Software		128697-B21
	Cache Battery	2	135823-B21
1 Meter VHDCI to VHDCI SCSI cable	6	168256-B21	

Disk Drives	36G PL U3 10K UN 1"	*	176496-B22
	18G PL U3 15K UN 1"	*	188122-B22
	18G PL U3 10K UN 1"	*	142673-B22
	9 PL U3 15K UN 1"	*	188120-B22
	9 PL U3 10K UN 1"	*	142671-B22
	72G PL U3 10K 1.6"	*	176494-B21
	Drive Height converter 1" to 1.6 "	*	148649-B21
	* Quantity determined by customer application environment		

StorageWorks SAN Solution for Storage Consolidation Specifications

Interconnect Components	Requires an open System slot in server	8	Existing System Slot
	Connection from Hub/Switch to Server	8	Fibre Host Connection
	Compaq StorageWorks 64-Bit/33 MHz PCI-to-FC HBA	8	176479-B21
	FC Switch 16 port	2	158223-B21
	OR FC Switch 16-EL (no QuickLoop support)		212776-B21
	HSG80 Based Array Platform Kit Windows NT Intel/PCI	1	Varies dependent upon Array
	Compaq Storage Switch Universal Rack Mount Kit	2	167365-B21
	FC Optical GBIC	32	380561-B21
	5m Multi-mode Cable Kit	12	234457-B22
<hr/>			
Rack Components	Compaq Rack Model 9142 (42U height)	1	120663-B21
	R3000 XR UPS (High Voltage)	1	192186-002
	ERM	1	192188-B21
	Rack Blanking Panel Kit (1.5U)	2	169940-B21
	42U Side Panel Kit	1	120670-B21
	Rack Stabilizing Feet	1	120673-B21

Links

Compaq Enterprise Storage Solutions: <http://h18006.www1.hp.com/storage/solutions.html>

Compaq SANworks Storage Management Software: <http://h18006.www1.hp.com/storage/software>

Compaq Global Services: <http://h18005.www1.hp.com/services/carepaq/global/>

Brocade Communications, Inc: <http://www.brocade.com/SAN/solutionware>

NOTE: These Web sites are available in English only.

Disclaimer

These part numbers were current at the time of this writing. New compatible part numbers may be available. Check with your sales specialist.

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