

Dell Storage Consolidation



Improving Manageability, Availability and Productivity through Storage Consolidation

Organizations today are required to do more with less. At the same time, their data is growing exponentially and the cost of downtime can reach millions of dollars per hour. Through Dell™/EMC® Storage Area Network (SAN) and PowerVault™ Network Attached Storage (NAS), you can consolidate your storage resources to help improve your bottom line and get the availability and scalability you require. And Dell can provide the support to help plan and implement a storage solution that will help you accomplish your goals.

Put the Power, Ease and Simplicity of Dell Behind Your Storage Consolidation Efforts

Dell provides the resources you need to make the most of your storage consolidation efforts, efficiently and cost effectively. Our proven expertise goes into every step of the storage consolidation process, resulting in highly flexible solutions to help maximize storage dollars. Dell can help you obtain the full potential of your storage infrastructure.

Dell offers easy-to-use tools and award-winning service and support, providing a single point of contact from beginning to end. The Dell/EMC and PowerVault storage family features an exceptional line of products for both SAN and NAS solutions.

Why consider storage consolidation?

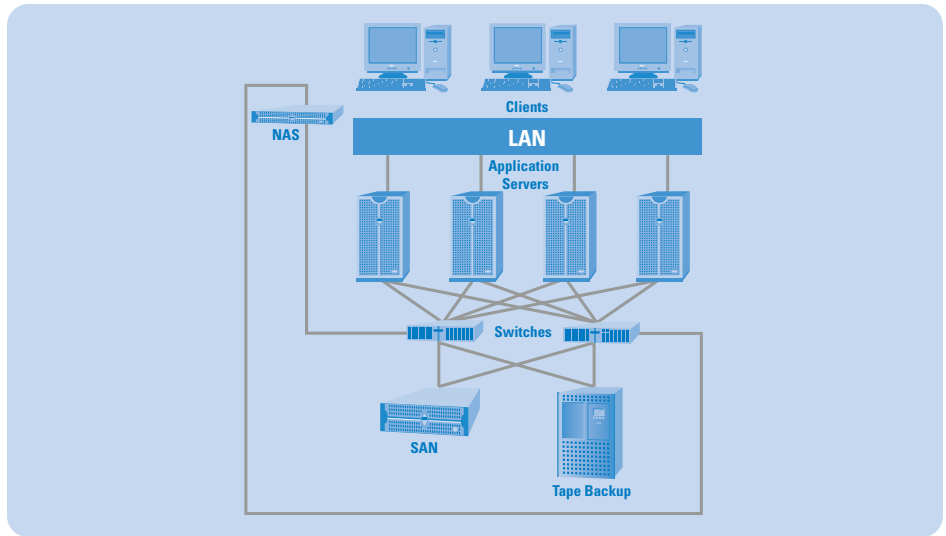
- ▶ Better manage future storage growth
- ▶ Improve overall storage management process
- ▶ Consolidate existing storage capacity
- ▶ Improve system backup and data recovery

Storage consolidation. Easy as **DELL**™

Visit www.dell.com/roi for more information.



Networked Storage Architecture



Why Consider Storage Consolidation?

Storage consolidation is an ideal solution if your storage needs are rapidly growing and storage management costs are rising dramatically or need to be reduced. And if continuous data availability is critical to your success, consolidation can help improve backups and deliver information faster because your organization's data is centralized.

By providing enterprise-level SAN and NAS configurations, Dell has the capability to tailor a solution that will fit your specific needs. These complementary technologies can deliver significant storage benefits. The decision to implement one or the other or a combination of both should be based on cost, distance requirements, number of users and the skill levels of your staff. Dell can help you evaluate which solution is best for your environment.



POTENTIAL BENEFITS OF CONSOLIDATED (NAS OR SAN) VS. DIRECT-ATTACHED STORAGE			
DAS	Versus	Consolidated Storage	Potential Benefits
84¢/MB of stored data		As low as 35¢/MB of stored data	Up to 50% cost savings
One full-time administrator can manage 1.5 to 5.0 TB of data		One administrator can manage 6.0 to 13.3 TB of data	Reduced staff costs up to 80%, greater efficiency
Many points of failure		No single point of failure	Increased uptime
50% disk utilization		85% disk utilization	Reduced number of disks necessary, reduced costs
Each unit must be managed individually		Supports network-wide storage management	Simplified management, greater control
Each unit must be shut down to add capacity		Scales to meet increased needs without interrupting operations	Enhanced scalability and availability
Each unit is limited to a specific OS		Works in heterogeneous environments, such as Windows®, Apple® and Unix®	Increased flexibility
Tape drive for every DAS unit		Shared tape drives	Reduced number of tape drives needed by 50-75%

Source: Merrill Lynch & Co. & McKinsey & Company. The Storage Report, Customer Perspectives and Industry Evolution. June 2001. All data/numbers used in chart are from March 2001.



Our Process Helps You Justify, Plan, Deploy and Manage Your SAN Solution

Dell's simple, step-by-step process for enhancing the cost-efficiency of your storage capability is built around a comprehensive range of analytical tools, consulting services, proven hardware and software products as well as technical service and support. Our storage specialists can guide you through this proven process:

Step 1 – Assess

- Set up a visit with a Dell account executive/systems consultant so we can understand your business goals and storage architecture
- Conduct a Dell Storage Consolidation ROI Tool analysis to demonstrate the potential magnitude of savings (www.dell.com/roi)
- Assess the financial benefits of consolidating
- Estimate ROI for executive approval

Step 2 – Plan

- Use Dell Professional Services to assist in standardizing and simplifying your environment to help reduce costs and improve performance, scalability and availability. Experienced consultants can help design, architecture, ready your site, install hardware, implement a SAN and consolidate your storage to the new SAN
- Dell's Infrastructure Consolidation Readiness Assessment assists customers in determining the viability, necessity and value of moving to a consolidated storage environment. Risks are mitigated as Dell Professional Services consultants outline challenges a customer will face and the strategies to avoid them across the enterprise

Dell's Enterprise Migration and Consolidation Service allows organizations to take disparate systems and bring them together to meet business needs. Through a combination of tools-based and consultative discovery and analysis, Dell provides clients with a detailed report that assesses risks and client impact recommendations related to consolidation and migration.

Step 3 – Deploy

- Deploy Dell enterprise hardware:
 - ▶ SAN system includes storage arrays, switches, HBAs and tape backup
 - ▶ NAS systems can be easily installed on a LAN or integrated into an existing SAN
 - ▶ Dell Professional Services can also assist directly in the project management and deployment phase

Step 4 – Manage

- Manage your storage with easy-to-use enterprise software for the Dell™/EMC® CX line:
 - ▶ VisualSAN® provides the tools for managing Dell/EMC, PowerVault™ storage products and PowerEdge™ servers in one console
 - ▶ Navisphere® storage-management software provides ease of management and security
 - ▶ SnapView™ point-in-time copy software
 - ▶ MirrorView™ synchronous and asynchronous – mirroring software
 - ▶ PowerPath® to manage and control data access across multiple, heterogeneous hosts in distributed SANs

Step 5 – Support

- Rely on Dell Premier Enterprise Support services to help optimize uptime — can be there to support you over the phone in just a few minutes or on site' within just hours
- We provide expert advice, technical assistance and a single-point of contact

Dell Storage Consolidation

Dell's Comprehensive Approach to Storage Consolidation

Dell's complete offering of tools, products and services helps simplify the storage consolidation process. From assessment and decision making to implementation and continued support, Dell can keep you in control of your storage infrastructure.

Dell's Storage Consolidation Return on Investment (ROI) Analyst Tool

This tool, offered exclusively from Dell, is designed to help reduce the time and money usually required to do a business case analysis, a process that can sometimes take months. The ROI Analyst Tool enables you to quickly see an estimate of how much money your organization may save by consolidating your storage. The ROI Analyst Tool also allows you to customize the business storage solution for your environment, providing you with an in-depth executive summary of key financial data and ROI analysis. Get the necessary information to decide upon implementing a storage consolidation for your organization today. Contact your account representative to conduct an in-depth analysis or visit www.dell.com/roi and complete a preliminary, self-guided analysis with the storage ROI calculator.

Dell Products for Storage Consolidation

Dell™/EMC® and PowerVault™ storage solutions offer high availability, ease of management, high-level performance and interoperability. Dell storage products provide a broad offering of enterprise and cost-effective solutions to meet the needs of an organization of any size. SAN and NAS solutions are complementary technologies that offer different benefits. Both options offer high-level performance.



Dell/EMC AX100



Dell/EMC CX300



Dell/EMC CX500



Dell/EMC CX700

Dell/EMC and PowerVault Storage

- Solutions for direct attached, SAN and NAS environments
- Dell/EMC fibre channel storage arrays provide highly available storage for a variety of workgroup, midrange and enterprise applications
- Powerful Navisphere® storage management software for use with CX series storage arrays
- CX series storage arrays include multi-platform access, snapshot copy and remote mirroring capabilities with optional SnapView™, MirrorView™ open storage software—including Dell OpenManage™ Array Manager and EMC VisualSAN® Standard Edition from Dell—all, which are compatible products that run on most industry-standard servers and automate time consuming, remedial tasks, help monitor system health or backup and recover critical data.
- Dell/EMC AX100 is uniquely managed and configured through the Array-based Management Utility software suite, an easy-to-learn, easy-to-use GUI-based storage management tool bundled with the array. It supports LUN expansion as well as Snapshot Management point-in-time copy software for easy functionality

PowerVault Tape Backup Solutions

- Internal and external tape drives and tape autoloaders to automate the backup process, and tape libraries to allow for unattended backup and recovery
- Wide variety of media, capacities (10GB to multi TB) and speeds
- Dell offers Legato® NetWorker®, CommVault® Galaxy™, VERITAS® Backup Exec™ and VERITAS NetBackup™ Enterprise Server

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