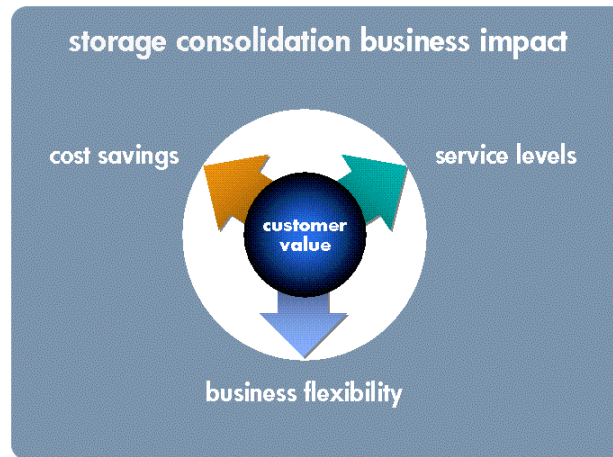


## hp StorageWorks consolidation solutions

### executive summary

HP StorageWorks Consolidation Solutions address the fundamental problem IT managers face today—managing exponential storage growth with lower IT budgets. Consolidation brings a more efficient approach to storage deployment and management through rationalizing storage resources, increasing capacity utilization, and centralizing storage management. Cost savings are realized by maximizing asset and staff utilization while reducing operating expenses. Service levels can be improved through predictable performance, prioritization of service, and high availability. Rapid access to customer data and greater collaboration across the organization reduces time-to-market and improves business flexibility.



HP StorageWorks Consolidation Solutions offer a range of price and performance options that include direct attached storage (DAS), network attached storage (NAS), and Storage Area Network (SAN) architectures. All HP StorageWorks solutions are delivered as fully tested and supported blueprint configurations that reduce time to deployment and risk of failure.

HP StorageWorks Consolidation Solutions represent the foundation-level storage solutions from HP, to which users can add business continuity, application, and vertical market-specific solutions, and ultimately HP Utility Data Center solutions.

HP continues to demonstrate leadership in IT consolidation by offering a broad range of consolidation solutions, including infrastructure, servers, storage, services, and support.

## introduction to solution blueprints

Blueprinting is the HP concept of defining a solution for a specific storage problem, and providing all the information necessary to understand and implement that solution. A blueprint represents a fully tested and supported configuration. In some instances, HP has tested third-party products to complete the described solution. Recognizing that one size does not fit all, guidance on flexibility and scalability is given. HP can also provide design, implementation, and integration services. Standard product support is provided for each HP component in a blueprint configuration, and enhanced high availability support is offered for mission-sensitive or mission-critical environments. Third-party products are supported by the respective vendors.

Blueprints are divided into three levels:

- Business blueprints are the first-level guides that define a storage problem and outline a solution that can solve that problem.
- Technical blueprints provide the detailed technical information on how the solution works.
- Implementation blueprints focus on the details of solution installation and configuration.

## business needs

Today's hyper-competitive business climate and uncontrollable economic environment is putting pressure on everyone to deliver more with less. Many businesses are struggling to cut costs, increase revenues, and deliver more value to customers. To survive and thrive, businesses must become more flexible and able to adapt quickly to changing business conditions.

Today, business leaders view their IT infrastructure as an invaluable asset and a critical part of their day-to-day operations. Consequently, demand on management to build and maintain an IT infrastructure that is cost effective, highly reliable, and predictable—yet *highly* adaptable to change—is a high priority. Many current IT infrastructures are so complex and difficult to manage that gaining greater control over them is required just to stay competitive. The stakes are high.

## why consolidate

Consolidation is not just about relocating storage hardware to one central location. It is not focused on just saving money, and it is not just a one-time event.

At HP, consolidation is an ongoing process, one that addresses the entire IT environment—people, processes, and technology. Consolidation is about making the IT environment more effective, efficient, and agile.

Consolidation impacts three basic business values: cost, service level, and business flexibility. Each of these values contributes to business success.

Cost savings<sup>1</sup> are achieved through consolidation by:

- Increasing disk capacity utilization from the typical 50% or less to 80%
- Reducing the number of near-line devices needed by 50% to 75%
- Reducing staffing costs by up to 80%—the single largest IT cost component
- Reducing the number of required servers

Service levels are improved through consolidation by:

- Centrally monitoring and proactively managing storage
- Increasing performance and availability
- Adding new disaster recovery capabilities

Business flexibility comes from consolidation by:

- Faster time to application deployment
- Scaling capacity and backup without impacting applications
- Providing a stable foundation to react quickly to business demands

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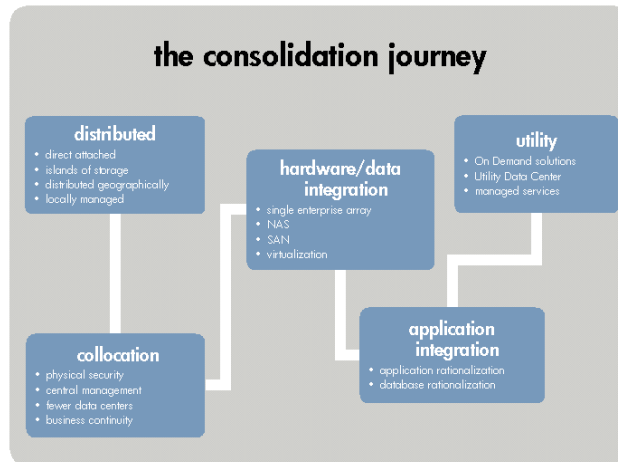
<sup>1</sup> Merrill Lynch & Co./McKinsey & Company, The Storage Report—Customer Perspectives & Industry Evolution, June 19, 2001

## the consolidation journey

HP visualizes IT consolidation as a journey. A particular company may be starting the consolidation journey at the beginning, or they may have already traveled part way down the consolidation road.

For example, a company may move to consolidate core worldwide enterprise applications such as SAP, Oracle databases, and email directly, while also driving consolidation of operations to a central location from separate remote data centers.

HP understands the consolidation journey, and has designed consolidation solutions to adapt to any company's unique IT model and existing level of consolidation.



The HP approach to delivering IT consolidation solutions centers on assessing the current IT environment and defining a consolidation strategy. HP solutions, products, and services complement that strategy. HP understands that it is critical to ensure that existing applications and systems remain tightly integrated, and work in concert with newly consolidated systems.

The comprehensive

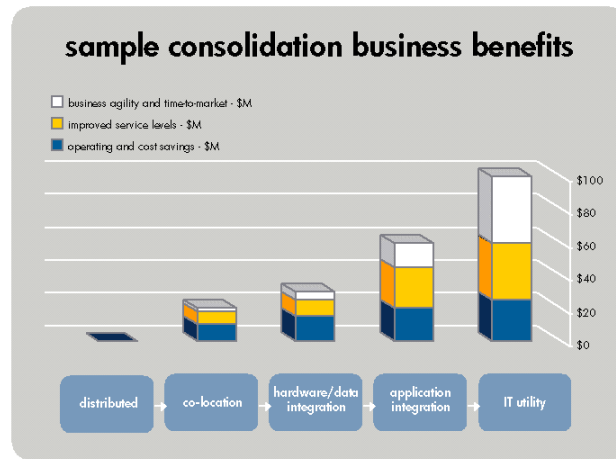
consolidation solutions from HP cover almost every aspect of today's IT environment. They include servers, storage, partitioning and workload management, utility pricing, and end-to-end systems management. Applications that support the entire enterprise and provide an end-to-end enterprise service—such as supply-chain management, enterprise email, and file/print servers—are ideal candidates for consolidation.

The HP consolidation solutions are designed with the quality and support that make consolidation projects successful.

HP has solutions for each step of the consolidation journey:

- Collocation
  - Within a single enterprise array such as the HP StorageWorks Enterprise Virtual Array or HP StorageWorks Disk Array (XP family)
- Hardware/data integration
  - With NAS
  - With a SAN
- Application integration
  - With virtualization
- Utility
  - With On Demand solutions
  - With Utility Data Center
  - With Managed Services

## sample benefits



The consolidation business benefits shown in this graph are based on an actual case study. The three business benefits are measured for each of the five phases of the consolidation journey. The data illustrates that both the size and the blend of the benefits change as a company moves through each phases of IT consolidation.

For example, collocating IT hardware can result in

improved service levels and reduced operating cost, but will not generally increase business flexibility. Service level and business flexibility can emerge as driving factors as a company engages in hardware/data and application integration.

For any phase, the benefits of consolidation—as measured in financial terms—can be significant, easily generating a positive return on investment (ROI) on the consolidation investment.

## storage consolidation solutions

HP StorageWorks Consolidation Solutions are a portfolio of blueprints that outline optimized consolidation configurations. These blueprints define a configuration for a specific storage problem, outline what return on investment can be expected, and contain all the information necessary for implementation. HP has designed and tested these solutions for interoperability. The blueprints also list relevant HP Storage Services.

Technical blueprints outline a particular solution and include schematics, design notes, and a full bill of materials. Technical blueprints are available for the following HP StorageWorks Consolidation Solutions:

- Entry-level SAN—HP StorageWorks Modular SAN Array 1000 (msa1000)
- Entry-level SAN—HP StorageWorks Virtual Array 7100 (va7100)
- Mid-Tier SAN— HP StorageWorks Virtual Array 7400 (va7400)
- Mid-Tier SAN—HP StorageWorks Enterprise Modular Array family or HP StorageWorks Enterprise Virtual Array
- Enterprise SAN—HP StorageWorks Disk Array XP family
- On Demand storage solutions

Implementation blueprints that show how to implement, customize, and scale a consolidation solution are also available through your HP sales representative.

A white paper titled *Architectures for Storage Consolidation* provides an overview of HP consolidation solutions.

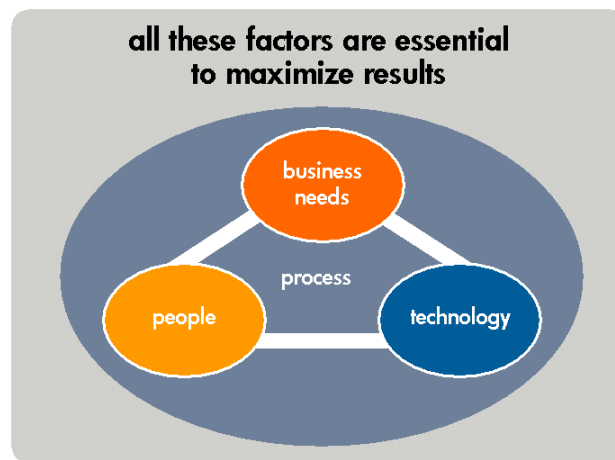
HP has the knowledge and products to make any storage consolidation project successful with people who are available to help at all levels—analyzing an existing storage environment, designing a solution strategy and roadmap, calculating ROI, performing a detailed design, and implementing a solution and evaluating the results.

The HP ENSA-extended architecture is focused on delivering an adaptive storage infrastructure that is controllable, resilient, and extensible. Storage consolidation is a central component of the ENSA-extended vision. Consolidation is all about creating a more efficient storage infrastructure, one that enables IT managers to balance the exponential growth in data that needs to be stored despite the stagnant or declining IT budgets.

Storage consolidation improves the control of storage resources. The whole point of consolidation is to centralize storage resources into one physical or virtual pool. In this centralized infrastructure, capacity utilization is higher than in a decentralized environment, and it is easier to plan future capacity growth. Storage consolidation delivers the control and efficient infrastructure that is the foundation for the resilience and extensibility associated with business continuity and Utility Data Center solutions.

## why hp

HP has more to offer than any other storage vendor with the broadest range of disk arrays, a complete line of nearline solutions, an extensive software lineup, leading storage networking products, and the most advanced virtualization technology available.



HP understands the big picture and how a strategic perspective is implemented using specific technologies. HP has the ability to think strategically, to understand the technological implications of that strategy, and then to provide and apply the technology and services to implement a solution.

HP StorageWorks Consolidation Solutions enable customers to streamline business operations, accelerate

their time-to-market, and leverage the power of their information. They will be able to exploit new opportunities, seize market share, increase revenue and margin, and overtake their competition.

HP continues to demonstrate its leadership. As the top supplier of disk storage systems, SANs, tape drives and automation, external storage, and virtualization technologies, HP has a positive impact on the delivery of the advanced technologies that will enable its customers to deploy and exploit the storage utility. Benefits of working with HP include:

- Business-value driven, with a focus on cost, service level, and flexibility
- Infrastructure expertise across the journey with industry-leading server, storage, software, services, and partnerships
- ENSA-extended architecture, delivering the adaptable storage infrastructure
- Comprehensive storage management software spanning storage resource management (SRM), data protection, high availability, and virtualization
- Integrated disk and tape solutions for increased availability
- Open, standards-based, networking and connectivity solutions, interoperability, and SAN/NAS convergence
- Advanced virtualization technologies that simplify storage *today*—and in the future

## real world consolidation results

With the travel and leisure marketplace becoming more fiercely competitive, Carlson Companies is constantly honing its operational companies and fine-tuning its costs to gain maximum competitive advantage, while increasing its customer base.

Ranked among the largest privately held corporations in the United States, Carlson is a global leader in the marketing, business and leisure, travel, and hospitality industries. The Carlson family of brands and services includes: Regent International Hotels, Radisson Hotels & Resorts, Country Inns & Suites By Carlson, Park Plaza and Park Inn hotels, Radisson Seven Seas Cruises, T.G.I. Friday's restaurants, Carlson Wagonlit Travel, and Carlson Marketing Group.

Carlson's IT organization meets all its business operational requirements through a centralized infrastructure. Its systems environment encompasses an IBM mainframe and more than 50 networked HP and Sun servers.

"We had separate disk storage for each platform," explained Jim Heberling, Project Manager for Carlson Companies. "There was a driving need to reduce the cost of managing data while still maintaining the service level agreements for our end-users. Upgrading our storage to a storage area network and consolidating the disk environment provided the solution we needed.

"In our search for new storage technology we reviewed various vendors. HP presented the most cost-effective and comprehensive solution that best fit our infrastructure needs," commented Heberling. "HP understood the challenges we faced. It supplied the experts to deliver all of the services and tasks for the project management of the client server environment and kept the project on schedule," he said.

HP performed training sessions for Carlson's operational staff for ongoing SAN management. "We quickly learned the performance, utilization, monitoring perspectives, and how to optimize the SAN," noted Heberling.

"With the optimized storage environment, operational costs have been reduced and performance has been excellent," he noted. In addition, Carlson's client server management team is now in a position to plan and enable an efficient disaster recovery and back-up plan.

Heberling concluded, "When the migration was complete, end-users realized such dramatic performance improvements that calls were coming in to find out what had changed!"

To learn more about HP StorageWorks Consolidation Solutions, contact your local HP sales representative or visit the following Web sites:

[www.hp.com/go/ENSAextended](http://www.hp.com/go/ENSAextended)

[www.hp.com/go/storage](http://www.hp.com/go/storage)

For technical-level information on implementing the consolidation configurations outlined in HP business-level blueprints, visit:

[www.hp.com/go/hpstorage\\_blueprints](http://www.hp.com/go/hpstorage_blueprints)

While technology is a key component of any storage consolidation solution, technology alone does not solve complex business problems. Consolidating storage requires preparation. HP can help design, build, integrate, and support consolidated storage. To get more information about storage services from HP, contact your HP sales representative or visit:

[www.hp.com/hps/storage](http://www.hp.com/hps/storage)

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