

change



Storage consolidation services from HP:
a methodological approach

Solutions for the adaptive enterprise.





The natural growth of business requirements within an organization typically leads to an IT infrastructure composed of a wide variety of solutions and technologies. Different departments select different technologies, and mergers between companies lead to disparate implementations. As a result, systems become over-provisioned and underutilized, they are hard to manage or change, and the effort needed to sustain availability and meet service levels increases dramatically.

IT consolidation is essentially the most effective way to resolve these problems. Storage consolidation, for example, reduces system complexity while improving manageability. Reducing the diversity of solutions and technologies and making better use of the available systems, storage, and servers also increase the control organizations have over their service delivery—and the speed at which changes can be integrated.

What is storage consolidation?

HP's definition of storage consolidation is "a blueprint for change that improves service levels, manages risk, reduces costs, and frees resources to drive business innovation." It helps optimize storage and increase business value by putting information to work—anywhere, anytime—through a continuum of proven storage and IT consolidation solutions encompassing services, software, networks, storage, and servers. HP storage consolidation helps companies shift from isolated technology silos to a shared infrastructure that can quickly adapt to business changes.

Storage consolidation and the Adaptive Enterprise

HP's vision for the Adaptive Enterprise is one in which business and IT are synchronized to capitalize on change. That means reducing the number of elements within an IT infrastructure, using standard technologies and interfaces, and moving toward modular architectures in order to create a more agile IT environment. By creating system agility this way, HP positions its business customers to respond rapidly and effectively to changes in the marketplace—so they'll be able to compete successfully in a volatile global economy for years to come.

Storage consolidation is a perfect example of how HP helps businesses gain the agility they need to thrive. We leverage our knowledge in the areas of standardization, resource consolidation, virtualization, automation, and improved utilization to consolidate our customers' storage infrastructures. This consolidation enables them to adapt to business change and reinvest the savings that result into IT innovation. HP StorageWorks solutions remove the barriers to optimizing IT by streamlining and simplifying multivendor storage environments.

“Hardware markets seemed to have picked up what growth there will be. Replacements of pre-Y2K infrastructure are largely over, with the second generation beginning with a clear trend in server and storage consolidation.” Source: IDC, Worldwide IT Spending 2005–2009 Forecast: The Worldwide Black Book, 2005, Doc #34422, December 2005

Why consolidate?

Today’s competitive marketplace demands that enterprise IT departments take a hard look at their infrastructures’ complexity, ability to meet quality of service (QoS) levels, total cost of ownership (TCO), inherent risks, and operating costs, as well as its agility (or lack thereof) due to the proliferation of distributed computing. What many will find is that they have infrastructure problems, operational problems, and rising costs—all of which are a special focus in the current economic climate and may be addressed by storage consolidation.

One major aspect of consolidation is the capacity to better utilize resources that have been made redundant. This ability provides the assets to drive innovation as well as to create new initiatives to make the business more competitive, and ultimately, generate more business value and revenue for the enterprise.

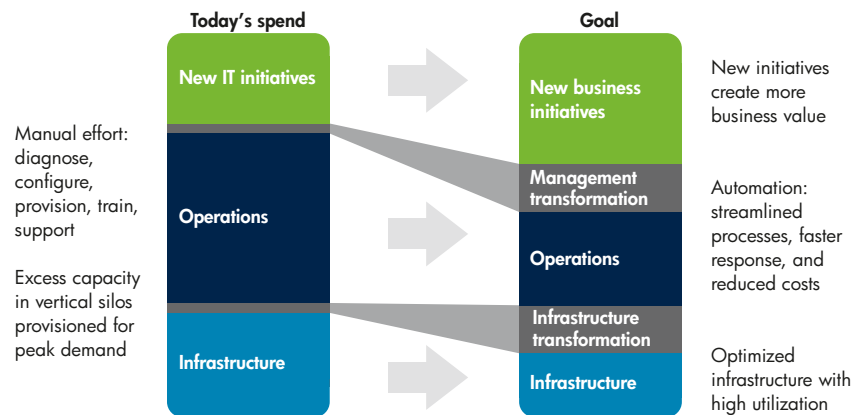
The HP approach to storage consolidation

HP has adopted a unique approach to storage consolidation. Rather than attacking it from a technical perspective, hoping to reap financial rewards, we first make a point to understand the business and financial opportunities that storage consolidation represents for each individual customer, and then we implement technical solutions that will enable the realization of the calculated cost savings.

HP believes there are three primary benefits that can be achieved through consolidation, and it is important to balance these based on each customer’s unique business needs:

1. **Reduce the cost of service:** HP examines hardware, software, networking equipment, support staff, security, and training to root out areas having duplication of effort, poor productivity, incompatibility, high maintenance requirements, and outright failures. This exercise is instrumental in helping us pinpoint the areas of greatest financial opportunity and then allowing us to capitalize upon those opportunities to help customers significantly reduce the cost of service.
2. **Improve the quality of service:** By consolidating storage, HP will help make certain that your system meets your business objectives and supports change service management. Improved QoS reduces business risk by ensuring that the system meets service delivery needs, increases service availability (24x7), and maintains stated service levels.
3. **Improve business agility:** An agile IT infrastructure adds value to the business by accelerating the company’s ability to introduce new products and services and respond to competitive challenges and market changes. Agile IT also enables new markets, business models, and opportunities (e.g., mobile, e-commerce, and e-services).

Bottom line, companies are looking for ways to significantly reduce the amount of money spent on operations and infrastructure so that a greater amount of the IT budget can be used for innovation—creating an environment that fosters long-term success.



When to consolidate?

Many enterprises have thought about storage consolidation, and some have gone so far as to make it a discussion point year after year, but in most cases no initiatives are actually launched. Reasons range from lack of resources that can be dedicated to the project to lack of budget to fund the initiative—or competing projects that are given higher priority.

The following symptoms suggest that storage consolidation is warranted at your company:

1. Buying new storage rather than doing capacity planning
2. Decentralized purchasing with management centralized
3. Single-digit utilization rates
4. Lack of data center space
5. Skyrocketing maintenance costs
6. Losing track of storage arrays
7. Up against scalability restrictions
8. High ratio of administrators to users
9. Running more than seven operating systems
10. Difficulty controlling software licenses

If your organization is facing some of these issues and has a significant investment in IT infrastructure, now is the time for action. In fact, there should be a sense of urgency. Why? Because there are significant savings at stake—money that can be freed up and put to better use elsewhere in the organization.

But why “urgency?”

Because you only get those savings to re-invest when you complete your consolidation—when you reduce your excess storage capacity, terminate the leases and maintenance on equipment and software you don’t need, and save all those other expenses.

So, every day you delay starting, you delay completing, and you are foregoing those savings. That’s a key reason so many enterprises have selected HP to help with their storage consolidations—we can complete your consolidation faster, so you can start saving sooner and invest those savings strategically for your business.

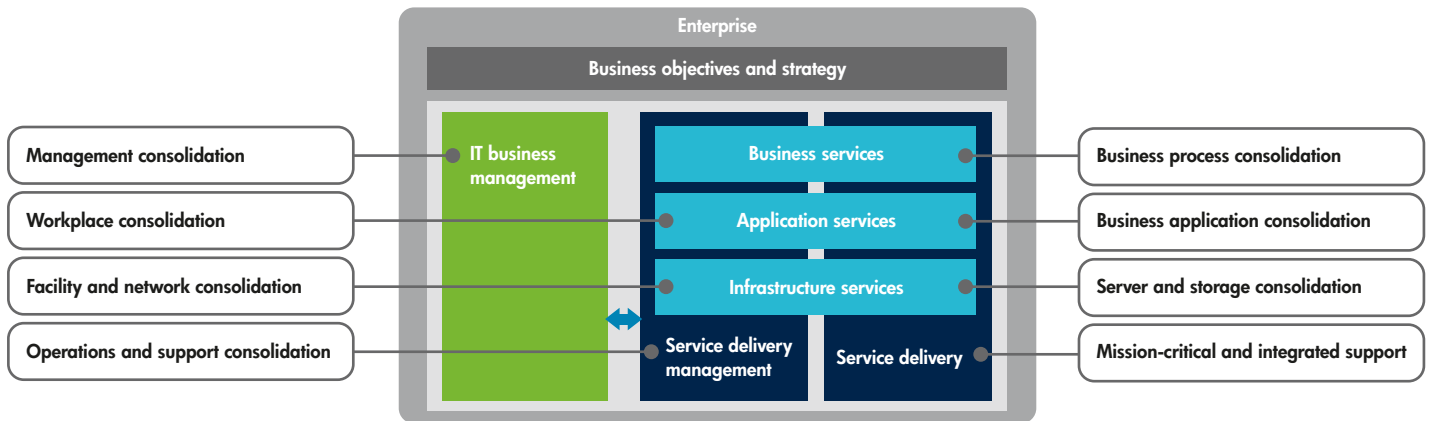
What to consolidate?

The HP IT consolidation offerings are not limited to servers or storage as is customary in the industry. Our approach enables us to consolidate any group of IT assets, from data centers to IT processes, as in the following illustration. Through consolidation we reduce the cost of IT services while also addressing your specific needs to provide quality of service and support business agility.

IT consolidation is not something we do once and then forget about. It’s an ongoing process which, when implemented as a “best practice,” becomes an integral part of your IT operations. It enables you to exploit the technology/price curve, reduce costs perpetually, and provide the best infrastructure for your business. By

What to consolidate?

HP's IT consolidation offerings enable the consolidation of any group of IT assets, from data centers to IT processes.



Consolidation is an ongoing journey, not just a one-time event. HP's approach includes the entire IT environment of people, processes, applications, information, and technology. Consolidation is a holistic combination of server and storage, management, workplace, business process and business application, facility and network, and operations and support.

using the tools available, we are able to calculate the cost impact of new technology on your overall TCO prior to purchase, thus avoiding inappropriate costly acquisitions. This approach not only ensures financial returns, it also results in a simplified management platform and increased operational efficiency.

Note also that your results should include integration of platforms, applications, middleware, management, processes, and IT personnel. During consolidation, HP addresses people, processes, *and* technology—not just technology. Our experience shows that much of the potential improvements (cost savings, improved service, and increased agility) come from the people and process improvements that others fail to address or address insufficiently.

HP is uniquely able to meet your needs for IT consolidation with the experience, proven methodology, tools, open architecture, top-performing servers, storage, system software, management software, consulting, and support services for success. We're able to assess, architect, deploy, support, and finance your entire consolidation solution, and we have successfully helped hundreds of customers with consolidation efforts. Our consolidation methodology is based on our experience in these projects and our own best practices.

Key critical success factors we have identified include:

- Having committed sponsorship at the appropriate level in the organization
- Getting buy-in of all key stakeholders, including business unit management, with consistent agreement on the objectives of the consolidation initiative and on how "success" will be measured
- Ensuring IT governance issues are addressed
- Considering the IT infrastructure needs of the organization in the future, and not just addressing the existing "as is" infrastructure

This last point is key. Many of our competitors do not consider the strategic needs of the business when they develop the "to be" architecture during consolidation efforts—they are too focused on looking backwards at the existing infrastructure and do not address the future needs of the enterprise.

Because consolidation projects establish the foundation of the enterprise's new architecture, it is essential that they address the flexibility, scalability, and availability the enterprise will need.

“HP virtualization results in lightning-fast speed, performance, and better utilization of storage, which is absolutely necessary for the various Fontana systems sharing the EVA5000 SAN. I’m saving at least 60 percent of the time I once spent managing direct-attached storage.”
Chris Beck, Network Administrator, City of Fontana, California

HP’s capabilities

Consolidation workshops can help to uncover the opportunities, the return on investment (ROI), and the benefits of consolidation, which are typically expressed as a combination of reduced cost of ownership, increased quality of service, and a better positioning for the future. HP has delivered projects in all of the following opportunity areas:

People/skills/support consolidation

Significant cost reductions and quality of service improvements can be realized by investigating and improving upon the company’s core competencies, culture, strategy, and support contracts. HP offers services to help define skills gaps, establish training plans, provide (interim) management, offer consultancy, and deliver internal and external support.

Process consolidation

HP has extensive experience in determining control parameters, key performance indicators (KPIs), and service management (via IT Infrastructure Library—ITIL) best practices. These can be effectively applied to enable consolidation of development, test, certification, and management environments. Consolidation in these areas will increase the measurable—as well as the perceived—quality of services.

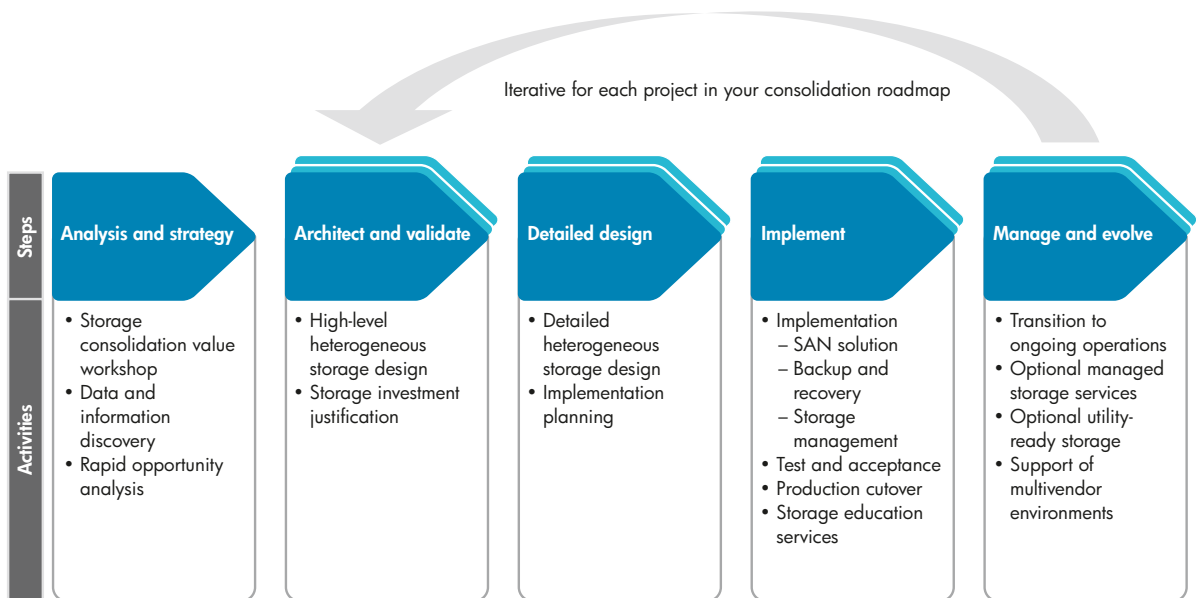
Technology consolidation

For many companies, this is the main focus area of consolidation. HP IT architecture services and workshops help define the best technical alternative to achieve effective consolidation. HP has a plentitude of mission-critical and business-continuity reference architectures

and solutions, consulting, and support services that address virtually any level of availability objective (from 99.9% up to 99.999%) or uptime commitment (effective uptime or time to restore with penalties/rewards). Examples include cluster design, high-availability design, disaster/recovery design, and business/risk analysis.

Opportunities for technology consolidation include:

- **Storage consolidation**—enterprise storage solutions, storage area networks (SAN), file and print services using networked attached storage (NAS), and e-mail archiving and recovery, which allow for higher data availability and better overall storage utilization and performance. HP offers many consulting services in this area, ranging from storage and SAN architecture planning and design, to enterprise storage implementation and migration.
- **Systems and configuration consolidation**—aims at reducing the number of operating systems and/or different system configurations. HP offers services to port and/or reengineer (mission-critical) applications from and to a wide variety of platforms, including the supporting databases.
- **Backup consolidation**—reduces the time for system maintenance and increases system availability for both headquarters and remote/branch offices.
- **Management consolidation**—streamlines the way element, infrastructure, and service management are delivered.



- **Data center consolidation**—effectively reduces the number of data centers. Typical services include data center selection, data center facilities audit and improvement, relocation services, transition services, and project management.
- **Service or application consolidation**—aims at reducing the number of systems needed to deliver the service portfolio. HP offers consulting services to safely stack multiple applications onto a single system or reduce the number of servers it takes to provide one specific service.

In all cases, working with the experts from HP assures proficiency in planning, designing, implementing, and managing consolidation projects.

HP's storage consolidation methodology

Most enterprises remain unclear about aligning business and IT, implementing consolidation projects, calculating return on investment, and linking consolidation with architectural planning. HP has helped hundreds of large enterprises undertake successful consolidations. Our consultants bring valuable IT consolidation experience together with HP methodologies, TCO tools, and best practices so we can enable you to meet your specific objectives.

Key aspects of our approach and the talents we bring include:

- **Establishing a shared set of measurable objectives**—because consolidation is not just about IT. We focus on working with you to understand your business and IT objectives so that they are reflected in your new enterprise architecture. We also ensure the objectives are measurable, so upon completion we can both see that we have met them.
- **Opportunity analysis**—lets us quickly discover the key opportunities that can deliver maximum benefits quickly—and we structure the consolidation initiative to accelerate those benefits by completing those parts of the project first.
- **Architectural blueprint**—enables our infrastructure architects to translate your business and IT needs into the most cost-effective, efficient storage infrastructure possible—with the scalability, reliability, and availability you need. Our process architects can help restructure your IT processes to support your new storage infrastructure efficiently.
- **Investment justification (TCO and ROI analysis)**—is the assignment of our experienced financial analysts, who specialize in TCO and ROI analysis.
- **Transition planning**—is directed by our project managers, who are experienced in consolidation efforts and know all the critical details that need to be addressed in analysis, design, implementation, and transition.

“HP StorageWorks solutions give us flexibility and powerful capabilities. HP provided a single-source solution—at lower cost than another storage vendor and with a lower total cost of ownership.” Dena Lee, Senior Vice President and CIO, Southern National Bank of Texas



HP's IT consolidation methodology recognizes all those key factors just highlighted and focuses on achieving measurable results. Our methodology can be described as a seven-step process, as follows:

Step 1—Storage consolidation value workshop

We begin by bringing IT and business executives together to establish shared objectives for the consolidation. During two facilitated workshop sessions, we discuss your company's business vision, IT vision, IT governance processes, and other key IT initiatives. We also assess the current state of business and IT alignment—where IT is supporting the business effectively, and where improvements can be made. From this discussion, the business and IT executives identify and prioritize objectives for consolidation, identify constraints, and agree on measures of success.

Step 2—Architectural blueprint

Next we develop an architectural blueprint for the first project. It will take into consideration the organization's business and IT strategy and the current environment, as well as market and technology trends. The architectural blueprint is designed by experienced IT architects who verify that the recommended technological path will realize the enterprise's business goals.

During this phase we will also address process improvements and organization issues that support your objectives.

Step 3—Investment justification

This phase concentrates on creating the business case for consolidation, given the scope of the project. TCO and ROI modeling tools, readiness analysis, and gathering methodologies are used as appropriate for your specific objectives.

Note that steps two and three are overlaid in the depiction of our methodology. This is to indicate that these steps are highly related and potentially iterative—the investment justification ensures that the architecture properly supports your prioritized objectives, including your financial objectives.

Multiple possible architectures may be evaluated to determine the one that best meets your objectives.

Step 4—Detailed design

Once the enterprise has agreed on the architectural blueprint, we engineer the specific details of the configurations and technologies. Our technical specialists have intimate knowledge of the technologies and see that all considerations (e.g., performance) are engineered into the detailed design. We take a performance baseline prior to implementing the consolidation to verify that the consolidated environment will deliver equal or better performance.

Solution services

- SAN Solution Services
- Backup and Recovery Solution Services
- Data Replication Solution Services
- Storage Essentials Solution Service
- Enterprise Backup Solution Packs

Multivendor environment services

- Proactive 24 Service for SANs
- Critical Service for SANs

Deployment services

- ProLiant Storage Server (NAS) Installation and Startup Service
- Cisco MDS Switches Installation Service
- Disk Array Installation and Startup Service
- Secure Fabric OS Installation and Startup Service
- HP OpenView Virtual Replicator Installation and Startup Service
- HP OpenView Storage Provisioner Installation and Startup Service
- HP OpenView Storage Operations Manager Installation and Startup Service
- HP File System Extender Installation Service
- HP File Migration Agent Installation and Startup Service
- HP OpenView Storage Mirroring Installation and Startup Service
- Enterprise File Services Clustered Gateway Installation and Startup Service
- Enterprise File Services WAN Accelerator Installation Service

Mission-critical support

- Proactive 24 Service
- Critical Service
- Proactive Essentials Service
- Mission Critical Partnership

Per-event services

- Vdisk/LUN Design and Implementation Service
- Data Migration Service
- Data Sanitization Service

Managed storage services

- Managed Storage Solution Service
- Electronic Vaulting Service for Enterprises

Education services

- SAN Boot Camp
- Managing the HP StorageWorks XP Disk Array
- HP StorageWorks XP Disk Array Advanced Management
- Managing EVA Storage
- Managing HP StorageWorks MSA
- HP OpenView Storage Data Protector Fundamentals
- HP OpenView Storage Data Protector Integration
- HP Storage Essentials

As mentioned earlier, transition planning to implement the new environment is critical. Our project managers understand the steps necessary for successful consolidation implementations and will create detailed plans for the transition, including communication processes, solution components, legacy integration, user interface, resources required, partners, milestones, key deliverables, training, pre-delivery integration, installation, testing, and cutover from existing systems and processes.

Step 5—Implementation

Implementation is the flawless execution of the implementation and transition plan. Our experienced technical consultants will work with your teams to verify the new infrastructure is implemented, applications and data are migrated, and appropriate tests are conducted before cutover from existing systems. Our process consultants will work with your teams to see that the new processes are effectively implemented.

Steps 6 and 7—Manage and evolve

You may decide to consider comprehensive outsourcing for your consolidated environment, or you may manage it in-house. Regardless of your strategy, your new

environment must be continually monitored to comply with the agreed-upon Service-Level Agreements. Over time, these steps include upgrades, tuning, etc. If you decide to manage in-house, HP can provide IT Service Management experts to help you continually improve service levels to the business. HP also offers managed services for comprehensive or selective outsourcing.

Iteration—recurring analysis and additional consolidations

Once the initial consolidation effort has been successfully completed, additional consolidation opportunities may be addressed.

The Recurring Analysis is a regular review of the consolidated environment to ensure that the desired goals are being achieved and that emerging technologies, volatility in the business environment, and best practices are taken into consideration on a regular basis. This check and balance enables the underlying infrastructure to continue evolving in parallel with the business.



Advantages

A structured approach to consolidation means that all aspects are taken into account, leading to benefits such as:

- **Results based on goals**—because HP focuses on your specific consolidation objectives, with the measures of success you specify
- **Involved business and IT stakeholders**—to ensure alignment of consolidation strategy
- **An analysis of your entire IT environment**—holistically or it can focus on selected areas
- **A focus on areas with the greatest opportunity to meet your objectives**—a series of consolidation projects that accelerate benefits in the short term and continue to deliver long-term savings
- **Flexibility**—which means we engage in the way and proceed at the pace that is right for you

Critical success factors

Some of the key critical success factors for winning with storage consolidations include:

- Having clear objectives that are agreed upon and documented, with clear measures of success
- Having an executive sponsor and broad-based support in the organization
- Getting business buy-in, not just IT
- Addressing all aspects of the consolidation—the people issues are especially important—but also IT processes, applications, and information stores because there is danger in looking only at technology
- Managing change by using your objectives as a guidepost so you do not get distracted from your primary goals
- Looking at all the benefits you can achieve, not just cost

No two enterprises are alike. There are many types of consolidations that may be employed to solve a particular organization's problems. In the IT consolidation qualification process, it is important to determine which type of consolidation will deliver the best results for your enterprise.



Why choose HP as your IT consolidation partner?

- Helping thousands of customers with consolidations for more than a decade has allowed HP to refine its IT consolidation methodology, so we can complete consolidations quickly and accelerate your time to benefits.
- Our methodology and tools can help you manage the transformation, and our experience in ITIL and IT Service Management can help you maximize your results.
- Best-in-class project management is essential to completing your projects on time and on budget. HP project managers deliver the benefits you expect, meet project objectives, manage project scope, avoid schedule slip, reduce risk, and handle program complexity.
- Strong, broad-based technical expertise is critical to ensuring architecture and design innovation and best practices. HP can maintain the balance between performance, quality, business continuity, and business agility.
- HP's 400 Solution Architects (each averaging more than 15 years of experience), 6,000 Technical Architect specialists, and 5,000 dedicated storage professionals in more than 175 countries can complement your IT team and provide depth of expertise.
- You want a partner for your consolidation journey that will work collaboratively with you and with your other IT partners. HP has strong collaborative relationships with the technology leaders that are important to you (e.g., Microsoft®, Oracle®, SAP, and BEA).

Summary of our approach

HP has developed one of the most advanced and promising IT consolidation solutions in the industry. With our leading technologies, professional services, and flexible financing options such as leasing, utility-ready storage, and pay-as-you-go financing, enterprises can quickly reap the benefits of a consolidated computing platform.

For more information

If you want to know more about HP Storage Consolidation Services, contact your local HP sales office or visit the HP Web site at www.hp.com/services/storageconsolidation. To learn more about HP StorageWorks consolidation solutions, visit www.hp.com/go/storageconsolidation.



To learn more, visit www.hp.com/hps/storage

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