

Rethinking virtualization solutions with HP StorageWorks P4000 G2 SANs

Optimized storage solutions for virtual infrastructures



At a glance

HP StorageWorks P4000 G2 SAN Solutions provide optimized storage for your virtualized storage server environment. This means:

- Storage that supports virtual servers and desktops, including support for high-availability (HA) and disaster-recovery (DR) features in virtual environments
- Double capacity utilization, with space-efficient snapshots and thin provisioning features included at no extra cost
- High availability and 40 percent lower cost in small sites and remote offices achieved by turning unused server and SAN drives into shared storage

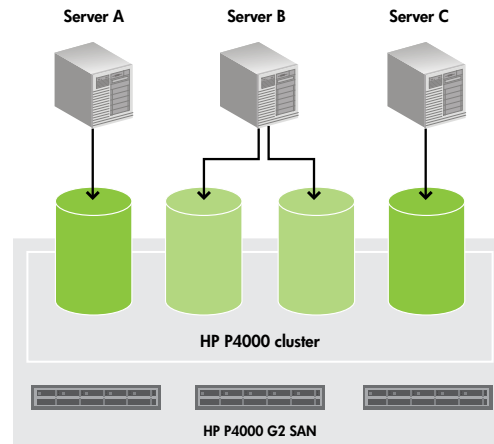
Virtualization—Doing more with less

Virtualization encompasses more than simply server technology—it is the convergence of servers, storage, and applications in a way that fundamentally changes how you utilize the resources in your entire IT infrastructure. It improves your ability to respond to business changes, streamlining some processes and opening up others to a maze of possibilities. To improve the value of investments in a virtualized environment, you need a master plan for your infrastructure.

Server virtualization

Server virtualization is the first step for many businesses. It consolidates resources to reduce costs and increase utilization. It facilitates implementation of better disaster-recovery and application-availability solutions. In addition, it customizes the IT infrastructure providing it the flexibility and agility needed to respond quickly to changing business needs and market conditions.

Figure 1: Storage clustering creates a pool of storage resources and delivers them to application servers as logical volumes



Once servers are virtualized, many IT administrators come face-to-face with the challenges that their new environment presents. There are unique utilization, performance, management, and availability requirements that must be met to get the most out of your infrastructure. You will find that as storage environments become more complex, those disparate systems can become expensive and difficult to manage. You will also realize the extent to which the advanced high-availability and disaster-recovery features of products such as VMware vSphere, Microsoft Hyper-V, and Citrix XenServer require the support of shared storage.

In short, you will discover that server virtualization requires storage that is optimized for virtualization.

Virtualized storage for virtual servers

Effective server virtualization demands storage systems that can support concurrent workloads without performance degradation. It calls for storage capacity and performance that can scale without disruptions. It needs virtual disks to remain online during server or site failures so that features such as VMware High Availability (HA), Fault Tolerance (FT), and Microsoft Hyper-V Live Migration have nearly continuous access to storage while executing failover of virtual machines. Moreover, it calls for storage that is simple and easy to manage. HP P4000 G2 SAN Solutions meet all those requirements and can drive your costs down and dramatically improve resource utilization.

Certification

HP StorageWorks P4000 G2 SANs are certified to work with VMware vSphere, Microsoft Hyper-V, and

Citrix XenServer software. These SAN solutions are designed to work seamlessly in server and desktop virtualization environments.

Performance

HP P4000 G2 SANs deliver the performance needed to support the highly concurrent and rapidly changing workloads that virtualized servers impose on storage. As your virtualized infrastructure grows, your SAN grows with it, scaling capacity and performance without disruption.

Higher resource utilization

HP P4000 G2 SAN technology allows you to thin-provision storage volumes and scale capacity on demand, raising your utilization levels while reducing your energy consumption. In part due to their efficient design, HP P4000 G2 SANs double capacity utilization and provide applications with new levels of availability.¹

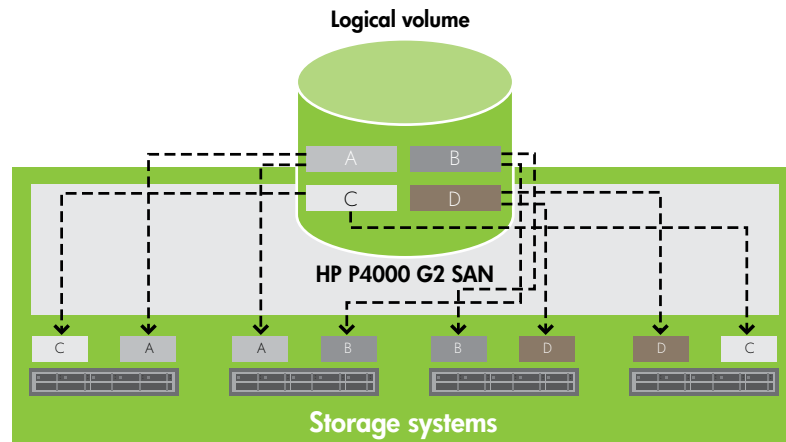
Cost-effective HA/DR

HP P4000 G2 SANs provide flexible data protection across a cluster of storage systems, removing any single point of failure in the SAN. Applications have continuous data availability, even in the event of your entire storage system failure.

HP P4000 G2 SANs can be split between two locations to provide highly available storage that stays online during a site failure. Built-in synchronous replication performs storage failover and failback instantly, automatically, and without human intervention. Remote Copy replicates snapshots between storage systems at primary and remote locations.

¹ Based on a comparison between the HP P4000 G2 and best practice implementations of EMC CLARiiON and NetApp FAS analyzing the impact of recommended hardware configurations in a multi-site configuration.

Figure 2: Network RAID 10 provides built-in, transparent, remote replication between storage systems, racks, rooms, buildings, and sites



Simple management and flexibility

A centralized management console provides a single point for managing every feature of your HP P4000 G2 SAN regardless of location. Features that you use every day, such as volume creation, and those specifically tuned for virtualized environments, such as application-aware snapshots and volume cloning, are accessible through a few clicks of the mouse without applications disruptions.

Cost savings for virtual desktops

If you are considering implementing a virtual desktop infrastructure, you may find that HP P4000 G2 SANs make the storage part of the equation more cost-effective than ever. Virtual desktops use efficient, inexpensive thin clients that access a standard, tested, more secure, and centrally managed PC on a server. This helps you maintain control over the desktop configurations and images that your employees can use.

Supporting a large number of desktops can be costly with traditional SANs. HP SmartClone technology gives you the ability to create volume clones as quickly and easily as you can create new virtual desktops. You can create a “golden master” PC image once, and then use the volume-cloning feature to create a new logical volume for each user. Each volume clone shares storage with the golden master volume, requiring actual storage only when new blocks are written or existing blocks are

modified. This feature dramatically reduces storage requirements by eliminating unnecessary data duplication—increasing storage utilization while reducing the per-volume cost of storage.

Storage virtualization at remote offices

Virtualization enables small or remote offices to do more with less by using a smaller number of servers to support the applications they need. The cost of deploying a physical SAN in a remote office is often prohibitive. HP P4000 VSA software provides a low-cost, virtual solution that rescues storage stranded on servers in branch offices as well as central data centers. Also, as of 1 January 2010, VSA is the only Storage Virtual Appliance certified by VMware.

Small sites and remote offices can enable high availability and cut costs 40 percent by turning internal server drives into shared storage.² Additionally, VSA can manage unused iSCSI and FC SANs. As an appliance running as a virtual machine, the VSA converts existing DAS and SAN storage into HP P4000 storage that can be clustered and managed like a physical HP P4000 G2 SAN. Not only does it provide a cost-effective way to deploy SANs in remote offices, but it also allows you to do more with the storage you already have.

² Based on list price comparison between a 4 TB dual-controller Dell EqualLogic PS6000 and HP P4000 VSA Software plus 24 250 GB HDDs used to create the virtual iSCSI SAN in a VMware deployment.

Advanced virtualization solutions

If you are implementing advanced server virtualization without an optimized SAN solution, you are only solving half the problem. HP StorageWorks P4000 G2 SAN Solutions help you meet the high-availability requirements that your server virtualization requires by:

- Protecting data in the virtual data center with disaster recovery and high availability
- Providing scalable, modular growth without requiring you to re-architect your storage solution
- Helping you to provision your storage intelligently for high utilization and rapid response to the changing business conditions

For businesses using virtualization to do more with less, HP P4000 G2 SANs complete the solution with advanced storage features designed for high performance in a virtual environment.

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www.hp.com/go/hpfinancialservices

HP Services

Partner with HP Technology Services to boost availability and avoid costly downtime by mitigating technology-related business risks. To help take the worry out of deploying, supporting, and managing your HP StorageWorks P4000 G2 SAN Solution, we have designed a portfolio of service options that are as flexible, scalable, and affordable as our storage. For example, the SAN Readiness Assessment for Virtualization service (SRAV) conducts an analysis of the factors that affect the success of a virtualization platform as it relates to the storage and or backup network. For more information about HP services and support, contact your HP sales representative or HP-authorized Channel Partner, or visit:

www.hp.com/hps/storage

For more information

To learn more about HP StorageWorks P4000 G2 SAN Solutions, contact your local HP representative or visit: www.hp.com/go/P4000



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