Advanced virtualization solutions

HP LeftHand P4000 SAN Solutions provide government agencies with storage that is optimized for virtual infrastructure.

At a glance

HP LeftHand P4000 SAN Solutions provide storage that is optimized for your virtualized server environment. This means:

- Storage that supports virtual servers, including support for the high-availability and disaster-recovery features provided by server virtualization solutions
- Cost-effective support for virtual desktop environments, helping agencies take back central control and management of PC systems
- Support for virtualized environments at central and remote sites, facilitating data synchronization between locations

Virtualization: doing more with less

Nearly every federal agency is grappling with a painful combination of budget cuts and skyrocketing energy costs while the demand for new services continues unabated. Meanwhile, new Continuity of Operations Planning (COOP) directives require comprehensive preparation for high availability and disaster recovery.

Server virtualization is helping agencies like yours to meet those goals. It consolidates resources to reduce costs and increase utilization. It facilitates implementation of better disaster-recovery and application-availability solutions. And it optimizes the IT infrastructure for the flexibility and agility needed to quickly respond to changing government mandates.

However, server virtualization requires virtualized storage in order to live up to its promise. Indeed, the advanced high-availability and disaster-recovery features of products such as VMware Virtual Infrastructure *require* the support of shared storage. HP LeftHand P4000 SANs are certified to work with VMware Virtual Infrastructure software. They also provide additional features to make an even better match with your server, desktop, and storage virtualization efforts.

Virtual storage for virtual servers

Server virtualization demands storage 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 HA have continuous access to storage while executing failover of virtual machines. And it calls for storage that is simple and easy to manage.

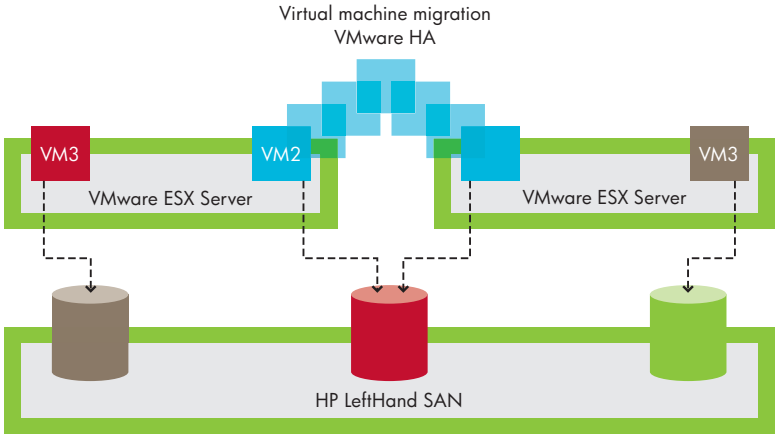
Performance

P4000 SANs deliver the performance needed to support the highly concurrent and rapidly changing workloads that virtualized servers impose on storage.

Higher resource utilization

As your virtualized infrastructure grows, your P4000 SANs grow with it, scaling capacity and performance without disruption. This scaling allows you to thin-provision storage volumes and scale capacity on demand, helping to raise utilization levels while reducing your energy consumption.

Figure: HP LeftHand P4000 SAN Solutions provide the continuous availability needed to support server virtualization features such as VM migration and VMware HA. Wherever a virtual server runs, its storage volumes are available.



Cost-effective HA/DR
HP LeftHand P4000 SANs provide highly available storage that stays online during a site failure. They include built-in synchronous replication that performs storage failover and failback—instantly, automatically, and without human intervention.

P4000 SANs allow for the SAN to be split between two locations for real-time site protection. They also provide geographic awareness to your SAN for performance optimization.

Simple management and flexibility
A centralized management console (CMC) provides a single point for managing every feature of your P4000 SANs regardless of location. The features that you use every day, such as volume creation, and those specifically tuned for virtualized environments, such as volume cloning, are accessible through a few clicks of the mouse. Just as VMware VMotion lets you migrate virtual machines from server to server, the CMC lets you easily migrate volumes between SANs without disrupting applications.

Cost savings for virtual desktops

If you are considering implementing a virtual desktop infrastructure, you'll find that P4000 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, secure, and centrally managed PC on a server; this helps you maintain control over the desktop configurations and images that your employees can use.

The cost of storage to support a large number of desktops can be an issue 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. Make a "golden master" PC image and 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 even small or remote offices to do more with less by using a smaller number of servers to support the applications they need. But deploying a traditional SAN in a remote office is often cost prohibitive. HP LeftHand P4000 Replication for Remote Offices Software provides a low-cost, virtual solution that rescues storage stranded on servers in remote offices as well as central data centers. As an appliance running on VMware, the remote office replication software converts server-based storage into SAN storage that can be clustered and managed like the physical P4000 SANs. 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.

Advanced virtualization solutions

If you're implementing server virtualization without a complementary SAN solution, you're only solving half the problem. HP LeftHand P4000 SAN Solutions help you meet the high-availability requirements that your server virtualization requires. They protect data in the virtual data center for disaster recovery and business continuity. They scale for growth without having to re-architect your storage solution. And they help you to provision your storage intelligently for high utilization and rapid response to changing mandates. For federal agencies using virtualization to do more with less, P4000 SANs complete the solution with advanced storage features designed for high performance in a virtual environment.

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 LeftHand P4000 SAN Solution, we've designed a portfolio of service options that are as flexible, scalable, and affordable as our storage. 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**

HP Financial Services

HP Financial Services provides innovative financing and financial asset management programs to help customers cost-effectively acquire, manage, and ultimately retire their HP solutions. For more information on these services, please contact your HP representative or visit:
www.hp.com/go/hpfinancialservices

For more information

To learn more about HP LeftHand P4000 SAN Solutions, contact your local HP representative or visit:
www.hp.com/go/p4000

Technology for better business outcomes

To learn more, visit www.hp.com/go/p4000

4AA2-5178ENW, April 2009