



## HP P4000 G2 LeftHand SAN Solutions

Family data sheet

Planning for everything—from data growth, to disaster recovery, to centralized backup, to future proofing your infrastructure—these are all daunting tasks for any company, no matter what the size. When it comes to the storage part of the design, HP P4000 G2 LeftHand SAN Solutions are a perfect fit for environments with a variety of virtual servers, client virtualization, database, email, and business applications.

P4000 SANs scale capacity and performance linearly to seamlessly grow with your business. The P4000 portfolio has affordable enterprise functionality with a comprehensive feature set and simplified central management for all locations. Superior application availability and disaster recovery features are integrated into the P4000 SANs for automated failover/failback in any situation. P4000 SANs are optimized for virtualized environments with VMware ESX and Microsoft® Hyper-V integration and offer continuous data availability to users and applications that meets demand on-the-fly.

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**Reduce SAN costs with an all-inclusive, enterprise feature set for physical and virtual environments. Also, eliminate risk via data high availability, increase business agility, and scale SAN disruption free.**

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### Key features and benefits

#### Affordable enterprise functionality with comprehensive feature set

- Scale-out storage clustering allows the consolidation of multiple storage nodes into pools of shared storage. All available capacity and performance is aggregated and available to every volume in the cluster. As storage needs increase, the HP P4000 can scale-out performance and capacity online.
- Network RAID stripes and protects multiple copies of data across a cluster of storage nodes, eliminating any single point of failure in the HP P4000 G2 SAN. Applications have nearly continuous data availability in the event of a disk, controller, storage node, power, network, or site failure.
- Multi-site SAN availability gives the P4000 SAN the ability to assign storage nodes in the cluster to different sites (racks, rooms, buildings, and cities) and provide seamless application high availability with failover/failback across sites—all automatically.
- Reservationless snapshots and thin provisioning allocate space only as data is written without requiring pre-allocation of storage, raising the overall utilization and efficiency of the HP P4000. Snapshots create thinly provisioned, instant point-in-time backups of data on a per-volume basis.
- P4000 SANs are tightly integrated with storage management functions of VMware and Microsoft applications. For instance, the P4000 Remote Copy feature enables centralized backup and disaster recovery on a per-volume basis and leverages application integrated snapshots for faster recovery.



### Storage simplicity for ease of ownership

- Be up and running in less than 20 minutes. From out-of-box, to rack-n-stack, to software setup wizard, to volumes configured, P4000 is super simple to get up and running quickly. Centralized management eases you through the installation and configuration process.
- Manage hundreds of nodes with the same simplicity as your first two. All HP P4000 nodes in your environment, onsite or across multiple sites are managed from the Centralized Management Console (CMC) for simple, easy-to-manage storage. The CMC features a built-in best practice analyzer and automated updates.
- Application integration streamlines storage management for applications. Snapshot and Remote Copy integration for Windows® apps and virtualization platforms (VMware, Hyper-V) make application backup/recovery a snap. Management plug-ins and Multipath I/O (MPIO) integration further simplify managing application storage.
- Updates and upgrades made simple—from firmware to new software releases, to next-generation hardware—update software with a single click and migrate data to a cluster of new storage hardware online, non-disruptively, with P4000 Peer Motion.

### Scale SAN capacity and performance without disruption to applications

- Create highly virtualized storage pools for your cloud. P4000 allows you to provision storage for your applications as needed, on-the-fly. Adjust and respond quickly to changing business demands by simply adding/removing storage nodes to the storage cluster.

- The P4000 SAN scale-out architecture delivers storage that linearly scales in both capacity and performance non-disruptively. A single pool of storage resources comprised of storage nodes; each contribute its own resources to the cluster with volumes striped across, leveraging all critical resources.
- Federated storage management and performance with P4000 SAN allows customers to manage thousands of storage nodes across multiple data centers, all from a single management console. Scaling performance is as simple as adding more storage nodes to the network and bringing them into the P4000 SAN.

### Superior application availability and disaster recovery

- HP P4000 G2 SANs stripe and protect multiple copies of data across a cluster of storage nodes, eliminating any single point of failure in the SAN. Applications have continuous data availability in the event of a disk, controller, storage node, power, network, or site failure.
- The beauty of the high-availability architecture of the P4000 SAN is that a single storage cluster can host volumes with different network RAID levels, with each volume's availability and performance level matched to the needs of the application.
- HP P4000 SANs include integrated replication that simplifies management with automated, transparent failover and failback. If a storage node goes offline, data changes are tracked from the time it goes offline, and then the changed data blocks are restored to the current level when the node is back online.



## P4300 G2 7.2TB SAS Starter SAN Solution



Perfect for first time virtualization projects, the P4300 G2 7.2TB SAS Starter SAN delivers the performance and features required to simplify storage and grow your environment non-disruptively

## P4300 G2 16TB MDL SAS Starter SAN Solution



Perfect for consolidating storage for Windows or Linux servers, the P4300 G2 16TB MDL SAS Starter SAN delivers all features required to simplify storage and grow non-disruptively with your environment

<b>Drive description</b>	16 LFF SAS	16 LFF MDL SAS
<b>Drive type</b>	450 GB 6G 15K LFF Dual-port ENT SAS 16 included	1 TB 6G 7.2K LFF Dual-port MDL SAS 16 included
<b>Capacity</b>	7.2 TB starting 115.2 TB maximum	16 TB starting 256 TB maximum
<b>Storage expansion options</b>	Use storage clustering capability and add incremental P4000 G2 Storage Systems into the SAN to expand storage capacity: P4300 G2 3.6TB SAS Storage System	Use storage clustering capability and add incremental P4000 G2 Storage Systems into the SAN to expand storage capacity: P4300 G2 8TB MDL SAS Storage System
<b>Host interface</b>	1GbE iSCSI (4) ports Optional upgrade to 10GbE iSCSI (4) ports	
<b>Supported operating systems</b>	Apple OS X Citrix XenServer HP-UX IBM AIX Microsoft Windows 2003 Microsoft Windows 2008 Novell NetWare Oracle Enterprise Linux Red Hat Linux Oracle Solaris SUSE Linux VMware All major operating systems and hypervisors are supported. For more information, visit <a href="http://www.hp.com/go/P4000Compatibility">www.hp.com/go/P4000Compatibility</a>	
<b>All-inclusive enterprise feature set based on SAN/IQ</b>	Hyper-redundant clustered storage Redundant, hot-plug power supplies; redundant fans; redundant, hot-plug hard drives; integrated storage controller with battery-backed DDR2 cache; disk RAID 5, 6, and 10; hyper-redundant clustered storage; Network RAID levels (per volume) 0, 5, 6, 10, 10+1, and 10+2 for up to four copies of your data allows data to remain available in the event of a disk, controller, storage node, power, network, or site failure. Thin provisioning Application integrated snapshots Remote Copy asynchronous replication with bandwidth throttling; Multi-site/Disaster Recovery solution pack with synchronous replication SmartClone Centralized Management Console, HP ProLiant Integrated Lights-Out 2 Remote Management, Baseboard Management Controller IPMI 2.0	
<b>Warranty</b>	Three-year parts, three-year labor, or three-year onsite	
<b>QuickSpecs URL</b>	<a href="http://h18000.www1.hp.com/products/quickspecs/13552_div/13552_div.pdf">http://h18000.www1.hp.com/products/quickspecs/13552_div/13552_div.pdf</a>	

## P4500 G2 14.4TB SAS Virtualization SAN Solution



For virtual environments, the P4500 G2 14.4TB SAS Virtualization SAN offers optimized shared storage, cost effective high availability, scalable performance, and non-disruptive configuration changes

## P4500 G2 28.8TB SAS Multi-site SAN Solution



Simplify high availability with a cost-effective P4500 G2 28.8TB SAS Multi-site SAN. Avoid downtime in the event of a site failure with a fully automated, synchronously replicated storage system

<b>Drive description</b>	24 LFF SAS Supported	48 LFF SAS Supported
<b>Drive type</b>	600 GB 6G 15K LFF Dual-port ENT SAS 24 included	600 GB 6G 15K LFF Dual-port ENT SAS 48 included
<b>Capacity</b>	14.4 TB starting 230.4 TB maximum	28.8 TB starting 230.4 TB maximum
<b>Storage expansion options</b>	Use storage clustering capability and add incremental P4000 G2 Storage Systems into the SAN to expand storage capacity: HP P4500 G2 7.2TB SAS Storage System	Use storage clustering capability and add incremental P4000 G2 Storage Systems into the SAN to expand storage capacity: HP P4500 G2 7.2TB SAS Storage System
<b>Host interface</b>	1GbE iSCSI (4) ports Optional upgrade to 10GbE iSCSI (4) ports	1GbE iSCSI (8) ports Optional upgrade to 10GbE iSCSI (8) ports
<b>Supported operating systems</b>	<p>Apple OS X Citrix XenServer HP-UX IBM AIX Microsoft Windows 2003 Microsoft Windows 2008 Novell NetWare Oracle Enterprise Linux Red Hat Linux Oracle Solaris SUSE Linux VMware</p> <p>All major operating systems and hypervisors are supported. For more information, visit <a href="http://www.hp.com/go/P4000Compatibility">www.hp.com/go/P4000Compatibility</a></p>	
<b>All-inclusive enterprise feature set based on SAN/IQ</b>	<p>Hyper-redundant clustered storage</p> <p>Redundant, hot-plug power supplies; redundant fans; redundant hot-plug hard drives; integrated storage controller with battery-backed DDR2 cache; disk RAID 5, 6, and 10; hyper-redundant clustered storage; Network RAID levels (per volume) 0, 5, 6, 10, 10+1, and 10+2 for up to four copies of your data allows data to remain available in the event of a disk, controller, storage node, power, network, or site failure.</p> <p>Thin provisioning</p> <p>Application integrated snapshots</p> <p>Remote Copy asynchronous replication with bandwidth throttling; Multi-site/Disaster Recovery solution pack with synchronous replication</p> <p>SmartClone</p> <p>Centralized Management Console, HP ProLiant Integrated Lights-Out 2 Remote Management, Baseboard Management Controller IPMI 2.0</p>	
<b>Warranty</b>	Three-year parts, three-year labor, or three-year onsite	
<b>QuickSpecs URL</b>	<a href="http://h18000.www1.hp.com/products/quickspecs/13552_div/13552_div.pdf">http://h18000.www1.hp.com/products/quickspecs/13552_div/13552_div.pdf</a>	

## P4500 G2 60TB MDL SAS Scalable Capacity SAN



Perfect for consolidating large Windows, Linux, UNIX® data volumes, the P4500 G2 MDL SAS 60TB SAN delivers all the features required to simplify storage and grow your environment non-disruptively

## P4500 G2 120TB MDL SAS Scalable Capacity SAN



Perfect for consolidating large Windows, Linux, UNIX data volumes, the P4500 G2 MDL SAS 120TB SAN delivers all the features required to simplify storage and grow your environment non-disruptively

<b>Drive description</b>	60 LFF MDL SAS	60 LFF MDL SAS
<b>Drive type</b>	1 TB 6G 7.2K LFF Dual-port MDL SAS 60 included	2 TB 3G 7.2K LFF Dual-port MDL SAS 60 included
<b>Capacity</b>	60 TB starting 384 TB maximum	120 TB starting 768 TB maximum
<b>Storage expansion options</b>	Use storage clustering capability and add incremental P4500 G2 Storage Systems into the SAN to expand storage capacity: P4500 G2 12TB MDL SAS Storage System	Use storage clustering capability and add incremental P4000 G2 Storage Systems into the SAN to expand storage capacity: HP P4500 G2 24TB MDL SAS Storage System
<b>Host interface</b>	1GbE iSCSI (10) ports Optional upgrade to 10GbE iSCSI (10) ports	1GbE iSCSI (10) ports Optional upgrade to 10GbE iSCSI (10) ports
<b>Supported operating systems</b>	<ul style="list-style-type: none"> <li>Apple OS X</li> <li>Citrix XenServer</li> <li>HP-UX</li> <li>IBM AIX</li> <li>Microsoft Windows 2003</li> <li>Microsoft Windows 2008</li> <li>Novell NetWare</li> <li>Oracle Enterprise Linux</li> <li>Red Hat Linux</li> <li>Oracle Solaris</li> <li>SUSE Linux</li> <li>VMware</li> </ul> <p>All major operating systems and hypervisors are supported. For more information, visit <a href="http://www.hp.com/go/P4000Compatibility">www.hp.com/go/P4000Compatibility</a></p>	
<b>All-inclusive enterprise feature set based on SAN/IQ</b>	<p>Hyper-redundant clustered storage</p> <hr/> <p>Redundant, hot-plug power supplies; redundant fans; redundant hot-plug hard drives; integrated storage controller with battery-backed DDR2 cache; disk RAID 5, 6, and 10; hyper-redundant clustered storage; Network RAID levels (per volume) 0, 5, 6, 10, 10+1, and 10+2 for up to four copies of your data allows data to remain available in the event of a disk, controller, storage node, power, network, or site failure.</p> <hr/> <p>Thin provisioning</p> <hr/> <p>Application integrated snapshots</p> <hr/> <p>Remote Copy; asynchronous replication with bandwidth throttling; Multi-site/Disaster Recovery solution pack with synchronous replication</p> <hr/> <p>SmartClone</p> <hr/> <p>Centralized Management Console, HP ProLiant Integrated Lights-Out 2 Remote Management, Baseboard Management Controller IPMI 2.0</p>	
<b>Warranty</b>	Three-year parts, three-year labor, or three-year onsite	
<b>QuickSpecs URL</b>	<a href="http://h18000.www1.hp.com/products/quickspecs/13552_div/13552_div.pdf">http://h18000.www1.hp.com/products/quickspecs/13552_div/13552_div.pdf</a>	

## P4800 G2 31.5TB SAS SAN Solution for BladeSystem



The P4800 SAN Solution for BladeSystem is the industry's first scale-out enterprise class SAN completely integrated into HP BladeSystem delivering lower power/cooling costs with higher density.

## P4800 G2 42TB SAS SAN Solution for BladeSystem



The P4800 SAN Solution for BladeSystem is the industry's first scale-out enterprise class SAN completely integrated into HP BladeSystem delivering lower power/cooling costs with higher density.

<b>Drive description</b>	70 LFF SAS	70 LFF SAS
<b>Drive type</b>	450 GB 6G 15K LFF Dual-port ENT SAS 70 included	600 GB 6G 15K LFF Dual-port ENT SAS 70 included
<b>Capacity</b>	31.5 TB starting 504 TB maximum	42 TB starting 672 TB maximum
<b>Storage expansion options</b>	Use storage clustering capability and add incremental P4800 G2 SANS into the overall SAN to expand storage capacity: P4800 G2 31.5TB SAS SAN Solution for BladeSystem	Use storage clustering capability and add incremental P4800 G2 SANS into the overall SAN to expand storage capacity: P4800 G2 42TB SAS SAN Solution for BladeSystem
<b>Host interface</b>	10GbE iSCSI (4) ports	10GbE iSCSI (4) ports
<b>Supported operating systems</b>	<ul style="list-style-type: none"> <li>Apple OS X</li> <li>Citrix XenServer</li> <li>HP-UX</li> <li>IBM AIX</li> <li>Microsoft Windows 2003</li> <li>Microsoft Windows 2008</li> <li>Novell NetWare</li> <li>Oracle Enterprise Linux</li> <li>Red Hat Linux</li> <li>Oracle Solaris</li> <li>SUSE Linux</li> <li>VMware</li> </ul> <p>All major operating systems and hypervisors are supported. For more information, visit <a href="http://www.hp.com/go/P4000Compatibility">www.hp.com/go/P4000Compatibility</a></p>	
<b>All-inclusive enterprise feature set based on SAN/IQ</b>	Hyper-redundant clustered storage	
	Redundant, hot-plug power supplies; redundant fans; redundant hot-plug hard drives; integrated storage controller with battery-backed DDR2 cache; disk RAID 5, 6, and 10; hyper-redundant clustered storage; Network RAID levels (per volume) 0, 5, 6, 10, 10+1, and 10+2 for up to four copies of your data allows data to remain available in the event of a disk, controller, storage node, power, network, or site failure.	
	Thin provisioning	
	Application integrated snapshots	
	Remote Copy asynchronous replication with bandwidth throttling; Multi-site/Disaster Recovery solution pack with synchronous replication	
	SmartClone	
	Centralized Management Console, HP ProLiant Integrated Lights-Out 2 Remote Management, Baseboard Management Controller IPMI 2.0	
<b>Warranty</b>	Three-year parts, three-year labor, or three-year onsite	
<b>QuickSpecs URL</b>	<a href="http://h18000.www1.hp.com/products/quickspecs/13552_div/13552_div.pdf">http://h18000.www1.hp.com/products/quickspecs/13552_div/13552_div.pdf</a>	



## P4800 G2 140TB SAS SAN Solution for BladeSystem



The P4800 SAN Solution for BladeSystem is the industry's first scale-out enterprise class SAN completely integrated into HP BladeSystem delivering lower power/cooling costs with higher density.

## P4900 G2 6.4TB SSD Storage System



For high performance workloads that need the power of solid state—P4900 G2 6.4TB SSD Storage System is a 2-node cluster that can be used by itself or as a performance tier in a P4000 environment.

<b>Drive description</b>	70 LFF SAS	16 SFF SSD
<b>Drive type</b>	2 TB 3G 7.2K LFF Dual-port MDL SAS 70 included	400 GB MLC SAS Solid State Drive 16 included
<b>Capacity</b>	140 TB starting 2240 TB maximum	6.4 TB starting 102.4 TB maximum
<b>Storage expansion options</b>	Use storage clustering capability and add incremental P4800 G2 SANS into the overall SAN to expand storage capacity: P4800 G2 140TB MDL SAS SAN Solution for BladeSystem	Use storage clustering capability and add incremental P4900 G2 Storage Systems into the SAN to expand storage capacity: P4900 G2 3.2TB SSD Storage System
<b>Host interface</b>	10GbE iSCSI (4) ports	10GbE iSCSI (4) ports and 1GbE iSCSI (4) ports
<b>Supported operating systems</b>	Apple OS X Citrix XenServer HP-UX IBM AIX Microsoft Windows 2003 Microsoft Windows 2008 Novell NetWare Oracle Enterprise Linux Red Hat Linux Oracle Solaris SUSE Linux VMware All major operating systems and hypervisors are supported. For more information, visit <a href="http://www.hp.com/go/P4000Compatibility">www.hp.com/go/P4000Compatibility</a>	
<b>All-inclusive enterprise feature set based on SAN/IQ</b>	Hyper-redundant clustered storage Hot-plug hard drives; integrated storage controller with DDR2 memory; disk RAID 5, 6, and 10; hyper-redundant clustered storage; network RAID levels (per volume) 0, 5, 6, 10, 10+1, and 10+2 for up to four copies of your data allows data to remain available in the event of a disk, controller, storage node, power, network, or site failure. Thin provisioning Application integrated snapshots Remote Copy asynchronous replication with bandwidth throttling; Multi-site/Disaster Recovery solution pack with synchronous replication SmartClone Centralized Management Console, HP ProLiant Integrated Lights-Out 2 Remote Management, Baseboard Management Controller IPMI 2.0	
<b>Warranty</b>	Three-year parts, three-year labor, or three-year onsite	
<b>QuickSpecs URL</b>	<a href="http://h18000.www1.hp.com/products/quickspecs/13552_div/13552_div.pdf">http://h18000.www1.hp.com/products/quickspecs/13552_div/13552_div.pdf</a>	

## HP P4000 Unified NAS Gateway

This one- or two-node file server gateway adds Windows-based file and print services to the P4000 SAN. All your important client and server data can be managed, scaled, and protected on a P4000 SAN Solution. Powered by the popular Windows Storage Server 2008 R2, Enterprise x64 Edition, P4000 Gateways integrate natively into Windows Active Directory environments.

### Gateway services

HP P4000 G2 Unified NAS Gateways are file bridges into a P4000 SAN. They add IP-based file serving data services in a package that can be clustered for high availability (the P4000 Central Management Console and CLIQ are preinstalled).

### Multi-protocol file serving

In a Windows (SMB/CIFS) environment, there is no better way to serve files. In mixed environments, you get the flexibility of heterogeneous support for additional protocols like NFS, HTTP, FTP, and WebDAV.

### High availability unified solutions

Businesses with small environments, which previously considered high-availability shared storage out of their price range, can now build affordable, unified (file/block) solutions. Up to eight P4000 gateways can be clustered together alongside a P4000 SAN to enable high availability and scalable NAS performance.

### Print server support

P4000 gateways host print services too, offering additional consolidation benefits to your Windows environment.

## Service and support

### HP Factory Express

HP Factory Express is designed to help you get a better return on your IT investment by providing customization, integration, and deployment services along with your storage and server purchases. It provides predictable, trusted, and tested IT solutions tailored to your business needs. We allow you to customize hardware to your exact specifications in the factory—helping to speed up deployment and free up internal resources. Visit: [www.hp.com/go/factoryexpress](http://www.hp.com/go/factoryexpress).

### Technical training

Consider education as an integral part of your strategy to get a first-rate ROI for your HP storage solution. HP offers a variety of training courses on storage software, networking, archiving,

## HP Services

Tap into the HP support services advantage, backed by the strategic and technical know-how of our consulting experts—for a single source solution that makes the most of your investments. Depending on your individual support requirements, choose from three levels of care that cover the entire lifecycle to better address your needs:

**Optimized Care:** Delivers best performance and stability through deployment and proactive management practices

- HP Installation and Startup Service for HP P4000 SAN Solutions
- HP Critical Advantage Level 3\* OR 3-Year HP Critical Service
- Optional related services: HP Storage Data Migration; HP Proactive Select

**Standard Care:** Maintains high level of uptime, along with expert help to cut the cost and complexity of implementation and support

- HP Installation and Startup Service for HP P4000 SAN Solutions
- HP Critical Advantage Level 2\* OR 3-Year HP Proactive 24 Service
- Optional related services: HP Storage Data Migration; HP Proactive Select

**Basic Care:** Minimum recommended support

- HP Installation and Startup Service for HP P4000 SAN Solutions
- 3-Year HP Support Plus 24; plus, 30 Proactive Select credits
- Optional related services: HP Storage Data Migration; HP Proactive Select

\*For storage used by business critical applications running on virtualized and x86 infrastructures

If none of our support recommendations meet your needs, we can tailor a service solution for your unique support requirements. Only HP brings together deep expertise, proactive and business critical support and a strong partner network—plus, a full set of infrastructure services designed to power a Converged Infrastructure.

For more information visit [www.hp.com/services/storage](http://www.hp.com/services/storage).

and disk storage systems. Our classes are available in many delivery modalities from traditional instructor-led courses at one of our 80 training centers worldwide to onsite training customized to your needs or online. Visit: [www.hp.com/learn/storage](http://www.hp.com/learn/storage).

## HP Financial Services

HP Financial Services provides innovative financing and financial asset management programs to help you cost-effectively acquire, manage, and ultimately retire your HP solutions. For more information on these services, visit: [www.hp.com/go/hpfinancialservices](http://www.hp.com/go/hpfinancialservices).



Manage your virtual environment and benefit from high availability of data, while keeping costs low and mitigating risks, with HP P4000 G2 LeftHand SAN Solutions. Visit [www.hp.com/go/P4000](http://www.hp.com/go/P4000).

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