



P4300 G2 7.2 TB SAS Starter SAN Solution



P4300 G2 16 TB MDL SAS Starter SAN Solution



P4500 G2 14.4 TB SAS Virtualization SAN Solution



P4500 G2 28.8 TB SAS Multi-Site SAN Solution



P4500 G2 120 TB MDL SAS Scalable Capacity SAN Solution



P4800 G2 63 TB SAS BladeSystem SAN Solution

HP StorageWorks P4000 G2 SAN Solutions

Family data sheet

Storage needs are changing in light of server virtualization, data growth, business continuity demands, and cost pressures. Looking for a storage solution that can meet these goals and be added easily into your infrastructure?

HP StorageWorks P4000 G2 SAN Solutions are proven for virtual servers, client virtualization, database, email, and business applications. With a pay-as-you-grow, all-inclusive pricing model (three-year support included), and intuitive storage management, this SAN is perfect for the budget-minded. Does room for growth, high availability, and disaster recovery seem out of reach? The P4000 G2 SANs

scale capacity and performance linearly, without incurring downtime or performance bottlenecks. Avoid expensive upgrades. P4000 G2 SANs remove any single point of failure across the SAN and offer data high availability, reducing risks without driving up costs. Reservation-less thin provisioning substantially increases your storage utilization, thus reducing costs.



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



Key features and benefits

All-inclusive feature set for enterprise functionality at an affordable price

Storage Clustering allows you to consolidate multiple storage nodes into storage pools. All available capacity and performance is aggregated and available to every volume in the cluster. As your storage needs increase, the HP P4000 G2 can scale performance and capacity online.

Network RAID (levels 10, 10+1, and 10+2) stripes and protects multiple copies of data across a cluster of storage nodes, removing any single point of failure in the HP P4000 G2 SAN. Applications can have continuous data availability in the event of a disk, controller, storage node, power, network, or site failure. Network RAID levels 5 and 6 maintain data high availability while improving storage utilization.

Thin Provisioning allocates space only when data is actually written. As a result, it doesn't require a pre-allocation of storage. This raises the overall utilization and efficiency of the HP P4000 G2 SAN, reduces costs, and ultimately increases the return on investment (ROI).

Snapshots create thinly provisioned, instant point-in-time copies of data on a per-volume basis.

Administrators access snapshots to recover individual files from the volume or rollback an entire volume. Built-in application integration provides automated quiescing for Microsoft® VSS applications.

Remote Copy replicates snapshots between P4000 G2 SANs at primary/remote locations. Copies are thinly provisioned with no space reservation required. Remote Copy enables centralized backup and disaster recovery on a per-volume basis and leverages application integrated snapshots for faster recovery.

High availability and disaster recovery

HP P4000 G2 SANs stripe and protect multiple copies of data across a cluster of storage nodes, removing any single point of failure in the SAN. For an added level of protection, P4000 storage nodes can be strategically separated across locations to protect your data from site failure.

HP P4000 G2 SANs include integrated replication for disaster recovery at no additional cost, which simplifies management with simple failover and failback.

Administrators can add capacity, change protection level, increase performance, grow, and migrate volumes between HP P4000 G2 SAN clusters on the fly, with no application downtime.

Scaling SAN capacity and performance without disruption

Avoid up-front cost and the potential performance constraints. Purchase only what is needed today, then grow the performance, capacity, and redundancy of your HP P4000 G2 SAN online as storage requirements evolve. Buying storage only when needed simplifies planning and relieves budget pressures.

Each time a storage node is added to the HP P4000 G2 SAN, the capacity, performance, and redundancy of the entire storage solution increases.

Add resources to the HP P4000 G2 SAN non-disruptively as capacity and performance requirements increase. Applications remain online during maintenance events (adding nodes, updating software or firmware) for proven availability.

Virtual Desktop Infrastructure (VDI) and client virtualization deployments are accelerated with HP reference architectures for VMware and Hyper-V/Citrix.

Easy-to-manage SANs for virtualized environments

Streamlined storage management is provided for VMware (SRM integration, VDI plug-in), Hyper-V, and Citrix (StorageLink plug-in).

Take control of your storage management costs before they get out of control: Set up global configuration rules for all P4000 SAN nodes and avoid all redundant tasks. Multiple data centers and sites managed from an all-inclusive “single pane-of-glass.”

Enjoy these benefits when deploying VMware virtual machines on P4000 SANs with vStorage API for Array Integration (VAAI):

- Offload VM deployment traffic from ESX servers to the array.
- Reduce the time by up to 85 percent.¹
- Simultaneously, reduce the SAN traffic for those tasks by up to 94 percent.¹

All of the HP P4000 G2 SAN features managed from the Centralized Management Console (CMC) for simple, easy-to-manage storage.

P4000 SANs facilitate proven operation with a built-in best practice analyzer that automatically recommends SAN best practices and how to implement them.

You can boost the value of P4000 SAN Solutions by adding Windows®-powered IP-based gateway services. Fully featured HP StorageWorks P4000 Unified NAS Gateway includes support for multiple file protocols (CIFS, NFS, and so on), deduplication, print services, and high availability through Microsoft Clustering.

¹ Based on HP internal testing conducted in 2010. Published as graphs in HP presentation for the launch in 11/15/2010. Tests compared P4000 with and without VAAI integration.



P4300 G2 7.2 TB SAS Starter SAN Solution

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



P4300 G2 16 TB MDL SAS Starter SAN Solution

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

Drive Description	16 LFF SAS	16 LFF MDL SAS
Drive Type	450 GB 6G 15K LFF dual-port ENT SAS 16 Included	1 TB 6G 7.2K LFF dual-port MDL SAS 16 Included
Capacity	7.2 TB Starting 115.2 TB Maximum	16 TB Starting 256 TB Maximum
Storage Expansion Options	Use storage clustering capability and add incremental P4000 G2 Storage Systems into the SAN to expand storage capacity: P4300 G2 3.6 TB SAS Storage System.	Use storage clustering capability and add incremental P4000 G2 Storage Systems into the SAN to expand storage capacity: P4300 G2 8 TB MDL SAS Storage System.
Host Interface	1GbE iSCSI (4) Ports Optional upgrade to 10GbE iSCSI (4) Ports	
Supported Operating Systems	Apple OS X Citrix XenServer HP-UX IBM AIX Microsoft Windows 2003 Microsoft Windows 2008 Novell NetWare Oracle Enterprise Linux Red Hat Linux SUN Solaris SUSE Linux VMware www.hp.com/go/P4000Compatibility	
All-inclusive Enterprise Feature Set based on SAN/IQ	Hyper-redundant clustered storage	
	Redundant, hot swap 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 Mgmt Controller IPMI 2.0	
	Industry-leading VMware integration: vStorage/VAAL array offload integration, HP Insight Control Storage Module for vCenter, Native ESX MPIO/PSA support, Site Recovery Manager adapter.	
Note: Replication to remote offices is available as an add-on via P4000 Virtual SAN Appliance (VSA) which is the only VMware certified "SVA"; www.hp.com/go/VSA		
Warranty	Three-years parts, three-years labor, three-years onsite, Next Business Day	
QuickSpecs URL	http://h18000.www1.hp.com/products/quickspecs/13552_div/13552_div.pdf	



P4500 G2 14.4 TB SAS Virtualization SAN Solution

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

P4500 G2 28.8 TB SAS Multi-Site SAN Solution

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

Drive Description	24 LFF SAS Supported	48 LFF SAS Supported
Drive Type	600 GB 6G 15K LFF dual-port ENT SAS 24 Included	600 GB 6G 15K LFF dual-port ENT SAS 48 Included
Capacity	14.4 TB Starting 230.4 TB Maximum	28.8 TB Starting 230.4 TB Maximum
Storage Expansion Options	Use storage clustering capability and add incremental P4000 G2 Storage Systems into the SAN to expand storage capacity: HP StorageWorks P4500 G2 7.2 TB SAS Storage System.	Use storage clustering capability and add incremental P4000 G2 Storage Systems into the SAN to expand storage capacity: HP StorageWorks P4500 G2 7.2 TB SAS Storage System.
Host Interface	1GbE iSCSI (4) Ports Optional upgrade to 10GbE iSCSI (4) Ports	1GbE iSCSI (8) Ports Optional upgrade to 10GbE iSCSI (8) Ports
Supported Operating Systems	Apple OS X Citrix XenServer HP-UX IBM AIX Microsoft Windows 2003 Microsoft Windows 2008 Novell NetWare Oracle Enterprise Linux Red Hat Linux SUN Solaris SUSE Linux VMware www.hp.com/go/P4000Compatibility	
All-inclusive Enterprise Feature Set based on SAN/IQ	Hyper-redundant clustered storage	
	Redundant, hot swap 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 Mgmt Controller IPMI 2.0	
	Industry-leading VMware integration: vStorage/VAAI array offload integration, HP Insight Control Storage Module for vCenter, Native ESX MPIO/PSA support, Site Recovery Manager adapter.	
Ten licenses for Replication for Remote Offices (10 TB each) are included.		
Warranty	Three-years parts, three-years labor, three-years onsite, Next Business Day	
QuickSpecs URL	http://h18000.www1.hp.com/products/quickspecs/13552_div/13552_div.pdf	



P4500 G2 120 TB MDL SAS Scalable Capacity SAN Solution

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

P4800 G2 63 TB SAS BladeSystem SAN Solution

The P4800 BladeSystem SAN is the industry's first enterprise, scale-out SAN managed with BladeSystem infrastructure tools, offering leading storage density, SAN high availability and performance.

Drive Description	60 LFF MDL SAS	140 LFF SAS
Drive Type	2 TB 6G 7.2K LFF dual-port MDL SAS 60 Included	450 GB 6G 15K LFF dual-port SAS 140 Included
Capacity	120 TB Starting 768 TB Maximum	63 TB Starting 1120 TB Maximum
Storage Expansion Options	Use storage clustering capability and add incremental P4000 G2 Storage Systems into the SAN to expand storage capacity: HP StorageWorks P4500 G2 24 TB MDL SAS Storage System.	Use storage clustering capability and add incremental P4000 G2 Storage Systems or P4800 SANs into your SAN to expand storage: P4800 G2 63 TB SAS BladeSystem SAN.
Host Interface	1GbE iSCSI (10) Ports Optional upgrade to 10GbE iSCSI 10-Ports	10 Gb/sec iSCSI (8) Ports
Supported Operating Systems	Apple OS X Citrix XenServer HP-UX IBM AIX Microsoft Windows 2003 Microsoft Windows 2008 Novell NetWare Oracle Enterprise Linux Red Hat Linux SUN Solaris SUSE Linux VMware www.hp.com/go/P4000Compatibility	
All-inclusive Enterprise Feature Set based on SAN/IQ	Hyper-redundant clustered storage	
	Redundant, hot swap 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 Mgmt Controller IPMI 2.0	
	Industry-leading VMware integration: vStorage/VAAI array offload integration, HP Insight Control Storage Module for vCenter, Native ESX MPIO/PSA support, Site Recovery Manager adapter.	
Note: Replication to remote offices is available as an add-on via P4000 Virtual SAN Appliance (VSA) which is the only VMware certified "SVA"; www.hp.com/go/VSA		
The P4800 SAN represents the industry's first SAN fully converged with HP BladeSystem. All infrastructure management is done via Onboard Administrator. All SAN management is done via the P4000 CMC. Benefits such as common management, common spare parts, 65% less footprint, 30% less power/cooling, and eliminating the FC SAN switch are combined with the high productivity P4000 CMC and translate into significant savings compared to traditional storage architectures.		
Warranty	Three-years parts, three-years labor, three-years onsite	
QuickSpecs URL	http://h18000.www1.hp.com/products/quickspecs/13552_div/13552_div.pdf	



P4000 G2 Unified NAS Gateway—1 or 2 node

Management	MMC-based management interface accessible via HTTPS, Remote Desktop, Integrated Lights-Out 2 remote
Processor	(1) Intel® Xeon® Processor E5503 2.00 GHz
Memory	6 GB DDR3 registered (RDIMM) with ECC capabilities
Drive type	(2) 300 GB 3G 15K LFF dual-port SAS included for O/S mirror 0 GB useable—designed to utilize external P4000 SAN storage
Storage Expansion Option	Attach to any P4000 SAN
Network Adapters	HP NC326i integrated dual-port Gigabit Server Adapter NC364T integrated quad-port Gigabit Server Adapter
Number of Users	100—1300 per node
Form Factor	1U
Warranty (parts-labor-onsite)	Three-years parts, three-years labor, three-years onsite. One year software support.

HP StorageWorks P4000 Unified NAS Gateway

This 1 or 2-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 considered high availability shared storage out of their price range, can 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. 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, 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. 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, please visit: www.hp.com/go/hpfinancialservices

HP Services

HP Technology Services—consultants and support experts to solve your most complex infrastructure problems. We help keep your business running, no matter what. Boost availability and avoid downtime, trust our expertise to fine-tune your HP solution.

Recommended services

3-Year HP Support Plus 24 Service: For a higher return on your storage technology, our 3-year combined reactive support service delivers integrated onsite hardware/software support services available 24x7x365, including access to HP technical resources, 4-hour response onsite hardware support and software updates.

HP Installation and Startup Service for StorageWorks P4000 SAN Solutions: To help get your P4000 G2 SAN up and running quickly.

HP Proactive Select Service: To improve IT performance and manageability using cost effective flexible proactive services.

Related services

3-Year HP Proactive 24: HP Proactive 24 Service is an integrated hardware/software support solution that combines industry-leading technical assistance with proactive account services, to cover the entire IT infrastructure and to improve the stability, availability, and operational effectiveness of the IT environment.

HP Entry Storage Data Migration Service for Windows: This service provides deployment services for HP StorageWorks Storage Mirroring Data Migration software.

Trust the Services professionals at HP; for more information visit: <http://www.hp.com/hps>

To learn more about how you can manage your virtual environment and benefit from high availability of data, while still keeping costs low and mitigating your risks through HP StorageWorks P4000 G2 SAN Solutions, visit www.hp.com/go/P4000

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