

HP StorageWorks arrays

Family guide



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HP StorageWorks arrays: bridging the gap between data explosion and storage infrastructure

Regardless of the size of your organization, it's likely that you are facing daunting challenges regarding data storage. You not only require immediate access to the exploding volumes of data, but government regulations and corporate governance are dictating what must be kept, for how long, and when you need to gain access to it. Adding that to today's economic situation, you need to cut your near-term capital and operating costs without sacrificing quality. Therefore, it is critical that you invest in a cost-effective, long-term solution that can support your business now and well into the future, and that all of the different components and options are compatible with one another.

HP StorageWorks' family of disk arrays reduces the complexity of your storage environment and helps lower costs because they are easy to install, easy to manage, and easy to support. All of your storage needs are addressed—whether it's an entry-level modular array, an enterprise-class disk array, or intelligent management software. Our simplified array and user interface designs mean that you'll spend less time installing, configuring, and performing storage management tasks.

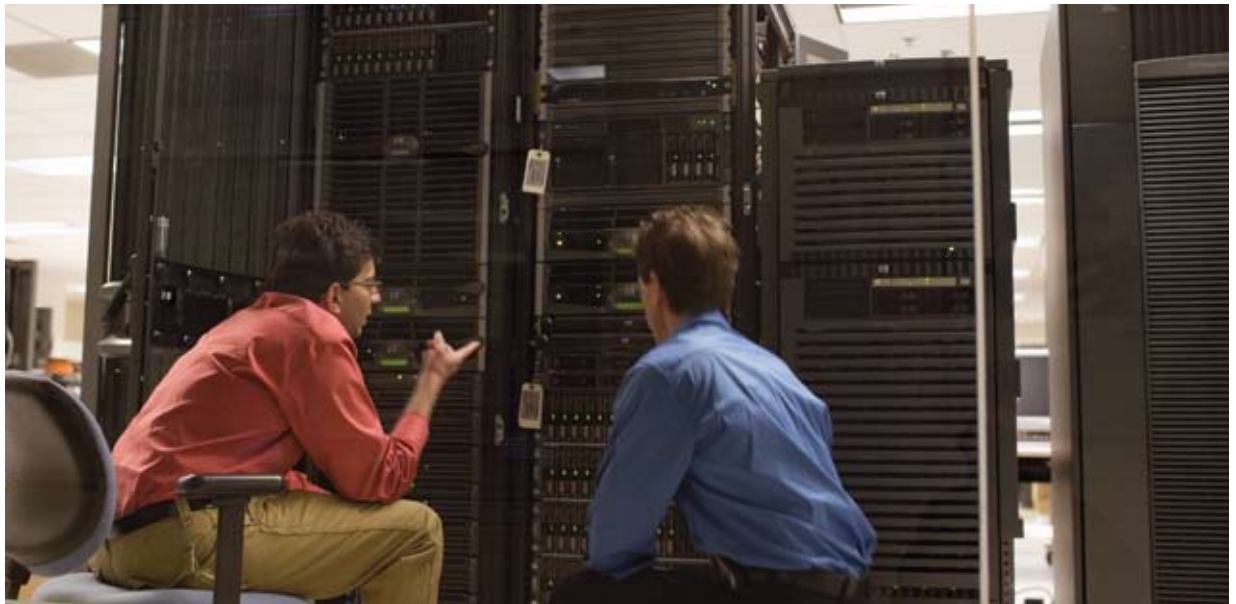
The HP StorageWorks disk array portfolio includes:

- **All-in-One (AiO) Storage Systems:** Providing simple, affordable networked storage; specifically, network-attached storage (NAS) and Internet small computer system interface (iSCSI), with integrated data protection features and simplified management

- **Modular Smart Arrays (MSAs):** Enabling low-cost, scalable, high-performance storage consolidation through SANs to meet entry-level to midrange requirements
- **P4000 SAN Solutions:** Reduce costs with an all-inclusive feature set that simplifies management in a virtual environment. Eliminate risk and increase business agility with non-disruptive scalability
- **Enterprise Virtual Arrays (EVAs):** An ideal storage solution for midrange to enterprise-class environments that require high performance, high capacity, and high availability
- **XP Disk Arrays:** The HP StorageWorks XP24000/XP20000 Disk Arrays are large enterprise-class storage systems designed for organizations that simply cannot afford any downtime or tolerate any data loss

We also offer a range of complementary offerings to help you tackle the most basic to the most complex storage challenges. These include everything from a single tape drive to an automated tape library as well as enterprise-wide SANs with arrays flexible enough to manage gigabytes to petabytes of storage.

Our server portfolio consists of the HP Integrity and HP ProLiant server families as well as HP BladeSystem. When you combine HP StorageWorks solutions with HP servers, the advantages multiply even further—hardware and software integrates seamlessly, systems are easy to manage, change is simplified, and you're prepared for future challenges. You can learn more about our server portfolios on page 16.



Why should you choose HP storage with your HP server? There are many reasons why HP StorageWorks is your best storage option with your HP server. Here are just a few:

- Do you need a single interface to monitor, automate, and control your complex IT environment? Is pooling and sharing of resources important for increasing your IT utilization? Do you need to reduce business risk from unplanned downtime?

Our software allows you to manage, virtualize, and protect IT resources to simplify and optimize your infrastructure. For example, HP Systems Insight Manager can lower costs and simplify with common storage and server management.

- How efficiently do your storage and servers work together?

We spend hundreds of hours rigorously testing our storage and servers together so you can deploy our solutions with confidence.

- Do you need to save time when deploying storage and servers?

Our solutions that are ready to run accelerate deployment. With Factory Express you can choose how your solution is built, tested, integrated, shipped, and deployed, which means you know your solutions will work from Day One.

- How important is it that your service partner provides a single point of ownership and accountability? Do they meet your service needs across your enterprise? Have you reached the mission-critical reliability you require to meet your business needs?

From training and basic product support to selective outsourcing, our services help you realize the full potential of your technology to meet your business requirements.

- Do you have everything you need to meet your infrastructure needs?

Our server and storage options—including memory, disk drives, processors, racks, operating system software, array-based software, power, and cooling—help optimize your solution by enhancing system performance and functionality.

Storage matters now more than ever, and the demands on your storage and server infrastructure will only continue to grow. Over the next several pages, you'll see how HP StorageWorks solutions have been designed to answer your unique needs and requirements—and promote greater business outcomes—now and into the future.

HP StorageWorks All-in-One Storage Systems

Unified solutions combining shared iSCSI storage and customized NAS file serving with integrated data protection, designed to be deployed and managed by IT generalists with no storage expertise.

Entry-level



HP StorageWorks 400t All-in-One Storage System (AiO400t)

HP StorageWorks 400r All-in-One Storage System (AiO400r)

HP StorageWorks 1200r All-in-One Storage System (AiO1200r)

HP StorageWorks All-in-One SB600c Storage Blade (AiO SB600c)

	HP StorageWorks 400t All-in-One Storage System (AiO400t)	HP StorageWorks 400r All-in-One Storage System (AiO400r)	HP StorageWorks 1200r All-in-One Storage System (AiO1200r)	HP StorageWorks All-in-One SB600c Storage Blade (AiO SB600c)
Processor type and description	Dual-Core Intel® Pentium® E2160 1.8 GHz with 1x1 MB L2 cache	Quad-Core Intel® Xeon® processor E5405 (2.00 GHz, 80W, 1333 MHz FSB) (one processor standard; up to 2 supported)	Quad-Core AMD Opteron™ Model 2354 2.2 GHz	One Quad-Core Intel® Xeon® E5410 (2.33 GHz, 1333 FSB, 80W)
Memory standard/max	2 GB/4 GB	2 GB/4 GB	2 GB or 4 GB/4 GB	2 GB/4 GB
Storage included	4 non-Hot-Plug drives: 1 TB SATA (250 GB) 584 GB SAS (146 GB)	4 Hot-Plug drives: 1 TB SATA (250 GB) 2 TB SATA (500 GB) 1.2 TB SAS (300 GB)	Up to 12 Hot Plug drives: 3 TB SATA (12 X 250 GB) 6 TB SATA (8 X 750 GB) 9 TB SATA (12 X 750 GB) 12 TB SATA (12 X 1 TB) 2.4 TB SAS (8 X 300 GB) 3.6 TB SAS (12 X 300 GB) 5.4 TB SAS (12 X 450 GB)	292 GB 2x146 GB 10K SFF SAS have the OS pre-installed on the server Choose up to 6 Small Form Factor (SFF) drives: 146 GB 10K SAS SFF 250 GB 5.4K SATA SFF
Storage controller	Smart Array E200/128 MB Controller with BBWC		Smart Array P800/512 MB Controller (RAID 0/1/5/6) with BBWC and 2 external SAS expansion ports	Smart Array E200i
Network controller	Embedded NC105i PCIe Gigabit Ethernet Server Adapter plus additional NC360T dual-port Gigabit Ethernet Server Adapter	Embedded NC320i PCIe dual-port Gigabit Server Adapter	Embedded NC326i PCIe dual-port Gigabit Server Adapter	Integrated single-port NC373i Multifunction Gigabit Server Adapter
Integrated application data storage (iSCSI SAN)	iSCSI support for Windows® 2000, Windows Server 2003, Windows Server 2008 (including Hyper-V), VMware ESX Server 3/3.5, Novell SUSE Linux Enterprise Server 10, Red Hat Enterprise Linux 5, and Qlogic 40xx series iSCSI hardware HBAs			
Integrated file serving (NAS)	Heterogeneous file serving with support for SMB/CIFS, NFS, AppleTalk, Novell, HTTP, FTP			
Integrated data protection	File and array snapshots (64/volume for files and 512/volume for iSCSI). Full copy of HP Data Protector Express software for backup and recovery to disk or tape. Supports replication through HP StorageWorks Storage Mirroring			
Operating system	Microsoft® Windows Storage Server 2003 R2 (Standard Edition)			
Hardware warranty	1-year parts exchange, 1-year labor, 1-year onsite next business day response			3 years parts, 3 years labor, and 3 years onsite limited global warranty
QuickSpec URLs	http://h18000.www1.hp.com/products/quickspecs/12913_div/12913_div.html	http://h18000.www1.hp.com/products/quickspecs/12913_div/12913_div.html	http://h18000.www1.hp.com/products/quickspecs/12866_div/12866_div.pdf	http://h18000.www1.hp.com/products/quickspecs/12789_div/12789_div.pdf
HP related offerings				
Recommended services	3 years Support Plus 24 Hardware Installation HP Proactive Select Service	3 years Support Plus 24 Hardware Installation HP Proactive Select Service	3 years Support Plus 24 Hardware Installation HP Proactive Select Service	3 years Support Plus 24 Installation and Startup Service for HP BladeSystem c-Class Infrastructure (OS + ICE) HP Proactive Select Service
Software	HP StorageWorks Storage Mirroring to replicate iSCSI array and file data to another system HP StorageWorks Data Protector Express Options to protect servers connected to the AiO			
Tape	SAS Ultrium tape drives USB, SCSI, and SAS DAT tape drives	SCSI Ultrium tape drives 1/8 G2 Autoloader with Ultrium 448/920 Tape Drive(s)	1/8 G2 Autoloader with Ultrium 920/1760 Tape Drive(s) MSL2024 Tape Library with Ultrium 920/960/1760 Tape Drive(s)	MSL2024 tape library with 920 SAS or Ultrium 960 4 Gb Fibre MSL4048 tape library with 920 SAS or Ultrium 960 4 Gb Fibre

HP StorageWorks Modular Smart Arrays

The HP StorageWorks Modular Smart Array (MSA) family is ideal for organizations looking for entry-level/midrange SANs and low-cost DAS solutions.

Entry-level



HP StorageWorks 20 Modular Smart Array (MSA20)
SATA drive enclosure; capacity for direct attach



HP StorageWorks 50 Modular Smart Array (MSA50)
SAS storage enclosure supporting SAS and SATA

Maximum storage	Up to 12 TB with SATA drives	Up to 3 TB with SAS drives Up to 2.5 TB with SATA drives
Host interface	Ultra320 SCSI	SAS
Maximum number of drives	Up to 12 SATA Large Form Factor (LFF) drives	Up to 10 SAS and/or SATA Small Form Factor (SFF) drives
Hard drives supported	1 TB 3G 7.2K 3.5-inch SATA 750 GB 3G 7.2K 3.5-inch SATA 500 GB 3G 7.2K 3.5-inch SATA 250 GB 3G 7.2K 3.5-inch SATA Note: 3G drives only function at 1.5G	300 GB 3G 10K 2.5-inch Dual-Port SAS 146 GB 3G 10K 2.5-inch Dual-Port SAS 36 GB 3G 15K 2.5-inch Dual-Port SAS 72 GB 3G 15K 2.5-inch Single-Port SAS 36 GB 3G 15K 2.5-inch Single-Port SAS 146 GB 3G 10K 2.5-inch Single-Port SAS 72 GB 3G 10K 2.5-inch Single-Port SAS 250 GB 3G 5.4K 2.5-inch SATA 120 GB 3G 5.4K 2.5-inch SATA 60 GB 1.5G 5.4K 2.5-inch SATA
Operating systems supported	Microsoft Windows Server 2003; Microsoft Windows Server 2000 Microsoft Windows Storage Server 2003 Novell NetWare 6.5 Red Hat Enterprise Linux 2.1 Red Hat Enterprise Linux SUSE Linux Enterprise 9 (SLES9) SCO OpenServer 6.0.0 SCO UnixWare 7.1.3; SCO UnixWare 7.1.4; VMware	Microsoft Windows Server 2000; Microsoft Windows Server 2003 Microsoft Windows Storage Server 2003 Microsoft Windows 2008 Novell Open Enterprise Server; Novell NetWare 6.5 SPS SCO OpenServer 5.0.7, 6 SCO UnixWare 7.1.3, 7.1.4 Red Hat Enterprise Linux Solaris 10; SUSE Linux Enterprise Server 9, 10; VMware ESX 3.5
Rack height	2U	1U
Warranty	3 years parts only	3 years parts only
HP related offerings		
Recommended services	3 years Support Plus 24 HP StorageWorks MSA Family Disk Array Installation and Startup Service HP Proactive Select Service	3 years Support Plus 24 HP StorageWorks MSA Family Disk Array Installation and Startup Service HP Proactive Select Service
Software	HP Systems Insight Manager (SIM) HP Array Configuration Utility (ACU)	HP Systems Insight Manager (SIM) HP Array Configuration Utility (ACU)

For additional information on related software for these products, see pages 13 and 14.

HP StorageWorks Modular Smart Arrays (continued)

The HP StorageWorks Modular Smart Array (MSA) family is ideal for organizations looking for entry-level/midrange SANs and low-cost DAS solutions.

Entry-level



HP StorageWorks 60 Modular Smart Array (MSA60)
SAS/SATA drive enclosure for direct attach



HP StorageWorks 70 Modular Smart Array (MSA70)
SAS/SATA drive enclosure for direct attach

Maximum storage	Up to 5.4 TB with SAS drives Up to 12 TB with SATA drives Up to 12 TB with SAS Dual-Port Midline (MDL) drives	Up to 7.5 TB with SAS drives Up to 6.2 TB with SATA drives
Host interface	SAS	SAS
Maximum number of drives	Up to 12 SATA and/or SAS LFF drives	Up to 25 SAS or SATA SFF drives
Hard drives supported	450 GB 3G 15K 3.5-inch Dual-Port SAS 300 GB 3G 15K 3.5-inch Dual-Port SAS 146 GB 3G 15K 3.5-inch Dual-Port SAS 72 GB 3G 15K 3.5-inch Dual-Port SAS 300 GB 3G 15K 3.5-inch Single-Port SAS 146 GB 3G 15K 3.5-inch Single-Port SAS 72 GB 3G 15K 3.5-inch Single-Port SAS 1 TB 3G 15K 3.5-inch Dual-Port MDL SAS 750 GB 3G 15K 3.5-inch Dual-Port MDL SAS 1 TB 3G 7.2K 3.5-inch SATA 750 GB 3G 7.2K 3.5-inch SATA 500 GB 3G 7.2K 3.5-inch SATA 250 GB 3G 7.2K 3.5-inch SATA	300 GB 3G 10K 2.5-inch Dual-Port SAS 146 GB 3G 10K 2.5-inch Dual-Port SAS 36 GB 3G 15K 2.5-inch Dual-Port SAS 146 GB 3G 10K 2.5-inch Single-Port SAS 72 GB 3G 15K 2.5-inch Single-Port SAS 72 GB 3G 10K 2.5-inch Single-Port SAS 36 GB 3G 15K 2.5-inch Single-Port SAS 250 GB 1.5G 5.4K 2.5-inch SATA 120 GB 1.5G 5.4K 2.5-inch SATA 60 GB 1.5G 5.4K 2.5-inch SATA
Operating systems supported	Microsoft Windows 2003; Microsoft Windows 2008 HP-UX 11i v2, 11i v3; HP OpenVMS 8.31H Novell Open Enterprise Server; Novell NetWare 6.5 SPS SCO OpenServer 5.0.7, 6 SCO UnixWare 7.1.3, 7.1.4 Red Hat Enterprise Linux 3, 4, 5 SUSE Linux Enterprise Server 9, 10; Solaris 10; VMware ESX 3.5	Microsoft Windows 2003; Microsoft Windows 2008 HP-UX 11i v2, 11i v3; HP OpenVMS 8.31H Novell Open Enterprise Server; Novell NetWare 6.5 SPS SCO OpenServer 5.0.7, 6 SCO UnixWare 7.1.3, 7.1.4 Red Hat Enterprise Linux 3, 4, 5 SUSE Linux Enterprise Server 9, 10; Solaris 10; VMware ESX 3.5
Rack height	2U	2U
Warranty	3 years parts only	3 years parts only
HP related offerings		
Recommended services	3 years Support Plus 24 HP StorageWorks MSA Family Disk Array Installation and Startup Service HP Proactive Select Service	3 years Support Plus 24 HP StorageWorks MSA Family Disk Array Installation and Startup Service HP Proactive Select Service
Software	HP Systems Insight Manager (SIM) HP Array Configuration Utility (ACU)	HP Systems Insight Manager (SIM) HP Array Configuration Utility (ACU)

For additional information on related software for these products, see pages 13 and 14.

HP StorageWorks Modular Smart Arrays (continued)

The HP StorageWorks Modular Smart Array (MSA) family is ideal for organizations looking for entry-level departmental or remote SAN solutions.

Entry-level



HP StorageWorks 2000fc G2 Modular Smart Array (MSA2000fc G2)
4 Gb Fibre Channel connected, 2U storage area network (SAN) solution designed for small to medium-size deployments or remote locations needing high performance



HP StorageWorks 2000i Modular Smart Array (MSA2000i)
iSCSI connected, 2U storage area network (SAN) solution designed for small to medium-size deployments or remote locations



HP StorageWorks 2000sa Modular Smart Array (MSA2000sa)
SAS connected, modular, reliable, affordable, and easy-to-manage shared storage array solution

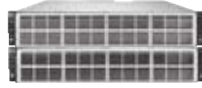
Maximum capacity	29.7 TB SAS; 60 TB SATA	21.6 TB SAS; 48 TB SATA	21.6 TB SAS; 48 TB SATA
Host interface	4 Gb Fibre Channel	1 Gb Ethernet iSCSI	3 Gb Serial Attached SCSI (SAS)
Number of hosts supported	64	16	4 hosts with SAS direct connect 32 hosts (HP BladeSystem servers) using 3 GB SAS BL switch
Number of drives (maximum including expansion)	60 (3.5-inch LFF drives) 99 (2.5-inch SFF drives)	48 (3.5-inch LFF drives)	48 (3.5-inch LFF drives)
Storage expansion option/s	MSA2000 3.5-inch disk enclosure MSA70 2.5-inch disk enclosure	MSA2000 3.5-inch disk enclosure	MSA2000 3.5-inch disk enclosure
Hard drives supported	MSA2 146 GB 3G 15K 3.5-inch Dual-Port SAS MSA2 300 GB 3G 15K 3.5-inch Dual-Port SAS MSA2 450 GB 3G 15K 3.5-inch Dual-Port SAS MSA2 500 GB 3G 7.2K 3.5-inch SATA MSA2 750 GB 3G 7.2K 3.5-inch SATA MSA2 1 TB 3G 7.2K 3.5-inch SATA 36 GB 3G 15K 2.5-inch Dual-Port SAS 72 GB 3G 10K 2.5-inch Dual-Port SAS 72 GB 3G 15K 2.5-inch Dual-Port SAS 146 GB 3G 10K 2.5-inch Dual-Port SAS 300 GB 3G 10K 2.5-inch Dual-Port SAS 120 GB 3G 5.4K 2.5-inch SATA 250 GB 3G 5.4K 2.5-inch SATA	MSA2 146 GB 3G 15K 3.5-inch Dual-Port SAS MSA2 300 GB 3G 15K 3.5-inch Dual-Port SAS MSA2 450 GB 3G 15K 3.5-inch Dual-Port SAS MSA2 500 GB 3G 7.2K 3.5-inch SATA MSA2 750 GB 3G 7.2K 3.5-inch SATA MSA2 1 TB 3G 7.2K 3.5-inch SATA	MSA2 146 GB 3G 15K 3.5-inch Dual-Port SAS MSA2 300 GB 3G 15K 3.5-inch Dual-Port SAS MSA2 450 GB 3G 15K 3.5-inch Dual-Port SAS MSA2 500 GB 3G 7.2K 3.5-inch SATA MSA2 750 GB 3G 7.2K 3.5-inch SATA MSA2 1 TB 3G 7.2K 3.5-inch SATA
Operating systems supported	Microsoft Windows 2008 IA-32 Microsoft Windows 2008 x64 Microsoft Windows 2003 R2 Microsoft Windows 2003 x64 Red Hat Enterprise Linux SUSE Linux Enterprise Server HP-UX 11i v3, HP-UX 11i v2 OpenVMS 8.3, OpenVMS 8.3-1H1 VMware ESX 3.0.1, 3.0.2, 3.5	Microsoft Windows 2008 IA-32 Microsoft Windows 2008 x64 Microsoft Windows 2003 R2 Microsoft Windows 2003 x64 Red Hat Enterprise Linux SUSE Linux Enterprise Server VMware ESX 3.0.1, 3.0.2, 3.5 Integrated Citrix XenServer HP Enterprise	Microsoft Windows 2008 IA-32 Microsoft Windows 2008 x64 Microsoft Windows 2003 R2 Microsoft Windows 2003 x64 Red Hat Enterprise Linux SUSE Linux Enterprise Server VMware ESX 3.5
Rack height	2U	2U	2U
Warranty	3 years parts	3 years parts	3 years parts
QuickSpec URL	http://h18000.www1.hp.com/products/quickspecs/13187_div/13187_div.pdf	http://h18000.www1.hp.com/products/quickspecs/12992_div/12992_div.pdf	http://h18000.www1.hp.com/products/quickspecs/13045_div/13045_div.pdf
HP related offerings			
Recommended services	3 years Support Plus 24 HP StorageWorks MSA Family Disk Array Installation and Startup Service HP Proactive Select Service		
Software	HP StorageWorks MSA2000 Snapshot and Volume Copy Software HP StorageWorks Storage Mirroring		

For additional information on related software for these products, see pages 13 and 14.

HP LeftHand P4000 SAN Solutions

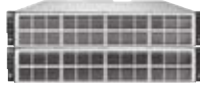
HP LeftHand P4000 SAN Solutions are optimized for database and e-mail applications, as well as virtualized servers. With a pay-as-you-grow, all-inclusive pricing model and intuitive storage management software, the SAN is ideal for budget-minded organizations.

Midrange



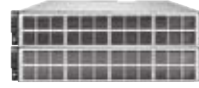
HP LeftHand P4300 4.8 TB SAS Starter SAN Solution

Ideal for first-time virtualization projects. Delivers the performance and features required to simplify storage and grow non-disruptively.



HP LeftHand P4300 12 TB SATA Starter SAN Solution

Ideal for consolidating storage for Windows or Linux servers. Delivers all features required to simplify storage and grow non-disruptively.



HP LeftHand P4500 10.8 TB SAS Virtualization SAN Solution

Ideal for virtualized environments. Provides optimized shared storage enabling cost-effective high availability, scalable performance, and non-disruptive configuration changes.



HP LeftHand P4500 21.6 TB SAS Multi-Site SAN Solution

Simplify high availability with a Multi-Site SAN. Avoid downtime in the event of a site failure with automated, synchronously replicated storage system.

	HP LeftHand P4300 4.8 TB SAS Starter SAN Solution	HP LeftHand P4300 12 TB SATA Starter SAN Solution	HP LeftHand P4500 10.8 TB SAS Virtualization SAN Solution	HP LeftHand P4500 21.6 TB SAS Multi-Site SAN Solution
Number of drives	Starts at 16	Starts at 16	Starts at 24	Starts at 48
Capacity	Starts at 4.8 TB	Starts at 12 TB	Starts at 10.8 TB	Starts at 21.6 TB
All-inclusive HP software	SAN/iQ® Storage Clustering SAN/iQ Network RAID SAN/iQ Thin Provisioning SAN/iQ Snapshots SAN/iQ Remote Copy SAN/iQ SmartClone™ SAN/iQ Performance Management SAN/iQ Control Management Console SAN/iQ Windows Solution Pack	SAN/iQ® Storage Clustering SAN/iQ Network RAID SAN/iQ Thin Provisioning SAN/iQ Snapshots SAN/iQ Remote Copy SAN/iQ SmartClone™ SAN/iQ Performance Management SAN/iQ Control Management Console SAN/iQ Windows Solution Pack	SAN/iQ® Storage Clustering SAN/iQ Network RAID SAN/iQ Thin Provisioning SAN/iQ Snapshots SAN/iQ Remote Copy SAN/iQ SmartClone™ SAN/iQ Performance Management SAN/iQ Control Management Console SAN/iQ Windows Solution Pack HP LeftHand P4000 Replication for Remote Offices	SAN/iQ® Storage Clustering SAN/iQ Network RAID SAN/iQ Thin Provisioning SAN/iQ Snapshots SAN/iQ Remote Copy SAN/iQ SmartClone™ SAN/iQ Performance Management SAN/iQ Control Management Console SAN/iQ Windows Solution Pack HP LeftHand P4000 Replication for Remote Offices SAN/iQ Multi-Site HA/DR Solution Pack SAN/iQ Automated Site Failover
Storage expansion options	HP LeftHand P4300 2.4 TB SAS Starter SAN Expansion Node	HP LeftHand P4300 6 TB SATA Starter SAN Expansion Node	HP LeftHand P4500 5.4 TB SAS Virtualization SAN Expansion Node	HP LeftHand P4500 10.8 TB Multi-Site SAN Expansion Node
Operating systems supported	MS Windows Server 2003 R2, MS Windows Server 2008 Server, MS Hyper-V, Novell NetWare, SUSE Linux, Red Hat Linux, Fedora, Solaris (SPARC), HP-UX (PA-RISC), IBM AIX, VMware ESX/ESXi, Citrix XenServer, OS X Leopard	MS Windows Server 2003 R2, MS Windows Server 2008 Server, MS Hyper-V, Novell NetWare, SUSE Linux, Red Hat Linux, Fedora, Solaris (SPARC), HP-UX (PA-RISC), IBM AIX, VMware ESX/ESXi, Citrix XenServer, OS X Leopard	MS Windows Server 2003 R2, MS Windows Server 2008 Server, MS Hyper-V, Novell NetWare, SUSE Linux, Red Hat Linux, Fedora, Solaris (SPARC), HP-UX (PA-RISC), IBM AIX, VMware ESX/ESXi, Citrix XenServer, OS X Leopard	MS Windows Server 2003 R2, MS Windows Server 2008 Server, MS Hyper-V, Novell NetWare, SUSE Linux, Red Hat Linux, Fedora, Solaris (SPARC), HP-UX (PA-RISC), IBM AIX, VMware ESX/ESXi, Citrix XenServer, OS X Leopard
Host interface	Starts at 4 x 1 GbE iSCSI Optional upgrade to 4 x 10-GbE iSCSI (CX4)	Starts at 4 x 1 GbE iSCSI Optional upgrade to 4 x 10-GbE iSCSI (CX4)	Starts at 4 x 1 GbE iSCSI Optional upgrade to 4 x 10-GbE iSCSI (CX4)	Starts at 8 x 1 GbE iSCSI Optional upgrade to 8 x 10-GbE iSCSI (CX4)
Warranty & services included	3 years 9x5 software phone support & software updates 3 years hardware maintenance onsite, next business day HP LeftHand P4000 SAN Basic or Advanced Training (1 seat, expires after 90 days) Customer self-installable			
QuickSpec URLs	http://h18000.www1.hp.com/products/quickspecs/13254_div/13254_div.html			
HP related offerings				
Recommended services	3 years HP Support Plus 24 HP Installation and Startup for HP LeftHand SAN Solutions HP Proactive Select Service Customer Technical Training			
Software	HP LeftHand P4000 Virtual SAN Appliance Software HP LeftHand P4000 Replication for Remote Offices Software			

For additional information on related software for these products, see pages 13 and 14.

For more information, visit: www.hp.com/go/p4000

HP StorageWorks Enterprise Virtual Arrays

HP StorageWorks Enterprise Virtual Arrays (EVAs) provide outstanding TCO to support business-critical processes.

Midrange



**HP StorageWorks 4400
Enterprise Virtual Array (EVA4400)**



**HP StorageWorks 6400
Enterprise Virtual Array (EVA6400)**



**HP StorageWorks 8400
Enterprise Virtual Array (EVA8400)**

Number of drives	96	216/324 Note: EVA6400 and EVA8400 support up to 216 and 324 drives respectively.
Storage capacity (Including expansion)	96 TB maximum	216 TB EVA6400 324 TB EVA8400
Drives per enclosure	12 maximum	12 maximum
Servers supported	HP servers (HP-UX, ProLiant, AlphaServers); x86 servers; Dell servers; Sun servers; IBM servers; Apple Xserve Servers (PowerPC and Intel); Fujitsu Siemens and Primergy servers (Bx6x0, Rx, and Tx)	HP servers (HP-UX, ProLiant, AlphaServers); x86 servers; Dell servers; Sun servers; IBM servers; Apple Xserve Servers (PowerPC and Intel); Fujitsu Siemens and Primergy servers (Bx6x0, Rx, and Tx)
Disk drive types (capacity, port type, speed, form factor, technology)	72 GB Solid State Disk 146 GB 15K Fibre Channel 300 GB 15K Fibre Channel 450 GB 15K Fibre Channel 300 GB 10K Fibre Channel 400 GB 10K Fibre Channel 450 GB 10K Fibre Channel 600 GB 10K Fibre Channel 1 TB FATA Note: Supported within the same enclosure.	72 GB Solid State Disk 146 GB 15K Fibre Channel 300 GB 15K Fibre Channel 450 GB 15K Fibre Channel 300 GB 10K Fibre Channel 450 GB 10K Fibre Channel 600 GB 10K Fibre Channel 1 TB FATA Note: Supported within the same enclosure.
Cache	4 GB	8 GB for EVA6400, and 14 GB or 22 GB for EVA8400
Fault-tolerant features	Dual redundant controllers Power supplies Fans Power distribution units Embedded switches (optional)	Dual redundant controllers Power supplies Fans Power distribution units
Hot Plug support	Hot pluggable power supplies, fans, cache batteries, I/O modules, environmental monitoring units, disks	
Type and number of controllers	Number of controllers: 2 Controller name: HSV300	Number of controllers: 2 Controller name: HSV400 or HSV450
Type and number of enclosures	Up to 8 M6412A enclosures	EVA6400 supports up to 18 M6412A enclosures EVA8400 supports up to 27 M6412A enclosures
Supported operating systems	HP-UX; HP OpenVMS; Linux; Sun Solaris; Windows Server 2003; Windows Server 2008; IBM AIX; Apple Mac OS X; XenServer; VMware; Novell NetWare	HP-UX; HP OpenVMS; Linux; Sun Solaris; Windows Server 2003; Windows Server 2008; IBM AIX; Apple Mac OS X; XenServer; VMware
Warranty	3 years parts, 3 years labor, 3 years onsite 9x5 hardware support, with next business day (NBD) support	3 years parts, 3 years labor, 3 years onsite 9x5 hardware support, with next business day (NBD) support
QuickSpec URL	http://h18000.www1.hp.com/products/quickspecs/12893_div/12893_div.pdf	http://h18000.www1.hp.com/products/quickspecs/13206_div/13206_div.pdf
HP related offerings		
Recommended services	HP Support Plus 24 Service HP StorageWorks EVA4400 Disk Array Installation and Startup Service HP Proactive Select Service	HP Proactive 24 (P24) HP SAN Solution Service HP Data Migration Service
Software	HP StorageWorks Business Copy EVA HP StorageWorks Continuous Access EVA HP StorageWorks SmartStart EVA	HP StorageWorks Business Copy EVA HP StorageWorks Continuous Access EVA HP StorageWorks EVA Dynamic Capacity Management

For additional information on related software for these products, see pages 13 and 14.
Or visit www.hp.com/storage/evasoftware

HP StorageWorks XP Disk Arrays

The HP StorageWorks XP Disk Array family provides outstanding reliability, availability, performance, and capacity to address your mission-critical applications.

High-end



HP StorageWorks XP24000 Disk Array



HP StorageWorks XP20000 Disk Array

Number of drives	1,152	240
Minimum frames (cabinets)	1	1
Maximum frames (cabinets)	5	2
Capacity (raw)	1.13 PB	236 TB
Capacity (useable)	851 TB	177 TB
External storage capacity	247 PB	96 PB
Maximum shared memory	24 GB	14 GB
Interface	(224) 4 Gb Fibre Channel (112) 1 Gb ESCON (112) 4 Gb FICON	(48) 4 Gb Fibre Channel (24) 1 Gb ESCON (24) 4 Gb FICON
Disk Drive types (capacity, port type, speed, form factor, technology)	146 GB 15K Fibre Channel 300 GB 15K Fibre Channel 400 GB 10K Fibre Channel 450 GB 15K Fibre Channel 1 TB 7.2K SATA 73 GB Solid State Disk 146 GB Solid State Disk Note: All drives are dual-ported, 4 Gb/s Fibre Channel Arbitrated Loop (FC-AL)	146 GB 15K Fibre Channel 300 GB 15K Fibre Channel 400 GB 10K Fibre Channel 450 GB 15K Fibre Channel 1 TB 7.2K SATA 73 GB Solid State Disk 146 GB Solid State Disk Note: All drives are dual-ported, 4 Gb/s Fibre Channel Arbitrated Loop (FC-AL)
Cache	512 GB	128 GB
Supported operating systems	HP-UX; HP Tru64; HP OpenVMS; HP NonStop; Sun Solaris; IBM AIX; Microsoft Windows; Linux; Mainframe; VMware	HP-UX; HP Tru64; HP OpenVMS; HP NonStop; Sun Solaris; IBM AIX; Microsoft Windows; Linux; Mainframe; VMware
RAID support	RAID 1 (2D + 2D) RAID 1 (4D + 4D) RAID 5 (3D + 1P) RAID 5 (7D + 1P) RAID 5 (14D + 2P) RAID 5 (28D + 4P) RAID 6 (6D + 2P)	RAID 1 (2D + 2D) RAID 1 (4D + 4D) RAID 5 (3D + 1P) RAID 5 (7D + 1P) RAID 5 (14D + 2P) RAID 5 (28D + 4P) RAID 6 (6D + 2P)
Warranty	2 years parts, 2 years labor, 2 years onsite 24x7 hardware support, with 4-hour response time	2 years parts, 2 years labor, 2 years onsite 24x7 hardware support, with 4-hour response time
QuickSpec URL	http://h18000.www1.hp.com/products/quickspecs/12711_div/12711_div.pdf	
HP related offerings		
Recommended services	HP Critical Service (CS) HP Data Replication Solution HP Data Migration Service	HP Critical Service (CS) HP Data Replication Solution HP Data Migration Service
Software	HP StorageWorks XP Thin Provisioning HP StorageWorks XP External Storage	HP StorageWorks XP Thin Provisioning HP StorageWorks XP External Storage

For additional information on related software for these products, see pages 13 and 14.

Or visit www.hp.com/storage/xpsoftware

HP StorageWorks arrays

Supported and recommended HP servers

		Entry-level						Midrange						High-end		
		MSA50	MSA60	MSA70	MSA2000sa	MSA2000i	MSA2000lc	P4300 SAS Starter SAN	P4300 SATA Starter SAN	P4500 SAS Virtualization SAN	P4500 SAS Multi-Site SAN	EVA4400	EVA6400	EVA8400	XP2000 Disk Array	XP2400 Disk Array
HP ProLiant servers																
Entry-class	DL120 G5	•	•	•				x	x	x	x	x	x	x	x	x
	DL320 G5p	•	•	•	x	x	x	x	x	x	x	x	x	x	x	x
	DL320 G5P	•	•	•		•	•	x	x	x	x	x	x	x	x	x
	DL320S	•	•	•		x	x	x	x	x	x	x	x	x	x	x
	ML110 G5							x	x	x	x	x	x	x	x	x
	ML115 G5							x	x	x	x	x	x	x	x	x
	ML150 G5							x	x	x	x	x	x	x	x	x
	ML310 G5	•	•	•	x	x	x	x	x	x	x	x	x	x	x	x
Midrange	DL160 G5	•	•	•		x	x	x	x	x	x	x	x	x	x	x
	DL165 G5	•	•	•		x	x	x	x	x	x	x	x	x	x	x
	DL180 G5	•	•	•		x	x	x	x	x	x	x	x	x	x	x
	DL185 G5	•	•	•		x	x	x	x	x	x	x	x	x	x	x
	DL360 G5	•	•	•	•	•	•	x	x	x	x	x	x	x	x	x
	DL365 G5	•	•	•	x	•	•	x	x	x	x	x	x	x	x	x
	DL380 G5	•	•	•	•	x	x	x	x	x	x	x	x	x	x	x
	DL385 G5	•	•	•	x	x	x	x	x	x	x	x	x	x	x	x
	ML350 G5	•	•	•	x	x	x	x	x	x	x	x	x	x	x	x
	ML370 G5	•	•	•	x	x	x	x	x	x	x	x	x	x	x	x
High-end	DL580 G5	•	•	•	x	x	x	x	x	x	x	x	x	x	x	x
	DL585 G5	•	•	•		x	x	x	x	x	x	x	x	x	x	x
	DL785 G5	•	•	•		x	x	x	x	x	x	x	x	x	x	x
p-Class	BL20p G4											•	•	•	x	x
	BL25p G2											•	•	•	x	x
	BL45p G2							•	•	•	•	•	•	•	x	x
c-Class	BL260c G5					x	x	•	•	•	•	•	•	•	x	x
	BL460c G1				x	•	•	•	•	•	•	•	•	•	x	x
	BL465c G5				x	•	•	•	•	•	•	•	•	•	x	x
	BL480c G1				x	•	•	•	•	•	•	•	•	•	x	x
	BL680c G5				x	x	x	•	•	•	•	•	•	•	x	x
	BL685c G5				x	x	x	•	•	•	•	•	•	•	x	x
	BL2x220c G5				x	x	x	•	•	•	•	•	•	•	x	x
HP Integrity servers																
c-Class	BL860c											•	•	x	x	x
Entry-class	rx2660		•	•								•	•	x	x	x
	rx3600		•	•								•	•	x	x	x
	rx6600		•	•								•	•	x	x	x
Midrange	rx7640		•	•			x					x	•	•	•	x
	rx8640		•	•			x					x	x	•	•	•
High-end	Superdome		•	•			x					x	x	•	•	•
HP Integrity NonStop servers																
Entry-class	NS1000														•	•
High-end	NS14000														•	•
	NS16000														•	•

Key: • = recommended starting point, x = supported

Supported servers for MSA2000sa through 3Gb BL Switch:

HP ProLiant BL2x 220c G5; HP ProLiant BL460c; HP ProLiant BL465c; HP ProLiant BL465c G5; HP ProLiant BL480c; HP ProLiant BL495c G5; HP ProLiant BL680c G5; HP ProLiant BL685c; HP ProLiant BL685c G5

HP related offerings

To gain the fullest value from your array investment, you can benefit from intelligent software and expert services across the IT lifecycle.

HP software

HP provides software that allows you to align IT with business needs, automate error-prone processes, and fine-tune your infrastructure.

Storage resource management	
Storage Essentials Enterprise Edition	HP Storage Essentials suite delivers integrated heterogeneous functionality for network (DAS, SAN, NAS) management, storage resource management, provisioning, backup reporting, and application infrastructure monitoring. The suite consists of HP Storage Essentials Enterprise Edition and features a portfolio of value-added plug-ins.
Storage Essentials Standard Edition Storage Resource Management (SRM) Software	HP Storage Essentials Standard Edition helps midsize business with limited IT staff see the big picture, reduce complexity, and gain control of their SAN infrastructure inventory for small to medium HP storage-based SANs—consisting of HP EVA, HP MSA, and HP NAS; HP EML E-series Tape; HBAs and switches—and affordably enjoy the benefits of storage resource management software.
Systems Insight Manager	HP Systems Insight Manager (SIM), our unified server-storage management tool, helps increase IT staff efficiency and hardware platform availability for small and large server deployments alike. It is designed for end-user setup, and its modular architecture enables systems administrators to plug in additional functionality as needed.
Command View EVA	HP StorageWorks Command View EVA is a comprehensive software suite designed to simplify array provisioning and management of the high-performance HP StorageWorks Enterprise Virtual Array (EVA) family of storage array products. For managing EVA with heterogeneous networked SAN devices, including servers and infrastructure, you can use HP Systems Insight Manager to do the job.
EVA Dynamic Capacity Management Software	HP StorageWorks EVA Dynamic Capacity Management Software is a comprehensive software solution that automates storage provisioning and improves capacity utilization on the HP StorageWorks Enterprise Virtual Array (EVA) family. Designed for the enterprise market, EVA Dynamic Capacity Management Software uses advanced automation to automatically “right-size” the file system and storage volumes to provide the highest levels of capacity utilization while reducing ongoing storage administration needs.
XP Command View Advanced Edition	HP StorageWorks XP Command View Advanced Edition Software provides centralized, Web-based management for multiple XP Disk Arrays. It reduces the total cost of XP array ownership by increasing the efficiency of storage administrators and saves time in the management of external storage.
XP Thin Provisioning	HP StorageWorks XP Thin Provisioning Software reduces the cost, accelerates return on investment, and reduces environmental impact of your HP StorageWorks XP24000 and XP20000 Disk Arrays. Allocate anticipated future storage capacity needs from a pool of virtual disk storage and reduce the physical disk capacity initially required. As utilization of disk space increases over time, purchase more disk capacity as it is needed, and install it without affecting your applications. Accelerate return on investment by using the virtualized storage pool to quickly deploy more applications and servers per storage system. And because you are more efficiently using your storage resources, you enjoy the green effect of reduced floor space, power, and cooling requirements, and also a reduced carbon footprint.
XP Array Manager	HP StorageWorks XP Array Manager Software improves efficiency and data security by allowing you to manage volumes, allocate disk array resources, control access to the data, and protect the data on HP StorageWorks XP24000 and XP20000 Disk Arrays. Configure and manage data volumes for most effective use of the XP Disk Array. Partition array resources to isolate applications and reserve cache memory for the most frequently accessed data. Configure security to prevent unauthorized servers from accessing the data. Create read-only volumes for archiving and data retention, and then securely delete the data when it is no longer needed.
Remote replication software	
Continuous Access EVA	HP StorageWorks Continuous Access EVA Software is an array-based application that utilizes a powerfully simple graphical user interface (GUI) to create, manage, and configure remote replication on the entire EVA product family.
XP Continuous Access	HP StorageWorks XP Continuous Access Software products are high-availability remote replication and disaster recovery solutions that deliver host-independent, real-time remote data replication between HP StorageWorks XP Disk Arrays. With seamless integration into a full spectrum of remote replication-based solutions, HP XP Continuous Access Software can be deployed in solutions ranging from data migration to high-availability server clustering.
Storage Mirroring	HP StorageWorks Storage Mirroring provides host-based, real-time, nearly continuous replication for small and midsize business customers seeking a low-cost alternative to expensive fabric or array-based solutions. Patented replication and failover technology continuously captures byte-level changes as they happen and replicates those changes to one or more target servers at any location without geographic limitations.
Local replication software	
MSA2000 Snapshot and Volume Copy Software	MSA2000 Snapshot and Volume Copy Software creates a point-in-time copy of your data. Should a network or application failure occur at any time, you can easily “rollback” to your most recent snapshot taken before the problem occurred. Flexible product offerings allow you to start with a small number of snapshots and upgrade as you desire. Depending on the nature of your data, you may want to schedule snapshots with regular frequency—twice a day, once an hour, or once every five minutes. The more snapshots you take, the more recovery points you’ll have should a problem occur; and the more recent the recovery point, the more current your data.
Business Copy EVA	HP StorageWorks Business Copy EVA Software is an array-based application that utilizes a powerfully simple HP StorageWorks Replication Solutions Manager user interface to create, manage, and configure local replication on the full EVA product family to meet business continuity and regulatory requirements.
XP Business Copy	HP StorageWorks XP Business Copy Software creates local copies of data for businesses that are concerned about business continuity, and that need to reduce the cost of backups, accelerate recovery from failures, and simplify development and testing.
Data protection and recovery software	
Data Protector	HP Data Protector Software automates high-performance backup and recovery, from disk or tape, over unlimited distances, to enable 24x7 business continuity and increase IT resource utilization. Data Protector simplifies the use of complex backup and recovery procedures with fast installation, automated routine tasks, and easy-to-use features. Instant Recovery takes Zero Downtime Backup a step further, meeting the demands of the most complex enterprises for specific recovery time and recovery point objectives, and enables critical data to be recovered within minutes.
Data Protector Express	HP Data Protector Express Software provides a simple and reliable backup and recovery solution for file servers, application servers, and desktops that is suitable for organizations without dedicated IT staff.

HP related offerings (continued)

To gain the fullest value from your array investment, you can benefit from intelligent software and expert services across the IT lifecycle.

HP software (continued)

HP provides software that allows you to align IT with business needs, automate error-prone processes, and fine-tune your infrastructure.

Replication for Remote Offices	
HP LeftHand P4000 Virtual SAN Appliance Software	The HP LeftHand P4000 Virtual SAN Appliance (VSA) Software is a VMware Certified SAN/Storage device and Virtual Appliance that provides complete SAN functionality for VMware Infrastructure without external SAN hardware. By virtualizing the internal disk capacity of the server running VMware ESX, the P4000 VSA Software eliminates the need for external shared storage required to implement the advanced features of VMware Infrastructure. Multiple P4000 VSA™ devices running on multiple VMware ESX hosts create a clustered pool of storage with the ability to replicate data across the hosts, allowing volumes to stay online in the event of a server failure. Small-to-medium businesses and remote-office customers can lower their IT infrastructure costs and enable higher levels of protection for business-critical systems without the purchase of additional hardware. P4000 VSA™ Software deployed at remote sites is managed as a virtual storage node using the same Centralized Management Console used to manage your HP LeftHand SANs.
HP LeftHand P4000 Replication for Remote Offices Software	For IT departments struggling to implement disaster recovery at remote sites, the HP LeftHand P4000 Replication for Remote Offices Software delivers SAN-based replication from remote and branch offices for a corporate-wide, cost-effective solution. No SAN hardware is required at the sites, which are all managed from a single console through a simple, user-friendly interface. P4000 Replication for Remote Offices is certified with VMware's Site Recovery Manager, delivering efficient, affordable SAN replication.
Business continuity software	
HP Metrocluster with XP Continuous Access	HP Metrocluster with XP Continuous Access seamlessly integrates XP disk array remote replication capabilities with HP Serviceguard on HP-UX. It provides automatic and bi-directional failover/failback of business-critical data and applications between data centers.
Cluster Extension EVA and XP	HP StorageWorks Cluster Extension EVA and XP Software continues your critical applications within minutes or seconds after an event. It offers disaster tolerance against application downtime from fault, failure, or site disaster by extending clusters between data centers. It works seamlessly with your open-system clustering software and XP storage systems to automate failover and failback between sites.
Storage device management software	
XP External Storage	HP StorageWorks XP External Storage Software decreases the stress and reduces the cost of owning heterogeneous data storage by simplifying and centralizing common SAN management tasks through storage virtualization. In addition, it simplifies movement of data between dissimilar arrays. HP XP External Storage Software provides these benefits by giving you the ability to access, monitor, and manage data residing on a variety of different disk arrays as if all of the data were residing on an HP StorageWorks XP Disk Array.
XP Disk/Cache Partition	HP StorageWorks XP Disk/Cache Partition Software, which is provided with XP Array Manager, can reduce storage costs by dividing a large HP StorageWorks XP Disk Array into smaller segments suitable for departmental usage, while retaining superb performance and high availability.

HP technology services

Reactive support services	
Support Plus Service	Improves system performance and uptime
Support Plus 24 Service	Increases availability of your IT infrastructure with comprehensive 24x7 hardware and software services
Proactive support services	
Proactive 24 Service	Improves uptime with responsive hardware and software services available 24x7
Proactive Select Service	Improves IT performance and manageability through the use of cost-effective, flexible proactive services
Mission critical services	
Critical Service	Reduces impact of unplanned downtime and improves IT operational efficiency
Mission Critical Partnership	Helping you successfully deliver your services at an affordable cost to the business
Deployment services	
HP StorageWorks Disk Array Installation and Startup Service	Proper installation of your storage hardware is crucial to help realize improved return on investment (ROI)
HP StorageWorks MSA Family Disk Array Installation and Startup Service	MSA Disk Array startup—this service provides hardware and software installation
HP StorageWorks EVA4400 Disk Array Installation and Startup Service	EVA4400 Disk Array startup—this service provides hardware and software installation
HP StorageWorks EVA/XP Disk Array Installation and Startup Service	EVA/XP Disk Array startup—this service provides hardware and software installation
Data Replication Solution Service	Enables an optimal environment, which keeps your mission-critical data safe, more secure, and highly available
SAN Solution Service	End technology services make the most of your investment

HP related offerings (continued)

To gain the fullest value from your array investment, you can benefit from intelligent software and expert services across the IT lifecycle.

HP technology services (continued)

Other services	
Data Migration Service	Migrating your data “online” to align to your specific cost, availability, and business needs while your business operation continues
Data Sanitization Service	Protects your business from the risk of important information being retrieved from retired hard disk media by unauthorized parties
HP Assessment for SANs Service	Optimizes availability levels and ongoing management of your storage and SAN environment
HP Performance Analysis for the StorageWorks XP/EVA Disk Arrays	Increases performance, stability, and availability by identifying potential bottlenecks
HP StorageWorks EVA Firmware Update Service	A one-time, one-day deployment service designed to upgrade the firmware on one HP StorageWorks EVA disk array to the latest specification of firmware for both controllers and disk drives
HP vDisk/LUN Design and Implementation Service	When redeploying an HP StorageWorks disk array, the HP vDisk/LUN Design and Implementation Service assures proper configuration of storage hardware to help maximize the effectiveness of your storage

HP Services: scalable, flexible, and reliable—like your storage

Your technology infrastructure has become the business infrastructure—where delivering successful business outcomes is the key goal. No other company in the industry matches HP’s portfolio of service breadth and depth, resources, and commitment to optimize storage support in a heterogeneous infrastructure. The integrated end-to-end storage solutions of HP are intentionally designed to help businesses address today’s tough technology challenges associated with the explosion of rich digital content, mobility, and security requirements, as well as the need for efficient storage of data and access to real-time information when and where they need it.

To capitalize fully on your HP storage solution, you need a service partner who thoroughly understands your storage technology and systems environment. With HP Services you gain the advantage of established methodologies and one of the industry’s broadest portfolios of integrated storage solutions for enhanced information management and optimization—services that scale to enhance availability, performance, deployment, and support.

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

Factory Express

HP Factory Express is designed to help you get a better return from 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. For more information on these services, please contact your HP representative or visit www.hp.com/go/factoryexpress

Customer technical training

Consider education as an integral part of your strategy to get the best return on investment 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 the form that suits you best—from traditional instructor-led courses at one of our 80 training centers worldwide to onsite training customized to your needs, or online classes. For more information on these services, please contact your HP representative or visit 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 contact your HP representative or visit www.hp.com/go/hpfinancialservices

HP server portfolios

What kind of server best fits your needs? What level of high availability and performance do you require? How many users will be supported? What operating system will you be using? Whether it's a departmental server, an enterprise data center, or anything in between, HP is committed to meeting your exact needs. This commitment has resulted in more customers choosing HP servers than any other vendor's servers.*

Our portfolios:

- **HP ProLiant server family:** ProLiant servers offer a superior platform for your mainstream 32-bit and emerging 64-bit x86 applications and are the world's top-selling x86 industry-standard servers since 3Q 1996.*
- **HP Integrity systems family:** The most trusted brand for mission-critical applications. A multi-OS ecosystem running on HP-UX 11i, OpenVMS, Microsoft Windows Server 2003, Linux, and NonStop, Integrity systems provide a unique combination of scalability, virtualization, and availability, enabling you to optimize your business outcomes while decreasing costs and reducing risk.
- **HP Integrity NonStop servers:** Real-time, all-the-time business solutions for the enterprise.

What can you do to simplify a growing, multi-server environment? How do you integrate all the moving parts and deliver business solutions on time and under budget?

- **HP BladeSystem:** A simple, modular infrastructure that is consolidated up-front to save you more time, energy, and money—regardless of what you put inside. In one consolidated box, an HP BladeSystem supports ProLiant and Integrity server blades, StorageWorks storage offerings, and a variety of virtual desktop and workstation solutions. With the essential IT elements built-in—compute, network, storage, management, and power and cooling—the BladeSystem is a more efficient way to deliver reliable, cost-effective services to your business. For more information on the HP BladeSystem, visit www.hp.com/go/bladestem

You make HP storage products better

Throughout the development of HP StorageWorks arrays, end-user customers and channel partners participate in useability reviews that influence hardware and software design. Over the past few years, such feedback has helped HP StorageWorks reduce array design complexity. Users now spend less time managing their storage due to the simplification of storage management tasks and easy-to-understand user interface designs. Array installation, configuration, and repairs also take less time due to the use of more intuitive actions.

For more information about our User Centered Design program, visit www.hp.com/storage/ucd

For more information

To learn more about HP StorageWorks arrays, contact your local HP representative or your authorized HP reseller, or visit www.hp.com/go/arrays

To learn more about HP server portfolios, contact your local HP representative or your authorized HP reseller, or visit:

- www.hp.com/go/proliant
- www.hp.com/go/integrity
- www.hp.com/go/nonstop

You can also visit our other related server family guides:

- Integrity: www.hp.com/go/integrityserverfamilyguide
- BladeSystem: www.hp.com/go/bladestem/familyguide
- ProLiant: www.hp.com/go/proliant/familyguide

To quickly find the HP storage products that fit your specific needs, visit www.hp.com/go/product-selector

*Source: IDC Worldwide Quarterly Server Tracker, May 2008.

Technology for better business outcomes

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

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