HP StorageWorks Network Attached Storage

Family guide

File storage growth—the challenge

Global digital information doubles every 18 months—so if you currently manage 100 TB of data, it'll be 200 TB in 18 months time, and that is just the average. File storage growth drives most of that increase. Managing storage growth is a difficult task on the whole, but the distributed nature of unstructured file-based data adds to the challenge significantly, and drives the need for improved file serving solutions.

Rapid file storage growth, driven by rich media such as audio, video, graphics, backup files, and email is impacting businesses more now than ever before. You not only require immediate access to exploding volumes of data, but government regulations and corporate governance are dictating what must be kept, for how long, and the speed with which it must be accessed. Therefore, it is critical that you invest in a cost-effective, modular, file-serving solution that can support your business now and well into the future. Consolidating file data with a dedicated Network Attached Storage (NAS) solution can help you address your changing file serving needs and reduce your cost of ownership by enabling simplified management, better resource utilization, centralized growth, and data protection.

HP StorageWorks NAS solutions—change-ready to deal with your storage complexities

HP StorageWorks NAS solutions change and adapt with your fast-changing organizational storage needs using virtualization, performance-enhanced file systems, and operating environments, as well as HP ProLiant and BladeSystem hardware. Together, these industry-standard building blocks allow you to implement faster, scale farther, and respond to data growth more effectively.

Regardless of the size of your organization, HP StorageWorks NAS solutions enable you to control explosive file growth while reducing costs and simplifying data management. HP StorageWorks NAS solutions cover a wide range of customer needs and IT environments. The portfolio includes the following product families:

HP StorageWorks X500 Data Vault

HP StorageWorks X500 Data Vault series provides a simple and cost-effective solution for a small business to store, secure, and share data for under $1000. Based on Microsoft Windows Home Server, it provides a user-friendly interface with easy installation and management. The X500 provides you with automated backup for up to 10 PC clients and Mac's on the network while providing additional background features such as folder duplication and data deduplication. It offers both local and remote file sharing via a custom URL which is accessible from any Web browser. The X500 comes with two or three empty bays (depending on the model) for internal storage expansion and also offers external USB and eSATA ports for additional external expansion.

HP StorageWorks X1000 Network Storage Systems

HP StorageWorks X1000 Network Storage Systems are the fast and easy way to add Windows-powered unified shared storage to your small or medium IT environment. X1000 Network Storage Systems offer you more for your money since it's a multi-protocol file server for Windows and UNIX/Linux and also iSCSI storage for applications/virtual environments. Built on industry standards, the X1000 is an economical and easy to manage solution for consolidating to centralized shared network storage. The operating system is pre-installed and comes with HP StorageWorks X1000 Automated Storage Manager, so you'll be up and running in minutes.

HP StorageWorks X3000 Network Storage Systems

HP StorageWorks X3000 Network Storage Systems boost the value of your array or SAN by adding Windows-powered IP-based gateway services to it. You'll spend less time and effort on maintenance and deliver a better return-on-investment for your array/SAN when you consolidate to a single, unified storage pool that can serve files to your clients and blocks to your servers via multiple protocols (FC/iSCSI or SAS/iSCSI). Industry-standards protect your investment by providing compatibility with your network and applications, and a Microsoft Cluster Server (MSCS) license is included to provide high availability and reduce downtime.

HP StorageWorks X9000 Network Storage Systems

HP StorageWorks X9000 Network Storage Systems scale-out beyond traditional network attached storage in both capacity and performance. Designed to be extremely scalable, flexible, and cost-efficient, HP X9000 Network Storage Systems deliver excellent performance and a modular storage infrastructure to accommodate unprecedented storage growth and performance. Central management allows the administrator to manage not just terabytes but multi-petabyte environments at the highest density possible. The pay-as-you-grow architecture and an all-inclusive feature set reduce storage over-provisioning or expensive add-ons. The X9000 is the platform for customers designing the next-generation data center.

Why HP?

At HP StorageWorks, we deliver technologies and services that help you bridge the gap between data explosion and storage infrastructure. Being the leader in entry-level NAS systems, and the fact that more data is stored on HP disks than any other vendor, helps us understand that infrastructure matters because it is the foundation for data. With StorageWorks, you can be confident in your infrastructure and your ability to deliver results because the full power of HP and its partners can be with you every step of the way—helping you unlock the untapped potential of your entire infrastructure. Then, as your business needs change, over 150,000 HP channel partners can help your HP storage change, too, using technologies that implement faster, and scale and network more effectively. We can also help you save both time and money that can reduce your energy needs and lower your management costs.

Technical specifications

HP StorageWorks X500 Data Vault

Delivers consolidated data storage, file sharing, and data protection that is specifically designed for the small business that has no or limited IT staff.

HP StorageWorks X500 Data Vault

Number of drives	1 or 2 Included, depending on model
Drive type	1 TB 3G 7.2K LFF SATA 1.5 TB 3G 7.2K LFF SATA Supported, depending on model
Processor	(1) Intel® Pentium® E5200 (2.5 GHz) Maximum
Processor cache	2 MB
Memory	2 GB PC2–6400 unbuffered DDR2 ECC 800 MHz Maximum
Capacity	1 TB Starting 6 TB Maximum 17 TB Maximum, with external storage options
Storage expansion options	Internal: Standard, off the shelf, 3.5-inch SATA Drives External: USB External Hard Disk Drive or eSATA Hard Disk Drive
Network controller	10/100/1000 Gigabit Ethernet controller
Expansion slots	2–3 empty internal SATA hard drive bays (model dependant) 4 external USB 2.0 ports 1 eSATA port
Supported operating systems	Microsoft Windows 7 (32 and 64-bit)* Microsoft Windows Vista (32 and 64-bit) XP Home (SP2) or XP Professional (SP2) Media Center Edition 2004 (SP2) or later Mac OS X Linux
Management	HP Control Center Microsoft Windows Home Server Console
Number of users	1–10 PC Clients and unlimited Mac's
Form factor	Tower
Warranty	3-year parts, 0-year onsite support, next business day response
QuickSpecs URL	http://h18000.www1.hp.com/products/quickspecs/13406_div/13406_div.pdf
HP related offerings	
Optional Add-ins	A variety of software add-ins provides the ability to add additional features to the HP X500 Data Vault. Add-ins includes features such as: anti-virus protection, Amazon S3 online storage, disk management utilities, multimedia management, and others.

* Requires Microsoft Windows Home Server Power Pack 3 Installation

Automatic backup, file sharing, and remote access capabilities vary based on PC OS

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

Technical specifications

HP StorageWorks X1000 Network Storage Systems

Delivers Windows-powered unified network storage that is easy to install, easy to manage, and easy to expand to your small, medium, or workgroup IT environment.

	HP StorageWorks X1400 Network Storage Systems	HP StorageWorks X1500 Network Storage Systems
Models available	Base model 2 TB SATA Model 4 TB SATA Model 8 TB SATA Model	Base model 4 TB SATA Model 8 TB SATA Model
Supported operating systems	Microsoft® Windows Storage Server 2008 Standard x64 Edition Pre-installed	Microsoft Windows Storage Server 2008 Standard x64 Edition Pre-installed
Drive type	SATA and SAS LFF drives supported. Base Model has no drives included and requires that you select drive type and capacity to be integrated in the factory	SATA and SAS LFF drives supported. Base Model has no drives included and requires that you select drive type and capacity to be integrated in the factory
Processor	(1) Intel® Xeon® Processor E5504 (2.00 GHz) Standard	(1) Intel Xeon E5503 (2.0 GHz) Standard
Maximum capacity	8 TB Raw Internal SATA 300 TB Raw External SATA 8 TB Raw Internal SAS Maximum configurations	16 TB Raw Internal SATA 16 TB Raw Internal SAS Maximum configurations
Storage expansion options	D2600, D2700, MDS600, P2000	D2600, D2700, MDS600, P2000
Storage controllers	(1) Smart Array P212/256 MB Controller with BBWC Included	(1) Smart Array P411/256MB BBWC Included
Number of users	10–1300 Depending on model	10–1300 Depending on model
Form factor	1U	5U Tower
Warranty	3-year parts, 3-year labor, 3-year onsite support (next business day response) plus 1-year standard day/hours software support	3-year parts, 3-year labor, 3-year onsite support (next business day response) plus 1-year standard day/hours software support
QuickSpecs URL	http://h18000.www1.hp.com/products/quickspecs/13341_div/13341_div.pdf	

	HP StorageWorks X1600 Network Storage Systems	**HP StorageWorks X1800 Network Storage Systems**
Models available	Base model 292 GB SAS Model 3 TB SAS Model 7.5 TB SAS Model 6 TB SATA Model 12 TB SATA Model 24 TB SATA Model	Base Model 292 GB SAS Model 2.4 TB SAS Model
Supported operating systems	Microsoft Windows Storage Server 2008 Standard x64 Edition Pre-installed	Microsoft Windows Storage Server 2008 Standard x64 Edition Pre-installed
Drive type	SATA and SAS SFF/LFF drives supported. Base Model has no drives included and requires that you select drive type, capacity, and quantity to be integrated in the factory.	SATA and SAS SFF drives supported. Base Model has no drives included and requires that you select drive type, capacity, and quantity to be integrated in the factory.
Processor	(1) Intel Xeon E5520 (2.26 GHz) Standard	(1) Intel Xeon E5530 (2.40 GHz) Standard
Maximum capacity	24 TB Raw Internal SATA 288 TB Raw External SATA 24 TB Raw Internal SAS Maximum configurations	1.2 PB Raw External SATA 8 TB Raw Internal SATA 9.6 TB Raw Internal SAS Maximum Configurations
Storage expansion options	D2600, D2700, MDS600, P2000	D2600, D2700, MDS600, P2000
Storage controllers	(1) Smart Array P212/256MB Controller with BBWC (1) Smart Array P212/512MB Controller with BBWC (1) Smart Array P812/1 GB Controller with BBWC Included, depending on model	(1) Smart Array P410i/256MB Controller with BBWC (1) Smart Array P411/256MB Controller with BBWC (1) Smart Array P411/512MB Controller with BBWC (1) P811 with 1 GB Controller with BBWC Included, depending on model
Number of users	100–3400 Depending on model	200–3300 Depending on model
Form factor	2U	2U
Warranty	3-year parts, 3-year labor, 3-year onsite support (next business day response) plus 1-year standard day/hours software support	3-year parts, 3-year labor, 3-year onsite support (next business day response) plus 1-year standard day/hours software support
QuickSpecs URL	http://h18000.www1.hp.com/products/quickspecs/13341_div/13341_div.pdf	

HP related offerings	
Included Software	**HP StorageWorks X1000 ASM Software:** HP StorageWorks X1000 Automated Storage Manager Software radically simplifies the creation, migration, growth, and protection of data stores by hiding complexity and presenting shared storage from an application point-of-view. With HP StorageWorks X1000 Network Storage Systems, the software is designed for IT generalists with no storage expertise and includes tools to easily migrate and manage data using automated best practice logic. Setup wizards require only a few mouse clicks to expertly set up and protect data storage make the move to networked storage a quick and painless experience. **Microsoft® iSCSI Software Target:** Adds block storage capability to Windows Storage Server 2008 and creates a single platform that delivers file, print, and application storage services, all over existing Ethernet networks. iSCSI software solution provides affordable application storage provisioning, protection, and availability for small and medium office environments. This also enables several features within HP ASM, including "Host an Exchange Storage Group" and "Host a SQL Server Database" wizards with ability to provision and manage storage for standards-compliant non-Windows iSCSI initiators such as VMware and Linux.
Optional Software	**HP Data Protector Express Software:** The base product is the Data Protector Express Backup Server. Installing this creates the Data Protector Express Storage Domain. Options are installed to add other machines to the Data Protector Express Storage Domain for protection and to add additional functionality. Installing HP Data Protector Express on X1000 Network Storage Systems enables data protection features within HP ASM, including backup of file shares or application stores using application-aware snapshots to tape, disk, or other removable media target. **HP StorageWorks Storage Mirroring Software:** HP Storage Mirroring Software provides host-based replication and failover to IP-based networks. Patented replication and failover technology continuously captures byte-level data changes as they occur in your production environment and replicates those changes to one or more servers in any location without geographic limitations. An installable 60-day demo is available for download on HP.com. Installing enables replication features within HP ASM including streamlined setup of near real-time replication of file shares or application stores to a remote target. **HP File Archiving Software:** Achieve regulatory compliance, prepare for e-Discovery, free up space on bloated file servers, shrink backups, and reduce storage costs with HP File Archiving Software, an out-of-the-box file information collector for HP Integrated Archive Platform and other vendor-independent storage systems. **HP Storage Essentials NAS Manager Software:** Provides comprehensive Network Attached Storage (NAS) management capabilities for HP X1000 Network Storage Systems. Visualize your distributed HP NAS solutions and centrally manage their capacity, performance, events, and dependencies to provide NAS availability and performance and unify SAN and NAS management.
Recommended Services	**3-Year HP Support Plus 24 Service:** For a higher return on your storage technology, this 3-year combined reactive support option delivers integrated onsite hardware/software support services available 24x7. **HP Installation and Startup Service for X1000/X3000 Network Storage Systems:** For smooth startup, HP Installation and Startup Service for X1000 and X3000 Network Storage Systems, provides deployment of your storage system while helping you establish readily available access to and management of your critical data and applications.
Related Services	**3-Year HP Proactive 24:** HP Proactive 24 Service is an integrated hardware and software support solution, which 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:** Provides deployment services for HP StorageWorks Storage Mirroring Data Migration software.

Technical specifications

HP StorageWorks X3000 Network Storage Systems

Adds cluster-able and easy-to-manage file, iSCSI, and management services to mid-range
and enterprise array/SAN environments to create unified network storage solutions.

	HP StorageWorks X3400 Network Storage Systems	HP StorageWorks X3800 Network Storage Systems
Drive type	300 GB 3G 15K LFF Dual-port SAS 2 Included for O/S mirror	146 GB 6G 10K SFF Dual-port SAS 2 Included for O/S mirror
Supported operating systems	Microsoft Windows Storage Server 2008 Enterprise x64 Edition Pre-installed	Microsoft Windows Storage Server 2008 Enterprise x64 Edition Pre-installed
Processor	(1) Intel Xeon E5405 (2.00 GHz) Standard per node	(2) Intel Xeon E5530 (2.40 GHz) Standard per node
Capacity	600 GB Raw Internal SAS 0 GB Useable 1200 GB Raw Internal SAS 24 TB Maximum 600 GB internal capacity per node Supported, depending on drive type. Designed to utilize external array/SAN storage.	292 GB Raw Internal SAS 0 GB Useable 292 GB Raw Internal SAS 12 TB Maximum Supported Supported depending on number of nodes. Designed to utilize external array/SAN storage.
Storage expansion options	Attach to P2000, P4000, or EVA arrays/SANs	Attach to EVA, P2000, XP, or P4000 arrays/SANs
Storage controllers	(1) Smart Array P212/256 MB Controller with BBWC Included	(1) Smart Array P410i/256 MB Controller with BBWC Included
Number of users	100–1300 per node	400–3300 per node
Form factor	1U, 3U, 4U Depending on number of nodes	2U, 6U Depending on number of nodes
Warranty	3 year parts, 3 year labor, 3 year onsite support (next business day response) plus 1 year standard day/hours software support	
QuickSpecs URL	http://h18000.www1.hp.com/products/quickspecs/13333_div/13333_div.pdf	

Technical specifications (contd.)

HP StorageWorks X3000 Network Storage Systems

HP related offerings	
Included Software	**Microsoft iSCSI Software Target:** Microsoft iSCSI Software Target adds block storage capability to Windows Storage Server 2008 and creates a single platform that delivers file, print, and application storage services, all over existing Ethernet networks. It is a powerful iSCSI software solution that provides affordable application storage provisioning, protection, and availability for small and medium office environments.
Optional Software	**HP StorageWorks Storage Mirroring Software:** HP Storage Mirroring Software provides host-based replication and failover to IP-based networks. Patented replication and failover technology continuously captures byte-level data changes as they occur in your production environment and replicates those changes to one or more servers in any location without geographic limitations.
	NOTE: An installable 60-day demo is available for download on hp.com. For more information, visit: **http://www.hp.com/go/storageworks/ storagemirroring**
	HP StorageWorks Command View EVA Software: HP StorageWorks Command View EVA Software provides you with a powerfully simple storage management experience, automates and aggregates storage management to reduce complexity and increase productivity. Quickly and easily automate tasks such as configuring RAID groups. HP X3000 Network Storage Gateways are excellent companion platforms for EVA arrays; not only can they host Command View EVA, but they also add file and iSCSI services to the array/SAN environment. For more information, visit: **http://www.hp.com/go/dataprotectorexpress**
	HP Data Protector Software: HP Data Protector Software automates high-performance backup and recovery with scalable data protection from disk or tape to enable 24x7 business continuity while providing a compelling price to performance ratio. For more information, visit: **http://h18006.www1.hp.com/products/storage/software/dataprotector/index.html**
	HP File Archiving Software: Achieve regulatory compliance, prepare for e-Discovery, free up space on bloated file servers, shrink backups, and reduce storage costs with HP File Archiving Software, an out-of-the-box file information collector for HP Integrated Archive Platform and other vendor-independent storage systems.
	HP Storage Essentials NAS Manager Software: Provides comprehensive Network Attached Storage (NAS) management capabilities for HP X3000 Network Storage Systems. Visualize your distributed HP NAS solutions and centrally manage their capacity, performance, events, and dependencies to provide NAS availability and performance and unify SAN and NAS management.
Recommended Services	**3-Year HP Support Plus 24 Service:** For a higher return on your storage technology, this 3-year combined reactive support option delivers integrated onsite hardware/software support services available 24x7.
	HP Installation and Startup Service for X1000/X3000 Network Storage Systems: For smooth startup, HP Installation and Startup Service for X1000 and X3000 Network Storage Systems, provides deployment of your storage system while helping you establish readily available access to and management of your critical data and applications.
Related Services	**3-Year HP Proactive 24:** HP Proactive 24 Service is an integrated hardware and software support solution, which 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: Provides deployment services for HP StorageWorks Storage Mirroring Data Migration software.

Technical specifications

HP StorageWorks X9000 Network Storage Systems

Control costs associated with explosive data growth and improve performance of file-based
applications with scale-out network storage that efficiently manages information in a single namespace.

HP StorageWorks X9000 Network Storage Systems

Drive type	1 TB 3G 7.2K LFF SATA
	1 TB 6G 7.2K LFF Dual-port MDL SAS
	2 TB 6G 7.2K LFF Dual-port MDL SAS
	450 GB 6G 15K LFF Dual-port SAS
	Supported, depending on model
Capacity	21 TB Starting
	1.3 PB Maximum
	Depending on model
Number of storage blocks	8
	Maximum, depending on model
Number of performance blocks	16
	Maximum, depending on model
Transfer rate	3.2 GB/sec
	Raw potential throughput, depending on model
File serving support	CIFS, NFS
Supported operating systems	Linux
Availability	Self healing, fully symmetrical active/active, hot plug drives, redundant power supplies, redundant fans, dual controllers
RAID support	RAID 1, 5, 6
Warranty	3 year parts, 3 year labor, 3 year onsite support, next business day response
QuickSpecs URL	http://h18000.www1.hp.com/products/quickspecs/13467_div/13467_div.pdf
HP related offerings	
Recommended Services	**3-Year HP Support Plus 24:** For a higher return on your storage technology, this 3-year combined reactive support option delivers integrated onsite hardware/software support available 24x7.
	HP Enterprise NAS Implementation Service: For smooth startup and better business outcomes, this service provides implementation of HP Enterprise NAS in your storage environment.
	HP Enterprise NAS Upgrade Service: Provides onsite upgrades for customers not wishing to perform upgrades themselves.
Related Services	**5-Year HP Support Plus 24:** Our 5-year combined reactive support service provides guaranteed pricing, less administration, and a multi-year discount while delivering integrated onsite hardware/software support 24x7x365, including access to HP technical resources, 4-hour response onsite hardware support and software updates.

For more information, visit: **www.hp.com/go/x9000**

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

Your technology infrastructure has become your business infrastructure—where delivering successful business outcomes is the key goal. The HP integrated end-to-end Storage Solutions are specifically designed to help businesses address today's tough technology challenges associated with the explosion of rich digital content, mobility, security, and the need for efficient storage of data and access to real-time information when and where they need it. No other company in the industry matches the breadth and depth of the HP portfolio of service, its resources, and commitment to improve storage support in a heterogeneous infrastructure. HP Services can help you manage and evolve your storage environment so that you can facilitate future growth, decrease operational costs, and protect data while reducing risk.

To capitalize fully on your HP storage solution—you require a service partner who thoroughly understands your storage technology and system environment. With HP Services, you gain the advantage of established methodologies and the industry's broadest portfolio of integrated storage solutions for enhanced information management and optimization. For more information about HP services and support, contact your HP sales representative or HP-authorized channel partner.

Service and support

HP 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, please 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 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. For more information, please visit **www.hp.com/learn/storage**

HP Financial Services

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

For more information

To learn more about HP StorageWorks Network Attached Storage Solutions, contact your authorized HP reseller, or visit **www.hp.com/go/nas**

You can also visit our other related storage family guides:

- HP StorageWorks Arrays: **http://h20195.www2. hp.com/v2/getpdf.aspx/4AA0-9383enw.pdf**
- HP StorageWorks Tape and disk-to-disk Data Protection: **www.hp.com/go/d2dtapefamilyguide**

To learn more about HP StorageWorks portfolios, contact your authorized HP reseller, or visit:

- **www.hp.com/go/storageworks**
- **www.hp.com/go/nas**
- **www.hp.com/go/tape**
- **www.hp.com/go/storageblades**
- **www.hp.com/go/san**
- **www.hp.com/go/storageworks/software**

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

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