

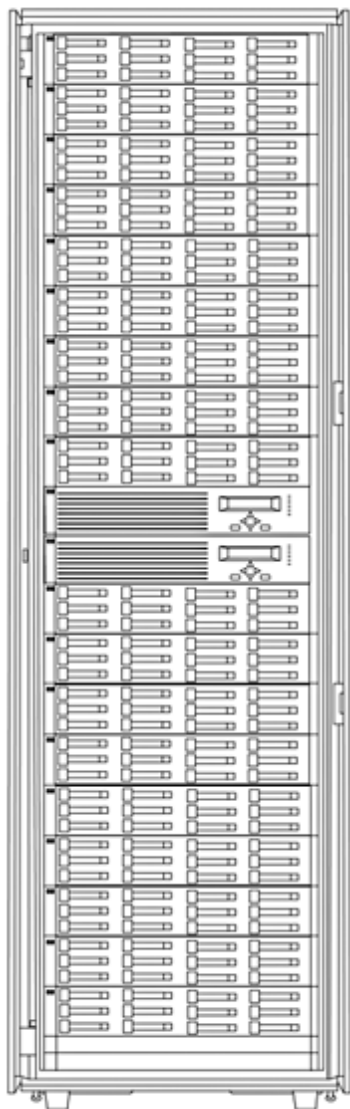
### Overview

The HP StorageWorks 6400/8400 StorageWorks Enterprise Virtual Array (EVA) family is an enterprise class storage array system designed to aggregate and automate your array management tasks to manage more storage capacity with fewer resources. The EVA is designed specifically for customers in the business critical, enterprise marketplace and is a scalable, highly available and highly reliable "virtual" array storage solution. The EVA6400/8400 saves time, space and costs compared to traditionally architected storage. It is supported by a powerfully simple suite of management software making it easy for users to provision storage and to achieve the highest level of productivity.

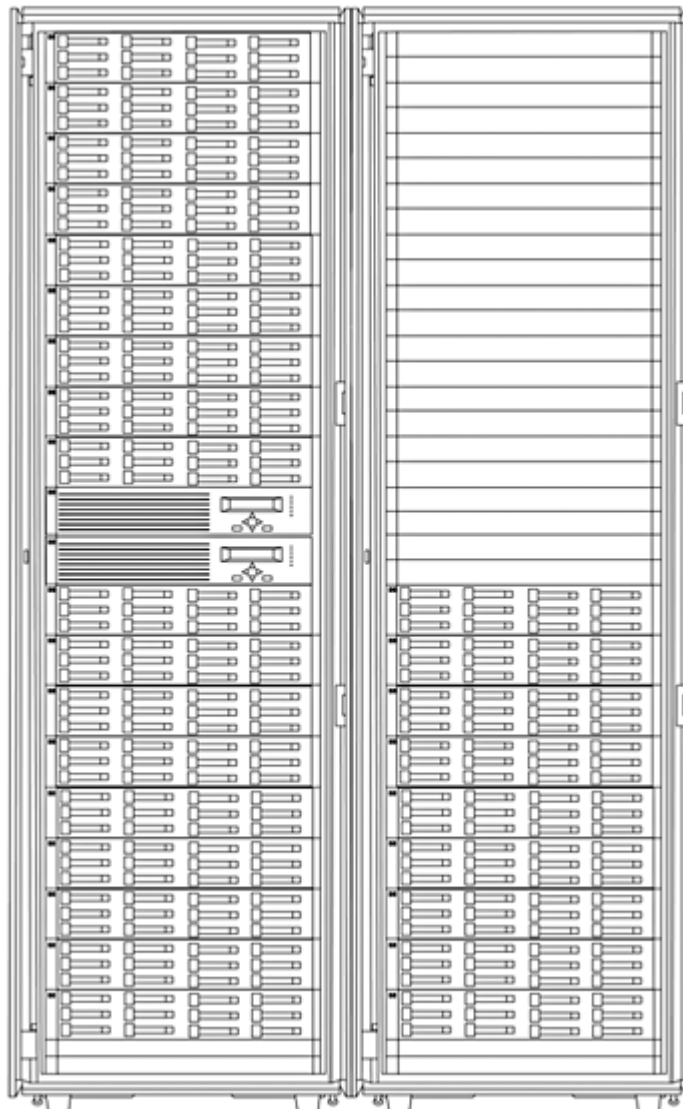
The HP StorageWorks 6400/8400 Enterprise Virtual Array family is designed for the data center where there is a critical need for improved storage utilization and scalability. The EVA meets application specific demands for transaction I/O performance for mid-range and enterprise customers. It provides easy capacity expansion, instantaneous replication and simplified storage administration. The Enterprise Virtual Array combined with HP StorageWorks Command View EVA software provides a comprehensive solution designed to simplify management and maximize performance.

HP offers a full spectrum of complimentary HP StorageWorks EVA hardware, software product, solutions and HP services. This includes the EVA4400 for affordable, fast and easy small SAN deployment, EVA iSCSI Connectivity Option, Business Copy EVA, Continuous Access EVA, Dynamic Capacity Management and solution integration. With HP Storage Essentials Standard Edition SRM Software, you can also have an affordable and complete Storage Resource Management solution to efficiently manage EVA and server infrastructure via a unified and integrated secure web-based tool set. In addition, the EVA warranty offering provides the base level of service to which you can add appropriate service options. HP Services provide additional offerings up to Critical Service, the support for mission critical environments.

### Overview



EVA6400 2C18D



EVA8400 2C27D

These drawings are informational only. The actual configuration may differ depending on the number of disk enclosures chosen and the components being racked with the EVA. The EVA6400 can support up to 18 drive enclosures for a total of 216 disks. The EVA8400 can support up to 27 drive enclosures in two racks for a total of 324 disks. (If a customer has a specific racking requirement they should use the Factory Express option to define the configuration.)

### Overview

### What's New

The new EVA 6400/8400 arrays support all the robust features and functions made popular in the previous generation of EVA arrays plus:

- Increased cache up to 22GB for improved application read and write performance
- Support for Vraid 6 for increased data protection
- Increased maximum LUN size to 32TB to support application needs
- Solid State Disk Support for high I/O/low latency applications
- Support for 64 Snapshots for improved data management and back-up
- Improved Command View Performance
- Instant restore from a MirrorClone Snapshot
- Command View EVA and Replication Solution Manager support for All EVA generations
- Dynamic Capacity Manager on Linux

### Product Highlights

	EVA4400	EVA6400	EVA8400
Controller Model	HSV300	HSV400	HSV450
Virtual Controller Software (XCS)	XCS v9.5	XCS v9.5	XCS v9.5
Management Software	Command View EVA v9.0	Command View EVA v9.0	Command View EVA v9.0
Application Environment Support	Oracle, SAP, Microsoft Exchange, SQL	Oracle, SAP, Microsoft Exchange, SQL	Oracle, SAP, Microsoft Exchange, SQL
Virtual Server Technology Support	VMware, Microsoft Hyper-V, Citrix XenServer, RHEL Virtualization and Oracle Virtual Machine	VMware, Microsoft Hyper-V, Citrix XenServer, RHEL Virtualization and Oracle Virtual Machine	VMware, Microsoft Hyper-V, Citrix XenServer, RHEL Virtualization and Oracle Virtual Machine
Local Data Replication -- HP StorageWorks Business Copy EVA	Yes	Yes	Yes
Remote Data Replication - - HP StorageWorks Continuous Access EVA	Yes	Yes	Yes
Command View EVA Array management and configuration support	up to 16 EVAs	up to 16 EVAs	up to 16 EVAs
Application block and file storage	Yes	Yes	Yes
O/S Support*	HP-UX HP OpenVMS Windows 2003 Windows 2008 Windows Server 2008 HyperV Sun Solaris Linux IBM AIX Novell NetWare VMware Apple Mac OSX Xen	HP-UX HP OpenVMS Windows 2003 Windows 2008 Windows Server 2008 HyperV Sun Solaris Linux IBM AIX VMware Apple Mac OSX Xen	HP-UX HP OpenVMS Windows 2003 Windows 2008 Windows Server 2008 HyperV Sun Solaris Linux IBM AIX VMware Apple Mac OSX Xen
RAID supported	Vraid 0, Vraid1, Vraid 0+1, Vraid 5, Vraid 0+5, Vraid 6 & Cross Vraid Snaps	Vraid 0, Vraid1, Vraid 0+1, Vraid 5, Vraid 0+5, Vraid 6 & Cross Vraid Snaps	Vraid 0, Vraid1, Vraid 0+1, Vraid 5, Vraid 0+5, Vraid 6 & Cross Vraid Snaps
LUN size	Up to 32TB	Up to 32TB	Up to 32TB
Number of controllers	2	2	2
Cache (per controller pair)	4GB	8GB	14 or 22GB
Battery Back-up Cache	Yes, up to 96 hours	Yes, up to 96 hours	Yes, up to 96 hours
Host Connectivity	Fibre Channel, iSCSI and Direct Connect	Fibre Channel, iSCSI and Direct Connect	Fibre Channel, iSCSI and Direct Connect
Number of Host Supported (Single Path/Dual Path)	512/256	512/256	512/256
Host Ports (per controller pair)	4 or 2 embedded FC switches with ten 8Gb/s FC SAN ports per controller	8	8

### Product Highlights

Host Port Speed	4 Gb	4 Gb	4 Gb
Device Connectivity	Redundant FC-AL pairs from each controller to switched JBOD for redundant paths to dual drive ports	Redundant FC-AL pairs from each controller to switched JBOD for redundant paths to dual drive ports	Redundant FC-AL pairs from each controller to switched JBOD for redundant paths to dual drive ports
Device Ports (per controller pair)	4	8	12
Device Port Speed	4 Gb	4 Gb	4 Gb
Device Path Aggregate Bandwidth	16 Gb	32 Gb	48 Gb
Switched device shelves (M6412-A)	1 to 8	2 to 18	3 to 27
Drives per enclosure	12	12	12
Drive types (mixed in any enclosure)	Solid State Disks (SSD), High Performance Fibre Channel and Fibre Attached Technology Adapted (FATA)	Solid State Disks (SSD), High Performance Fibre Channel and Fibre Attached Technology Adapted (FATA)	Solid State Disks (SSD), High Performance Fibre Channel and Fibre Attached Technology Adapted (FATA)
Supported disks, minimum	6 SSD, 8 FC and FATA	6 SSD, 8 FC and FATA	6 SSD, 8 FC and FATA
Supported disks, maximum	8 SSD, 96 FC and FATA	8 SSD, 216 FC and FATA	8 SSD, 324 FC and FATA
Capacity	.4 to 96TB	.4 to 216TB	.4 to 324TB
Drive capacities and speeds	72GB SSD 400GB 10K rpm 146GB 15K rpm 300GB 15K rpm 450GB 15K rpm 1TB FATA	72GB SSD 400GB 10K rpm 146GB 15K rpm 300GB 15K rpm 450GB 15K rpm 1TB FATA	72GB SSD 400GB 10K rpm 146GB 15K rpm 300GB 15K rpm 450GB 15K rpm 1TB FATA
JBOD Support (behind XP)	Yes	Yes	Yes
Drive Interface (per controller)	Two 4Gb/s FC-AL ports per controller in redundant pairs, two paths to each dual ported drive	Four 4Gb/s FC-AL ports per controller in redundant pairs, two paths to each dual ported drive	Six 4Gb/s FC-AL ports per controller in redundant pairs, two paths to each dual ported drive
Variable Speed	Yes	Yes	Yes
Redundant Blowers			
Environmental Monitoring Unit	Monitors Power and Temperature	Monitors Power and Temperature	Monitors Power and Temperature
Regulatory approvals	UL, CSA, TUV, FCC, CE MARK, CTICK, BSMI, VCCI	UL, CSA, TUV, FCC, CE MARK, CTICK, BSMI, VCCI	UL, CSA, TUV, FCC, CE MARK, CTICK, BSMI, VCCI
Fibre Channel Switches & Directors	Optical Switches and Directors: <a href="http://h18006.www1.hp.com/storage/saninfrastructure/switches.html">http://h18006.www1.hp.com/storage/saninfrastructure/switches.html</a>		

**NOTE:** See Operating System, Cluster and High Availability Compatibility matrix for Operating System version detail.

### EVA Capabilities

- Virtualization abilities allow for easy management and excellent capacity utilization
- Scale and re-configure your EVA capacity as your business grows and changes
- Excellent reliability and availability established for the EVA architecture. HP's data shows that most customers are achieving 99.999% availability with the EVA 4100/6100/8100
- Support for integrated application (block) and file storage solution with EVA file services offerings
- Support for dual-ported 4 Gb/s FC disk drives and 2 Gb/s dual-ported Fibre Attached Technology Adapted (FATA) drives and dual ported Solid State Disks (SSD)

### Product Highlights

- Support for Direct Attach connection to Windows storage servers without the need for SAN switches. SAN support for integrated EVA iSCSI Connectivity Option with Windows, HP OVMS, Linux, Apple Mac OS X, Microsoft Windows, Sun Solaris, and VMware.
- Supports up to 2048 LUNs (up to 256 per HBA) ranging in size from 1GB to 32TB per Virtual disk, in 1GB increments.
- Dynamic Capacity Management support to expand LUNs up to 2TB (in 1GB increments) and shrink LUNs 2TB or less.  
**NOTE: Requires Host Operating System Support.**
- Virtual disk data load leveling (non-disruptive background activity)
- Distributed sparing of disk capacity
- Proactive migration of data from a failing drive into unused space or spare space
- Redundant FC-AL loops from each controller to dual disk ports
- Support for HP StorageWorks Continuous Access EVA remote replication (synchronous and asynchronous).
- Support for remote replications between current EVA generations
- Migration support via remote replications between current and earlier EVA generations
- Support for Data-in-place upgrades from EVA4400 to EVA6400 and EVA8400 or EVA6400 to EVA8400
- Support for HP StorageWorks Business Copy EVA (Snapshot, and Vsnap (virtually capacity free snapshots), Snapclone, MirrorClone and Cross Vraid snapshots and Snapclone).
- Dual redundant controller operation for increased fault tolerance.
- Multiple Bus Failover Support using industry popular multiple path software.  
**NOTE: Requires native OS multi-pathing support.**
- Battery-Back-Up for controller cache memory
- Asynchronous Disk Swap (hot swap)
- Clustered Server Support
- Mirrored Write-Back Cache Support
- Read-Ahead and Adaptive Read Caching Support
- Virtual RAID Arrays (Vraid 0, Vraid 1, Vraid 0+1, Vraid 5, Vraid 0+5, Vraid 6 & Cross Vraid Snaps)
- Support for local replication between Vraid types using Vsnap or Snapclone within a disk group or using Snapclone across disk groups (and Cross Vraid Snapshot and Snapclone)
- Online XCS software upgrade capability
- Online drive firmware upgrade capability
- Supports connection of up to 256 hosts
- Multi-Vendor Platform Support
- Controller Password Protection for Configuration Control
- Selective Storage Presentation and SAN-based Data Zoning (through switches).
- HP StorageWorks Command View EVA GUI Interface for management and monitoring (manages up to 16 EVAs).
- Monitor and control health, HP EVA end-to-end SAN performance and monitoring, storage utilization and reporting for all key HP EVA and SAN infrastructure including servers, storage, HP MSA, HP EML E-series tape, HP ProLiant Storage Servers (NAS), HBAs, switches, applications and monitor the entire backup from a single interface with HP Storage Essentials SRM Standard Edition Software

### Enterprise Virtual Array Product Packaging

The EVA Product Family consists of the EVA4400, EVA6400 and EVA8400. They utilize the 12 bay M6412A disk enclosure and the same family of Fibre Channel disks. These disks consist of dual ported fibre channel solid state disk, high performance fibre channel disks and Fiber Attached Technology Adapted (FATA) disks.

### Product Highlights

#### EVA6400 and EVA8400 Product Packaging

The EVA6400 is designed to address moderate capacity and performance needs ranging (from 2 to 18 drive enclosures, .4 - 216TB). The EVA6400 packaging consists of a 4U FC dual HSV400 controller assembly and 2 to up to a full rack (18) M6412 12-bay FC Drive Enclosures. The EVA8400 is designed to address moderate to large capacity with high performance needs ranging (from 3- 27 drive enclosures, .4 - 324TB). The EVA8400 packaging consists of a 4U FC dual HSV450 controller assembly with either 14GB or 22GB of cache and from 3 to up to a 27 M6412 12-bay FC Drive Enclosures in a two racks.

The EVA6400 and EVA8400 configurations allow a wide range of configuration options. The EVA offer flexible factory rack-mounting options in either a standard 42U cabinet (based on the HP 10000 G2 Series Rack- or a choice of 42U extended, 36U and 22U heights). Factory racking options allow the, EVA6400 and EVA8400 to be factory integrated into cabinets with a wide variety of other HP offerings such as servers and tape back-up offerings. The EVAs also support other HP field racking choices such as the 5642 (42U) Rack Cabinet System and qualified customer-supplied racks.

#### Multi-Vendor Platform

The EVA6400/EVA8400 provide support for industry-leading Operating System platforms including:

- HP-UX
- HP OpenVMS
- Windows Server 2003
- Windows Server 2008
- Windows Server 2008 Hyper-V
- Sun Solaris
- Linux
  - Red Hat
  - SUSE/SLES (including Open Enterprise Server)
  - Oracle Enterprise Linux
- IBM AIX
- VMware
- Apple Mac OSX
- Xen
  - Citrix Xen
  - RHEL Virtualization
  - Oracle Virtual Machine

**NOTE:** See [Operating System, Cluster and High Availability Compatibility matrix for Operating System version detail](#).

#### Designed for No-Single-Point-of-Failure

The EVA family's redundant architecture and value added software is designed to eliminate single-points-of-failure from server to storage in clustered or single server configurations with multi-pathing.

### Product Highlights

#### Remote Replication Solutions (Software options)

HP StorageWorks Continuous Access provides disaster tolerant replication across a Fibre Channel SAN. Continuous Access EVA performs real-time replication between HP StorageWorks Enterprise Virtual Arrays of the current and earlier generations. Continuous Access EVA provides the highest level of FC SAN data protection to customers, in order to meet disaster tolerant business continuity implementation goals. Through the use of MAN/WAN Fibre Channel SAN extensions, Continuous Access EVA provides 24x7 protections against disaster like scenarios, in campus, metro or continental networks. Thus, enabling business protection against unforeseen events.

HP StorageWorks Disaster Tolerant Solution for mySAP Business Suite on EVA offers a business continuance solution for SAP environments, where data integrity and value added functionality are high priorities. Information on implementing remote mirroring of an SAP database as part of an overall data protection strategy with SAP applications can be found at:

<http://h71028.www7.hp.com/erc/downloads/4aa1-5683Enw.pdf>

The HP StorageWorks IP Distance Gateway provides SAN over WAN connectivity for protecting and replicating data between EVA systems. By connecting islands of SANs over WANs, the IP Distance Gateway enables CA replication (Asynchronous and Synchronous), SAN device sharing, data migration and other long distance data services. At the core of providing long distance data services is the ability to copy, move and replicate data locally and over long distances. However, SANs have limited distance capabilities (10km) and IT managers need to share, protect and move data over greater distances than 10km, routers and switches that link SANs over IP WANs is the weapon of choice for most IT managers. The IP Distance Gateway uses the FCIP (Fibre Channel Internet Protocol) standard to extend SAN connectivity over the WAN.

- Low Cost SAN over WAN Connectivity
- High Performance with data compression and load balancing
- Support for FCIP for SAN extension
- Bridges SANs for all FC Fabrics
- Supports two Ethernet and two Fibre Channel ports
- Concurrent FC and IP traffic in High Availability mode
- Integrated management with HP StorageWorks mpx Manager
- Supports High Availability Options
- Fabric and Direct Attach support

[http://h18006.www1.hp.com/storage/disk\\_storage/index.html](http://h18006.www1.hp.com/storage/disk_storage/index.html)

### Product Highlights

**Disaster Tolerant Solutions** (Software options) HP Metrocluster with Continuous Access EVA and Continentalclusters are integrated solutions that offer minimal downtime by rapid site recovery with automatic failover of application services (via Serviceguard) and automatic data consistency checking and read/write enabling of remotely mirrored storage in the event of a fault, failure, or disaster recovery.

**NOTE:** Metrocluster and Continentalclusters will be available following the introduction of the EVA6400/8400. Check the following URL for more information and availability:  
<http://h71028.www7.hp.com/enterprise/cache/4171-0-0-0-121.html>

HP StorageWorks Cluster Extension EVA software is a full-site disaster tolerance solution designed for mid-range storage array implementation. A disaster tolerant solution for Windows 2003 and Linux environments, Cluster Extension EVA integrates, automates, and synchronizes server cluster failover operations with the remote replication management capabilities of HP Continuous Access EVA for a disaster tolerant solution for EVA arrays whether used as primary storage or in a tiered-storage configuration.

<http://www.hp.com/go/clxeva>

HP StorageWorks Disaster Tolerant Solution for mySAP Business Suite on EVA offers a business continuance solution for SAP environments, where data integrity and value added functionality are high priorities. Best practices for implementing remote mirroring of an SAP database as part of an overall data protection strategy with SAP applications can be found at:

<http://h71028.www7.hp.com/erc/downloads/4aa1-5683enw.pdf>

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**Local Replication Solutions** (Software options) The HP StorageWorks Business Copy is a local replication application for the EVA family. It incorporates Virtually Capacity-free Snapshot (Vsnaps), standard snapshots and Snapclone capabilities with an improved user interface to assist the storage administrator. This product is indispensable for critical data center operations such as non-disruptive backups, frequent snapshots of high value databases, and data mining. The bottom line benefits include improved disk capacity utilization and increased business continuity, data availability, and productivity savings.

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**Capacity Management** 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 ensure the highest levels of capacity utilization are achieved while reducing ongoing storage administration needs. For more information, visit:  
[http://h18006.www1.hp.com/products/storage/software/eva\\_dcm/index.html](http://h18006.www1.hp.com/products/storage/software/eva_dcm/index.html).

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### Product Highlights

**Replication Management** HP Business Copy EVA and HP Continuous Access EVA comes complete with HP Replication Solutions Manager, a graphical user interface and scripting environment, that greatly simplifies storage management by creating, running, and managing storage replication jobs using controller based snapshots, clones and remote mirroring.

With HP Replication Solutions Manager users easily can manage both remote and local replication across the full EVA product family. By virtually removing the complexity associated with both small and large replication environments, point-in-time copies and remote replication are managed and configured with just a few mouse clicks. To assist the user, Information on the replication environment is presented in a variety of views, including an interactive topology manager that allows each user to select their viewing preference. In addition, HP Replication Solutions Manager provides a scripting interface for additional flexibility.

**Application Integration with Oracle** As an option to HP Business Copy EVA, the user can simply replicate an Oracle database. HP Replication Solutions Manager will provide a graphical interface to view the components of the database to be replicated, and allow selection of a specified database. The replication manager will automatically suspend the Oracle application, and take a point in time copy (local or remote) of all associated array virtual disks. The replication manager will provide the option to restart the original Oracle database after the replicas have been initiated on the array. The user will be able to utilize the replication manager to present the replica to another host.

**Application Solutions** The EVA is the ideal solution for customers running Oracle, Microsoft, SAP environments and those customers who are deploying virtual server technologies like VMware, Hyper-V, Xen and Oracle Virtual Machine. HP StorageWorks Enterprise Virtual Arrays (EVA) delivers virtual storage for the midsize customer with enhanced performance, better capacity utilization, and easier management of on-demand storage activities.

For customers, one of the greatest concerns is always database performance. With larger LUNS and Solid State Disk (SSD) built into the HP EVA, customers get industry leading, super fast performance along with the scalability, availability, and ease of management capabilities they have come to expect from HP Storage Solutions. Everything a customer depends on when managing their most critical business asset...business data.

HP has developed an in-depth understanding of Oracle, Microsoft, SAP, and VMware technology by extensive lab-testing best practices with HP EVAs, HP servers, and management software; high availability and disaster recovery solutions; and backup and recovery on the Oracle, Microsoft, and SAP application platforms. As a result, our customers can expect a wide range of operational and business benefits where they can:

- Achieve optimal performance on an Oracle, Microsoft, SAP platforms
- Minimize back-up windows and simplify recovery of their database and/or application
- Significantly improve Exchange messaging recovery points and recovery time
- Get predictable operational results
- Reduce implementation costs and risks
- Gain optimum return on Oracle, Microsoft, and SAP investments

To learn more about specific HP Storage Solutions that are built with Oracle, Exchange, SAP environments in mind, visit the solution sites supporting each of these applications.

HP Storage for Oracle hyperlink to: <http://www.hp.com/storage/oracle>

HP Storage for Microsoft SQL Server hyperlink to: <http://www.hp.com/storage/sqlserver>

### Product Highlights

HP Storage for Microsoft Exchange hyperlink to: <http://www.hp.com/storage/exchange>

HP Storage for SAP hyperlink to: <http://www.hp.com/storage/sap>

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#### EVA with HP Storage Essentials Storage Resource Management Software Family

HP Storage Essentials SRM Enterprise Suite and HP Storage Essentials SRM Standard Edition Software integrates with HP Systems Insight Manager to provide advanced server and storage management capabilities. HP Storage Essentials Suite Software features a base management console and an expanding portfolio of value-add plug-ins to assist in managing EVA across the enterprise.

HP Storage Essentials Suite delivers integrated heterogeneous and multivendor functionality for network (Arrays, DAS, SAN, NAS, HBAs, switches) management, storage resource management, reporting, capacity metering, provisioning and application infrastructure monitoring.

<http://h18006.www1.hp.com/products/storage/software/e-suite/index.html>

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#### HP Storage Essentials SRM Performance Pack Software and EVA (end-to end EVA SAN Performance Management)

HP Storage Essentials SRM Performance Pack Software combined with Storage Essentials SRM Enterprise Edition Software monitors performance along the complete path of business applications through underlying storage area networks (SAN) components, including host server, host bus adapter (HBA), fabric switch and Enterprise Virtual Array. A unified and simplified interface, helps EVA administrators increase efficiency, troubleshoot performance bottlenecks faster, and quickly visualize the big performance picture of their EVA storage, hosts and SAN infrastructure with real-time monitoring, historical trend analysis and trend extrapolation.

The SRM Performance Pack Software can be ordered separately on a per EVA basis for existing Storage Essentials SRM Enterprise Edition SRM customers, and for Storage Essentials SRM Standard Edition customers the SRM Standard Edition LTU includes licensing to monitor up to 3 HP EVAs. For more information on HP Storage Essentials SRM Standard Edition Software visit:

<http://h18006.www1.hp.com/products/storage/software/std-suite/index.html>

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#### HP Standard Edition SRM Software and EVA

HP Storage Essentials Standard Edition Storage Resource Management Software and Systems Insight Manager with Command View EVA software provides a total solution that allows midsize businesses with limited IT staff to see the big picture (storage-servers-infrastructure) thereby reducing SAN complexity by depending on Excel spreadsheets or whiteboards to track and manage SAN storage and infrastructure. It supports Windows and Linux servers with small to medium HP storage based SANs including HP EVA, HP MSA, HP NAS, HP EML Tape, HBAs and fabric devices. HP Standard Edition SRM Software unified server and storage tool-set automates complex and manual storage process and tasks with auto discovery, visualization and topology mapping for quick device identification, integrated NAS and SAN management, business application monitoring including Oracle, Microsoft SQL, Sybase, InterSystems Caché, Microsoft Exchange Server and SAP Adaptive Computing Controller (ACC) environments path dependency identification, and end-to-end EVA SAN performance monitoring and analysis. For more information on HP Storage Essentials SRM Standard Edition Software visit:

<http://h18006.www1.hp.com/products/storage/software/std-suite/index.html>

### Product Highlights

**HP StorageWorks 12000 Virtual Library System EVA Gateway** Expanding the power of the HP StorageWorks Enterprise Virtual Array (EVA), the HP StorageWorks 12000 Virtual Library System EVA Gateway accelerates backup performance in complex SAN environments while improving overall reliability. Integrating seamlessly into existing backup applications and processes by emulating popular tape libraries and tape drive formats, the HP VLS 12000 EVA Gateway matches the existing data protection environment, removing the need to change backup software or monitoring policies. Additionally, because the VLS EVA Gateway uses HP EVAs as the storage pool, ease of use is maintained throughout the system. By emulating multiple tape drives simultaneously, more backup jobs can be done in parallel resulting in reduced backup times and, because the data resides on disk, single file restores are exceptionally fast.

The HP Virtual Library System EVA Gateway simplifies your SAN environment by providing more virtual devices and leveraging existing switches and HP EVA infrastructure. The result is the ability to vastly increase scale yet reduce the complexity of shared storage while maintaining the manageability of the system. As your environment changes, the HP Virtual Library System EVA Gateway adapts to it - host masking and mapping ensure that only the appropriate hosts have access to the HP Virtual Library System.

The HP Virtual Library System EVA Gateway offers advanced features such as Automigration which allows users to move data under the control of the VLS from the VLS storage to tape or another VLS. The VLS EVA Gateway also supports accelerated deduplication which delivers fast backup performance since the deduplication process does not impact the backup. For more information on the VLS EVA Gateway, please visit the link below:

[http://h18006.www1.hp.com/storage/disk\\_storage/disk\\_to\\_disk/vls/12000vls/index.html](http://h18006.www1.hp.com/storage/disk_storage/disk_to_disk/vls/12000vls/index.html)

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**EVA iSCSI Connectivity** EVA iSCSI support is available through the EVA iSCSI Connectivity Option. This powerful solution provides iSCSI connectivity to an EVA utilizing the EVA's existing Fibre Channel infrastructure.

The HP StorageWorks EVA iSCSI Connectivity Option extends the advantages of Fibre Channel SANs into smaller departments and remote locations. This EVA option allows customers to incorporate iSCSI servers within SANs without requiring additional storage arrays or management costs. Use the EVA's Command View software to manage the iSCSI connectivity to the array and mount the iSCSI device in the same rack as the array.

For more information and operating system support:

<http://h18006.www1.hp.com/products/storageworks/evaiscsiconnect/index.html>

The EVA also supports select ProLiant Storage Servers (i.e. NAS) connected as file/print/iSCSI gateways. The ProLiant DL380 G5 x64 SAN Storage Server and DL585 G2 Storage Server each feature Microsoft's Windows Unified Data Storage Server 2003 operating system that includes Microsoft iSCSI Software Target standard, while other DL380 G5 Storage Server models offer optional support for Microsoft iSCSI Software Target. Microsoft iSCSI Software Target leverages existing management expertise and inexpensive Ethernet infrastructure to deliver IP-based block access to an EVA or Fibre Channel SAN. So ProLiant Storage Servers with iSCSI target functionality not only add file and print services to your EVA investment, but they help you save even more by enabling tiered (Fibre Channel and iSCSI) block access for application servers.

In addition, any ProLiant DL380 G5 Storage Server or DL585 G2 Storage Server is a perfect platform from which to run Command View EVA. You stretch your investment even further when you host EVA management, file and print services, and iSCSI connectivity all from the same ProLiant Storage Server gateway solution.

### Product Highlights

For more information:

<http://h18006.www1.hp.com/storage/nas.html>

<http://www.hp.com/go/storageservers>

#### EVA File Services

File services for the EVA are supported through the use of the EFS Clustered Gateway. Using File services with the EVA eliminates having to manage silos of storage, File Services for the EVA creates a single, integrated storage solution that provides both easy to manage application (block) services and scalable files services.

This solution can serve both block and file data concurrently with high availability and scalable performance. The solution is supported by a powerfully simple suite of management software making it easy for users to achieve high levels of productivity.

File services through the EFS Clustered Gateway supports mid-range and enterprise customers wanting a single storage solution for their block and file data, improved storage utilization, scalable throughput performance to meet application specific demands for consistent high transaction I/O, easy capacity expansion, instantaneous replication, simplified storage administration and high availability. Customers can use this solution to consolidate their individual silos of storage to gain flexibility, reduce IT costs and complexity as compared to traditionally architected storage solutions.

The EVA and file services solution supports both CIFS (windows) and NFS file serving. The components can be factory integrated into the HP EVA6400/8400 arrays. The components required to implement file services on the EVA are:

- Two EFS Clustered Gateway serving nodes
- One Ethernet Switch
- Two 8Gb FC Switches
- Installation and Startup

A file service solution provides the following benefits:

- Integrates and simplifies providing a single storage solution for application (block) and file data delivering high utilization and lower TCO
- Uses a single set of management tools that can be invoked from anywhere, anytime, resulting in a very operationally efficient environment to manage.
- Combines state-of-the-art application (block) data performance and file serving performance, that can scale as needs dictate, offers customer's aggregate performance levels far in excess of traditional file servers and NAS appliances.
- Additional capacity can be added quickly and easily with any combination of high performance Fibre Channel and/or low cost FATA drives.
- Uses state-of-the-art virtualization which improves performance, disk usage and TCO while the single, shared pool of storage allows for easy dynamic expansion, which automatically distributes data to avoid potential hot spots.
- With fully redundant components such as SAN switches, array controllers, and file serving nodes built into every unit, this solution is perfect for demanding mid-range and enterprise storage applications.

For more information:

[http://h18006.www1.hp.com/products/storageworks/efs/index.html?jumpid=reg\\_r1002\\_usen](http://h18006.www1.hp.com/products/storageworks/efs/index.html?jumpid=reg_r1002_usen)

<http://h18006.www1.hp.com/products/storageworks>

### Product Highlights

<b>EVA with HP Systems Insight Manager Software</b>	<p>HP SIM is the foundation for HP's unified server-storage strategy - it is packaged as value add software with EVA, it's a management application and is derived from the heritage of Compaq Insight Manager, HP Tootools, and HP Servicecontrol. HP SIM runs on HP Windows, Linux, and HP-UX and provides discovery and identification, fault management, security administration, asset reporting, and centralized configuration management across heterogeneous servers, storage and infrastructure. HP SIM is easily extensible, integrating other HP management products and value-add plug-ins such as the ProLiant Essentials, Integrity Essentials, and Server Essentials.</p> <p>HP SIM relies on industry standards like SMI-S, SNMP, SSH, WBEM, and WMI to detect and report heterogeneous device attributes. HP SIM may also be configured to launch array specific applications for configuration, reporting and replication. For more information on HP Systems Insight Manager see: <a href="http://www.docs.hp.com/en/netsys.html">http://www.docs.hp.com/en/netsys.html</a></p>
<b>Clustered Server and High Availability System Support</b>	<p>Dual and multi-node cluster support is provided for host level fault tolerance and high system availability. See the Operating System, Cluster and High Availability Compatibility table for operating system specific support.</p>
<b>Factory Express</b>	<p>A portfolio of customized factory and deployment solutions from the desktop to the data center. Configure an entire datacenter in a single rack with HP Factory Express.</p> <p>Configure your entire order including EVAs, Storage Area Network, POD, servers and backup in a rack, AND securely load your data prior to shipment saving time and money by providing a fully configured greener solution.</p> <p>Factory Express most popular services for server and storage:</p> <ul style="list-style-type: none"><li>● Image Loading</li><li>● Asset Tagging &amp; Labeling</li><li>● Image Recovery</li><li>● Custom System Settings</li><li>● 3rd Party Components</li><li>● Rack Integration</li><li>● Blades Integration</li></ul> <p>For more information visit: <a href="http://www.hp.com/go/factory-express">www.hp.com/go/factory-express</a> <a href="http://h71028.www7.hp.com/enterprise/cache/97688-0-0-0-121.html?jumpid=reg_r1002_usen">http://h71028.www7.hp.com/enterprise/cache/97688-0-0-0-121.html?jumpid=reg_r1002_usen</a></p>
<b>Multi-Server Shared Support for Storage Consolidation</b>	<p>Heterogeneous and homogeneous host support provides the ability to share storage between multiple servers. The EVA provides storage access control (i.e. Selective Storage Presentation or LUN masking) assuring that a host cannot access data belonging to a different host. SAN-based zoning is also supported.</p>
<b>Single-pathing (Single HBA per host)</b>	<p>Single-pathing (or single HBA per host) support is provided for all supported operating systems (but may be version dependent). Use of single-pathing, which does not offer a redundant path option, should be used with care. Failure of the single HBA will result in loss of access for that host until the HBA is replaced.</p>

### Product Highlights

#### Enclosure Capacity

The EVA provides a high density disk storage solution. The EVA6400 and EVA8400 in the 42U HP 10000 G2 Series Rack supports up to 18 2U 12-bay M6412-A FC disk enclosures for a maximum capacity of 216 disk drives and a maximum storage capacity of 216 TB in a single rack. For the EVA8400 an expansion cabinet allows users to expand with another 9 enclosures for a total of up to 27 disk enclosures, providing support for up to 324 disks, and up to 324TB.

**Utility Pricing solutions for StorageWorks EVA** HP offers a spectrum of offerings allowing customers to align their payments according to the usage of storage capacity.

- For customers requiring assistance in managing their storage infrastructure, Managed Storage Solution (MSS) meets that need while providing the option to acquire storage on a utility model. Customers have the ability to choose other options like Backup/Restore, Data Availability, Local Copy and Remote Copy services. All these capabilities are offered at a \$/GB/Month fee.
- For customers that want to build and manage their own storage utility, Utility Ready Storage (URS) provides customers with storage that never runs out; priced as the customer uses it; and is easy to procure. URS pricing is based on \$/GB/Month of average allocated capacity over the customer's minimum commitment. URS provides a unique opportunity to allow customers access to storage when they need it, permitting them to adapt to their changing business needs.
- For customers whose need is best described by predictable growth, Pay per forecast (PPF), offered from HP Financial Services, is an ideal fit. It is a step lease based solution where the payments are structured upfront according to the customer's forecasted growth.
- For even further demanding financial needs of customers, HP Financial Services are ready to craft a customized solution for them.

**NOTE:** Support for Utility Ready Storage will be available after the introduction of the EVA6400 and EVA8400. Please contact your local HP representative for further information

#### Solid State Disk Support

The EVA supports 72GB dual ported solid state fibre channel disk drives. The EVA arrays will support mixed drive types (solid state disks, high performance and FATA) within an enclosure, The solid state disk requires its own disk group. The minimum number of SSDs supported is 6 and the maximum is 8 per array.

**NOTE:** SSDs support only Vraid 5 and some Business Copy features (Snapshots and MirrorClone) for local replication.

#### High Performance Fibre Channel Drives (10K 15K rpm) Support

The EVA supports 400 GB 10K rpm dual-ported 4 Gb/s FC and 146 GB, 300GB and 450GB 15K rpm dual-ported 4 Gb/s FC disk drives. The minimum number of high performance fibre channel drives supported on an EVA is 8.

The EVA arrays will support single or mixed drive capacities and types (solid state disks, high performance and FATA) within an enclosure. HP recommends using the same drive capacity type within a disk group because virtualization allocates space proportionate to the highest capacity drive within the group.

### Product Highlights

#### FATA Drive Support

The EVA supports 1TB dual ported 4 Gb/s Fibre Attached Technology Adapted (FATA) disk. An EVA will support a full configuration of FATA disk drives. A minimum of eight FATA drives are required in a configuration.

FATA drives are designed for lower duty cycle applications such as near on-line data replication for back-up. These drives should not be used as a replacement for EVA's high performance, standard duty cycle, Fibre Channel drives. Doing so could shorten the life of the drive.

Please see the following URL for more information on FATA drives, their uses and their benefits:  
<http://h71028.www7.hp.com/ERC/downloads/5982-7353EN.pdf>

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**Fibre Channel Technology** The EVA6400/8400 takes advantage of the benefits of Fibre Channel (FC) in distance, performance and connectivity. The use of optical Fibre cabling allows distances between connected segments of a SAN to be up to 500 meters @ 1 Gb/s; 300 meters @ 2 Gb/s using short wave multi-mode cable and up to 10 kilometers (6.21 miles) @ 1 Gb/s when using long wave cable. The EVA6400/8400 are 4 Gb/s enabled on each FC path, but will also support 2 Gb/s FC paths for backwards compatibility. Storage Area Networks (SANs) can be constructed using FC switches/directors for fabric connectivity (currently up to a maximum of 20 FC switches supported).

#### Fibre Channel Switch/Director Support

Support for up to twenty FC switches operating at 2 Gb/s and 4 Gb/s allow the full benefits of a storage area network (SAN), providing exceptional connectivity while increasing the effective bandwidth of the network. Supported SAN features include Zoning for communication isolation and Inter-Switch Links (hops) up to 10 km. For more information on specific support specifications see the following Switch URL:  
<http://h18006.www1.hp.com/storage/saninfrastructure/switches.html>

#### Transfer Speeds

The EVA6400/8400 has four FC host interfaces per HSV400/450 controller; eight for a controller pair. Each controller-to-host interface is 4 Gb/s. The controllers are also compatible with 2 Gb/s, 4 Gb/s and 8 Gb/s FC switches, HBAs, servers and other storage solutions.

Each EVA controller pair interfaces with M6412 drive enclosures through redundant fibre channel arbitrated loops. With 4 per HSV400 for EVA6400 and 6 per HSV450 for EVA8400 device ports and dual FC I/O modules per drive enclosure, each controller can connect to each FC drive A and B port via redundant fibre channel loops. Each controller has a redundant path to each drive.

#### Easy Installation

Installation and start-up services are part of the EVA6400 and EVA8400 warranty.

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### Product Highlights

#### Fault Recovery -- HP Continuous Access EVA for Disaster Tolerance Applications

HP StorageWorks Continuous Access EVA remote copy functionality is available for use with the EVA6400/8400 arrays. Continuous Access EVA is a controller-based application that performs real-time replication between HP StorageWorks Enterprise Virtual Arrays. The solution is enhanced to perform remote replication, and deliver high data availability and performance to users on Fibre Channel based campus, metro or continental Storage Area Networks (SANs). For additional information about Continuous Access EVA visit: <http://h18006.www1.hp.com/storage/software.html>

HP StorageWorks Disaster Tolerant Solution for mySAP Business Suite on EVA offers a business continuance solution for SAP environments, where data integrity and value added functionality are high priorities. Best practices for implementing remote mirroring of an SAP database as part of an overall data protection strategy with SAP applications can be found at: <http://h71028.www7.hp.com/erc/downloads/4aa1-5683enw.pdf>

#### High Availability/ Fault Tolerance/ Hot pluggable support

All EVA are configured with dual HSV controllers that operate in a redundant mode. Each controller has four redundant Fibre Channel (FC) host ports. Each EVA6400 and EVA8400 controller has four FC host ports per controller. In the event of a path failure, the alternate paths to the controller can be utilized with the use of multi-path software in the Operating System software.

EVA6400/8400 device ports connect to the FC I/O module on each drive enclosure via a fibre channel arbitrated loop. Up to nine enclosures can be connected in a redundant FC loop arrangement. The EVA6400, with four fibre channel device ports per HSV400 controller, supports 2 redundant fibre channel loops. Each controller can connect to both ports on up to 216 drives.

The EVA8400, with 6 device ports per HSV450 controller, supports 3 redundant fibre channel loops (6 loops total). Each controller can connect to both ports on up to 324 drives.

The HSV controllers also have dual redundant hot plug power supplies and dual redundant hot plug blowers. Each controller has hot plug cache batteries to maintain cache contents for up to 96 hours in case of a total power failure.

The M6412-A FC drive enclosure has dual redundant hot plug FC I/O/Environmental Monitoring Unit (EMU) modules that allow the controllers to distribute I/Os between the two modules and provides redundant paths should either FC I/O module become unavailable and the EMU functionality allows you to monitor and report the condition of the power supplies and fans. The enclosure also has dual redundant hot plug power supplies and dual hot plug blowers. The enclosure also has a hot plug Environmental Monitoring Unit (EMU) The M6412-A drive enclosure provides point to point connectivity within the enclosure.

The SSD, FC and FATA disk drives have dual FC ports which can be redundantly accessed by each controller. The drives are hot plug. The EVA, as a virtualized array, always provides striping of the drives across the entire disk group. The drives can then be arranged, using redundant Vraid 1, Vraid 5 or Vraid 6 protection, so that a drive failure will not cause loss of data. SSDs support Vraid 5. Optional distributed sparing (virtual sparing) can be configured so that a drive failure will trigger an automatic rebuild of the Vraid 1 or Vraid 5 data set into spare space. The EVA sparing protection will utilize available disk space in the disk group and when that is exhausted, the established virtual spare space. This methodology of using unused capacity can give customers the ability to have many disk worth of spare space for maximum data availability, protection and peace of mind.

All EVAs have dual redundant power distribution. Two independent power cords distribute power through two Power Distribution Units (PDUs) to each side of the EVA cabinets and to each power supply of the controllers and to each power supply of the drive enclosures. Each cabinet power cord can be connected

### Product Highlights

to independent power sources. For maximum availability, a customer should provide redundant power from independent power circuit breakers, independent power lines from the power company and even independent power companies.

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#### Integration

HP EVA6400/8400 models are 4Gb/s FC Switched Fabric "enabled" and can operate on 8Gb/s, 4Gb/s or 2Gb/s FC Switched Fabric SANs. They can co-exist in the same FC SAN with previous generations of EVA, FC storage solutions and many other SAN devices.

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#### EVA Manageability

HP StorageWorks Command View EVA provides the capability to manage the EVA Array family in a SAN or direct connect Fibre Channel host attach configuration. HP Command View EVA software runs on a variety of server configurations using Windows Server 2003. ProLiant DL380 G5 and DL585 G2 Storage Servers are the perfect platforms from which to run Command View EVA. ProLiant Storage Server gateway models (including the DL380 G5 x64 SAN Storage Server and DL585 G2 Storage Server) allow you to stretch your investment by combining EVA management, file and print services, and iSCSI connectivity all on the same platform.

The powerful Command View EVA provides an easy mechanism to manage up to 16 EVA units in a SAN configuration. Industry leading security enhancements in Command View now allows administrators to take advantage of Windows domains and local groups. Command View integrates with Windows Active Directory to authorize and authenticate users. In addition, all user actions and events that change system state are logged. Administrators can now use the audit logging capabilities to provide an audit trail. The Command View EVA media kits and license are required with all EVA models. HP Command View EVA requires a License to use (LTUs) equal to, or greater than the total raw capacity of each array.

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#### Performance

Fibre Channel host connections provide up to 400MB/s bandwidth for each path. Dual mirrored port write caching capability, with battery backed cache, maintains optimal availability while assuring data integrity in the event of a failure.

Each HSV400 controller (for EVA6400 configurations) has four Fibre Channel host ports (eight ports in a redundant pair of controllers) assuring the availability of bandwidth for the most demanding applications. In addition, up to 4GB of cache per controller pair ensures high performance.

Each HSV450 controller (for EVA8400 configurations) has four Fibre Channel host ports (eight ports in a redundant pair of controllers) assuring the availability of bandwidth for the most stringent applications. In addition, up to 22GB of cache per controller pair ensures high performance.

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### Product Highlights

#### Scalability

A storage management server can manage up to 16 EVA controller pairs (EVA4400/6400/8400, EVA4100/6100/8100s), EVA4000/6000/8000 and EVA3000/5000s in any one fabric. An EVA controller pair will support up to 256 host connections (up to 1024 HBAs).

The EVA6400 will scale up to 216 disks in a single rack (216TB using 1TB FATA disk drives, and 97TB using 450 GB high performance disk drives).

The EVA8400 will scale up to 216 disks in a single rack and with the addition of an expansion rack, up to 324 disks (324TB using 1TB FATA disk drives, and 146TB using 450GB high performance disk drives).

Configure to Order (CTO) options and the HP 10000 G2 Series Racks allow even greater server and device integration, flexibility and scalability for the EVA6400/8400. Data center managers can customize server, storage and back-up configurations as well as use any available cabinet U space to mount Storage Management servers, switches and have the peace of mind that it is built with HP factory precision manufacturing.

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**EVA as Virtualized Storage behind the XP** HP StorageWorks EVA6400/8400 disk arrays can be connected as external storage devices behind HP StorageWorks XP disk arrays.

The XP24000/XP20000 simplifies the management of heterogeneous SAN environments through its ability to support up to 247 PB/ 96 PB respectively of external storage-all configured 'behind' a single XP. XP External Storage software uses advanced virtualization technology to allow storage administrators to host XP Disk Array LUNs on externally attached disk arrays. Any Fibre Channel port from any CHA pair installed in any slot can be used to connect to external storage EVA. With external EVA storage, XP presents multiple tiers of storage to a wide range of host systems. Instead of seeing a confusing collection of arrays, host systems perceive all the data to be stored inside the XP disk array. In effect, the XP disk array becomes the storage controller for a flexible, multi-tiered collection of EVAs with a range of cost and performance capabilities. By configuring EVA storage arrays behind a single XP24000/XP20000, data can be moved back and forth dynamically across tiers, all of which is invisible to the applications.

The XP12000's virtualization feature also reduces the total cost of storage ownership by:

- Exploiting common storage management across multiple vendors' systems
- Easily deploying a dual-vendor policy
- Facilitating simpler and lower cost data migrations
- Increasing storage utilization
- Extending the life of legacy storage

For more information please refer to the HP StorageWorks XP External Storage Software web page at: <http://h18006.www1.hp.com/products/storage/software/extstxp/index.html>.

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### Product Highlights

**Servers Supported - Single and Clustered** HP servers (HP-UX, ProLiant, AlphaServers)  
 X86 servers  
 Dell servers  
 Sun servers  
 IBM servers  
 Apple XsApple Servers (PowerPC and Intel)  
 Fujitsu Siemens & Primergy Servers (Bx6x0, Rx and Tx)

**EVA Required Software** HP StorageWorks EVA6400/8400 ships with XCS V9.5 factory installed on new EVAs. XCS V9.5 also supports the EVA4400. The base XCS End User License for the EVA is contained in the hardware shipment.

XCS v9.5 controller media download is available from HP.com. These downloads are available for upgrades of existing EVA4400 or as archival media for the EVA6400/8400. The EVA Release Notes and Upgrading Product software Guide are also available from the same location.

**NOTE:** Review the Release Notes and Upgrading Product Software documentation and compatibility requirements of all installed Array Integrated Software completely before upgrading. Downgrading the EVA4400 from XCS v9.5 is not supported.

XCS V9.5 is available for download at the "software & drivers" link:  
<http://h18006.www1.hp.com/products/storageworks/eva/index.html>

HP StorageWorks Command View EVA is required software for all EVA models. HP Command View EVA requires a License to use (LTUs) equal to, or greater than the total raw capacity of each array.

**NOTE:** The minimum supported version of XCS on the EVA6400/8400 is XCS V9.5

### HP StorageWorks EVA Software Selector

The following matrix will assist in identifying some of the complimentary HP software products can be used along with the EVA to support various business applications. Please see your Sales Representative, or go to: <http://www.hp.com/> for more information on these valuable HP software products.

Just click on the product name and you will be linked to the product specification URL.

	EVA Device and Configuration Management	Backup Solutions	Business Continuity/ Local Mirroring	Disaster Recovery/ Remote Mirroring	Storage Resource Management	Unified Server and Storage Management	Application Integration
<a href="#">HP Command View EVA</a>	X (Required)						
<a href="#">HP Business Copy EVA</a>		X	X				X
<a href="#">HP Continuous Access EVA</a>				X			
<a href="#">Dynamic Capacity Manager</a>	X						
<a href="#">HP Storage Essentials Suite</a> (Heterogeneous,	X End to end provisioning	X End to end backup			X Discovery, topology,		X monitor applications

### Product Highlights

multivendor)	(hosts, infrastructure, storage)	monitoring/ reporting			monitoring, events, applications, NAS/SAN, File monitoring, reporting, Performance, monitor host clusters		and associated storage/ infrastructure (Oracle, Microsoft Exchange Server, Sybase, Microsoft SQL, InterSystems Cache' database and SAP ACC)
<b>HP Storage Essentials Standard Edition SRM Software</b> (Small to medium HP Storage-based SANs)	Discovery, topology	X Backup monitoring/ reporting			X monitoring, events, applications, NAS/SAN, File monitoring, reporting, EVA Performance, monitor host clusters	X	X (Oracle, Exchange, Sybase, MS SQL)
<b>HP Data Protector</b>		X	X				X
<b>HP Systems Insight Manager</b>	In-context launch of CV EVA, SAN discovery, monitoring, asset, configuration., security					X (Included with EVA)	
<b>HP Cluster Extension EVA</b>				X			
<b>HP Metrocluster/ Continentalcluster with Continuous Access EVA</b>				X			
<b>HP Storage Mirroring</b>				X			

### Product Highlights

#### EVA and Value-added Software Compatibility

Model	XCS Software	HP Command View EVA*	HP Continuous Access EVA**	HP Business Copy EVA**	HP Replication Solution Manager (RSM)***
EVA4400/6400/8400	XCS V9.5	Command View EVA v9.0	Continuous Access EVA	Business Copy EVA	Replication Solution Manager v 5.0

\*HP StorageWorks Command View EVA is required software for all EVA models. HP Command View EVA requires a License to use (LTUs) equal to, or greater than the total raw capacity of each array. If the EVA does not have the proper licensed capacity it will be in violation of the End User License Agreement (EULA).

\*\*HP StorageWorks Continuous Access EVA and HP StorageWorks Business Copy EVA requires a License to use (LTUs) equal to, or greater than the total usable amount of data being replicated on each array. If the EVA does not have the proper licensed capacity it will be in violation of the End User License Agreement (EULA).

\*\*\*HP StorageWorks Replication Solutions Manager Software provides a powerfully simple graphical user interface (GUI) to create, manage and configure local and remote replication on the entire EVA family. The RSM Software provides a centralized management interface that integrates with HP Business Copy EVA Software and HP Continuous Access EVA Software for local and remote replication, resulting in a unique, cost effective disaster recovery solution.

#### Operating Systems, Cluster and High Availability Compatibility

Operating System	Versions Supported		Cluster Server or High Availability Software	HA Versions Supported	Failover Software
Microsoft Windows 2003/32-bit	Standard Enterprise	SP1, R2; SP2 SP1, R2; SP2	Microsoft Cluster Server (MSCS)	Windows Server 2003 Enterprise Edition Windows 2003 DataCenter Edition (64-bit))*	Full featured MPIO, v3.02.00 available from HP (2003, 2008) and Microsoft DSM from Microsoft (2008)
Microsoft Windows 2003/x64	Standard Enterprise	SP1, R2; SP2 SP1, R2; SP2			
Microsoft Windows 2003/IA64	Enterprise DataCenter	SP1; SP2 SP1; SP2			
Microsoft Windows 2008 32-bit, x64*	Standard Enterprise		Veritas Foundation Suite/HA	5.0, 5.1 (Windows 2003) 5.1 (Windows 2008)	
Microsoft Windows 2008 IA64*	Enterprise				
Microsoft Windows Server 2008 Hyper-V, x64	Standard Enterprise				
HP-UX	11i v1 (PA-RISC) 11i v2 (PA-RISC & Integrity) 11i v3 (PA-RISC & Integrity)		HP ServiceGuard****  Veritas Foundation Suite/HA***	11.16 11.17 11.18 5.0 (11i v2, 3)	HP-UX 11. iv3 has OS native multi-path, pvlincs native in HP-UX and Veritas DMP
Linux	Red Hat EL Advanced Server 4.6, 4.7 (IA32, IA64 & x64) Red Hat EL Advanced Server 5.1, 5.2 (IA32, IA64 & x64) SUSE/SLES9 (IA32, IA64 & x64)- SP3, SP4 (Includes Open Enterprise Server Linux) SUSE/SLES10 (IA32, IA64 & x64)- SP1,		HP ServiceGuard for Linux****  VERITAS Foundation Suite/HA for Linux***	11.18  5.0 (SLES9, 10 & RHEL 4, 5 x64 only)*	QLogic Failover driver, available from HP, Emulex MultiPulse available from HP and Device Mapper v4.2.0 Enablement Kit from

### Product Highlights

	SP2 (Includes Open Enterprise Server Linux) Oracle Enterprise Linux V4, 5			HP
Apple Mac OS X	10.4 10.5	N/A	N/A	ATTO FC HBA driver
HP OpenVMS	Alpha: 8.2, 8.3 Integrity: 8.2-1, 8.3, 8.3-1H1	HP OpenVMS Clusters	8.2 8.2-1 8.3 8.3-1h1	Native in OS
Sun Solaris	9 (SPARC) 10 (SPARC & x86)	SunCluster VERITAS Foundation Suite/HA***	3.2 5.0 (9 & 10)	MPxIO for Solaris, Native in OS Veritas DMP 5.0
IBM AIX	5.2 5.3 6.1	HACMP VERITAS Foundation Suite/HA***	Native in OS 5.4 (AIX 5.2 & 3) 5.4.1 (AIX 6.1) 5.0	MPIO for IBM AIX, Native in OS Veritas DMP 5.0
VMware	ESX Server 3.0.2, 3.0.3, and 3.5	MSCS Clustering**	Windows Server 2003 Enterprise Edition	Windows Server 2003 Enterprise Edition
Xen	Citrix XenServer V4.1, 5.0 RHEL Virtualization V5.2 Oracle Virtual Machine	Citrix HP ServiceGuard for Linux (RHEL and Oracle Virtual Machine)	V5.0 SGLX 11.18	Native Device Mapper MPIO (Citrix and RHEL)

\*For more specific information on supported versions of Windows 2008, see the OS support matrix at: [hp.com](http://hp.com)

\*\*For more detailed information on Cluster Server Support see the VMware Release Notes

\*\*\*Follows initial release, check posted Operating Specific Release Notes or software documentation for support.

\*\*\*\* For more specific information on supported versions check posted Operating Specific Release Notes or software documentation for support

### Cabinet Density

A single 42U EVA cabinet can house up to 216TB of raw capacity (using 1TB FATA disks).

**NOTE:** Maximum cabinet capacity will vary based available upon U space. The total number of controllers, enclosures supported and other devices.

### Product Highlights

#### Racking Guidelines and Power Distribution

Power Distribution Units (PDUs) are configured according to the voltage used in the country when the solution is ordered. These PDUs provide redundant power. They are located in the bottom of the rack, taking 2U of rack space. To reclaim the 2U of rack space required by the PDUs, they may be moved to the rear of the rack using the PDU Pivot Bracket Kit. It is factory or field installable.

For the EVA6400/8400 a variety of HP 10000 G2 Series Rack offerings and integration options are available. The EVA configurator tools utilize a 42U HP 10000 G2 Series Rack as the standard recommendation and will provide a 220/240V PDU and country specific power cords. Both the height and types of rack and PDUs can be modified based upon the specific customer need. If other devices, such as servers, switches or back-up devices, are to be installed with the EVA; this can be specified and the cabinets and PDUs can be modified to support the configuration. The EVA6400/8400 also supports 22U and 36U racks. The 47U rack is also supported, but not factory configured, because of the cabinet height, which creates shipping limitations. It must be assembled on site.

For more information on configuration and PDU support for the 10000 G2 Series Rack please see the following URL:

<http://h18004.www1.hp.com/products/servers/proliantstorage/racks/index.html>

The EVA also supports the 5642 (42U) Rack Cabinet System as a field installed option.

For more information on the 5642 rack, please see the following URL:

<http://h18004.www1.hp.com/products/servers/proliantstorage/racks/5000series/5642/index.html>

Other PDUs, besides the 200 - 240 V single-phase default PDU, are also supported. This includes 100 - 127 volt single-phase, 200 - 240 volt three-phase, and 380 - 415 volt three-phase PDUs. Monitored PDUs are also supported.

For more information on PDU support, please see the following URL:

<http://h18004.www1.hp.com/products/servers/proliantstorage/power-protection/pdu.html>

**NOTE:** When adding additional devices to existing racks ensure that the installed PDUs will support the new power requirements.

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#### Total Cost of Ownership

The unique virtual architecture allows up to twice the normal effective capacity utilization of traditionally architected storage offerings. And with Virtually Capacity-Free Snapshot (Vsnap), significant duplicate capacity requirements can be eliminated resulting in fewer/smaller storage acquisitions.

The EVA has one of the highest density disk storage solutions in the industry. Additionally, the unique virtual architecture allows up to twice the normal effective capacity utilization of traditionally architected storage offerings. And with the virtually Capacity-Free Snapshot (Vsnap), FATA disk drives and the ability to change Vraid types, significant amount of duplicate capacity requirements can be eliminated, resulting in fewer/smaller storage acquisitions.

### Service and Support, HP Care Pack, and Warranty Information

**HP Care Pack Services** HP Care Pack Services. Scalable, Flexible, Dependable. Like your storage.

Your storage is evolving. Get scalable support that evolves with it. HP Care Pack Services is an easy-to-buy, easy-to-use portfolio of packaged services covering your lifecycle needs. You can rely on our highly skilled, HP certified professionals to offer a breadth of expertise across leading storage technologies, and work side by side with you for optimal results. Push services beyond expectations and choose support that meets the changing needs of your business with the same reliability, scalability and flexibility you demand of your storage.

Protect your business beyond the warranty

Standard warranty protects against product defects and some causes of downtime. HP Care Pack Services helps you proactively guard against unplanned downtime which can reduce your productivity and profitability. By using a standard approach to warranty uplifts, such as HP Care Pack Services, customers can be more sure of consistency of operations for both mission-critical and standard business computing.

"Extending warranties with HP Care Pack Services"

The key to normalizing the warranty of combined solutions-is making service uplift simple: HP Care Pack Services. This portfolio of predefined packages, extending across the entire IT lifecycle, offering consulting, education, technical support, optimization, risk assessment, and more. It's entirely flexible allowing customers to extend the cover to the precise level of support required. Customer's standard hardware warranty, for example, can be upgraded to next-business-day response, to same-day coverage, or even to a committed six-hour call-to-repair service available 24 hours every day of the week."

- Provide consistent, predictable levels of support across your entire department or business
- Give you direct access to proven technical and problem-solving expertise
- Offer a choice of response-time and repair-time commitments
- Are available whenever and wherever you do business

For many products, post-warranty HP Care Pack Services are available when your original warranty has expired. Choose the support levels that meet your business requirements, from basic to mission-critical.

<http://www.hp.com/hps/storage>

**NOTE:** Care Pack Services availability may vary by product and country.

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**Warranty and Services Included with the Product** The EVA6400/8400 comes with a 3-year HP's Global Limited Warranty and Technical Support, which includes 3 years 9x5 hardware support, with next business day (NBD) response.

HP's warranty and support features:

- Online Business Support Center and IT Resource Center
- Remote Support
- Technical Phone Support
- Customer Self Repair (see list below)
- Software Limited Warranty
- On-site Warranty Service

#### Online Support

HP online support capabilities include a variety of self-help tools, troubleshooting assistance, and access

### Service and Support, HP Care Pack, and Warranty Information

to the patch database, firmware/software update packages and documentation. Register with the HP Business Support Center and the IT Resource Center to receive product specific and proactive notifications for the EVA6400/8400. For more information go to: [www.hp.com/support](http://www.hp.com/support) or: [www.itrc.hp.com](http://www.itrc.hp.com).

#### Remote Support

HP designed the EVA6400/8400 with support capability to facilitate remote monitoring and email notification of array errors/events. To take full advantage of HP's remote support solutions and maximize the service delivery experience, these features must be enabled at time of installation. Additional fault monitoring software is included in the EVA software media kit.

#### Technical Phone Support

24x7 telephone technical support is available to assist with Hardware warranty related troubleshooting and issue resolution. Call HP warranty support: 1-800-474-6836. Qualified technical resources will be your first point of contact to assist with your service request.

#### Customer Self Repair (customer installed replacement parts)

HP designed the EVA6400/8400 to enable the highest degree of Customer Self Repair and parts replacements. This feature enables maximum support flexibility, while minimizing unit down time. Customer Self Repair parts come with step by step instructions with additional assistance available online or by phone.

#### Required Customer Self-Repair (Replacement) Parts List:

- Hard disk drives with drive firmware code load.
- Controller enclosure power supply.
- Controller enclosure fan.
- Controller management module
- Disk enclosure power supply.
- Disk enclosure fan.
- Bezels.

#### Optional Customer Self-Repair Parts List:

- Controller cache battery.
- Controller module.
- Controller cache memory (DIMM).
- Internal enclosure boards and cables
- Fiber channel Transceivers.
- Fiber channel transceivers cables.

Part replacement videos can be viewed at: <http://hp.com/go/sml>. For the EVA6400/8400, select Storage, then EVA Disk Arrays, then HP StorageWorks EVA6400/8400 Enterprise Virtual Array, then the particular resource needed.

#### Software Warranty

If the removable HP Software media on which HP distributes the software proves to be defective in materials or workmanship within 90-days of purchase, return the media to HP for replacement.

#### On-site Warranty Service

The HP EVA6400/8400 comes with 3 year on-site warranty support, for those service events not remedied either remotely or through use of customer self-repair replaceable parts. On-site service is made available at HP's discretion and scheduled during standard office hours.

### Service and Support, HP Care Pack, and Warranty Information

For more information about HP's Global Limited Warranty and Technical Support, visit:  
<http://h18006.www1.hp.com/products/storageworks/warranty.html>

For more information about HP's Global Limited Warranty and Technical Support, visit:  
[ftp://ftp.compaq.com/pub/products/storageworks/warranty/en\\_321708-008.pdf](ftp://ftp.compaq.com/pub/products/storageworks/warranty/en_321708-008.pdf)

HP warrants the HP 10000 G2 Series Rack according to the standard rack product warranty. Please refer to product specification for further details:  
<http://h18004.www1.hp.com/products/servers/proliantstorage/racks/index.html>

#### Recommended Services

##### HP SAN Solution Service

- Quickly realize the benefit of your SAN investment while reducing overall cost of ownership
- Fast, expert implementation that guards against unexpected compatibility issues, minimizes disruption to your business and optimizes performance
- Provides a fully installed, configured and documented SAN with scalability that allows for additional capacity as your business grows

##### HP Critical Services

- Boost business productivity through increased server, storage, networking, and applications availability
- Minimize business losses caused by IT downtime
- Reduce risk and improve efficiency by proactively managing changes across your IT environment
- Resolve complex problems quickly through direct access to HP Services expertise and hands-on assistance
- Rapidly access single-source support from a team familiar with your business and technology infrastructure
- Free your IT staff to focus on strategic business issues

##### HP Proactive 24

- Enhanced operational effectiveness and availability with proactive problem identification and solutions recommendations
- Partner with technical experts who help coordinate support, provide hands-on assistance, and share industry best practices and HP know-how with your staff
- Rapidly access single-source support spanning your environment from servers to storage to networking
- Obtain personalized services tailored to your business environment and objectives
- Anticipate necessary change - and execute it correctly the first time
- Efficiently manage infrastructure resources to meet your performance objectives

##### HP Support Plus 24

- 24x7 4-hr. onsite hardware support
- Material and parts included
- Work to completion for hardware support
- 24x7 2-hr response XCS phone-in assistance
- Remote problem diagnosis & support
- Escalation management
- Software product and documentation updates
- License to use and copy software product updates
- Software electronic support

##### HP Software Maintenance Service

- Improve the productivity of system managers and operators
- Improve system performance and reduce downtime due to software

### Service and Support, HP Care Pack, and Warranty Information

defects

- Expedite problem resolution through expert-level technical resources
- Enjoy consistent service coverage across geographically dispersed sites
- Update HP and selected third-party software at a predictable cost
- Take advantage of subscription savings on software updates
- Keep your license compliancy up-to-date

#### Available HP Care Pack Services

Extend your product warranty with a wide choice of cost-saving support packages.

HP Care Pack Services are sold by HP and HP authorized enterprise and commercial resellers. Services for customers purchasing via direct and enterprise resellers are quoted using HP order configuration tools. Additional information about HP Care Pack Service features and benefits is available at:

<http://www.hp.com/hps/carepack/services>.

Key for HP Care Pack Service availability in the table below:

E = Service available for customers purchasing direct and via enterprise resellers

C = Service available for customers purchasing via commercial resellers

N/A = Service not applicable

HP Care Pack Services Deployment and Per Event Services	Service Available
HP Installation	E/C
HP Installation & Startup	E/C
HP Implementation	E/C
HP StorageWorks EVA Firmware Upgrade Service	E/C

**NOTE:** For more information about Deployment and Per Event Services for HP Storage, visit:

<http://www.hp.com/hps/storage/>.

HP Care Pack Services Availability Services	1 yr	3 yr	4 yr	5 yr
HP 4 Hr, 24x7 Hardware Support	E/C	E/C	E/C	E/C
HP Next Business Day Hardware Support	E/C	E/C	E/C	E/C
HP Software Support	E/C	E/C	E/C	E/C
HP Software Support 24x7	E/C	E/C	E/C	E/C
HP Support Plus	E/C	E/C	E/C	E/C
HP Support Plus 24	E/C	E/C	E/C	E/C
HP Proactive Essentials 24x7 Unlimited	E/C	E/C	E/C	E/C
HP Proactive 24 Service	E	E	E	E
HP Critical Service	E	E	E	E

**NOTE:** To find HP Care Pack Services available via HP authorized commercial resellers, visit:

[http://h30125.www3.hp.com/csn/salesmktg/elfpack/elf\\_nonlkup\\_etrylang.asp?code=elnl](http://h30125.www3.hp.com/csn/salesmktg/elfpack/elf_nonlkup_etrylang.asp?code=elnl)

### Service and Support, HP Care Pack, and Warranty Information

#### Deployment and Per Event Service Descriptions

##### Availability Assessment for SANs

- Recommendations for reducing or eliminating risks to the availability of your SAN infrastructure.

##### SAN Solution Service

- You get a powerful network storage solution up-and-running quickly and efficiently with minimum disruption and rapid returns on your SAN investment.

##### Data Migration

- Transfers your critical information to a new or reconfigured storage array in an open systems environment - across a data center or around the world.

##### Data Replication Solution Service

- Ensures a timely, cost-effective deployment of your data replication solution cuts risk and shortens your time-to-results.

##### Data Sanitation Service

- Provides a method for removing data from rotational hard disk media preventing sensitive information from being retrieved or re-created. It recommended to remove data during asset retirement, leasing returns, hardware upgrades, or redeployment of storage devices.

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#### eSupport

HP eSupport is a portfolio of technology-based services that assist you with managing your business environment - from the desktop to the data center.

##### Support Portal

The HP support portal provides one-stop access to the information, tools and services you need to manage the daily operations of your IT environment.

Features include:

- Access to self-solve tools (including search technical knowledge base)
- Efficient logging and tracking of support cases
- Collaboration with other business and IT professionals
- Download of patches and drivers
- Access to diagnostic tools
- Proactive notification of relevant information

Access to certain features of the support portal requires an HP service agreement. To access the support portal, visit: <http://www.hp.com/support>

##### HP Insight Remote Support Software

HP recommends customers install HP's Insight Remote Support software, (part number RSSWMBASE) from: [www.software.hp.com](http://www.software.hp.com), with every EVA installation. HP Insight Remote Support helps customers reduce costs, save time and ensure maximum system availability by providing remote monitoring, intelligent event diagnosis and the automatic secure submission of hardware event notifications. This technology has been optimized for environments with 1-50 servers (maximum 100) and requires only a shared Windows ProLiant hosting device. It will support HP ProLiant, BladeSystem, Integrity, HP 9000 servers and HP EVA storage devices, and will be available at no extra cost as part of the EVA warranty,

### Service and Support, HP Care Pack, and Warranty Information

HP Care Pack Service or contractual support agreement with HP. For more information access the Insight RS quick start guide at: <http://docs.hp.com/en/netsys.html#Insight%Remote%20Support>

**NOTE:** If integration with HP Systems Insight Manager (HP SIM) or HP Operations Manager is required, then customers should install the HP Remote Support Pack (RSP), not Insight RS. The RSP solution enhances HP SIM with intelligent event diagnosis and the automatic submission of hardware event notifications securely to HP Support, including acknowledgement and status returns.

Remote Support Pack contains event monitoring and proactive service support, including assessments and analysis for nearly all HP servers, storage, networks and SAN environments plus selected Dell and IBM Windows servers that have a support obligation with HP, including proactive service contracts. The HP contract and warranty entitlement feature of HP SIM requires this plug-in to be installed. More information can be found at: [www.hp.com/services/remotesupportpack](http://www.hp.com/services/remotesupportpack).

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### HP Education Services

Training for the Enterprise Virtual Array is now offered as part of HP comprehensive curriculum of HP Storage, Storage Management, and IT Service Management courses. These courses will provide the training required to realize the full potential of your HP EVA Virtual Array storage solutions, optimize your systems and SAN for highest efficiency, and achieve better return on your IT investments.

For more information about HP Education Services for Storage and SAN, visit: <http://education.hp.com/curr-storsan.htm>

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### Awards

#### J.D. Power Gives HP a Seal of Approval 27-Nov-2005

Good service is a key factor in deciding which computer or printer to buy these days, and Hewlett-Packard hopes a customer service endorsement from J.D. Power and Associates will help boost sales of HP products. HP said this week it is the first company to receive the **J.D. Power and Associates Certified Technology Service and Support certification** "for providing an outstanding customer service experience."

Consumers will soon see the J.D. Power and Associates service mark on product boxes, web sites and advertising for everything from HP PCs and all-in-one devices to HP cameras and fee-based services. To earn the certification, HP performed within the top 20 percent of technology support organizations on a variety of customer service criteria. J.D. Power and Associates found that HP has met or exceeded this new standard for customer satisfaction in supporting its North American customers.

<http://www.hp.com/hpinfo/newsroom/press/2005/051116a.html>

#### HP Receives Two Service and Support Industry Awards; Inducted into Association Hall of Fame 14-Apr-2006

HP has received two STAR Awards for Best Practices from the Service & Support Professionals Association (SSPA) and was consequently inducted into the SSPA Hall of Fame for winning its fifth award. The STAR Awards are the only service and support industry award from a professional association dedicated to serving industry professionals. <http://www.hp.com/hpinfo/newsroom/press/2006/060414a.html>

### *Service and Support, HP Care Pack, and Warranty Information*

#### **Additional Services Information**

For more information about Deployment, Per Event, Consulting and Education services for HP Storage, visit: <http://www.hp.com/hps/storage/>

For more information about HP Care Pack Services for Storage, visit:

[http://www.hp.com/hps/carepack/storage/cp\\_networked.html](http://www.hp.com/hps/carepack/storage/cp_networked.html)

For more information about HP Storage Software, services and updates, visit:

<http://h18006.www1.hp.com/storage/software.html>

If you have specific questions, contact your local HP representative. Contact information for a representative in your area can be found at "Contact HP" <http://www.hp.com>

### Configuration Information and Configuration Rules

## Step 1 - Choose an EVA Model Base and Factory-Integration Information

### Models

<b>Enterprise Virtual Array 6400/8400 Independent Components</b>	The following components are available worldwide. The EVA6400 and EVA8400 models are modular and scalable storage solutions designed to have no-single-point-of-failure, which provide disaster tolerance and business continuance support for storage consolidation on heterogeneous SANs.	
<b>HP StorageWorks EVA6400 Dual Controller Array</b>	HP StorageWorks EVA6400 Dual Controller Array Includes one 4U Controller assembly with two HSV400 controllers mounting hardware cables and controller mounting. Order one unit for each EVA6400 array configuration.	AJ757A
<b>HP StorageWorks EVA8400 14GB Cache Dual Controller Array</b>	HP StorageWorks EVA8400 14GB Cache Dual Controller Array Includes one 4U Controller assembly with two HSV450 controllers mounting hardware cables and controller mounting. Order one unit for each EVA8400 array configuration.	AJ758A
<b>HP StorageWorks EVA8400 22GB Cache Dual Controller Array</b>	HP StorageWorks EVA8400 22GB Cache Dual Controller Array Includes one 4U Controller assembly with two HSV450 controllers mounting hardware cables and controller mounting. Order one unit for each EVA8400 array configuration.	AJ847A
<b>M6412-A FC Drive Enclosures &amp; Accessories</b>	HP StorageWorks M6412-A Fibre Channel Drive Enclosure  For factory racking select up to: <ul style="list-style-type: none"><li>• A minimum of 1 and up to 8 M6412-A drive enclosures for an EVA4400 (HSV300 and HSV300-S)</li><li>• A minimum of 2 and up to 18 M6412-A enclosures EVA6400 (HSV400)</li><li>• A minimum of 3 and up to 18 M6412-A enclosures EVA8400 (HSV450) in a single rack</li><li>• A minimum of 3 and up to 27 M6412-A enclosures EVA8400 (HSV450) in two racks</li></ul> Drive enclosures may also be: <ul style="list-style-type: none"><li>• Ordered for on-site capacity additions to existing EVA4400/6400/8400 configurations.</li><li>• Ordered for field installation of complete EVA4400/6400/8400</li><li>• Installed by HP manufacturing into EVA configurations by ordering the enclosure with the factory integration part number (#0D1).</li></ul>	AG638B

This drive enclosure is compatible with EVA4400/6400/8400 arrays only.

The M6412 is a 2U dual-redundant FC Loop 12-bay point to point disk enclosure with mounting hardware, and the necessary copper FC cables for connecting to an HSV Controller pair.

### Configuration Information and Configuration Rules

**NOTE:** An EVA requires a minimum of 8 disk drives per Fibre Channel or FATA drive type or 6 solid state disks per EVA4400/6400/8400.

**Enterprise Virtual Array Field Installation** Please refer to the Expansion options (Step 8) - listed in the Configuration Information and Configuration Rules - for details on components available for field installation. These components are useful for adding EVA components to existing EVA storage configurations or into on-site customer-supplied racks.

## Step 2 - Choose File Services and EVA Connectivity Options

The EVA file services and EVA iSCSI offerings provide superior storage consolidation, management and total cost of ownership. The EVA file services offerings support both block and file data concurrently with high availability and scalable performance. The EVA iSCSI Connectivity Option extends the FC SAN investment with integrated multi-protocol support, allowing customers to incorporate iSCSI servers without requiring additional storage arrays or management costs

For information on ordering file services components see:

[http://h18000.www1.hp.com/products/quickspecs/12667\\_div/12667\\_div.html](http://h18000.www1.hp.com/products/quickspecs/12667_div/12667_div.html)

<http://h18006.www1.hp.com/products/storageworks>

### The EVA iSCSI Connectivity Options supports Windows and Linux environments

**HP StorageWorks iSCSI Connectivity Option** HP StorageWorks EVA iSCSI Connectivity Option AE324A

Order this part for all new installations. Includes One unit, shelf, brackets, copper FC cables and documentation.

Includes one unit to mount in existing shelf and documentation

HP StorageWorks EVA iSCSI Connectivity Upgrade Option AE325A

For multi-path (dual unit high availability) order both part numbers. (The second hardware unit installs into the shelf that ships with AE324A.)

**NOTE:** For more information on the iSCSI Connectivity Options:

<http://h18006.www1.hp.com/products/storageworks/evaiscsiconnect/index.html>

### The EVA Connectivity and Back-up offerings

**HP StorageWorks 12000 Virtual Library System EVA Gateway** Expanding the power of the HP StorageWorks Enterprise Virtual Array (EVA), the HP StorageWorks 12000 Virtual Library System EVA Gateway accelerates backup performance in complex SAN environments while improving overall reliability. For more information on the VLS EVA Gateway, please visit see: AH814B

[http://h18006.www1.hp.com/storage/disk\\_storage/disk\\_to\\_disk/vls/12000vls/index.html](http://h18006.www1.hp.com/storage/disk_storage/disk_to_disk/vls/12000vls/index.html)

**HP StorageWorks IP Distance Gateway SAN over WAN** HP StorageWorks IP Distance Gateway AG680A  
Order this part for all new installations. Includes One unit, shelf, brackets and documentation.

### Configuration Information and Configuration Rules

connectivity, enables EVA Continuous Access replication over WAN (Asynchronous and Synchronous) HP StorageWorks IP Distance Gateway AG681A

Includes One unit to mount in existing shelf and documentation

For multi-path (dual unit high availability) order both part numbers. This second hardware unit installs into the shelf that ship with AG680A.

**NOTE:** For more information on the IP Distance Gateway: [http://h18006.www1.hp.com/storage/disk\\_storage/index.html](http://h18006.www1.hp.com/storage/disk_storage/index.html)

#### StorageWorks B-series FC switch options

StorageWorks B-series 8-24 Port SAN Switch Power Pack+ Upgrade LTU Adaptive Networking, Fabric Watch, ISL Trunking, Advanced Performance Monitoring T5524A

Optional switch software ISL Trunking T5524A

Extended Fabric 324504-B21

Fabric Watch T5527A

Advanced Performance Monitoring 324507-B21

Adaptive Networking 324505-B21

Fabric Manager, v5.x Base Edition (10 domains) T4270A

Fabric Manager, v5.x Enterprise Edition T4269A

Fabric Manager, v4 to v5 Enterprise License Upgrade T4272A

Fabric Manager, v4 to v5 Base License Upgrade T4271A

Fabric Manager, v5 base to v5 enterprise upgrade license T4273A

**NOTE:** For more information on these software component options, see: [http://h18006.www1.hp.com/storage/networking/b\\_switches/index.html](http://h18006.www1.hp.com/storage/networking/b_switches/index.html) and look for HP StorageWorks B-Series 8/8 SAN Switch information.

### Step 3 - Choose a Rack - Base and Factory Integration Information

**Factory Integration** Start your order by choosing a rack to house your EVA6400/8400 based on the HP 10000 G2 Series Rack.

**NOTE:** The 10000 G2 Series Rack is the only series supported for factory configuration.

**Primary Configuration Rules** Use of the EVA Factory Integration part number is required for component integration. The EVA6400/8400 may be configured into a 42U HP 10000 G2 Series Rack with the appropriate PDU for the highest density in a Factory Integrated solution. If other products such as servers or back-up products are included in the cab a different PDU will be specified (if required) or can be chosen from a list of appropriate offerings shown in the configuration tool.

The minimum EVA6400/8400 factory configured rack space required is:

EVA	Controller Assembly	PDUs	Minimum number of M6412	M6412 U space	Total U Space
EVA6400	4U	1U	2	4U	9U
EVA8400	4U	1U	3	6U	11U

### Configuration Information and Configuration Rules

**NOTE:** the 1U of space required by the PDU may be reclaimed by using the EVA Pivot Hinge.

HP 10000 G2 Series Rack must be purchased. Additional EVA6400/8400, arrays and drive enclosures may be ordered for multiple subsystem integration at the factory. Additional racks are required to house configurations beyond the U-space of the initial cabinet. Ballast and stabilizers will be offered through the configurator tools for use when required.

The EVA6400 and EVA8400 array controllers are also available for field installation. HP Global Services or a trained EVA service provider can perform the on-site installation.

The 5642 (42U) Rack Cabinet System is supported for field installation. This rack may be purchased along with EVA component pieces for assembly in the field. The HP 5642 rack system is an entry level rack with sufficient features for easy access and ease of use.

When calculating available U-space, assume that no space will be placed between the mounted components. For redundancy, order PDUs in quantities of two. Refer to the Configuration and User Guide in the Information Library at the Rack Solutions webpage.

#### HP 10000 Series G2 Racks

**NOTE:** The number of subsystems varies and is determined by the interior U-space of the cab.

HP Rack 10642 G2 Shock (42U)	AF002A
HP Rack 10642 G2 w/Extn Shock (42U)	AF004A
HP Rack 10636 G2 Shock (36U)	AF012A
HP Rack 10636 G2 w/Extn Shock (36U)	AF014A
HP Rack 10622 G2 Shock (22U)	AF021A
HP Rack 10636 G2 Modular Cooling System (MCS) Shock (42U)	AF098A
HP Rack 10842 G2 800mm Wide Shock (42U)	AF042A

For PDUs and cabinet accessories see:

<http://h18004.www1.hp.com/products/servers/proliantstorage/racks/10000g2series.html>

For more information on the HP rack offerings, please see the following URL:

<http://h18004.www1.hp.com/products/servers/proliantstorage/racks/index.html>

#### HP Rack 5642 System for Field Installation only

5642 (42U) Rack Cabinet System

358254-B21

For additional cabinet accessories see:

[http://h18004.www1.hp.com/products/quickspecs/12074\\_div/12074\\_div.html](http://h18004.www1.hp.com/products/quickspecs/12074_div/12074_div.html)

#### Field Installation

Please refer to the Expansion options (Step 8) - listed in the Configuration Information and Configuration Rules - for details on components available for field installation. These components are useful for adding EVA4400/6400/8400 components to existing storage configurations or into on-site customer-supplied racks.

### Configuration Information and Configuration Rules

**Non-HP rack and power requirements** For detailed information on determining compatibility of a non-HP rack, please review the information included in the EVA User Guide which can be found at <http://www.hp.com/go/eva>.

**NOTE:** Also refer to Step 8 for ordering instructions and components that accommodate on-site installation of EVA4100/6100/8100 subsystems into customer-supplied racks.

### HP ProLiant Storage Servers and supported Fibre Channel HBAs

Select HP ProLiant Storage Servers (plus a Fibre Channel HBA) add file and print services to an EVA or Fibre Channel SAN. ProLiant DL380 G5 x64 SAN Storage Server and DL585 G2 Storage Server gateways each feature Microsoft's Windows Unified Data Storage Server 2003 operating system that also includes Microsoft iSCSI Software Target and a cluster license standard (Microsoft iSCSI Software Target is optional for other DL380 G5 Storage Server models). In addition, any ProLiant DL380 G5 Storage Server or DL585 G2 Storage Server is a perfect platform from which to run Command View EVA. You stretch your investment even further when you host EVA management, file and print services, and iSCSI connectivity all from the same ProLiant Storage Server gateway solution.

HP ProLiant DL380 G5 Base Storage Server AG815A

**NOTE:** Microsoft Windows Storage Server 2003 R2 Standard x64 Edition O/S

HP ProLiant DL380 G5 1.16TB SAS Storage Server AG816A

**NOTE:** Microsoft Windows Storage Server 2003 R2 Standard x64 Edition O/S

HP ProLiant DL380 G5 x64 SAN Storage Server AG771A

**NOTE:** Microsoft Windows Unified Data Storage Server 2003 Enterprise x64 Edition O/S

HP ProLiant DL585 G2 Storage Server AG630A

**NOTE:** Microsoft Windows Unified Data Storage Server 2003 Enterprise x64 Edition O/S

HP StorageWorks FC2142SR 4Gb PCIe HBA A8002A

HP StorageWorks FC2242SR Dual Channel 4 Gb PCIe HBA A8003A

HP StorageWorks FC1142SR 4Gb PCIe HBA AE311A

HP StorageWorks FC1242SR Dual Channel 4 Gb PCIe HBA AE312A

HP StorageWorks FC2143 4Gb PCI-X 2.0 HBA AD167A

HP StorageWorks FC2243 Dual Channel 4Gb PCI-X 2.0 HBA AD168A

HP StorageWorks FC1143 4Gb PCI-X 2.0 HBA AB429A

HP StorageWorks FC1243 Dual Channel 4Gb PCI-X 2.0 HBA AE369A

### Configuration Information and Configuration Rules

#### Step 4 - Firmware

**Controller Firmware** HP StorageWorks EVA6400/8400 is factory installed with XCS v9.5. Separate Media kits and licenses are required to support HP Command View EVA, HP Continuous Access EVA and HP Business Copy EVA.

HP StorageWorks EVA4400/6400/8400 XCS v9.5 controller media download is available from HP.com. These downloads are available as archival media from the following link:

<http://h18006.www1.hp.com/products/storageworks/eva/index.html>

HP Command View EVA V9.0 is mandatory to support the EVA6400/8400 and XCS V9.5. An HP Command View License-to-Use (LTU) must be purchased for each EVA controller pair. Each HP EVA must be licensed with the appropriate HP Command View LTU(s) to be in compliance with the End User License Agreement (EULA) and the Command View license monitoring function.

The Command View licensed capacity per EVA must be equal to, or greater than the total raw capacity of each EVA. HP Command View EVA may be purchased in increments of a 1TB LTU (one or multiple 1TB LTUs based upon the EVA's raw capacity), or an HP Command View Unlimited Capacity LTU may be purchased which will support up to the maximum raw storage capacity of the EVA.

**OPTIONAL SOFTWARE:** EVA6400/8400 optional software can be found at the following URL: <http://h18006.www1.hp.com/storage/software.html>

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#### Step 5 - Hard Disk Drives

Drives are orderable at the time the array is purchased, or can be added in the future when additional capacity is required. Use these SKUs whenever ordering hard disk drives for the EVA4400/6400/8400, either for factory integration or when adding additional capacity. Note that these SKU's apply ONLY to the EVA4400/6400/8400 and can't be used with other EVA models.

**HP StorageWorks FC and FATA Drives** **NOTE:** A minimum of eight (8) high performance FC or FATA or 6 solid state disks drives are required per EVA6400/8400.

HP StorageWorks 72GB 4Gb dual port FC EVA M6412 SSD	AR055A
HP StorageWorks 400GB 10K FC EVA M6412 Hard Disk Drive	AJ711A
HP StorageWorks 146GB 15K rpm 4Gb dual port FC EVA M6412 Hard Disk Drive	AG556A
HP StorageWorks 300GB 15K rpm 4Gb dual port FC EVA M6412 Hard Disk Drive	AG690A
HP StorageWorks 450 GB 15K rpm 4Gb dual port FC EVA M6412 Hard Disk Drive	AG803A
HP StorageWorks 1TB FATA dual port EVA M6412 Enc Hard Disk Drive	AG691A

**NOTE:** 0D1 will appear after this part number to indicate factory integration where appropriate

### Configuration Information and Configuration Rules

#### Step 6 - Cables

HP StorageWorks EVA Loopback Connector	<p>HP StorageWorks EVA Loopback Connector                  Contains one Loopback connector. The loopback connector is used when an EVA host port is not cabled to a switch or HBA (for direct connect).  <b>NOTE:</b> All EVA host ports must be filled with either a cable or loopback connector.</p>	AJ706A
FC cable - Copper SFP	<p>The following cables are used with the M6412 drive enclosure but are not necessary for new installations. These cables are for use inside the cab between the controllers and drive enclosures if replacement cables are required</p> <p>Cable FC Copper SFP .6m                  Cable FC Copper SFP 2m</p>	321624-B21 324394-B21
FC cable - 1 Gb to 2 Gb/s (optional) (LC to SC)	<p><b>NOTE:</b> Before selecting the FC cables to connect between the controllers and the switches, check to see what kind of connectors are on the switches that will be connected to the controllers. The SFP connector can support 8Gb I/Os, 4Gb I/Os, 2Gb I/Os and/or 1Gb I/Os.  <b>NOTE:</b> One of these cables (either LC to SC or LC to LC) is required per FC port of each HSV controller.</p> <p>FC Short Wave 2-Meter Cable, LC/SC (1Gb to 2Gb)                  FC Short Wave 5-Meter Cable, LC/SC (1Gb to 2Gb)                  FC Short Wave 15-Meter Cable, LC/SC (1Gb to 2Gb)                  FC Short Wave 30-Meter Cable, LC/SC (1Gb to 2Gb)                  FC Short Wave 50-Meter Cable, LC/SC (1Gb to 2Gb)</p>	221691-B21 221691-B22 221691-B23 221691-B26 221691-B27
FC cable - 2Gb/s to 2Gb/s (optional)(LC to LC)	<p><b>NOTE:</b> SFP - Small Form-Factor Profile on the ports of the EVA4x00/6x00/8x00. One of these cables (LC to LC) is required per FC port of each HSV controller.</p> <p>2-meter LC-LC Multi-Mode Fibre Cable                  5-meter LC-LC Multi-Mode Fibre Cable                  15-meter LC-LC Multi-Mode Fibre Cable                  30-meter LC-LC Multi-Mode Fibre Cable                  50-meter LC-LC Multi-Mode Fibre Cable</p>	221692-B21 221692-B22 221692-B23 221692-B26 221692-B27
FC cable - 8Gb/s to 8Gb/s (optional)(LC to LC)	<p><b>NOTE:</b> SFP - Small Form-Factor Profile on the ports of the EVA4x00/6x00/8x00. One of these cables (LC to LC) is required per FC port of each HSV controller.</p> <p>15-meter Multi-mode OM3 LC/LC FC Cable                  30-meter Multi-mode OM3 LC/LC FC Cable</p>	AJ837A AJ838A

### Configuration Information and Configuration Rules

#### Step 7 - Management and High Availability Software

**EVA Storage Management / User Interface** **NOTE:** Command View v9.0 runs on either a management server or application host running Microsoft Windows or the HP OpenView Storage Management Appliance. One management server or application host is required per SAN fabric containing an Enterprise Virtual Array.

An HP Command View License-to-Use (LTU) must be purchased for each EVA controller pair. Each HP EVA must be licensed with the appropriate HP Command View LTU(s) to be in compliance with the End User License Agreement (EULA). The licensed capacity per EVA must be equal to, or greater than the total raw capacity of each EVA. HP Command View EVA may be purchased in increments of a 1TB LTU (one or multiple 1TB LTUs based upon the raw capacity), or an HP Command View Unlimited Capacity LTU may be purchased which will support up to the maximum raw storage capacity of the EVA.

See the HP StorageWorks Command View EVA QuickSpecs for detailed licensing, support and configuration information:

<http://h18006.www1.hp.com/products/storage/software/cmdvieweva/index.html>

**High Availability Software** Industry popular multiple path software is supported on the EVA6400/8400. This software is used to manage multiple paths between hosts and storage systems. It enables high availability through path management and I/O load balancing. Multiple Path support is available for the following Operating Systems:

- HP-UX - HP-UX 11.31 has OS native multi-path, pvlinks native in HP-UX and Veritas DMP
- Windows - Full featured MPIO, v3.00.00 available from HP and Microsoft DSM from Microsoft
- Linux - QLogic Failover driver, available from QLogic /HP, Emulex MultiPulse available from Emulex/HP and Device Mapper v4.0 Enablement Kit from HP
- OpenVMS - native in OS
- AIX - MPIO native in OS
- Solaris - MPxIO native in OS, Veritas DMP available from Veritas
- NetWare - MPIO native in OS
- VMware - MPIO native in OS
- Apple Mac - OS X - Included with ATTO HBA driver
- Xen -Native Device Mapper MPIO

Refer to: <http://h18006.www1.hp.com/products/storage/software/multipathoptions/index.html>

### Configuration Information and Configuration Rules

#### Step 8 - Expansion Options

The EVA6400/8400 Controller Array can be added on-site into existing EVA configurations (or qualified rack systems), Additional M6412 drive enclosures (AG638B) can be ordered to expand an EVA4400/6400/8400 configuration:

1. Ordered for on-site capacity additions to existing EVA4400/6400/8400 configurations.
2. Ordered for field installation of complete EVA4400/6400/8400 configurations HP cabinets and racks described in Step 3 or into qualified 3rd party rack systems by HP Global Services.
3. Installed by HP manufacturing into EVA configurations by ordering the enclosure with the factory integration part number.

Up to eighteen drive enclosures are supported with each pair of HSV400 and up to 27 drive enclosures are supported with each pair of HSV450 controllers. The M6412 is a 2U dual-redundant FC Loop 12-bay switched disk enclosure with mounting hardware, and includes the necessary copper FC cables for connecting to an HSV400/450 Controller pair.

Order additional hard disk drives using the SKU's listed in Step 5.

<b>Enterprise Virtual Array Racking for Expansion</b>	The EVA customers have the option to mount supported devices in the rack used for EVA8400 expansion. EVA 42U HP 10000 G2 Series Rack <span style="float: right;">AF002A</span> Power requirements vary based on the equipment to be placed in the rack and the country power supply. Options are: HP PDU Pivot Kit <span style="float: right;">AG730A</span> May be used when expanding an existing EVA6400/8400 to reclaim 2U of space in a 10000 G2 Series Rack. Modular PDU 24A Low Volt, NA/JPN <span style="float: right;">252663-D71 #0D2</span> Modular PDU 24A HV, NA/JPN <span style="float: right;">252663-D72 #0D2</span> Modular PDU 32A HV, INTL <span style="float: right;">252663-B31 #0D2</span>
	<b>NOTE:</b> #0D2 feature code designates the PDUs are mounted horizontally in the bottom of the rack on real rail, above any UPS, and occupies 2U EIA space. Low voltage PDU 252663-D71 requires additional power distribution module AF500A. (1) AF500A supports 2 PDUs. Each PDU requires a quantity of 2 AF500As. <span style="float: right;">AF500A</span>

Enterprise Virtual Array Expansion Cabinet Example Configurations for EVA8400			
Expansion Cabinet Components	EVA6400 0C9D	EVA8400 0C9D	Description
AF002A	1	1	EVA 42U HP 10000 G2 Series Rack
252663-XXX	2 (minimum HV) 4 (minimum LV)	2 (minimum HV) 4 (minimum LV)	Country/component requirement specific
AP712A*	2	3	HP EVA8400 Expansion Rack Accessory Kit
AG638B	9	9	M6412-A FC Drive Enclosure
* Use 1 AP712A per each of the first 3 shelves in an expansion rack.			
<b>NOTE:</b> Supports a minimum of 1 up to 9 enclosures in each expansion rack			

### Configuration Information and Configuration Rules

EVA4400 Upgrade	EVA6400	EVA8400	SKUs Required
HP EVA6400 Controller Array	Yes	N/A	AJ757A
HP EVA8400 Controller Array	N/A	Yes	AJ758A or AJ847A
HP StorageWorks EVA4400/6400/8400 XCS v9.5	Yes	Yes	Download <sup>3</sup>
Command View EVA	Yes	Yes	See URL <sup>1</sup>
Command View Licenses	Yes	Yes	See URL <sup>1</sup>
Business Copy EVA	Yes	Yes	See URL <sup>2</sup>
Business Copy Upgrade license	Yes	Yes	See URL <sup>2</sup>
Continuous Access EVA	Yes	Yes	See URL <sup>2</sup>
Continuous Access EVA Upgrade license	Yes	Yes	See URL <sup>2</sup>
HP Services assessment and upgrade installation	Yes	Yes	See URL <sup>2</sup>

#### NOTES:

<sup>1</sup>Proper Command View licensing requires a License To Use (LTUs) equal to or greater than the total raw capacity of each array and may be purchased in additive increments of 1TB or Unlimited LTUs). Correct model and capacity licensing is required.

<sup>2</sup> Correct model and capacity licensing is required.

<http://h18006.www1.hp.com/storage/software.html>

<http://www.hp.com/hps/storage/>

<http://h18006.www1.hp.com/products/storageworks/eva/>

<sup>3</sup>XCS comes factory installed on the EVA. Archival or upgrade copies of the firmware may be downloaded at this site.

<http://h18006.www1.hp.com/products/storageworks/eva/index.html>

**NOTE:** When upgrading from an EVA4400 with embedded switch a separate switch must be utilized.

EVA6400 Upgrade	EVA8400	SKUs Required
HP EVA8400 Controller Array	Yes	AJ758A or AJ847A
HP StorageWorks EVA4400/6400/8400 XCS v9.5	Yes	Download <sup>3</sup>
Command View EVA	Yes	See URL <sup>1</sup>
Command View Licenses	Yes	See URL <sup>1</sup>
Business Copy EVA	Yes	See URL <sup>2</sup>
Business Copy Upgrade license	Yes	See URL <sup>2</sup>
Continuous Access EVA	Yes	See URL <sup>2</sup>
Continuous Access EVA Upgrade license	Yes	See URL <sup>2</sup>
HP Services assessment and upgrade installation	Yes	See URL <sup>2</sup>

#### NOTES:

<sup>1</sup>Proper Command View licensing requires a License To Use (LTUs) equal to, or greater than the total raw capacity of each array and may be purchased in additive increments of 1TB or Unlimited LTUs). Correct model and capacity licensing is required.

<sup>2</sup> Correct model and capacity licensing is required.

<http://h18006.www1.hp.com/storage/software.html>

<http://www.hp.com/hps/storage/>

<http://h18006.www1.hp.com/products/storageworks/eva/>

<sup>3</sup>XCS comes factory installed on the EVA. Archival or upgrade copies of the firmware may be downloaded at this site.

### Configuration Information and Configuration Rules

#### Step 9 - Optional Components and Software

##### Remote Replication Software

HP StorageWorks Continuous Access EVA is a controller-based application that performs real-time replication between HP StorageWorks enterprise virtual arrays. The solution is enhanced to perform remote replication, and deliver high data availability and performance to users on Fibre Channel based campus, metro or continental metro or continental Storage Area Networks (SANs).

For more information, see Continuous Access description earlier in this document. Please see the product URL for ordering information and part numbers:

<http://h18006.www1.hp.com/storage/software.html>

##### Local Replication Software

HP StorageWorks Business Copy EVA is a local replication software product for the EVA family providing Snapshot and clone set-up and management. Business Copy EVA is sold by utilized capacity. For more information, see the Business Copy description earlier in this document. See the product URL for ordering information and part numbers: <http://h18000.www1.hp.com/storage/software.html>

##### 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. For more information, see the DCM description earlier in this document. See the product URL for ordering information and part numbers:

[http://h18000.www1.hp.com/products/quickspecs/12815\\_div/12815\\_div.html](http://h18000.www1.hp.com/products/quickspecs/12815_div/12815_div.html)

##### Storage Resource Management Software (HP Standard Edition SRM Software)

HP Storage Essentials Standard Edition Storage Resource Management Software allows midsize businesses with limited IT staff to see the big picture thereby reducing SAN complexity. For more information, see the Storage Essentials product description earlier in this document.

##### Standard Edition SRM Media and License to Use (LTU)

HP Storage Essentials Standard Edition SRM Media Kit T5314AA

HP Storage Essentials Standard Edition SRM LTU T5315AA

##### Add on Storage Essentials Suite plug-in licensing available to Standard Edition

HP Storage Essentials NAS Manager 1 TB LTU T4294AA

HP Storage Essentials File System Viewer 1 TB LTU T4292AA

HP Storage Essentials Database Viewer 1 MAL LTU T4289AA

HP Storage Essentials Exchange Viewer 1 MAL LTU T4288AA

HP Storage Essentials Backup Manager 1 TB LTU T4295AA

##### VMware Site Recovery Manager

VMware Site Recovery Manager (SRM) is designed to automate the recovery process and the remote replication of HP StorageWorks Continuous Access EVA with StorageWorks Enterprise Virtual Arrays. The solution provides central management through VMware Virtual Center and enables more frequent testing. This solution also leverages your existing recovery site hardware to reduce operational cost of training. It is a solution that is fully integrated with HP servers, HP Storage and HP Services, providing mid-market customers with a total business continuity solution. For more information:

[www.hp.com/go/storage/vmware](http://www.hp.com/go/storage/vmware)

#### NOTES:

1. Refer to the HP Standard Edition SRM Software QuickSpec for product and licensing details: <http://h18006.www1.hp.com/products/storage/software/e-suite/index.html>
2. Standard Edition SRM LTU contains bundled licensing comprising of Edition 150 MAPs, 3TBs of File System Viewer, NAS Manager, and 1 MAL for either the Exchange Viewer or the Database Viewer. This is a customer choice.

### *Configuration Information and Configuration Rules*

#### **Optional Hardware Accessories**

**Non-HP Rack installation** For racks other than those specifically stated within the EVA4100/6100/8100 product set, please visit the EVA web page for details on rack and power specifications: <http://www.hp.com/go/eva>

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#### **SAN Infrastructure Components**

The HP StorageWorks SAN integrates best-in-class storage networking components to deliver a complete connectivity platform for end-to-end network storage solutions. HP's fabric portfolio includes: HBA's, directors, switches, SAN extenders, NAS heads, iSCSI routers, and fabric software. HP SAN Infrastructure components deliver the network storage infrastructure for the Adaptive Enterprise. For details on SAN infrastructure components and storage compatibility information, please visit: <http://hp.com/go/san>.

### Technical Specifications

#### EVA6400 and EVA8400

<b>Operating Temperature</b>	50° to 95° F (10° to 35° C) - Reduce rating by 1° F for each 1000 ft altitude (1.8° C/1,000 m)
<b>Shipping Temperature</b>	-40° to 150° F (-40° to 66° C)
<b>Humidity</b>	10% to 90% non-condensing
<b>Shipping Humidity</b>	5% to 90% non-condensing
<b>Altitude</b>	Up to 8,000 ft (2,400 m)
<b>Air Quality</b>	Not to exceed 500,000 particles per cubic foot of air at a size of 0.5 micron or larger
<b>Power Data (North America/Europe/Japan) maximum configuration</b>	
<b>AC plug type</b> (quantity 2)	North America-3 wire NEMA No. L6-30P, 30 Amp (208 to 240V, 50-60Hz 30A) Europe - 3 wire, 2 pole IEC 309, 30 amp, (220 to 240V 50Hz 32A)
<b>Number of phases</b>	Single
<b>Rated current</b>	17A @ 200V-240V AC, 60Hz total, 4.25 A per power cord
<b>Nominal Line Voltage</b>	North America - 208 or 230V Europe - 230V Japan - 206V
<b>Range Line Voltage</b>	187 to 256V
<b>Line Frequency</b>	North America 60Hz, Europe 50Hz, Japan 50 or 60 Hz

#### Enterprise Virtual Array 6400

NOTE: This data represents fully populated drive shelves with 15K rpm disk drives. Other drive types may vary slightly.		EVA 6400				
		2C2D	2C8D	2C12D	2C14D	2C18D
Typical	Total System Watts	746	2284	3309	3821	4847
	Total System BTU/hour	2544	7789	11284	13032	16527
	Input Current (A) per plug 208V	1.9	5.8	8.4	9.7	12.3
	Input Current (A) per plug 230V	1.7	5.2	7.6	8.7	11.1
	Input Current (A) per plug 115V	3.5	10.6	N/A	N/A	N/A
	Input Current (A) per plug 100V	4.0	12.3	N/A	N/A	N/A
	Inrush Current per plug 208V	116	153	178	190	216
Failover	Total System Watts	677	2077	3022	3596	4441
	Input Current (A) at 208V	3.3	10.5	15.3	17.7	22.5
	Input Current (A) at 230V	3.0	9.5	13.8	15.9	20.3
	Input Current (A) at 115V	6.1	19.3	N/A	N/A	N/A
	Input Current (A) at 100V	7.1	22.5	N/A	N/A	N/A

This data represents fully populated drive shelves with 15K rpm disk drives. Other drive types may vary slightly. For more detailed information on a specific configuration and drives please utilize the EVA Power Calculator at:

<http://www.hp.com/servers/powercalculator>

NOTE: Typical is described as a system in normal steady state operation. (I.E., both PDUs operating normally, the array reading/writing to disk drives in a production environment)

#### Enterprise Virtual Array 8400

### Technical Specifications

<b>NOTE:</b> This data represents fully populated drive shelves with 15K rpm disk drives. Other drive types may vary slightly.		2C3D	2C9D	2C18D	2C21D*	2C27D*	3D**	9D**
Typical	Total System Watts	1010	2546	4855	5623	7160.7	768	2306
	Total System BTU/hour	3444	8682	16554	19175	24418	2621	7864
	Input Current (A) per plug 208V	2.6	6.4	12.3	N/A	N/A	1.9	5.8
	Input Current (A) per plug 230V	2.3	5.8	11.1	N/A	N/A	1.8	5.3
	Input Current (A) per plug 115V	4.7	N/A	N/A	N/A	N/A	N/A	N/A
	Input Current (A) per plug 100V	5.5	N/A	N/A	N/A	N/A	N/A	N/A
	Inrush Current per plug 208V	122.0	160.0	215	NA	N/A	110.0	153
Failover	Total System Watts	906.5	2323	4453	5162	6580.5	709	2127
	Input Current (A) at 208V	4.6	11.8	22.5	N/A	N/A	3.6	10.8
	Input Current (A) at 230V	4.2	10.6	20.4	N/A	N/A	3.2	9.7
	Input Current (A) at 115V	8.4	N/A	N/A	N/A	N/A	N/A	N/A
	Input Current (A) at 100V	9.8	N/A	N/A	N/A	N/A	N/A	N/A

\* Any system over 2C18D requires 2 cabinets; total power is given for both cabinets.

\*\* For line cord current and inrush data for the 2C21D or 2C27D systems use the 2C18D information for the 1st cabinet and the 3D or 9D information for the second cabinet.

### Enterprise Virtual Array EVA6400/8400 Product Dimensions, Weight and Clearance

Physical Dimensions	Height in/cm	Width in/cm	Depth in/cm	Max Weight lb/kg	Req. Front Clearance in/cm	Req. Rear Clearance in/cm
EVA6400/8400 Controller Array	7.0/17.78	17.6/44.70	27.5/69.85	120/54.55	N/A	N/A
M6412-A Drive Enclosure	3.5/8.89	17.6/44.70	23.75/60.33	57/25.86	N/A	N/A
FC or FATA drives for M6412-A	N/A	N/A	N/A	1.9/.86	N/A	N/A
SSD for M6412-A	N/A	N/A	N/A	1.1/.5	N/A	N/A
HP Rack 10642 G2 Shock (42U)	78.7/200	24/59.7	39.691/101.5	253/114.84	30/76.2	30/76.2

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For hard drives, 1 GB = 1 billion bytes. Actual formatted capacity is less.