

Solutions for the adaptive enterprise.



HP StorageWorks
Enterprise Virtual Array family
Accelerate into virtually boundless storage

change
+
hp





Breakthrough with HP storage virtualization

Faced with pressure to do more with less in a constantly changing business environment you need IT processes that manage costs, mitigate risk, increase quality of service and enable agility. As businesses face IT challenges like exponential storage growth, accelerating management costs, and consolidation compounded by the inability to hire additional staff the need to control costs, achieving agility and capitalizing on change is essential to success. We take a horizontal, integrated approach to designing, implementing, measuring, monitoring and operating business processes. The result: The HP Adaptive Enterprise vision, an IT foundation that synchronizes business with IT to capitalize on change giving you more for your IT investments. Virtualization is a cornerstone in HP's Adaptive Enterprise vision. It lets you pool and share servers, storage, networking and other devices allocating resources across applications and processes.

HP StorageWorks Enterprise Virtual Array 3000 (EVA3000) and Enterprise Virtual Array 5000 (EVA5000) designed for consolidated, enterprise-class, open-systems environments, meet IT challenges head on. They help eliminate storage shortfalls that produce a domino effect across your network. They increase scalability and availability and decreasing complexity and downtime. The EVA3000 and EVA5000 apply virtualization to pool and share capabilities producing superior utilization of IT resources across the entire infrastructure. With the EVA3000 and EVA5000 you get the proven security, scalability and global support you've come to expect from the industry leader HP. We conquer the boundaries of traditional storage offering industry-leading evolutionary storage technology that literally reinvents enterprise storage. The EVA3000 and EVA5000 offer forward-thinking capabilities giving CIO's, IT managers and network administrators the ability to dramatically reduce their total cost of ownership (TCO). Now you can break through to virtual with absolute confidence.

Scalability and flexibility

How does the HP StorageWorks Enterprise Virtual Array family maximize your storage and capacity to position your business for continuing growth? By optimizing your storage solution with virtualization, you increase utilization ensuring supply automatically meet demands. It gives you the ability to put information to work anywhere, anytime making your business "opportunity ready." It also improves operational capabilities by supporting global information accessibility. And, by ensuring business uptime, you improve customer service levels. The EVA3000 and EVA5000 virtual network storage technology allows for almost limitless business flexibility. This cutting-edge technology makes storage management simple with all capacity in the array appearing as pools of high performance or lower cost/performance FATA storage. This provides more cost-effective storage utilization based upon business needs. EVA virtualization technology eliminates stranded capacity, reduces complexity and maximizes existing resources, thus increasing the administrator's productivity. EVA is a high performance, high capacity and high availability "virtual" RAID storage solution, which allows existing IT administrators to easily manage ever-growing amounts of business-critical data more effectively.

A trio of amplified performance

EVA, Vsnap and Snapclone

With Virtually Capacity-Free Snapshot (Vsnap), you eliminate both the backup window and the need to buy excessive storage for replication. Your Vsnap LUN starts off small and dynamically grows as you store more data in it—no need to lock out large amounts of space. Snapclone gives you the ultimate data mining solution. A Snapclone integrates the best features of Vsnaps and clones with automation. Rather than waiting for the copy (clone) to complete, the EVA Snapclone provides



immediate access to the copy even as it is being built—virtually “instantly.” The benefits and value of Snapclone technology are:

- *Availability:* it enables application and live testing of data immediately without disrupting business operations
- *Replication:* a clone or physical copy of a production volume is created as a “third mirror,” it can be broken off and mounted and copied to tape for archiving
- *Recovery:* in the event of a site disaster, the data on the clone can be placed onto tape and relocated

Automatically enabling your future growth

By consolidating your enterprise-class, open-systems environments to the new storage virtualization solutions, you improve storage utilization and scalability while meeting application specific demands for consistently high transaction I/O and MB/sec data rate performance. The EVA system is an end-to-end 2 Gb Fibre Channel (FC) solution utilizing FC-Switch Fabric for interfacing with the host and 2 Gb FC to interface to the disk drives. The EVA uses Fibre Channel High Performance disk drives, FATA disk drives, or a combination of both types of disk drives with dual port access for redundancy and load. Both arrays are compatible with earlier 1 Gb FC HBAs and SAN Switches, and more recent 2 Gb FC HBAs and SAN Switches.

HP StorageWorks EVA3000

Leveraging limited resources

The EVA3000, the mid-range member of the HP StorageWorks disk array family, is a high performance, high availability “virtual” RAID storage solution serving the intermediate storage needs of the enterprise and mid-range storage market. Engineered for customers who

Choosing an HP StorageWorks array

Disk Array XP

Enterprise Virtual Array 5000

Enterprise Virtual Array 3000

Modular Smart Array

Enterprise

Mid-range

Entry-level

need to start small and grow in small increments, the EVA3000 scales from 144 GB up to 16 TB with 56 drives. It provides reliable performance, superior scalability and consistent availability, making it the ideal solution for customers who expect steady, but not excessive growth over the next few years. The EVA3000 provides enterprise-class functionality for mid-range environments and addresses the challenges of an environment where performance and business continuance needs are incrementally increasing and budget controls are a concern.

HP StorageWorks EVA5000

Data consolidation in one virtual environment

Removing the time, space and cost boundaries of traditionally architected storage, the EVA5000 is a high performance, high capacity and high availability “virtual” RAID storage solution for the enterprise-class marketplace.

The EVA5000 lets you maximize your storage assets and optimize administration efficiency. HP StorageWorks EVA5000 is the answer for customers who currently employ high capacities or who plan to accelerate to over 56 drives. It's the ideal solution for customers who expect rapid growth in the near future or during the life cycle of the array. Plus, the EVA5000 lets you easily grow your storage to 240 drives or 35 TB of useable capacity. It solves the challenges inherent in ever-increasing capacity

"The EVA3000 will bring all of the enterprise features enjoyed by the EVA5000 into a mid-range price point. We feel very confident in our ability to succeed with this product."
Dhruv Gulati, Executive VP, Lilien Systems

and replication requirements, demands for extreme performance, escalating business continuance needs and lower TCO. The EVA5000 is designed for the data center where there is a critical need for improved storage utilization, scalability and performance. The EVA5000 ensures your data is there when you need it, meeting your business needs in an optimized and stress-free way.

EVA software— get the most from your data

Both the EVA3000 and EVA5000 arrive factory installed with HP StorageWorks Virtual Controller Software (VCS) software and require the HP OpenView Storage Management Appliance and HP OpenView Storage Operations Manager software for management. Storage Operations Manager provides a simple, web-based GUI for anytime, anywhere management of EVAs and heterogeneous storage across distributed heterogeneous SANs and accelerates simplification of multi-vendor storage management with SNIA SMI-S v1.0 standard support. For additional functionality and features, the following software can be added:

- *HP StorageWorks Continuous Access EVA*—a controller-based application that performs real-time replication between EVA arrays; enhanced to perform remote replication and deliver data availability and performance to users on fibre channel-based campus, metro or continental SANs.
- *HP StorageWorks Secure Path*—a family of high availability, multi-pathing software that eliminates single points-of-failure in HP SAN-based storage infrastructures.
- *HP OpenView Storage Area Manager*—a seamlessly integrated software tool for managing and monitoring both tape and disk, direct and network-attached

storage across multi-vendor and distributed environments. Its five functional capabilities provide enterprise-wide device, capacity and performance management, including storage usage metering and billing, logical storage assignment, and host/LUN access control.

- *HP OpenView Smart Plug-In for HP OpenView Storage Area Manager*—integrates HP OpenView Storage Area Manager into environments managed by the HP OpenView product family.
- *HP OpenView Storage Volume Growth*—extends the capacity expansion requirements of EVAs in Microsoft® Windows® 2000 and Windows Server 2003 environments, enhancing business continuity by growing the basic disk volume multiple times as needed, and adding capacity without disrupting or rebooting the application environment.



- *HP OpenView Storage Media Operations*—automates the tracking and management of hundreds or thousands of individual pieces of removable storage media, ensuring more reliable backups, faster data recovery, improved operational effectiveness, and reduced media costs.
- *HP OpenView Storage Data Protector*—a tool that combines both disk and tape-based data protection across multiple storage architectures, applications, and operating environments to deliver new levels of recovery in a service driven management approach.
- *HP OpenView Storage Virtual Replicator*—an array controller diagnostic solution that pools and replaces any storage presented to Windows hosts, enabling users to erase the physical boundaries of their storage units and consolidate Windows-based resources into virtual disks; creates instant, space efficient volume snapshots for multiple purposes, such as backup.

Technical specifications

HP StorageWorks EVA3000

HP StorageWorks EVA5000

HP StorageWorks Virtual Controller Software (VCS)	FC Switch support, VCS v3.0a for HSV100 base; Snapshot capabilities available through Business Copy for EVA; remote data replication capabilities available through Continuous Access for EVA	Fibre Channel Switch support, VCS v3.0c Snapshot capabilities available through Business Copy for EVA; remote data replication capabilities available through Continuous Access for EVA
Controller cache	2 GB standard	2 GB standard
Battery backup for cache	Up to 96 hours	Up to 96 hours
Host interface	Fibre Channel Switched Fabric	Fibre Channel Switched Fabric
Host ports per controller	Dual 2 Gb FC enabled with VCS v3.0 for HSV100 (running at 1 Gb with 1 Gb switches and HBAs)	Dual 2 Gb FC enabled with VCS v3.0 for HSV100 (running at 1 Gb with 1 Gb switches and HBAs)
Drive interface	Two 2 Gb FC-AL ports per controller in redundant pairs	Four 2 Gb FC-AL ports per controller in redundant pairs
RAID levels	Vraid0, Vraid1, Vraid5	Vraid0, Vraid1, Vraid5
Maximum disks supported	56 per Controller Pair	240 per Controller Pair
Fibre Channel switches	64, 32, 16 and 8-Port Optical	64, 32, 16 and 8-Port Optical
Peak I/O and sustained MB throughput	Up to 141K IOPS and up to 335 MB/sec throughput per Controller Pair	Up to 141K IOPS and up to 700 MB/sec throughput per controller pair
Disk Drives for EVA3000/EVA5000	36 GB 10K rpm 72 GB 10K rpm 146 GB 10K rpm	300 GB 10K rpm 36 GB 15K rpm 72 GB 15K rpm 250 GB FATA
Operating systems supported	The EVA3000 supports the following operating systems: HP-UX, HP Tru64, HP OpenVMS, Microsoft Windows 2003 Server Enterprise Edition, Microsoft Windows 2000, Microsoft Windows NT®, Linux, Sun Solaris UNIX®, Novell NetWare, and IBM AIX	The EVA5000 supports the following operating systems: HP-UX, HP Tru64, HP OpenVMS, Microsoft Windows 2003 Server Enterprise Edition, Microsoft Windows 2000, Microsoft Windows NT, Linux, Sun Solaris UNIX, Novell NetWare, and IBM AIX

EVA—accelerate into virtually boundless storage

HP is the industry leader in storage solutions and with the introduction of the HP StorageWorks Enterprise Virtual Array family; we once again raise the bar on industry standards. HP offers the following advantages:

Leadership in space savings:

- Industry leading low cost FATA drive solutions providing the redundancy of FC drives for near-online data
- Maximum performance with Vraid features:
 - Enables up to twice the typical open systems capacity utilization
 - Minimizes the purchase of unusable capacity
 - Allows incremental capacity to support growth without planning for downtime
 - Provides state-of-the-art design to improve performance and disk usage, allowing for easy dynamic storage expansion
 - Grows the basic disk volume multiple times, as needed
 - Allows customers to change Vraid type (Cross Vraid Vsnap and Snapclones) for replicated data for better storage utilization

Leadership in time savings:

- Virtually instantaneous Snapclone features:
 - Allows immediate use of the clone copy, saving significant time
 - Provides virtually instantaneous clones of virtual disks to allow for immediate, efficient mirroring and data repositories, in addition to seamless data migration and data sharing
- Automatic, self-tuning performance
- No data micro-management
- Truly scalable capacity and performance
- Configuration flexibility and support for Cross Vraid Snapclones
- Improved and more consistent user service levels
- Delivers techniques for eliminating planned downtime, from online backup to zero-downtime, zero-impact backup

Leadership in cost savings:

- Superior management features:
 - FATA disk drives for near line and near-online applications
 - Allows management of larger SAN configurations, reducing management time and lowering costs
 - Realizes as much as a 15-fold improvement in productivity with outstanding self-tuning performance;

accomplishes more in less time, scales capacity on-demand and minimizes data administration

- Higher actual capacity utilization
- Dynamic LUN and pool expansion
- More disks per controller pair
- Simplified storage administration
- Minimized performance tuning
- Centrally managed independent servers with HP StorageWorks Operations Manager, Command View EVA storage utility management software
- Capacity provisioned by attributes (size, redundancy), not physical details
- Manage at the pool level, not disk level
- Add just-in-time capacity on the fly
- Automatic, transparent data redistribution and RAID level load balancing to optimize performance
- Automatic configuration of High Performance and FATA drives into disk pools
- Reduced media costs

Enterprise-class services and support

HP believes services are an essential part of every business solution. We are proud of our award-winning technology and services, and strive to meet the 24x7

availability needed by many modern computing environments. We emphasize the value of warranty as a vital component to protect customer's investments from "manufacturing defects," thus ensuring their investment in a product for a defined period of time and scope. We provide, at no charge, phone home capabilities to maximize EVA availability via HP Instant Support Enterprise Edition (ISEE). In addition, ongoing service and support protect businesses by ensuring the technology performs to a pre-selected level of availability. HP adheres to a proactive service approach and through this we are able to help you achieve a higher level of availability. It is our experience that availability improvements translate into meeting or exceeding Service Level Agreements (SLAs) with our valued business partners. More importantly, upgrades to the standard factory warranty allow the choice of a service level that meets your expectations and the availability you require to meet your business needs.

Hardware warranty

The EVA Foundation Service Solution is included with all EVA models and provides:

- Three full years of 24x7 hardware on-site support with a 4-hour response commitment
- Three full years of 24x7 VCS telephone support with 2-hour telephone response commitment

The HP StorageWorks EVA3000 and EVA5000 advanced technology gives you the proven security, scalability and global support you've come to expect from the industry leader HP.

HP StorageWorks EVA3000



HP StorageWorks EVA5000



“With HP pioneering the industry with its state-of-the-art virtualization capabilities and EVA technology, we look for this same enterprise-class functionality delivered to the mid-range market with the new EVA3000...”

Rich Baldwin, President, CEO,
NTH Generation Computing, Inc.



- Three full years of VCS update service
- Array Installation and Startup which includes:
 - Array deployment
 - Installation Verification Testing (IVT)
 - Brief customer orientation session

Software warranty for optional software offerings

- 90-day HP StorageWorks VCS limited warranty¹
- Optional software services
 - Warranty uplift options
 - Stand-alone telephone support—up to 24x7, up to 30 minute call back response time
 - Subscription services—providing updates to new software license rights

Hardware/software Installation and Startup Services

- Pre-installation consulting and planning
- Hardware installation, configuration and verification
- Installation, configuration and verification of VCS and other HP OpenView software
- Service tools installed, configured and verified
- Customer orientation
- Performance consulting to ensure maximum usage of deployed technology in a changing environment
- Available selectively in various worldwide geographic locations

Services may vary by location, please see the warranty information for your country or contact your local HP sales organization for details.

¹ Certain restrictions and exclusions apply.

Professional services

Professional Services are available to assist you through a variety of stages within the project lifecycle: defining the scope of the project, building plans to meet business requirements, designing a workable and adaptable technology platform, implementing and managing to give you the best results immediately and in the future. These services are tailored for targeted markets including communications, finance, manufacturing, service providers, e-applications, e-commerce and e-infrastructure. Professionals with industry-specific experience work with individuals within your business teams and develop working partnerships that yield the skills and knowledge each business needs to optimize its investment.

HP Proactive Remote Support Services

Proactive Remote Support Services identifies problems and solves them quickly. This set of enterprise-wide support solutions enables multiple-system management from a single location. Proactive services include planning and configuration services, installation and start-up services, and a service that automatically reports failures and likely failures. Proactive Remote Support Services saves your staff time by proactively addressing repair and fault-management issues.

HP Enhanced Proactive Service solution

Includes Proactive Service Solution services plus: 2C2D—Single engagement of SAN Solution Deployment Service for up to 32 SAN ports, one operating system, and 4 hosts.

For more information

For more detailed information on the HP StorageWorks EVA visit:

<http://h18000.www1.hp.com/storage/arraysystems.html>

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