



## HP StorageWorks Enterprise Virtual Array (EVA)

Why choose EVA over NetApp FAS filers for block I/O?

### The HP advantage

HP StorageWorks Enterprise Virtual Arrays (EVAs) are designed for consolidated, open-systems environments. The EVA family of products provides the power and simplicity to respond to the more demanding and changing needs of users and applications. When you select HP EVA systems, you are choosing from a comprehensive standards-based storage portfolio, as well as the experience required to help you select, size and implement the right solution for your needs. HP integrates leading advances such as automated management and virtualization solutions into EVA products to help protect and extend your investment. HP is a trusted provider and single source for a complete data center infrastructure that supports your environment and business growth.

### HP StorageWorks EVA series

The HP StorageWorks Enterprise Virtual Array 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 highly available and highly reliable “virtual” storage array solution. The EVA meets application-specific demands for transaction input/output (I/O) performance for mid-range and enterprise customers. It provides easy capacity expansion, instantaneous replication and simplified storage administration.

### HP EVA storage solutions are often selected for the following features and benefits:

- **High reliability with no single point of failure:** The EVA is designed as a highly available array with no single point of failure, support for online firmware upgrades and has a simplified storage management, all to decrease unplanned downtime in order to keep business-critical applications and data accessible.

### Disk Storage Systems Family

Enterprise Virtual Array 4400  
Enterprise Virtual Array 6100  
Enterprise Virtual Array 8100



- **Outstanding availability:** Over two years of customer data shows that most customers are achieving 99.999 percent availability (less than 5.3 minutes per year of unplanned downtime) with the EVA4x00, 6x00 and 8x00.
- **Easy to manage:** The EVA's advanced virtualization aggregates logical unit numbers (LUNs) and Redundant Array of Independent/Inexpensive Disks (RAID) groups so there are fewer things to manage while automating many typical time-consuming, repetitive and error-prone management tasks resulting in lower management costs with fewer IT resources and reducing the total costs of ownership (TCO).
- **Highly modular/scalable:** The EVA can scale up 120 TB of storage (240 disk drives), supports enterprise Fibre Channel disk drives as well as near online Fibre Channel Advanced Technology Attachment (FATA) drives, offering an outstanding storage consolidation platform for mid-range and enterprise organizations.
- **Increased capacity utilization:** The EVA reduces the need for pre-allocated disk space with EVA LUN right-sizing (easily expand/or contract the size of LUNs) plus allocation-on-demand snapshots and snapclones.
- **Increased performance and greater flexibility:** The EVA LUNs can stripe across up to 240 drives providing enhanced performance, reducing disk hotspots and allowing automatic load leveling as new drives are added to enable automatic array balancing and increased performance.
- **Integrated storage:** The EVA can provide a single storage solution for storage area network (SAN) (Fibre Channel and iSCSI) as well as NAS (NFS and CIFS) with the EVA File Services option.

NetApp FAS filer is not an advanced block-based array.

#### Why choose an EVA for block-based I/O?

While NetApp positions its FAS filer as "unified storage" that offers a total solution in a single appliance, including NAS (file service) and SAN (iSCSI and Fibre Channel), it does not have all the advanced block-based FC SAN features of the HP EVA.

- The EVA was designed for block-level I/O over a SAN. NetApp's FAS filer was designed for file-level I/O. You wouldn't use a screwdriver to nail wood together; why would you use a file-level I/O filer to do block-level I/O.

### Disk Storage Systems Family

Enterprise Virtual Array 8100  
HP StorageWorks D2D Backup System  
HP StorageWorks 2500 Disk System (DS2500)  
HP StorageWorks XP24000 Disk Array  
HP ProLiant ML350 G5 Storage Server  
HP StorageWorks AiO 1200



- The NetApp file system, Write Anywhere File Layout (WAFL), was designed for file access not SAN-based block access. As such, NetApp FAS SAN performance is good with low capacity utilization, but performance degrades significantly as capacity utilization increases. Performance also degrades over time as data becomes more fragmented. The EVA offers excellent and consistent performance and is not subject to the performance degradation of the FAS filers.
- The EVA is simpler to manage. According to the Edison Group Midrange Storage Array TCO white paper, the EVA required 75 percent fewer steps and 76 percent less time than NetApp filers to perform a series of standard administrative tasks<sup>1</sup>.
- According to NetApp's best practices for SANs, NetApp's "Space Reservation" policy requires 100 percent or more spare space to avoid data corruption, which in turn increases the cost of the filer. An EVA doesn't.
- According to a total cost of ownership (TCO) white paper by Alinean, the HP EVA provided 34 percent more usable capacity than NetApp for database applications, and this difference in usable capacity yielded an advantage of a 33.9 percent lower TCO for the HP EVA compared to the NetApp FAS.
- The EVA is fully redundant. NetApp requires a cluster configuration (dual FAS filers) for redundancy. When adding a second FAS filer, additional software licenses are required that drive up the cost of the solution. The EVA requires only a single software license per array, not two licenses like the FAS.
- HP offers an integrated server and storage management solution—Systems Insight Manager—NetApp only offers storage management for its FAS filers.
- HP proactive remote support technology can anticipate problems before they happen for multi-vendor server and storage products. NetApp does not provide proactive support and only supports its storage products.
- HP sells and services a totally integrated and complete storage and server solution. NetApp doesn't sell servers and doesn't have a presence in tape.

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<sup>1</sup> TCO White Paper: EMC, NetApp and HP Midrange Storage Arrays. Edison Group. November 2007. <http://h71028.www7.hp.com/ERC/downloads/4AA1-6634ENW.pdf>

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Requirements	HP EVA	NetApp FAS
Advanced array virtualization	✓	○
Easy to manage (LUNs, RAID Groups)	✓	○
Proactive remote support technology	✓	X
Automatic performance tuning—load leveling	✓	X
High availability—five 9s	✓	X
Predicable performance	✓	X
One vendor total solution (storage, servers, support)	✓	X
Efficient block storage space utilization	✓	X
Integrated server and storage management	✓	X

Legend: ✓ = competitive ○ = moderately competitive X = not competitive

## The bottom line

The EVA was designed to be a SAN-based block storage array with advanced virtualization features. The NetApp FAS filer was designed for file serving and is not customized for block storage applications.

To learn more, visit [www.hp.com/storage](http://www.hp.com/storage)

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