HP StorageWorks EVA4400 SAN Starter Kit
HP StorageWorks HBAs (Emulex LightPulse 8Gb/s HBAs)
VMware ESX 3.5/ ESXi 3.5
Data Sheet

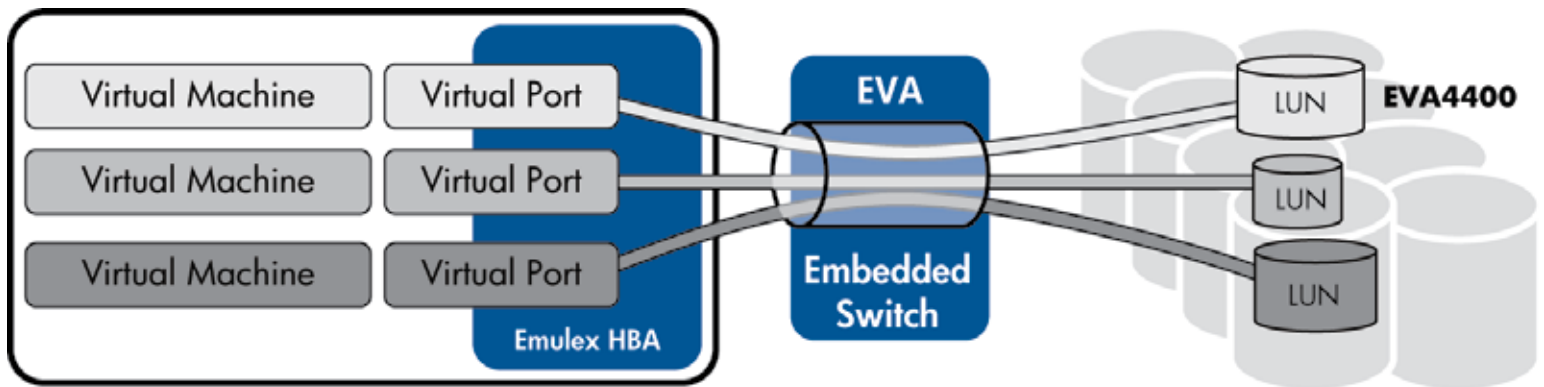## Deploying HP StoragesWorks EVA4400 with Emulex 8Gb/s HBAs and VMware

N_Port ID Virtualization (NPIV) is an industry-standard Fibre Channel protocol that extends virtualization to the host bus adapter (HBA) by providing a way of assigning multiple Fibre Channel addresses over the same physical link. IT organizations are turning more and more to VMware server virtualization to transform data centers into "service-centric" shared pools of resources that can be dynamically aggregated, tiered, provisioned, and accessed through an intelligent network. Virtualization of standardized server resources dramatically increases performance levels and reduces total cost of ownership (TCO) while allowing IT organizations to deploy and scale resources rapidly on-demand to match business and application requirements.

A shared storage infrastructure, using the EVA4400 and Emulex Virtual HBAs, enables the most compelling features of VMware, including VMotion, Distributed Resource Scheduler (DRS), High Availability (HA), Consolidated Backup and ESX Server-remote boot. Consolidating the virtual servers on one (or more) EVA4400 provides opportunities for cost-effective and simplified disaster recovery and business continuity.

Key features and benefits

- **Lower Total Cost of Ownership (TCO):** Server consolidation with VMware enhances total cost of ownership by improving asset utilization and simplification of management. When used in conjunction with Emulex NPIV-enabled HBAs, a single intelligent HBA port can relay the traffic for multiple virtual machines, offloading network processing, thereby allowing for more cost-effective servers to be deployed.

- **Guaranteed Quality of Service (QoS):** When used in conjunction with fabric QoS, each VM can be allocated its own logical HBA port, which creates multiple IO paths for traffic prioritization.

- **Higher Availability:** Multiple logical ports are created automatically, offering redundant paths to VMs. Active-active arrays, dual-ported drives, and high-reliability HBAs increase data availability.

- **Role-based Management and Security:** Each VM and its EVA4400 storage are completely isolated from other VMs and under the control of the administrator in charge of protecting corporate data.

- **Simplified Management:** The need to reconfigure fabric zoning and LUN masking parameters during a VMotion migration is almost eliminated.

VMware ESX 3.5/VMware ESXi 3.5

The most popular SAN solution not only for VMware ESX and ESXi but also for enterprise data center storage consolidation is Fibre Channel. The portability and recovery capabilities of VMware implementations rely on external shared storage, and are most effective in a SAN connectivity environment. VMware servers typically reside in the main data center and draw on enterprise storage resources where Fibre Channel dominates. In addition, the high performance delivered by the Fibre Channel protocol is best positioned to serve the higher I/O requirements for multiple virtual machines running on a single server.

SAN connectivity helps enable server virtualization, while server virtualization drives an increased need for SAN connectivity.

HP StorageWorks Enterprise Virtual Array (EVA) 4400

The HP StorageWorks EVA4400 offers an easily-deployed enterprise-class virtual storage array at an affordable price for the midsized customer. EVA virtualization is designed to improve capacity and reduce management complexities, thereby lowering the total cost of ownership compared to traditional arrays. For customers who are looking for a high-performance, scalable, reliable, and highly available storage solution that can be installed in just a few hours, the EVA4400 fits well.

The benefit of a virtual environment is realized on the bottom line as it ideally integrates the IT infrastructure and business applications. The EVA4400 provides a complete solution where storage and servers are managed together. By providing broad operating system support, and proven integration with VMware, Microsoft Exchange, Oracle, and SAP, the EVA4400 delivers real value to customers with cost savings that include easy set up and self-repair capabilities. The EVA4400's high availability is built on the EVA4100/6100/8100 architecture with dual-redundant design and offerings 99.999% availability. The array supports robust local and remote replication capabilities of HP StorageWorks Business Copy EVA Software and HP StorageWorks Continuous Access EVA Software. This provides customers disaster tolerance and the ability to keep applications on-line during backup and restore. EVA4400 also offers tiered storage to match the value of data to your business needs with support for high-performing Fibre Channel drives or lower priced FATA drives. With the flexibility to attach to iSCSI and FC SAN networks, customers can deploy networking technologies that make sense for their environments. With HP StorageWorks Command View EVA Software and storage provisioning capabilities of HP Dynamic Capacity Management Software, customers spend less time managing their storage and more time managing their business.

EVA4400 SAN Starter Kit Infrastructure

HP Kit Part Number (Not available in EMEA)	Item Description
AJ695A (factory integrated—requires cabinet purchase) AJ696A (field installed)	EVA4400 146 GB 15K SAN Starter Kit • Eight 146 GB 15K RPM disk drives
AJ699A (factory integrated—requires cabinet purchase) AJ700A (field installed)	EVA4400 400 GB 10K SAN Starter Kit • Eight 400 GB 10K RPM disk drives
	The following items are included in all kits: • EVA4400 Dual Controller enclosure w/embedded switch • Four Emulex LPe12000 8 Gb/s PCI-E HBA's (HP AJ762A) • XCS 9.0 • M6412 12-bay HDD enclosure • Command View EVA V8.0 Media CD and four 1 TB Licenses • SmartStart for HP EVA Storage

EVA4400 SAN Starter Kit

Key features and benefits

• Microsoft Simple SAN designation

• Embedded switch technology in the new EVA4400 model

• Easy ordering and deployment

• Powerfully simple management

• Fast and simple provisioning

• Affordable first SAN deployments that scale with your business needs

• Remote and local replication for robust HA when combined with HP Business Copy and/or Continuous Access

EVA4400

Key features and benefits

• **Affordable enterprise-class storage array functionality:** The EVA4400, the newest member to the EVA family, is easier to install, upgrade and repair, at an affordable price for midsized customers.

• **Virtualization improves capacity and reduces management complexities:** Complexities of installations typically found in traditional arrays are reduced by employing EVA virtualization capabilities to improve your management resources.

• **Spend less time managing storage:** Installation is quick and easy, taking only a few hours, freeing you to manage your business priorities and not your storage solution. You can easily upgrade, repair, and replace components yourself, without the need for a service call.

• **Lower cost of ownership:** Contributing to an attractive Total Cost of Ownership, the EVA4400 is more affordable and less complex than traditional arrays.

• **Simplify integration of leading business applications:** EVA4400 Solution Blocks provide blueprints for integration with Microsoft Exchange, Oracle, and SAP that combines the right server, storage, and application components for quick deployment of typical business intelligence, disaster recovery, mail and messaging applications, as well as other projects.

• **Storage that keeps pace in the agile world of virtual servers:** In a dynamic VMware environment, the most complimentary storage is one that can respond quickly to change. The EVA4400, because its so easy to configure and provision storage, is the better SAN solution

• **Complete solution for storage and servers:** Combined with HP servers, the EVA4400 provides a complete solution where storage and servers are managed together. This offers a simple management and resource solution for customers.

• **Easy and robust disaster recovery:** Local and remote replication software, Business Copy EVA, and Continuous Access EVA protect data so in the event of a service disruption, recovery is quick and easy.

• **High availability for planned uptime:** Customers can expect 99.999% availability with dual-redundant architecture of high-end arrays supports robust local and remote replication capabilities.

• **8Gb/s ready:** The EVA4400's embedded switch model includes two 8Gb/s embedded 10-port B-series SAN switches, providing access to the industry's fastest performing SAN infrastructure.

HP StorageWorks HBAs
(Emulex LightPulse 8Gb/s)

Why use Emulex LightPulse 8Gb/s HBAs?

Emulex was first to market with its virtual HBA technology based on industry-standard N_Port ID Virtualization (NPIV). Emulex LightPulse Virtual HBA technology provides virtual machines with independent access to the SAN through shared HBA resources, enabling customers to leverage critical SAN management tools and best practices within virtualized server environments Emulex is extending support for industry-standard Virtual Fabric within its LightPulse Virtual HBA technology, to enable simultaneous native access to multiple virtual fabrics.

Every Emulex LightPulse host bus adapter (HBA) leverages eight generations of advanced, field-proven technologies to deliver a distinctive set of benefits that are relied upon by the world's largest enterprises. From the unique firmware upgradeable architecture, to the common driver model, Emulex HBAs are simply "Generations Ahead" of competing solutions. These attributes make Emulex LightPulse 8 Gb/s Fibre Channel HBAs the optimal solution for mixed-OS and virtual server environments. With powerful management capabilities and broad platform support, Emulex HBAs provide maximum performance in the broadest range of applications and environments.

Key features and benefits

- **Comprehensive virtualization capabilities:** Support for NPIV and Virtual Fabric Host to Fabric FC-SP authentication

- **Common driver model:** A unique Service Level Interface (SLI™) allows a single driver to support all Emulex HBAs on a given OS and easy deployment of new firmware with minimal server reboots

- **Efficient centralized administration:** Emulex provides powerful management tools which interface to HP Systems Insight Manager (SIM) and HP Storage Essentials (SE)

- **Support for Message Signaled Interrupts eXtended (MSI-X):** MSI-X improves host utilization and enhances application performance

- **FC Auto-negotiate:** Support for 8 Gb/s, 4 Gb/s and 2 Gb/s Fibre Channel devices

- **BlockGuard® ready:** Ensures end-to-end data integrity

- **Common driver model:** A unique Service Level Interface (SLI™) allows a single driver to support all Emulex HBAs on a given OS and easy deployment of new firmware with minimal server reboots

- **Efficient centralized administration:** Emulex provides powerful management tools which interface to HP Systems Insight Manager (SIM) and HP Storage Essentials (SE)

Technology for better business outcomes

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