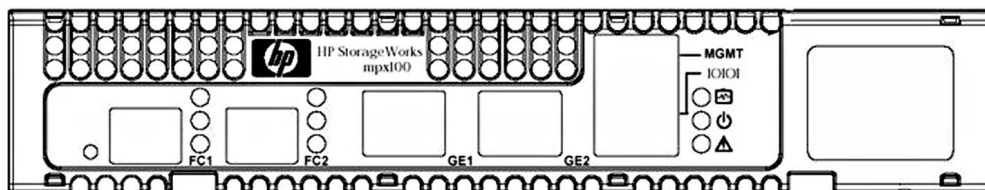


Overview



The HP StorageWorks EVA iSCSI Connectivity Option provides modular multi-protocol SAN designs with increased scalability, stability and ROI on storage infrastructure.

Over 70% of servers within a data center are not connected to Fibre Channel SANs for any of the following reasons:

- Do not require FC Performance
- Cost of the Connectivity to SAN is too high
- Distances are too great

In the typical organization, each distributed server has its own directly attached storage and backup devices. Because these devices are isolated from other servers, excess capacity cannot be redeployed.

This EVA 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. Fibre Channel SANs based on EVA technology are now able to leverage IP networks to create larger SAN sizes across longer distances. This enables increased consolidation. Instead of potentially underutilized, direct-attached, server-dedicated storage, a multi-protocol SAN provides access to storage that is allocated as and when it is needed.

The EVA iSCSI Connectivity Option enables organizations to integrate low-cost Ethernet-connected servers into an EVA by bridging the iSCSI protocol to the Fibre Channel protocol. This capability allows iSCSI servers to leverage shared SAN resources, improving asset utilization and enabling new applications. This integration greatly reduces the cost of connecting servers to centrally managed storage and helps provide a cost-effective solution to introduce utility computing into the enterprise.

An EVA with multi-protocol support also provides network storage at reduced infrastructure costs. Small and medium businesses now have a lower entry point to take advantage of SAN benefits. Large enterprises may also deploy multi-protocol SANs in departments and remote offices.

Key Benefits:

- Delivering SAN like benefits over the Ethernet IP network, the HP StorageWorks EVA iSCSI Connectivity Option is an integrated hardware unit that enables access to block storage on a EVA FC SAN across an Ethernet network
- Provides customers a flexible and cost effective way to connect stranded servers to existing Fibre Channel storage increasing return on investment.
- DAS to SAN via IP
- Extend access to and the virtues of FC SANs across Ethernet networks including:
 - Consolidated storage
 - Improved disk utilization
 - Improved IT efficiency

Overview

Key Features

- Supports two Ethernet and two Fibre Channel ports
- Increase the flexibility of EVAs by adding integrated iSCSI support
- Delivers the benefits of SAN storage at a significant discount to FC SAN storage
- Concurrent FC and IP traffic is managed with high throughput enabling access 150 iSCSI servers and LUNS
- Integrated management with Command View EVA
- iSCSI ready for the following operating systems:
 - Apple Mac OS X (via iSCSI Initiator from ATTO Technology)
 - HP OpenVMS
 - Microsoft Windows
 - Linux Red Hat
 - Linux SUSE
 - Sun Solaris
 - VMware
- Supports High Availability Multi-path Options for HP OpenVMS, Linux, Microsoft Windows, Sun Solaris, and VMware
- Fabric and Direct Attach support

Models

| | | |
|---|--|--------|
| HP StorageWorks iSCSI Connectivity Option (mpx100) | HP StorageWorks EVA iSCSI Connectivity Option | AE324A |
| | Order this part for all new installations for EVA4000/4100/4400/6000/6100/6400/8000/8100/8400, EVA3000/5000. Includes One unit, shelf, brackets, copper FC cables and documentation. | |
| HP StorageWorks EVA 4400 iSCSI Connectivity Option (mpx100b) | HP StorageWorks EVA iSCSI Connectivity Upgrade Option | AE325A |
| | Includes one unit to mount in existing shelf and documentation | |
| | For multi-path (dual unit high availability) order both part numbers. (The second hardware unit installs into the shelf that ships with AE324A.) | |
| | HP StorageWorks EVA 4400 iSCSI Connectivity Option | AJ713A |
| | Order this part for all new installations for EVA 4400 only. Includes one unit, shelf, brackets, copper FC cables and documentation. Supports 16 iSCSI initiators. | |
| | HP StorageWorks EVA 4400 iSCSI Connectivity Upgrade Option | AJ714A |
| | Includes one unit to mount in existing shelf and documentation. For use with EVA 4400 only. | |
| | HP StorageWorks EVA4400 iSCSI Connectivity 32 Initiator Upgrade License (LTU) | T5471A |
| | For use with EVA 4400 only. | |

Product Highlights

Configuration Support The iSCSI Connectivity Option is fully compatible with the HP B-Series, C-Series, and M-Series of FC switches. For complete interoperability information please check:

- <http://www.hp.com/go/SANdesign>
- <http://www.hp.com/go/SANdesignguide>

Two hardware units may be implemented for high availability and redundant data paths.

Manageability

- Command View EVA
- mpx Manager

Scalability Initial support: Refer to the guidelines described in the HP StorageWorks SAN Design Reference Guide available at: <http://www.hp.com/go/SANdesignguide>

Software Components, Standard

Command View HP StorageWorks Command View EVA provides the capability to manage the EVA and is installed on an existing Storage Management Appliance, a management server or a NAS server. This powerful tool provides an easy mechanism to manage EVA storage systems in a SAN configuration. Command View EVA is purchased separately from XCS media kit.

Service and Support, HP Care Pack and Warranty Information

Warranty (1-1-1) Hardware Warranty - One-year on-site warranty, 8x5, next business day response, installation not included.
NOTE: The hardware warranty covers firmware and embedded non-saleable software.

HP Service & Warranty Support HP Service & Warranty Support Additional Warranty protection and/or HP Installation packages can be purchased.
NOTE: Certain restrictions and exclusions apply. Consult the Customer Support Center for details. HP provides a one-year, hardware limited warranty, fully supported by a worldwide network of resellers and service providers.

In addition, available service offerings include a full range of HP Care Pack packaged hardware and software services:

- Installation
- Extended coverage hours and enhanced response times
- System management and performance services

For more information on warranty and support options, please visit our Web site at:
<http://www.hp.com/hps/tech/storage/supp/>.

Software Product Services

- Stand-alone telephone support
- Rights to a new license
- Media and documentation updates

Hardware Product Services

- Installation services
- On-site Maintenance (includes warranty support)
- Response time upgrades during the warranty period
- Post-warranty coverage

HP Care Pack Services Warranty Upgrade Options Service offerings include a full range of Customer HP Care Pack services for both hardware and software services:

- Response - Upgrade on-site response from next business day to same day 4-hours
- Coverage - Extend hours of coverage from 5 days x 9 hours to 7 days x 24 hours
- Duration - Select duration of coverage for a period of 1, 3, or 5 years

Additional Warranty protection and/or HP Installation packages can be purchased.

NOTE: Certain restrictions and exclusions apply. Consult the HP Customer Support Center for details.

Service and Support, HP Care Pack and Warranty Information

HP Care Pack Information HP Care Pack is defined as an upgrade to the product warranty attribute, available for a specific duration and hours of coverage.

HP Care Pack is not available for less than the product's warranty duration.

HP Care Pack is available for sale anytime during the warranty period for most products, but the commencement date will be the same as the Warranty Start Date (delivery date to end user customer). Proof of purchase may be required.

HP Care Pack services are prepaid.

For additional HP Care Pack (hardware & software) information, as well as orderable part numbers, please refer to the URL:

<http://h18005.www1.hp.com/services/carepaq/index.html>

Additional Services

Implementation service, SAN Architecture service. For more information on service options, please visit our Web site at: <http://www.hp.com/go/san>.

Configuration Information

Step 1 - Base Configuration and Power Pack

Select one:

| Model | Model Description | Part Number |
|---|--|-------------|
| StorageWorks EVA iSCSI Connectivity Option (mpx100) | Includes 1 unit, shelf, brackets, 2 copper FC cables (for direct connect to EVA) and documentation NOTE: Fabric iSCSI-Fibre Channel attachment mode requires optical transceivers and cables listed below. | AE324A |
| StorageWorks EVA iSCSI Connectivity Upgrade (mpx100) | Includes 1 unit to mount in existing shelf and documentation NOTE: For multi-path (dual unit) support order both part numbers. NOTE: For a highly redundant direct connect environment, recommend customer purchase 2 additional FC copper cables listed below (see the HP StorageWorks EVA iSCSI connectivity user guide). | AE325A |
| StorageWorks EVA 4400 iSCSI Connectivity Option (mpx100b) | Includes 1 unit, shelf, brackets, copper FC cables (for direct connect to EVA) and documentation. For use with EVA 4400 only. NOTE: Fabric iSCSI-Fibre Channel attachment mode requires optical transceivers and cables listed below. | AJ713A |
| StorageWorks EVA 4400 iSCSI Connectivity Upgrade (mpx100b) | Includes 1 unit to mount in existing shelf and documentation. For use with EVA 4400 only. NOTE: For multi-path (dual unit) support order both part numbers. NOTE: For a highly redundant direct connect environment, recommend customer purchase 2 additional FC copper cables listed below (see the HP StorageWorks EVA iSCSI connectivity user guide). | AJ714A |
| StorageWorks EVA 4400 iSCSI Connectivity Option 32 Initiator Upgrade LTU (for mpx100b only) | Includes 1 license upgrade to enable connectivity for an additional 32 iSCSI initiators. If a second license is installed, it provides an upgrade to the maximum supported number of iSCSI initiators. Refer to the guidelines described in the EVA iSCSI Connectivity User Guide available on the Storage Networking product page and the HP StorageWorks SAN Design Reference Guide available at: http://www.hp.com/go/sandesignguide . | T5471A |

Step 2 - Additional Options

| | | |
|------------------------|--|--------|
| Optical Transceivers | Short Wave - 300m | A7446B |
| EVA Loopback Connector | The loopback connector is used when an EVA host port is not cabled to a switch, mpx100/100b (for iSCSI direct connect), or HBA (for FC direct connect). NOTE: All EVA host ports must be filled with either a cable or loopback connector. | AJ706A |

Configuration Information

2 Gb optical cables (Required for Fabric attach)

LC-LC for between two 2 Gb devices

| | |
|---|------------|
| 2 m LC-LC Multi-Mode Fibre Channel Cable | 221692-B21 |
| 5 m LC-LC Multi-Mode Fibre Channel Cable | 221692-B22 |
| 15 m LC-LC Multi-Mode Fibre Channel Cable | 221692-B23 |
| 30 m LC-LC Multi-Mode Fibre Channel Cable | 221692-B26 |
| 50 m LC-LC Multi-Mode Fibre Channel Cable | 221692-B27 |

LC-SC for between a 1 Gb and a 2 Gb device

| | |
|---|------------|
| 2 m LC-SC Multi-Mode Fibre Channel Cable | 221691-B21 |
| 5 m LC-SC Multi-Mode Fibre Channel Cable | 221691-B22 |
| 15 m LC-SC Multi-Mode Fibre Channel Cable | 221691-B23 |
| 30 m LC-SC Multi-Mode Fibre Channel Cable | 221691-B26 |
| 50 m LC-SC Multi-Mode Fibre Channel Cable | 221691-B27 |

FC Copper cables

(Recommended for a highly redundant direct connect environment (see the HP StorageWorks EVA iSCSI connectivity user guide)

2m Copper FC Cable

324394-B21

Technical Specifications

| | | |
|--|--|---|
| Arrays supported | EVA 4000, 4100, 4400, 6000, 6100, 6400, 8000, 8100, 8400 EVA 3000, 5000 | |
| Array Connectivity Mode | EVA 4x00, 6x00, 8x00 EVA 3000 and 5000 | Direct connect and fabric attach Fabric attach |
| Maximum Number of EVA iSCSI Connectivity Options | 2 EVA iSCSI Connectivity Options supported per EVA | |
| Maximum Number of EVA storage systems per mpx | 1 EVA per mpx100 or mpx100b | |
| Management Software Support | Configure FC LUNs and iSCSI initiators through EVA Command View v9.1, v9.0, v8.1, v8.0.2, v8.0.1, v8.0, v7.0, v6.02 | |
| OS Support | Apple Mac OS X (via iSCSI Initiator from ATTO Technology) HP OpenVMS (EVA iSCSI Connectivity Option (mpx100) only) Microsoft Windows Linux Red Hat Linux SUSE Sun Solaris VMware For operating system version support, see the HP StorageWorks SAN Design Reference Guide available at: http://www.hp.com/go/sandesignguide . | |
| Host Platform Support | Any server running supported OS | |
| Cluster Support | None | |
| Fibre Channel Interface | Dual Port, 2Gb | |
| FC Transceiver | 4Gb SFP, supported @ 2Gb speed | |
| FC Connectivity Mode | Fabric attach Direct connect | Optical connected as an N-Port connected as an NL-Port |
| IP Interface | Dual port, 1GbE (IPv6, IPv4) | |
| iSCSI Initiator Support | <ul style="list-style-type: none">● Microsoft iSCSI Initiator (32-bit and 64-bit versions)● Linux iSCSI Initiator (32-bit and 64 bit versions)● ATTO Macintosh iSCSI Initiator● HP OpenVMS iSCSI Initiator● Sun Solaris iSCSI Initiator● VMware iSCSI Initiator● Product supporting EVA 4400 is limited to 16 initiators with base unit. License upgrades are available in two steps, a 32 initiator license, followed by an unlimited license up to the HP supported maximum. | |
| iSCSI Network Card Support | <ul style="list-style-type: none">● Any HP 1GbE NIC● Apple, Sun supported 1GbE NICs● NIC Teaming is supported for extra redundancy NOTE: Standard 10/100 NIC cards are not supported | |
| TCP/IP Offload Engine Support (TOE) | <ul style="list-style-type: none">● HP NC510x, NC3xx TOE supported● Alacritech TOE Card supported● Qlogic QLA4052c, 4062c iSCSI HBA | |
| IP Security | NOTE: Support is operating system dependent <ul style="list-style-type: none">● CHAP User name and password authentication. Password encryption of saved configuration file | |
| iSCSI Boot | Linux, Windows, VMware | |

Technical Specifications

| | | |
|--|---|---|
| Multi-Path support | HP OpenVMS Windows Linux Sun VMware | Native Microsoft MPIO Device Mapper MPxIO Native software MPxIO |
| Max. Pending Commands | Default value of 64. | |
| Host Interface | Uses standard TCP/IP connection, RJ45 connector | |
| Distance | GbE Copper, CAT-5e or CAT-6, twisted pair | |
| Host Platform Support | Any 32-bit or 64-bit servers running the supported OS | |
| Performance | half duplex | > 30,000 > 200 MB / Sec |
| | full duplex | > 360 MB / Sec |
| Maximum Host Connection Design Limits for iSCSI* | Architectural Limits 256 connections per iSCSI port mpx100b is limited to 16 iSCSI initiator ports in base unit. License upgrades are available in two steps, a 32 initiator license followed by an unlimited license up to the HP supported maximum.2 FC target ports, with maximum initiators * Please see the product user guide available on the Storage Networking product page and the SAN Design Guide for latest tested and supported configurations located at: http://www.hp.com/go/sandesignguide . | |

Installation

User installable, but recommended field service install

Environmental Specifications

Optional side-by-side 1U rack mount kit
Non-cable-side to cable-side airflow; power from cable-side; 1U, 19-in. EIA rack-compliant
Cooling: Two fans with back-to-front airflow

| | Condition | |
|--------------------------------|--|--|
| | Operating ¹ | Non Operation ² |
| Environment | | |
| Temperature | 5° to 40° C (41° to 104° F) | -25°C to 70° C (-40° to 158° F) |
| Humidity³ | 5 to 90%, non-condensing | 5 to 93%, non-condensing |
| Altitude | 3 km | 15 km |
| Shock | IEC 68-2, 4g, 11ms, 20 repetitions | IEC 68-3, 30g, 292 ips, 3 repetitions, 3 axis |
| Vibration⁴ | IEC 68-2, 5-500Hz, random, 0.21G rms, 10 minutes | IEC 68-2, 5-500Hz, random, 2.09G rms, 10 minutes |
| Power AC input Nominal | Power AC input Nominal: 0.5A@100-125 VAC 0.25A@200-240 VAC | |
| Frequency Range | 47 to 63 Hz | |
| Nominal Frequency Range | 50 Hz to 60 Hz | |
| Power Dissipation | 48W maximum (optics included) | |

¹ Environmental specification for operating condition should be satisfied before the iSCSI Connectivity Option subsystem is powered on. Maximum temperature of 40°C should be strictly satisfied at air inlet portion.

² Non-operating condition includes both packing and unpacking conditions unless otherwise specified.

³ No condensation in and around the iSCSI Connectivity Option should be observed under any conditions.

⁴ The above specifications of vibration are applied to all three axes.

On shipping/storage condition, the product should be packed with factory packing.

Technical Specifications

| | | |
|---------------|--------|---------------------|
| Physical Size | Height | 1U (1.7 in/4.32 cm) |
| | Width | 8.5 in (21.59 cm) |
| | Depth | 12 in (30.48 cm) |
| | Weight | 10 lb (4.54 kg) |

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