HP StorageWorks Multi-Protocol Router

Data sheet

Targeted for the enterprise and mid-range customer, the HP StorageWorks Multi-Protocol (MP) Router provides multiple routing services to increase options for storage area networks (SANs). The MP Router provides customers with the ability to implement modular, multi-protocol SAN designs with increased scalability, stability, and return on investment (ROI) on their storage infrastructure through the following advanced routing services:

• Fibre Channel (FC)-FC Subnet Routing Service for SAN island consolidation

• Fibre Channel over Internet Protocol (FCIP) Tunneling Service for SAN extension over distance fully integrated with HP StorageWorks Continuous Access (CA) software solutions for HP StorageWorks Enterprise Virtual Array (EVA) and Disk Array XP product families

• iSCSI Gateway Service for sharing FC storage with servers on IP network

These services provide new options for connecting SANs and extending SAN benefits over multiple networks to larger SAN sizes and across longer distances. The primary advantage of this approach is the ability to interconnect devices between SAN fabrics without merging those fabrics—thereby providing a more secure and flexible storage networking foundation.

This level of SAN connectivity gives organizations a better way to reduce or even eliminate disruptions associated with common operational events, including:

• Data migration from 1 Gbit/sec storage arrays to 2 Gbit/sec systems, or migration between logically separated environments such as test/development SANs and production SANs

• Data center consolidation that requires the movement of data between physical locations

• Storage and application rebalancing between previously isolated SANs

Features and benefits

• *FC-FC Subnet Routing Service for hierarchical SAN connectivity:* Enables customer to share devices in different SAN islands while preserving the isolation of each SAN. The results are increased ROI on current storage resources, increased service levels, scalability and stability to the SAN infrastructure.

• *FCIP Tunneling Service for SAN extension over distance:* Provides combined subnet routing capability with FCIP services to enable a more secure and stable distance-connectivity solution for disaster recovery, like CA for EVA and XP.

• *Advancements in iSCSI Gateway Services available in late 2004:* This gateway will enable Ethernet-based servers to leverage Fibre Channel SAN resources, thereby improving asset utilization and enabling new applications such as centralized backup.

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System architecture	
Dual-mode ports	16 ports, Fibre Channel (E, F, EX) and Gigabit Ethernet
Switch interoperability	HP StorageWorks SAN Switch 2/8-EL, SAN Switch 2/16, SAN Switch 2/8V, SAN Switch 2/16N, SAN Switch 2/16V, SAN Switch 2/32, Core Switch 2/64, SAN Director 2/128
Performance	Fibre Channel: 1.063/2.125 Gbit/sec line speed, full duplex; auto-sensing of 1 and 2 Gbit/sec port speeds; optionally programmable to fixed port speed; speed matching between 1 and 2 Gbit/sec ports Ethernet: 1.25 Gbit/sec
Aggregate bandwidth	64 Gbit/sec full duplex end-to-end
Fabric latency	< 40 microseconds per frame for routed traffic
Maximum frame size	2112-byte payload for Fibre Channel, 1518-byte payload for Gigabit Ethernet, 2048-byte payload for routed networks
Classes of service	Class 3
Port types	FL_Port (restricted), F_Port, EX_Port, and E_Port; self-discovery based on switch type (U_Port); Gigabit Ethernet
Media types	Hot-pluggable, industry-standard Small Form-factor Pluggable (SFP), LC connector; Short-Wavelength Laser (SWL) up to 1640 feet/500 meters; Long-Wavelength Laser (LWL) up to 6.2 mi/10 km; Extended Long-Wavelength Laser (ELWL) up to 21.7 mi/35 km; distance depends on fiber optic cable and port speed
Fabric services	Simple Name Server, Registered State Change Notification (RSCN), and iSCSI Gateway Service; optional fabric services include the FC-FC Routing Service, FCIP Tunneling Service, Advanced Zoning, and WEB TOOLS
Options	Redundant power supply, SFP media
Management	HP highly recommends the selection of HP StorageWorks Fabric Manager for successful implementations
Enclosure	Non-cable-side to cable-side airflow; power from cable-side; 2U, 19 in. EIA-rack compliant
Size (HxWxD)	3.5 x 16.8 x 25.0 in/8.8 x 42.7 x 63.5 cm
System weight	35.0 lb/15.9 kg with one power supply 40.0 lb/18.1 kg with two power supplies

Environmental	Operating	Non-Operating
Temperature	50° to 104°F/10° to 40°C	-13° to 158°F/-25° to 70°C
Humidity	20 to 85%, non-condensing	20 to 85%, non-condensing
Altitude	1.86 mi/3 km	1.86 mi/3 km
Shock	105 G, 2.5 ms, half-sine	40 G, 13 ms, trapezoidal
Vibration	0.5 G (5-500-5 Hz)	2.0 G (5-500-5 Hz)

Power	
AC input	Nominal: 6.0A@100-120 VAC; 3.0A@200-240 VAC
Frequency	47 to 63 Hz

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Product number	Product name	Description
A7437A	Multi-protocol router base	8-port MP Router providing 3 types of routing services: FC subnet routing, FCIP tunneling, and iSCSI bridging
A7438A	Multi-protocol router full	16-port MP Router providing 3 types of routing services: FC subnet routing, FCIP tunneling, and iSCSI bridging
A7439A	Multi-protocol router upgrade license	Flexible port upgrade license to increase the base model to 16 ports

Accessories

300834-B21, A6515A	Short wavelength (SFP)
300835-B21, A6516A	Long wavelength (SFP), 10 km
C7524A	2 m LC-to-LC Fibre Channel cable
C7525A	16 m LC-to-LC Fibre Channel cable
C7526A	50 m LC-to-LC Fibre Channel cable
C7527A	200 m LC-to-LC Fibre Channel cable
221692-B21	2 m LC-to-LC multi-mode FC cable
221692-B22	5 m LC-to-LC multi-mode FC cable
221692-B23	15 m LC-to-LC multi-mode FC cable
221692-B26	30 m LC-to-LC multi-mode FC cable
221692-B27	50 m LC-to-LC multi-mode FC cable
C7529A	2 m LC-to-SC Fibre Channel cable
C7530A	16 m LC-to-SC Fibre Channel cable
221691-B21	2 m LC-to-SC multi-mode FC cable
221691-B22	5 m LC-to-SC multi-mode FC cable
221691-B23	15 m LC-to-SC multi-mode FC cable
221691-B26	30 m LC-to-SC multi-mode FC cable
221691-B27	50 m LC-to-SC multi-mode FC cable
C7534A	SC female to SC female adapter
C7540A	2 m LC male to SC male adapter kit

Optional software

HP highly recommends the selection of Fabric Manager for successful implementations

A7390A	HP StorageWorks Fabric Manager Base Edition (10 domains limit)
A7389A	HP StorageWorks Fabric Manager Enterprise Edition
A7392A	HP StorageWorks Fabric Manager base to enterprise license upgrade

What's included	Multi-Protocol Router, rackmount kit; accessory kit (manuals on CD, enterprise safety and regulatory information, installation guide, rack-mounting instructions)

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Warranty and support	Hardware Warranty: 1-year on-site warranty, 8x5, next business day response, installation not included. Note: The hardware warranty covers firmware and embedded non-saleable software. Saleable software carries its own warranty, see below. Additional Warranty protection can be purchased. Software Warranty: HP warrants only that the software media will be free of physical defects for a period of ninety (90) days from delivery. EXCLUSIVE REMEDY. The entire liability of HP and its suppliers and your exclusive remedy for software that does not conform to this Limited Warranty shall be the repair or replacement of the defective media. This warranty and remedy are subject to your returning the defective media during the warranty period to HP in the country in which you obtained the software. Note: Certain restrictions and exclusions apply. Consult the Customer Support Center for details.
Warranty and support options	HP provides a 1-year, hardware limited warranty, fully supported by a worldwide network of resellers and service providers. In addition HP Services provides a complete portfolio of services which include a very broad selection of Care Pack services that include various response times (4-hour same day, next day, etc) as well as coverage periods (Monday – Friday, 24x7, 1-year, 3-year, etc). These services are available for both hardware and software to ensure all your support needs can be met. For more information on warranty and support options, please visit: www.hp.com/hps/tech/storage/supp
Service options	SAN Implementation service H9273A; SAN Architecture service H9162A For more information: www.hp.com/go/san HP Services also provide a portfolio of services ranging from SAN Design and Architecture that can provide a complete multi-site design and implementation, to various levels of on-going maintenance support. Our SAN-ES annuity service allows continuous SAN growth by ensuring that your entire SAN is safely kept updated with relevant, ongoing firmware (FW) changes and it ensures rapid resolution of complex SAN issues. Our SAN Solution Service is a one-time review of your entire SAN and all the components (applications, HBAs, switches and FW, arrays etc) to ensure that all components are at tested, HP Certified levels. The HP SAN Design/Architecture Service provides as broad and as deep a review and recommendation as needed of how your SAN environment can be designed and implemented to meet your business storage needs.
Financial Services	HP Financial Services provides innovative financing and financial asset management programs to help you cost-effectively acquire, manage, and ultimately retire your HP solutions. For more information on these services, please contact your HP sales representative or find us on the web at: www.hp.com/go/hpfinancialservices
HP Customer Support	HP Customer Support provides a broad spectrum of services to commercial and enterprise customers, including performance and availability services such as proactive mission-critical services and support management services for deployment of the entire IT infrastructure, including HP and multivendor environments. For more information on these services, contact your HP sales representative or visit www.hp.com/hps/support
For more information	For more information on the HP StorageWorks Multi-Protocol Router, visit: www.hp.com/go/san

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