



FACT SHEET

CISCO MDS 9000 FAMILY SAN EXTENSION OVER IP PACKAGE

PACKAGE DESCRIPTION

When used with Cisco® MDS 9000 Family IP Storage Services in Cisco MDS 9500 Series Multilayer Directors and Cisco MDS 9200 Series Multilayer Fabric Switches, the Cisco MDS 9000 Family SAN Extension Over IP package provides an integrated, cost-effective, and reliable business continuance solution that uses existing IP infrastructure.

The SAN Extension Over IP package included the following features:

- **Integrated support for Fibre Channel Interface Protocol (FCIP)**—FCIP can be used to connect Fibre Channel storage area networks (SANs) across a distance using IP networks. Each Cisco MDS 9000 Family Gigabit Ethernet port is capable of managing up to three FCIP tunnels. Each 8-port IP Storage Services Module supports 24 simultaneous FCIP tunnels (12 simultaneous tunnels per 4-port module). Without the SAN Extension Over IP package, these capabilities would require multiple systems from different vendors. The Cisco FCIP implementation is completely integrated with value-added features on the Cisco MDS 9000 Family switches. The Cisco virtual SAN (VSAN) function is supported across FCIP links between SANs. FCIP can be used in conjunction with the Cisco MDS 9000 Enterprise package features such as Quality of Service (QoS) over a WAN. Use of Virtual Routing Redundancy Protocol (VRRP) increases IP network availability for FCIP connections by allowing failover of connections from one Gigabit Ethernet port to another. Load balancing using PortChannels can also be performed over FCIP links.
- **FCIP Compression**—FCIP Compression in the Cisco MDS 9000 Family SAN-OS increases the effective WAN bandwidth without costly infrastructure upgrades. By integrating data compression in IP Storage Services, more efficient FCIP-based business-continuity and disaster-recovery solutions can be implemented, without adding and managing a separate device. Gigabit Ethernet ports for IP Storage Services achieve up to a 30:1 compression ratio, with typical ratios of 2:1 over a wide variety of data sources.
- **Inter-VSAN Routing for FCIP**—Inter-VSAN Routing allows selective transfer of data traffic between specific initiators and targets on different VSANs without merging VSANs into a single logical fabric. Inter-VSAN Routing can be used in conjunction with FCIP to increase the resiliency of SAN Extension over IP networks and create more efficient business continuity and disaster recovery solutions. Inter-VSAN Routing for FCIP is included in the SAN Extension over IP package. To use Inter-VSAN Routing for Fibre Channel, the Enterprise package is required.
- **FCIP Write Acceleration**—The FCIP Write Acceleration feature significantly improves application performance when storage traffic is routed over WANs using FCIP. When FCIP Write Acceleration is enabled, WAN throughput is maximized, and write I/O latency is decreased by minimizing the impact of WAN latencies.
- **FCIP Tape Acceleration**—Centralizing tape-backup and archive operations provides significant cost saving by allowing expensive robotic tape libraries and high-speed drives to be shared. This poses a challenge for remote backup media servers that need to transfer data across a WAN. High-performance streaming tape drives require a continuous flow of data to avoid write data underruns dramatically reduces write throughput.

Without FCIP Tape Acceleration, the effective WAN throughput for remote tape backup decreases exponentially as the WAN latency increases. Cisco SAN-OS FCIP Tape Acceleration helps achieve near full throughput over WAN links for remote tape-backup operations.

- **SAN Extension Tuner**—To help optimize FCIP performance, the SAN Extension Tuner generates Small Computer System Interface (SCSI) I/O commands that are directed to a specific virtual target. It reports I/Os per second and I/O latency results, which helps determine the number of concurrent I/Os needed to maximize FCIP throughput.

SOFTWARE RELEASE

To use the SAN Extension Over IP package, SAN-OS 1.1(1) or later must be installed on a Cisco MDS 9000 Family Switch. The FCIP Compression and FCIP Write Acceleration features require SAN-OS 1.3(1) or later. FCIP Tape Acceleration, hardware-based compression, Inter-VSAN Routing for FCIP, and SAN Extension Tuner features require SAN-OS 2.0(1).

Note: Hardware-based compression and IPsec for FCIP are only available for the Cisco MDS 9000 Family Multiprotocol Services Module and Cisco MDS 9216i Multilayer Fabric Switch.

LICENSE INFORMATION

This package is licensed on a per-module basis. The number of licenses that a customer needs to purchase is equal to the number of IP Storage Services and Multiprotocol Services modules in a switch.

ORDERING INFORMATION

The product identification numbers associated with this package are:

- M9500EXT1K9—SAN Extension Over IP package for one 8-port IP Storage Services Module in the Cisco MDS 9500 Series.
M9500EXT1K9=—Spare
- M9500EXT12K9—SAN Extension Over IP package for one Multiprotocol Services Module in the Cisco MDS 9500 Series.
M9500EXT12K9=—Spare
- M9500EXT14K9—SAN Extension Over IP package for one 4-port IP Storage Services Module in the Cisco MDS 9500 Series.
M9500EXT14K9=—Spare
- M9200EXT1K9—SAN Extension Over IP package for one 8-port IP Storage Services Module in the Cisco MDS 9200 Series.
M9200EXT1K9=—Spare
- M9200EXT12K9—SAN Extension Over IP package for one Multiprotocol Services Module in the Cisco MDS 9200 Series.
M9200EXT12K9=—Spare
- M9200EXT14K9—SAN Extension Over IP package for one 4-port IP Storage Services Module in the Cisco MDS 9200 Series.
M9200EXT14K9=—Spare

ADDITIONAL REFERENCES

For more information, see the SAN-OS data sheet at:

http://www.cisco.com/en/US/products/ps5989/products_data_sheet09186a00801bcfd8.html

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