

Overview

The Cisco MDS 9000 NX-OS software provides features such as FCIP, SAN Extension Tuner, iSCSI, IP storage, IPv4, and IPv6 in a single platform. These IP services simplify SAN provisioning by automatically distributing configuration information to all the switches in a storage network. The Virtual Routing Redundancy Protocol (VRRP) increases the IP network availability for iSCSI and FCIP connections by allowing failover of connections from one port to another. The increased IP network availability facilitates the failover of an iSCSI volume from one IP services port to any other IP services port, either locally or on another Cisco MDS 9000 switch.

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Fibre Channel over IP Protocol

Fibre Channel over IP Protocol (FCIP) transparently connects a remote Fibre Channel storage area network (SAN island) by transporting Fibre Channel data from a local SAN to a remote SAN using IP networks. IP network availability for the FCIP connections can be increased by using features such as Virtual Routing Redundancy Protocol (VRRP) and quality of service (QoS). FCIP can be optimized for wire performance through enhancements that address out-of-order delivery issues, support jumbo frames, provide traffic shaping, and perform TCP optimization.

For more information on configuring FCIP, see Configuring FCIP.

SAN Extension Tuner

The SAN Extension Tuner (SET) feature helps you optimize FCIP performance by generating Small Computer System Interface (SCSI) I/O commands and directing the traffic to a specific virtual target. SET reports the I/Os per second and I/O latency results, which helps you to determine the number of concurrent I/Os needed to maximize the FCIP throughput.

For information on configuring the SAN Extension Tuner, see Configuring the SAN Extension Tuner

Internet Small Computer Systems Interface

The Internet Small Computer Systems Interface (iSCSI) feature allows an IP host to access Fibre Channel storage. This feature enables routing iSCSI requests and responses between iSCSI hosts in an IP network and Fibre Channel storage devices in the Fibre Channel SAN. The Fibre Channel storage devices are accessible from any Fibre Channel interface of the Cisco MDS 9000 Family switch.

For information on configuring iSCSI, see Configuring iSCSI.

IP Services

The IP Services modules allow you to extend storage networks using the Ethernet infrastructure. The Cisco MDS 9000 Family switches route IP traffic between Ethernet and Fibre Channel interfaces. The IP static routing feature is used to route the traffic between VSANs. An IP route using Fabric Manager and Device Manager. From NX-OS release 4.2(1) and later, CPP interfaces are also available for selection while creating a new IP route.

For information on configuring IP services, see Configuring IP Services

IP Storage

The IP Storage (IPS) Service module allows you to use the open-standard FCIP protocol to enable interconnection of SAN islands over extended distances. The Fibre Channel module with IPS ports and the MSM-18/4 module allow you to use FCIP and iSCSI features. Both modules integrate seamlessly into the Cisco MDS 9000 Family, and support the full range of features that are available on other switching modules, including VSANs, security, and traffic management.

For information on configuring IP Storage, see Configuring IP Storage Services

IPv4 and IPv6

The Cisco MDS 9000 NX-OS software supports the IP version 4 (IPv4) and version 6 (IPv6) protocols on Gigabit Ethernet interfaces. The architecture of IPv6 has been designed to allow existing IPv4 users to transition easily to IPv6, while providing services such as end-to-end security, quality of service (QoS), and globally unique addresses. The dual stack approach for IPv4 and IPv6 allows Cisco MDS 9000 Family switches to connect to older IP networks, transitional networks of both versions, and IPv6 data networks.

The following table lists the Cisco MDS 9250i Multiservice Fabric Switch IPS features with the previous platforms (SSN16 and 18+4).

Line Card	Physical Port Speed	Number of Physical Ports	Number of FCIP Tunnels	Number of FCIP Tunnels Bound to Each IPS/Gigabit Ethernet Interface	Number of iSCSI Ports
Cisco MDS 24/10 port SAN Extension Module	1/10 Gbps	8	24	3	NA

Line Card	Physical Port Speed	Number of Physical Ports	Number of FCIP Tunnels	Number of FCIP Tunnels Bound to Each IPS/Gigabit Ethernet Interface	Number of iSCSI Ports
Cisco MDS 9250i Multiservice Fabric Switch	1/10 Gbps	2	12	6	2
SSN-16	1 Gbps	16	48	3	16
18+4	1 Gbps	4	12	3	4

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