



Cisco® is serious about providing the most intelligent and redundant IBM Fiber Connection (FICON) solutions on the market.

Here is what makes a Cisco FICON solution unique:

Hardware that preserves your investment

- All Cisco MDS 9000 family FICON chassis are capable of 8-Gbps processing today. Upgrading your older 2- or 4-Gbps chassis to 8 Gbps causes no disruption in your system. In fact, the only new hardware you need is the 8-Gbps line card. Cisco MDS 9000 family supervisor modules were built with upgrades in mind and do not need to be replaced. By nondisruptively upgrading your Cisco MDS 9000 SAN-OS Software version and adding a new 8-Gbps line card, you can attain 8-Gbps speeds.
- The Cisco MDS 9000 family is built on FICON proven serial cross-bar architecture, helping ensure consistent latency and performance regardless of where you connect your channels or control units.

True five 9s architecture for high availability

- Redundancy is provided in all critical components.
- Performance is not degraded if a redundant component fails.
- All software and firmware upgrades can be performed nondisruptively.

The following unique features are FICON specific:

FICON logical partitions (LPARs)

- The Cisco MDS 9000 family products can have eight unique FICON LPARs*. Each FICON LPAR has its own set of fabric services (fabric server, name server, etc.), FICON Control Unit Port, domain ID, Fabric Shortest Path First (FSPF) routing, operating mode, IP address, and security profile.
- FICON LPARs can span line cards and are dynamic in size. For example, one FICON LPAR with 10 ports can span 10 different line cards. Addition of ports to that FICON LPAR is a nondisruptive process. The maximum number of ports for a FICON LPAR is 255 due to FICON addressing limitations.
- FICON LPARs let you separate your disk and tape traffic.
- If you want to test Linux on your IBM System z9, for example, you can create a small FICON LPAR on your existing chassis. You can also separate your production traffic from your development traffic.
- FICON LPARs are maintained throughout your FICON network. You can even assign specific FICON LPARs to certain cascaded links. FICON LPARs enable complete traffic isolation.

Port bandwidth reservation

- Because only a few FICON devices actually need 4-Gbps full-duplex performance today, port bandwidth reservation is an efficient approach.
- The Cisco MDS 9000 family has 48 Gbps of full-duplex redundant bandwidth per line card, so that if a crossbar or supervisor failure occurs, there is no loss of performance. Cisco offers 12-, 24-, and 48-port line cards to meet varying performance needs. Each line card offers performance of 12.8 Gbps per port group, and the size of the port group varies by line card. For example, the 24-port line card has 6 ports per port group, which all share the 12.8 Gbps. The 48-port line card has 12 ports per port group. However, the Cisco MDS 9000 family can dedicate bandwidth to a given port in a group, helping ensure that certain high-performance FICON devices such as an IBM Virtual Tape Server (VTS) or a FICON Express 4 channel card achieve 4-Gbps performance per port. The other attached devices in the port group share the remaining bandwidth. However, if a given port has been given dedicated bandwidth and does not need it, this bandwidth is given to the group until that device needs its bandwidth.
- Port bandwidth reservation provides the cost savings of a dense line card while enabling full performance for those devices that require it.
- With its port bandwidth reservation feature, the Cisco MDS 9000 family offers the only 48-port line card that IBM supports for FICON.

* Referred to as VSANs in Cisco documentation.



Why Cisco Solutions for IBM Fiber Connection (FICON)

Fibre Channel ID (FC ID) persistence

- FC ID persistence mitigates the need for regeneration.
- The Cisco MDS 9000 family can statically set the FC ID of any port to that of any port you want. For example, if the optics on a port fail, you can just move the cable to an open port and copy the FC ID to the open port; regeneration is not needed.
- You can migrate easily from older technology without the need for regeneration.

Integrated FICON distance support

- IBM Extended Remote Copy (XRC), VTS, Virtual Tape Controller (VTC), Virtualization Engine TS7700, and tape and disk storage, and StorageTek (STK) tape and disk storage and Virtual Storage Manager (VSM) are supported.
- Coarse Wavelength-Division Multiplexing (CWDM) optics are available for every line card.
- Up to 4095 buffer-to-buffer credits can be assigned to a single port.
- Integrated FC IP is provided, with hardware-based compression, IP Security (IPsec) encryption, and tuned TCP stacks for storage traffic.
- PortChannels are supported to provide additional resiliency.
- Multiple virtual storage area networks (VSANs) can be provided over the same physical links, and a quality of service (QoS) can be assigned to give priority to critical workloads.
- Features such as port tracking are supported to keep data flowing if a link interruption occurs.

FICON traffic engineering

- Fibre Channel congestion control
- QoS

Troubleshooting and diagnostics

- Cisco Fabric Manager
- Performance management with Cisco Fabric Manager Server (FMS)
- Fabric configuration analysis
- Switched Port Analyzer (SPAN) port
- Cisco Fabric Analyzer
- End-to-end health analysis
- Fibre Channel Ping (FC Ping) and Fibre Channel Traceroute (FC Traceroute)

For More Information

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