



Cisco Storage Design Fundamentals

Length
2 days

Format
Lecture/lab

Track
Design

Version
4.1

Course Description

CSDF is an intensive 2-day instructor-led training (ILT) lecture/lab course that provides learners with basic skills in designing Cisco storage networks. You will learn about and implement a broad range of features on the Cisco MDS 9000 platform, including Virtual SANs (VSANs), PortChannels, advanced security features, SAN extension with FCIP, and iSCSI solutions.

In the lab, you will configure the switch from an out-of-the-box state and install the Cisco Fabric Manager GUI management application. You will configure VSANs, zones, PortChannels, and FCIP to implement a high-availability extended SAN design.

Who Should Attend

This course provides an introduction to the MDS 9000 family for pre-sales engineers, system engineers, network engineers, and technical decision makers who need to design and implement SAN fabrics using MDS 9000 Family switches. Enrollment is open to Cisco SEs, Cisco channel partners, and customers.

Recommended Prerequisites

You will gain the most from this course if you have experience working with storage and storage networking technologies.

CSDF

Learning Objectives

After you complete this course, you will be able to:

- Explain the fundamentals of SCSI and Fibre Channel operation
- Identify the components of the MDS 9000 family of switches
- Describe the hardware architecture and components of the MDS 9000 family of switches
- Explain how intelligent fabric services on the MDS 9000 platform enable the design of scalable SAN fabrics
- Configure and demonstrate key features of the Cisco MDS 9000 platform
- Explain how to use the features of the Cisco MDS 9000 platform to solve customer challenges
- Describe applications for the MDS 9000 Storage Services Module
- Explain how to optimize traffic flows on the MDS 9000 platform
- Design an end-to-end SAN security solution
- Explain the options available for extending an MDS 9000 SAN infrastructure over IP and optical networks
- Explain how iSCSI can be used to enable migration of mid-range applications to the SAN



Learning
Solutions

Cisco Storage Design Fundamentals

Lesson 1: Cisco MDS 9000 Introduction

- Cisco Storage Solutions Overview
- Installation Guidelines
- Managing the MDS 9000
- License Packages

Lesson 2: Architecture and System Components

- System Architecture
- 2nd generation 4Gbps Modules
- 3rd generation 8Gbps Modules
- Credits and Buffers

Lesson 3: The Multilayer SAN

- Virtual SANs
- Inter-VSAN Routing
- PortChannels
- Intelligent Addressing
- Cisco Fabric Services
- Switch Interoperability

Lesson 4: MDS Initial Setup

- System Memory Areas
- CLI Overview
- Performing the Initial Setup
- Installing Cisco Fabric Manager
- Using the MDS 9000 Remote Storage Labs

Lesson 5: Consolidation and Virtualization

- Data Center Challenges
- Network Consolidation
- Intelligent Fabric Applications
- SANTap
- Fibre Channel Write Acceleration
- The Evolution of Backup
- Storage Consolidation
- Storage Virtualization
- Server Consolidation
- FCoE I/O Consolidation
- Server Virtualization

Lesson 6: Optimizing Performance

- Virtual Output Queues
- Fibre Channel Congestion Control
- Quality of Service
- Port Tracking
- Load Balancing
- SAN Performance Management

Lesson 7: Securing the SAN Fabric

- SAN Security Issues
- Securing Management Access
- Host and Switch Authentication
- Fabric Binding and Port Security
- IPSec and SME
- Zoning Overview

Lesson 8: SAN Extension Solutions

- SAN Extension Applications
- SAN Extension Transports
- Fibre Channel over IP
- High Availability FCIP Configurations
- Using IVR for SAN Extension
- SAN Extension Security
- FCIP Performance Enhancements

Lesson 9: Building iSCSI Solutions

- iSCSI Overview
- Deploying iSCSI
- Securing iSCSI

Lesson 10: SCSI and Fibre Channel Primer

- SCSI Protocol Overview
- SCSI Operations
- Fibre Channel Overview
- Fibre Channel Flow Control
- Fibre Channel Addressing
- Fabric Login
- Standard Fabric Services

Lab 1: Initial Switch Configuration

Lab 2: Accessing Fibre Channel-Attached Disks

Lab 3: Configuring High-Availability SAN Extension

Lab 4: Configuring IVR for SAN Extension

Lab 5: Exploring Fabric Manager Tools

Lab 6: Implementing iSCSI