

# Storage Area Networking Fundamentals

Learn via: **Classroom**

Duration: **4 Days**

**Overview** The storage area network (SAN) infrastructure facilitates storage consolidation, data sharing, server clustering, LAN-free and server-less backup across heterogeneous host server platforms. This course focuses on the planning and implementation considerations associated with establishing that SAN infrastructure. Functions provided by SAN fabric components, such as Fibre Channel host bus adapters (HBAs), Fibre Channel switches and directors, and SCSI to Fibre Channel protocol converters are discussed, and the interdependencies of these components are examined. Mechanisms to implement resource access control for data access integrity among heterogeneous hosts in a storage networking environment are also examined.

This course is for personnel who are assessing and planning to deploy a storage area network.

## Prerequisites

You should complete:

- Introduction to Storage Networking (SN70GB)
- or equivalent knowledge base is a must.

This course assumes that you understand a basic SAN knowledge

## What You Will Learn

- Examine Fibre Channel services such as login processes, name server, addressing, loop initialization and arbitration, frame routing, and registered state change notification as they relate to configuring the SAN infrastructure
- Plan for the implementation of SAN interconnect components, such as Fibre Channel HBAs, the IBM TotalStorage SAN switches and directors (b-type, m-type), and the Cisco directors and switches by reviewing their default configurations and assessing tailoring options
- Plan for the Implementation of resource access control to ensure data integrity by using zoning interfaces in the IBM TotalStorage SAN switches and directors (b-type, m-type), and the Cisco MDS 9000 directors and switches
- Interpret topology, routing, and trunking data displayed by switch management interfaces for a given fabric

## Outline

### Day 1

- (00:30) Welcome
- (04:00) Unit 1 - Evolution of storage area networks
- Enterprise storage infrastructure challenges: Storage networking
- How can we use a SAN
- Introduction to SAN technology
- SAN terminology
- Specific disk terminology
- RAID technology
- Specific tape terminology
- (04:00) Unit 2 - Fibre Channel
- Introduction to Fibre Channel
- Fibre Channel protocol layers
- Fibre Channel topologies
- Fibre Channel: Terminology
- Fibre Channel: Frame structure
- Fibre Channel: Addressing
- Fibre Channel: Flow control
- Fibre Channel: Class of service
- Switch fabric: Hardware and services

### Day 2

- (06:00) Unit 3 - Fibre Channel switches and directors: Brocade (b-type)
- Introduction to Fibre Channel switches and directors
- Setting up Brocade (b-type)
- Administrative and zoning pages
- Fabric Manager
- Functions of the SAN switches
- Fabric Shortest Path First (FSPF)
- Inter-Switch Link Trunking (ISL)
- Host resource access
- Zoning and other switch services
- (02:00) Unit 4 - Brocade DCFM
- Functions of the Brocade DCFM

### Day 3

- (00:20) Exercise 0 - Lab setup and preliminary instructions
- (00:10) Exercise 1 - Brocade switch 2109: Initial configuration
- (00:30) Exercise 2 - Management software installation
- (00:30) Exercise 3 - Brocade Fabric Manager
- (00:30) Exercise 4 - Brocade switch: Zoning configuration
- (00:30) Exercise 5 - Configuring the DS4000 storage subsystem
- (00:30) Exercise 6 - Brocade switch: Zoning configuration update
- (00:30) Exercise 7 - Brocade switch: Merging switches
- (00:30) Exercise 8 - Brocade Fabric Manager: Basic usage
- (00:30) Exercise 9 - DCFM Manager

### Day 4

- (03:00) Unit 5 - Fibre Channel switches and directors: Cisco MDS
- Cisco MDS9000 family overview
- Initial setup configuration
- Cisco Device Manager and Cisco Fabric Manager
- Virtual Storage Area Network (VSAN)
- ISLs and port channels
- Zoning
- Administration
- (00:30) Exercise 10 - Cisco switch: Basic configuration
- (00:30) Exercise 11 - Cisco switch: Management tools installation
- (00:30) Exercise 12 - Cisco switch: VSAN creation
- (00:30) Exercise 13 - Merging Brocade and Cisco fabrics
- (00:40) Exercise 14 - Zoning configuration on Cisco