

Implementing and Configuring the Cisco Nexus 1000 and 5000

Course Code: **ICNX1-5**

Duration: **5 Days**

Vendor

Cisco

Area of Technology

Data Center

Course Level

N/A

Course Description

In this hands-on course, you will learn how to design, implement, and manage a Fibre Channel over Ethernet (FCoE) infrastructure using the Cisco Nexus 5000 and 2000 platforms. This course covers FCoE design guidelines, configuring FCoE on servers, and configuring FCoE on switches in switch mode and NPV mode. You will learn about the architecture of the Nexus 5000 FCoE switches and how this architecture affects traffic flow in an FCoE network. You also will learn about Nexus 2000 Fabric Extender

Target Audience

Experienced Network Field Engineers who are already capable of implementing Layer 2 services using Cisco IOS and who have basic working knowledge of Fibre Channel and Storage Networking

Objectives

Architecture of the Cisco Nexus Operating System (NX-OS)

Access layer architecture

Configure switch management features such as Call Home, AAA, and RBAC

Configure Layer 2 services

Configure Quality of Service

Use SPAN and Ethalyzer to monitor traffic

How FCoE operates within SAN and LAN environments
ASIC-level architecture of the Cisco Nexus 5000 switch and CNAs
Configure the Cisco Nexus 5000 in switch mode and NPV mode
Virtual PortChannels (VPC)
Cisco VN-Link architecture
VMware Hypervisor bypass using the Cisco Nexus 5000
Configure the Cisco Nexus 2000 for Access Layer extension
Cisco Nexus 4000 blade switches

Prerequisites

Ability to configure advanced Layer 2 Ethernet services, including QoS and Spanning Tree
Familiarity with Cisco Ethernet switching products
Basic working knowledge of Fibre Channel and Storage Networking
Understanding of Cisco data center architecture

Course Outline

1. Deploying the Nexus 5000

Overview of the Nexus 5000

- Challenges in the Data Center
- I/O Consolidation
- Nexus 5000 Switch Products
- Nexus 4000 Blade Switch
- Nexus 2000 Fabric Extender
- Nexus 5000 Software Architecture
- Network Design
- FCoE Adapters and Software
- Nexus 5000 Switch Management Tools

Understanding Fibre Channel

- Fibre Channel Layering and Services
- Fibre Channel Addressing
- Fibre Channel Frames
- Fibre Channel Flow Control
- Zoning Overview
- Fibre Channel Routing
- Registered State Change Notification Process

Understanding Ethernet Primer

- Exploring the Packet Delivery Process
- VLANs and Trunking
- Loop Prevention with Spanning Tree Protocol
- TCP/IP Flow Control

Server Virtualization Primer

- Server Virtualization
- VMware Virtualization
- Virtual Networking with VMware
- Virtual Storage Networking with VMware
- Cisco Virtual Network Solutions

Understanding the FCoE Protocol

- Current FCoE Architecture
- FCoE Enode MAC Addresses
- FCoE Initialization Protocol (FIP)

Nexus 5000 System Architecture

- System Architecture
- Switch Fabric Data Path
- Traffic Forwarding
- Multicast

Ethernet Enhancements

- Converged Enhanced Ethernet
- Priority Flow Control
- Bandwidth Management
- Data Center Bridging Exchange

Ethernet Enhancements

- FCoE Initialization Protocol
- Lossless Ethernet Bridging
- Network Interface Virtualization
- Congestion Management
- Layer 2 Multipathing

2. Implementation and Configuration

Configuring FCoE Server Connectivity

- Converged Network Adapters
- Host-Based Failover
- QLogic CNAs
- Emulex CNAs
- The FCoE Software Stack

Configuring a Nexus 5000 Switch in Switch Mode

- Configuring Basic Connectivity and Administrative Access
- Configuring Virtual Interfaces
- Configuring Ethernet Uplink Ports
- Configuring Nexus 2000
- Verifying the Configuration
- Additional Configuration Components

Managing Nexus 5000 Switches with Cisco Device Manager and Cisco Fabric Manager

- Monitoring a Nexus 5000 Switch with Cisco Device Manager
- Monitoring an FCoE Network with Cisco Fabric Manager

Configuring Nexus 5000 Switches in NPV Mode

- N_Port Identifier Virtualization

- Understanding NPV Mode

- Configuring NPV Mode

Managing Traffic Flow

- Understanding QoS Policy Management
- Configuring QoS Policy
- Tuning the MTU Value
- Configuring Priority Flow Control
- Version 4.1(3)N1(1) QOS Enhancements
- IGMP Snooping

Configuring High Availability

- High Availability in an FCoE Network
- Configuring High Availability on Nexus 5000 switch
- Configuring Server-Side HA
- Understanding PortChannels
- Configuring Ethernet PortChannels
- Configuring FC PortChannels

Securing the Switch

- Private VLANs
- Configuring Private VLANs
- Understanding Access Control Lists
- Configuring Access Control Lists
- Port Security
- Configuring Zoning on a Nexus 5000 Switch

Managing the Switch

- Role-Based Access Control
- SNMP and XML Support
- GOLD and EEM
- Smart Call Home
- Managing NX-OS

Monitoring and Troubleshooting

- Diagnostics and Monitoring
- SPAN
- Ethalyzer
- Configuring SPAN
- Troubleshooting Interface Errors
- Troubleshooting Logical Interface Errors
- Password Recovery
- Corrupted Image Recovery

Dates & Locations

Certifications

Related Courses