

Implementing & Configuring Cisco Nexus 5000

Duration: 3 Days **Course Code: ICNX5**

Overview:

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 platform. Topics such as FCoE design guidelines, configuring FCoE on servers, and configuring FCoE on switches in switch mode and NPV mode are incorporated. You will also learn about the architecture of the Nexus 5000 FCoE switches, and how this architecture affects traffic flow in an FCoE network.

This course is delivered as part of the Global Knowledge and Firefly strategic alliance, providing delegates with the latest in Data Center technology.

Target Audience:

This course is designed for experienced Network Field Engineers who are already capable of implementing Layer 2 services using Cisco IOS.

Objectives:

- **After you complete this course, you will be able to:**
- Identify the benefits provided by Nexus 5000 switches in common user scenarios
- Explain how the Nexus 5000 operates within SAN and LAN environments
- Discuss the 10GB Ethernet capabilities of the Nexus 5000 switch
- Explain the HPC applications for the nexus 5000 switch
- Review the operation of Fibre Channel within SAN environments
- Describe how FCoE operates within SAN and LAN environments
- Describe the core features of the NX-OS platform
- Describe the ASIC-level architecture of the switch and CNAs
- Configure the Nexus 5000 in switch mode and NPV mode
- Manage traffic flow and priority, configure security policies
- Implement high-availability configurations
- Troubleshoot FCoE environments, Nexus 5000 hardware configurations
- Discuss the Nexus 2000 fabric extender, and the Nexus 1000 virtual switch

Prerequisites:

Delegates should meet the following prerequisites:

- Familiarity with Cisco Ethernet switching products
- Ability to configure adv. Layer 2 Ethernet services, including QoS and Spanning Tree
- Basic working knowledge of Fibre Channel and Storage Networking
- Understanding of Cisco Data Center architecture

Testing and Certification

Recommended as preparation for exam(s):

None applicable

Follow-on-Courses:

The Following Courses are recommended for further study:

- Implementing Cisco Storage Networking Solutions (ICSNS)
- Implementing and Configuring the Cisco Nexus 7000 (ICNX7)

Content:

Module 1: Deploying the Nexus 5000

Overview of the Nexus 5000

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

Fibre Channel Primer

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

Ethernet Primer

- The Challenges of Shared LANs
- Exploring the Packet Delivery Process
- Implementing VLANs and Trunks
- Spanning Tree Protocol
- Understanding the TCP/IP Transport Layer

Server Virtualization Primer

- Server Virtualization
- VMware Virtualization
- Virtual Networking with VMware
- Virtual Storage Networking with VMware
- Cisco Nexus 1000v Series Switch
- Cisco Nexus 5000 with VN-Link
- N_P Identification Virtualization

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

Future Directions

- FCoE Initialization Protocol
- Lossless Ethernet Bridging
- Network interface Virtualization
- Delayed Drop
- Congestion Management
- End host Virtualizer

Module 2 : Implementation and Configuration

Configuring FCoE Server Connectivity

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

Configuring a Nexus 5000 Switch in Switch Mode

- Switch Configuration Overview
- Configuring Administrative Access
- Configuring Virtual Interface Groups in NX-OS 4.0
- Configuring the Ethernet Uplink Ports
- Configuring FC Uplink Ports
- Verifying the Configuration

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

- Understanding NPV Mode
- Configuring NPV Mode
- Verifying Switch Configuration in NPV Mode

Managing Traffic Flow

- Understanding QoS Policy Management
- Configuring QoS Policy
- Tuning the MTU Value
- Configuring Priority Flow Control
- IGMP Snooping

Configuring High Availability

- High Availability in an FCoE Network
- Configuring Server-Side High Availability
- Understanding PortChannels
- Configuring Ethernet PortChannels
- Configuring FC PortChannels

Securing the Switch

- Understanding Private VLANs
- Configuring Private VLANs
- Understanding Access Control Lists
- Configuring Access Control Lists
- Configuring Zoning

Managing the Switch

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

Monitoring and Troubleshooting

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

Labs

- Lab 1: Analyzing FCoE Packet Traces
- Lab 2: Configuring the Switch for Administrative Access
- Lab 3: Configuring the Nexus 5000 Switch for FCoE Connectivity
- Lab 4: Configuring the Nexus 5000 Switch in NPV Mode
- Lab 5: Traffic Engineering
- Lab 6: Configuring and Monitoring Security Features
- Lab 7: Troubleshooting FCoE Issues on the Nexus 5000 Switch

Further Information:

For More information, or to book your course, please call us on 353-1-814 8200

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