Implementing and Configuring the Cisco Nexus 5000 and 7000

Duration: 5 Days   Course Code: ICNX5-7

Overview:

In this 5-day course, you will learn how to implement an enterprise Data Center routing and switching infrastructure with the next-generation Cisco Nexus 5000 and Nexus 7000 platforms. This course provides a technical overview of the Nexus platform architecture, design guidelines, deployment and operations and has recently been adapted to incorporate new features not found in the standard DCNI-2, including Virtual PortChannels, FabricPath (L2MP), OTV, several new hardware platforms such as the Nexus 2248T, and enhanced troubleshooting information. The features of the Cisco Nexus platform and NX-OS are explored through extensive labs using actual Cisco Nexus 7000,5000 and 2000 equipment.

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 and Layer 3 services using Cisco IOS and the Cisco Catalyst switching platform.

Objectives:

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

- Describe features of Nexus 7010, Sup Engine, and line cards

- Describe the architecture of NX-OS

- Describe the Connectivity Management Processor

- Configure Virtual PortChannels

- Use configuration checkpoints and rollbacks

- Configure Virtual Device Contexts

- Configure Layer 2 and Layer 3 services

- Configure Overlay Transport Protocol

- Describe FabricPath

- Configure Process and Supervisor Recovery

- Configure Harware Rate Limiting

- Configure Quality of Service

- Configure traffic integrity features and Control Plane Protection

- Configure access and admission control

- Use SPAN and Ethanalyzer to monitor traffic

- Describe how FCoE operates within SAN and LAN environments

- Describe ASIC-level architecture of the Nexus 5000 switch & CNAs

- Configure the Nexus 5000 in switch mode and NPV mode

- Configure the Cisco Nexux 2000 as a remote line card

- Configure management features like Call Home, AAA, and RBAC

Prerequisites:

Delegates should meet the following prerequisites:

- Ability to configure advanced Layer 2 Ethernet services
- Ability to configure Layer 3 routing services
- Basic working knowledge of Fibre Channel and Storage Networking
- Understanding of Cisco data center architecture

Testing and Certification

Recommended preparation for exam(s):

None applicable

Follow-on-Courses:

The following courses are recommended for further study:

- None specified at this moment in time

Content:

Module 1: Deploying the Nexus 7000

Overview of the Nexus 7000

- Cisco Nexus 7000 Series Chassis Overview
- Supervisor Engine and Line Cards
- Fabric Modules
- Virtual Output Queing Overview
- VoQ Operation
- Power Supplies and Cooling
- Connectivity Management Processor
- Site Preparation

Overview of NX-OS

- Introducing NX-OS
- NX-OS Process Recovery
- NX-OS Supervisor Redundancy
- ISSU

Introduction to Virtual Device Contexts

- Introducing Virtualization
- VDC Design
- VDC Configuration
- High Availability

Managing the Nexus 7000

- SNMP and XML
- Generic OnLine Diagnosis
- Embedded Event Manager
- SMART Call Home
- Data Center Network Manager
- System Message Logging
- AAA
- Role-Based Access Control
- Configuration Rollback

Layer 2 Protocols and Features

- Nexus 7000/NX-OS Layer 2 Overview
- VLANs and PVLANs
- Spanning-Tree Protocols
- PortChannels
- Virtual Port Channel (vPC)
- IGMP Snooping
- Unidirectional Link Detection
- Overlay Transport Protocol (OTV)
- FabricPath (L2MP)
- Nexus 2248TP

Layer 3 Protocols and Features

- Layer 3 Unicast Routing Overview
- First-Hop Routing Protocols
- ObjectTracking
- Routing Virtualization
- Routing Protocols
- Bidirectonal Forwarding Detection (BFD)
- Policy Routing
- Tunnels
- Layer 3 Multicast

Security

- Introduction to Nexus/NX-OS Security
- Traffic Integrity
- Storm Control
- Control Plane Protection
- Hardware Rate Limiting
- Access Control
- Admission Control
- Data Confidentiality

Troubleshooting Tools

- Ethanalyzer: WireShark in NX-OS
- SPAN and RSPAN
- Troubleshooting Checklist

Troubleshooting Process

- Cisco NC-OS Software Troubleshooting Process

Module 2: Nexus 5000 Overview

Overview of the Nexus 5000

- Challenges in the Data Center
- I/O Consolidation
- Cisco Nexus 5000 Switch Products
- Cisco Nexus 5000Software Architecture
- Network Design
- FCoE Adapters and Software Stack
- Cisco Nexus 5000 Switch Management Tools
- Managing a Cisco Nexus 5000 Switch with Cisco Device Manager
- Monitoring an FCoE Network With Cisco Fabric Manager

Fibre Channel Protocol 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

Understanding the FCoE Protocol

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

Data Center Architecture

- Access Layer Designs
- Cisco Nexus 5000 vPC
- Nexus Supported Layer 2 and FCOE
- Topologies Summary

Understanding Ethernet Enhancements

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

Configuring NPV Mode

- N_Port Identifier Virtualization
- Understanding NPV Mode
- Configuring NPV Mode

Configuring a Nexus 5000 Switch in Switch Mode

- Switch Configuration Overview
- Configuring Basic Connectivity and Administrative Access
- Configuring Nexus 5K Interfaces
- Configuring the Ethernet Uplink Ports
- Configuring the FC Uplink Ports
- Configuring the Cisco Nexus 2000
- Verifying the Configuration
- Additional Configuration Components

Managing Traffic Flow

- Understanding QoS Policy Management
- Tuning the MTU Value 5000 QoS from 4.1 (3) N1 (1)
- Configuring Priority Flow Control
- Nexus
- IGMP Snooping

Configuring High Availability

- High Availability in an FCoE Network
- Configuring Server-Side High Availability
- Understanding PortChannels
- Configuring Ethernet PortChannels
- Configuring Fibre Channel PortChannels
- Configuring Virtual PortChannels

Course Labs

- Lab 1: Nexus 7000: Exploring the Nexus 7000 Harware Platform
- Lab 2: Nexus 7000: Create and Configure VDC's
- Lab 3: Nexus 7000: First-Hop Redundancy Protocols
- Lab 4: Nexus 7000: Configuring Routing Protocols
- Lab 5: Nexus 7000: VDC and VRF Interoperation
- Lab 6: Nexus 7000: QoS on the Nexus7000
- Lab 7: Nexus 7000: Security
- Lab 8: Nexus 7000: Troubleshooting the Nexus Control Plane
- Lab 10: Nexus 5000: Configuring the Switch for Administrative Access

Quality of Service

- Nexus 7000 Series QoS Overview
- Port QoS
- Forwarding Engine QoS
- Modular QoS CLI Overview
- Table Map
- Class Map
- Policy Map
- Service Policy

- Lab 11: Nexus 5000: Configuring the Nexus 5000 fro FCoE Connectivity
- Lab 12 :Nexus 5000: Configuring the Nexus 5000 in NPV mode
- Lab 13: Nexus 5000: Traffic Engineering
- Lab 14: Nexus 5000: Configuring the Cisco Nexus 2000 as a Remote Line Card
- Lab 15: Nexus 5000: Configuring Nexus 2000 with VPC

Additional Information:

Related Training:

Implemented Cisco Storage Network Solutions (ICSNS)

Designing Cisco Storage Networking Solutions (DCSNS)

Further Information:

For More information, or to book your course, please call us on Head Office 01189 123456 / Northern Office 0113 242 5931

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