Course Title: Implementing Data Center Networks Using the Cisco Nexus 7000 Switch
Course Code: CI-IDCN7K
Course Duration: 3 days

Overview

This three-day class focuses on the implementation, configuration and management of the Nexus 7000 switch and NX-OS software platforms. The courseware includes an effective mix of instructor-led presentations coupled with detailed lab exercises that are designed to build immediate awareness of the features and benefits of this high-availability product set. Upon completing this class, you will be able to install and troubleshoot the Cisco Nexus 7000 Data Center Switch and configure using the Nexus Operating System (NX-OS).

Who should attend

This course is intended for the following audiences:

- Network Field Engineers
- Network System Engineers
- Data Center Network Designers
- Pre-sales Engineers
- Post-sales Engineers
- Network Administration Personnel

Prerequisites

Course attendees should possess an intermediate knowledge of switching, routing and storage architectures and protocols, as well as an understanding of server virtualisation techniques.

Course Objectives

In this course you will learn:

- features and capabilities of the Cisco Nexus 7000 Series Switches
- main features of the virtual device contexts (VDCs) in the Cisco Nexus 7000 and Cisco NX-OS
- techniques used to manage the Cisco Nexus 7000
- Layer 2 protocols and features on the Cisco Nexus 7000 and Cisco NX-OS
- Layer 3 protocols and features on the Cisco Nexus 7000 and Cisco NX-OS
- quality of service (QoS) features on the Cisco Nexus 7000 and Cisco NX-OS
- security features on the Cisco Nexus 7000 and Cisco NX-OS

Course Content

Understanding the Cisco Nexus 7000 Series Switches

- Describe the key features of the Cisco Nexus 7010 Chassis
- Describe the supervisor engine and line card features
- Describe the fabric module capacity and redundancy capability
- Describe the buffering capability of each line card module and its relationship to accessing the switch fabric

- Describe the Virtual Output Queueing (VOQ) operation and demonstrate packet flow and arbitration across the fabric
- Describe the key features of the Cisco Nexus 7010 power supplies and fan cooling system
- Describe the connectivity management processor (CMP)
- Describe the key features of the Cisco Nexus 7018 Chassis
- Describe site preparation considerations for the Cisco Nexus 7000 platform

Overview of the Cisco Nexus 7000

- Introduce features of the Cisco NX-OS and enhancements to the CLI
- Introduce Cisco NX-OS process recovery
- Introduce Cisco NX-OS supervisor redundancy

Introducing the Virtual Device Contexts in the Cisco Nexus 7000

- Describe the architecture of VDCs
- Describe the configuration of VDCs
- Describe the high-availability capabilities of a VDC

Managing the Cisco Nexus 7000

- Describe SNMP and XML components
- Describe Cisco Generic Online Diagnostics
- Describe the Cisco EEM components
- Describe the Smart Call Home feature
- Describe the features of Cisco Data Center Network Manager
- Describe system message logging
- Describe the use of AAA
- Describe role-based access control
- Describe the use of configuration checkpoints

Cisco Nexus 7000 and Cisco NX-OS Layer 2 Protocols and Features

- Describe the Layer 2 features of the Cisco Nexus 7000 and Cisco NX-OS
- Describe features of VLANs and PVLANs
- Describe the Spanning Tree Protocol features of the Cisco Nexus 7000 and Cisco NX-OS
- Describe PortChannel capability of the Cisco Nexus 7000 and Cisco NX-OS
- Describe the benefits and feature of Virtual Port Channels
- Describe UniDirectional Link Detection

Cisco Nexus 7000 and Cisco NX-OS Layer 3 Protocols and Features

- Describe Layer 3 Unicast Routing
- Describe the features of first-hop routing protocols
- Describe Layer 3 routing protocols
- Describe the use of virtual routing and forwarding

- Describe policy routing features of Cisco NX-OS
- Describe Layer 3 port channel configuration
- Describe the tunnel features of Cisco NX-OS

Cisco Nexus 7000 and Cisco NX-OS Quality of Service

- Summarize the QoS features of the Cisco Nexus 7000 Series
- Describe the Cisco Nexus 7000 series port-based QoS features
- Describe the Cisco Nexus 7000 QoS forwarding engine
- Describe the implementation of QoS using MQC
- Define class maps
- Define policy maps
- Implement service policies

Cisco Nexus 7000 and Cisco NX-OS Security

- Introduce the basic concepts of Cisco Nexus 7000 and Cisco NX-OS 4.0 security
- Describe how to guarantee the validity of network traffic
- Describe control plane protection
- Describe access control
- Describe admission control
- Describe data confidentiality

Troubleshooting

- Describe the Ethanalyzer
- Describe SPAN and RSPAN
- Describe the Troubleshooting Process

IDCN7K Lab Exercises

- Lab Exercise 1: Nexus 7000 Hardware Platform
- Lab Exercise 2: Managing System Configuration
- Lab Exercise 3: Creating Virtual Device Contexts (VDCs)
- Lab Exercise 4: Layer 2 Switching
- Lab Exercise 5: First-Hop Redundancy Protocols
- Lab Exercise 6: Configuring Routing Protocols
- Lab Exercise 7: Quality of Service (QoS)
- Lab Exercise 8: NX-OS Security
- Lab Exercise 9: Data Center Network Manager (DCNM)
- Lab Exercise10: NX-OS Troubleshooting Methods