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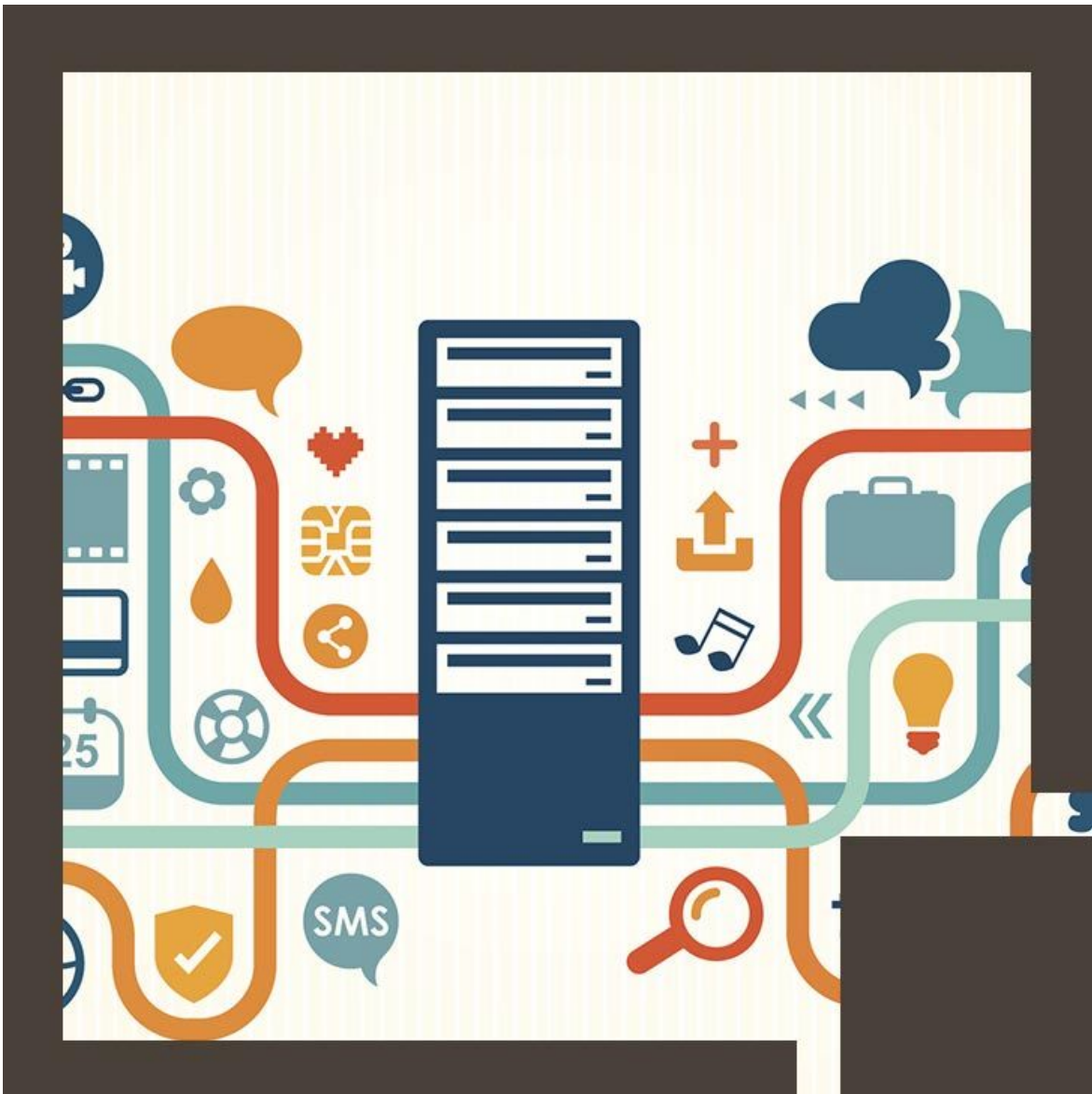
Learning Style: Virtual Classroom

Technology: Cisco

Difficulty: Beginner

Course Duration: 5 Days

Configuring Cisco Nexus 7000 Switches (CS-DCNX7K)

About this course:

This course covers the important components and techniques you need to be familiar with to arrange, manage, and troubleshoot the Cisco Nexus 7000 Series Switch boards. Configuring Cisco Nexus 7000 Switches (DCNX7K) v3.0 prepares you for executing a Cisco Nexus 7000 Series Switches in the data center solution. This inform to the course will comprise exposure of new features presented in Cisco NX-OS 6.2 and will also comprise preliminary coverage of Cisco Nexus Series Switches. A certification exam is not linked with this course.

The course emphases on the product hardware, its construction, key structures, and market differentiators, with widespread feature configuration and hands on labs.

A professional Cisco Certified Network Engineer earn around an average of **$77,484** per year.

Course Objectives:

After finishing this course, students will be capable to:

- Recognize the precise products that make up the Cisco Nexus product families and deliver a high level summary of their features and common application models. You will moreover be capable to recognize the progressive data center class features and functionality of the Cisco Nexus 7000 Series Switch. Common network constructions applied using the products and features of the Cisco Nexus product family will moreover be presented.

- Cisco Nexus 7000 Series Switch hardware mechanisms, like the framework, supervisor, and line cards, regulate the device features and role in data center construction. In this module, you will learn to detect the chassis and mechanisms of the Cisco Nexus 7000 Switch. You will also define the Cisco Nexus 7000 and 7700 Series packet flow, and the VOQ procedure.

- Offer an general idea of the Cisco Nexus 2000 hardware and support of the Cisco Nexus 2000 with Cisco Nexus 7000 Series

- Define how to implement hardware installation, validate and troubleshoot system hardware of the Cisco Nexus 7000 Series Switches

- Comprehend the architecture, procedure, high accessibility, and authorizing features of the Cisco NX-OS Software

- You will learn how to utilize the management features that are accessible on the Cisco Nexus 7000 Series Switch, and how to organize those features to support the management infrastructure necessities. You will furthermore learn these troubleshooting procedure basics and existing tools

- Define Cisco Prime DCNM management tool that can be executed to manage Cisco Nexus 7000 Series Switches in a associated network environment

- Define the idea of Cisco Cisco Dynamic Fabric and how it is used on Cisco Nexus 7000 Series Switches

- Define the resolution, architecture, and usage of VDCs on the Cisco Nexus 7000 Series Switch; configure and validate its operation

- Define and align the Layer 2 switching and associated features on the Cisco Nexus 7000 Series Switch

- Define the port channel configuration, the conception of vPC and how to construct and troubleshoot vPCs.on the Cisco Nexus 7000 Series Switch

- Comprehend the procedure of Cisco FabricPath and how it can be operated and configured to construct scalable and highly obtainable Layer 2 networks on the Cisco Nexus 7000 Series Switch

- Define and configure the Layer 3 switching features on the Cisco Nexus 7000 Series Switch, and how to handle the routes and IP traffic over the use of the Route Policy Manager and policy-based routing

- Define MPLS features that are obtainable on Cisco Nexus 7000 Series Switches and align MPLS, MPLS Layer 2 and Layer 3 Virtual Private Networks (VPNs) and MPLS Traffic Engineering (TE)

- Define elementary and advanced Cisco OTV features on the Cisco Nexus 7000 Series Switch lso. Furthermore define how to configure the OTV and some of the innovative OTV features that are accessible on the Cisco Nexus 7000 Series Switches

- Define the idea, use, and alignment of the Locator/ID Separation Protocol (LISP) on the Cisco Nexus 7000 Switch

- Define FCoE and FCoE features on the Cisco Nexus 7000 Series Switch; configure and validate their procedure

- Define the safety features that are obtainable on the Cisco Nexus 7000 Series Switch; configure and validate their operation

- Define the QoS features that are accessible on the Cisco Nexus 7000 Series Switches; configure and validate their procedure

- Define the concept of the Intelligent Traffic Director feature and how to align and validate ITD on Cisco Nexus 7000 Series Switches

Audience:

This course is planned for:

- Network engineers and systems engineers

- Network designers, network executives, and network managers

Prerequisites:

- Good knowledge of networking procedures, routing, and switching

- Cisco Certified Network Associate (CCNA)

Recommended Prerequisites Courses:

- Executing Cisco IP Routing v2.x (ROUTE)

- Executing Cisco IP Switched Networks v2.x (SWITCH)

Course Outline:

Module 1: Cisco Nexus 7000 Series Switches

- Lesson 1: Describing the Cisco Nexus Product Family
    - Cisco Unified Fabric: Trends in the Data Center
    - Cisco Nexus Product Family
    - Cisco Nexus 7000 Series Switch
  Lesson 2: Describing the Cisco Nexus 7000 Series Switch Deployment Models
    - Data Center Architecture Design Evolution
    - Single-Layer Data Center Models
    - Multitier Data Center Model
    - Scalable Spine-Leaf Data Center Fabric

Module 2: Cisco Nexus 7000 Series Switch Hardware

- Lesson 1: Describing the Cisco Nexus 7000 and 7700 Series Switch Chassis
    - Cisco Nexus 7000 and 7700 Series Switch Common Foundation
    - Cisco Nexus 7000 Series Switch Chassis Family
    - Cisco Nexus 7700 Series Switch Chassis Family
    - Key Chassis Components
    - Cisco Nexus 7000 Series Switch Power Supplies
    - Fan Cooling
  Lesson 2: Describing Cisco Nexus 7000 Series Switch Supervisor, I/O, and Fabric Modules

- Supervisor Modules
- Cisco Nexus 7000 Series Switch Product Identification Scheme
- Cisco Nexus 7000 and 7700 Series Switch I/O Module Families
- Cisco Nexus 7000 Series Switch M1 and M2 I/O Modules
- Cisco Nexus 7000 Series F2, F2E, and F3 I/O Modules
- I/O Modules Forwarding Engine
- Cisco Nexus 7000 and 7700 Series Switch I/O Module Scalability
- Crossbar Switch Fabric Modules
- Cisco Nexus 7000 Series Network Analysis Module
- Hardware High-Availability Features

Lesson 3: Describing Cisco Nexus 7000 Series Switch Forwarding and Packet Flow
- Virtual Output Queuing
- Packet Flow and Arbitration
- Layer 2 and Layer 3 Forwarding

Module 3: Cisco Nexus 2000 Series Fabric Extender

- Lesson 1: Describing Cisco Nexus 2000 Series Fabric Extender Hardware
  - Cisco FEX Technology
  - Cisco Nexus 2000 Series Fabric Extender Models

Lesson 2: Describing Cisco Nexus 2000 Series Fabric Extender Support on Cisco Nexus 7000 Series Switches
- Cisco Nexus 7000 Parent Switch Cabling Options
- Cisco Nexus 7000 Series Switch and Cisco Nexus 2000 Series Fabric Extender Topologies
- Cisco Nexus 7000 Series Switch and Cisco Nexus 2000 Series Fabric Extender Features

Module 4: Cisco NX-OS Software

- Lesson 1: Describing Cisco NX-OS Architecture, Key Features, and Capabilities
  - Cisco NX-OS Software Architecture
  - Cisco NX-OS High-Availability Infrastructure Components
  - Cisco NX-OS Software Key Features
  - Cisco IOS to NX-OS Conversion tool
  - Verify Hardware Installation Using show Commands
  - Troubleshoot Common Hardware Issues

Lesson 2: Describing the Cisco Nexus 7000 Series Licensing Model
- Cisco NX-OS Software Licensing for Cisco Nexus 7000 Series
- Obtaining and Installing the License Key File

Module 5: Cisco Nexus 7000 Series Switch Administration, Management, and Troubleshooting

- Lesson 1: Using Cisco Nexus 7000 Series Switch Management Interfaces and Setup Utilities
  - Cisco Nexus 7000 Series Switch CLI and GUI Management Interfaces

- Cisco NX-OS Setup Utility
- PowerOn Auto Provisioning

Lesson 2: Managing Cisco Nexus 7000 Series Switch User Access with Cisco NX-OS
- Cisco NX-OS User Management
- User Account and Role Configuration
- Password Recovery Procedure
- AAA Configuration for Integration with RADIUS, TACACS+, and LDAP

Lesson 3: Configuring Cisco Nexus 7000 Series Switch System Management Features
- System Management Features
- Secure Shell
- SNMP
- The XML Interface
- Cisco Fabric Services
- Cisco Smart Call Home
- Scheduler
- NTP and PTP
- Pong Service
- Cisco NX-OS IP SLA
- Configuration Backup and Restore
- In-Service Software Upgrades and Downgrades
- Cisco NX-OS Image Recovery
- EPLD Image Upgrade

Lesson 4: Using Troubleshooting Processes and Tools
- Troubleshooting Process
- Cisco NX-OS Tools
- Embedded Ethanalyzer
- SPAN and ERSPAN
- NetFlow
- System Message Log Configuration
- Configuring Online Diagnostics
- Using the OBFL Feature
- Configuring RMON
- Configuring Cisco EEM
- Embedded Logic Analyzer Module

Lesson 5: Troubleshooting Memory and Packet Flow Issues
- Evaluating Memory Using the Built-in Platform Monitoring Tool
- Evaluating Platform Memory Utilization on a High Level
- Evaluating Platform Memory Utilization on a Detailed Level
- Troubleshooting Packet Flow Issues

Lesson 6: Describing the Cisco Nexus 7000 Series NAM-NX1
- Cisco Network Analysis Module

Lesson 7: Describing Cisco RISE
- Cisco RISE Overview

Module 6: Cisco Prime DCNM

- Lesson 1: Describing Cisco Prime DCNM

- ○ Cisco Prime DCNM
- ○ Cisco Prime DCNM Components
- ○ Cisco Prime DCNM Licensing
- ○ Cisco Prime DCNM Features

Module 7: Virtual Device Contexts on Cisco Nexus 7000 Series Switches

- Lesson 1: Describing Virtual Device Contexts
    - ○ Virtual Device Contexts
    - ○ Virtualization Hierarchy
    - ○ Communicating Between VDCs
    - ○ Virtualization Scalability
    - ○ VDC Types
    - ○ VDC Resources
    - ○ VDC Management
- Lesson 2: Configuring VDCs
    - ○ VDC Licensing Overview
    - ○ VDC Guidelines and Limitations
    - ○ Configure VDCs
    - ○ Verify VDCs
    - ○ Allocate VDC Resources
    - ○ Configure Resource Templates
- Lesson 3: Describing Management Settings for VDCs
    - ○ Management Settings for Virtual Device Contexts
    - ○ Allocate Interfaces to a VDC
    - ○ VDC Navigation
    - ○ Manage VDC Configurations
    - ○ Nondefault VDC Suspension and Reload
    - ○ VDC High-Availability Policies

Module 8: Layer 2 Switching Features on Cisco Nexus 7000 Series Switches

- Lesson 1: Describing and Configuring Security Features
    - ○ Configure Basic Interface Parameters
    - ○ Dedicated vs. Shared Mode
    - ○ UniDirectional Link Detection
- Lesson 2: Configuring Cisco Nexus 2000 Series Fabric Extenders
    - ○ Configure Cisco Nexus 2000 Series Fabric Extenders
    - ○ Configure FEX Layer 2 Interfaces
    - ○ Configure FEX Layer 3 Interfaces
    - ○ Verify Cisco Nexus 2000 Series Fabric Extenders Configuration
- Lesson 3: Configuring VLANs and Advanced VLAN Features
    - ○ Configure Layer 2 Interfaces
    - ○ Configure VLANs
    - ○ Port Profiles
    - ○ Configure VTP
    - ○ Configure Private VLANs
    - ○ Configure MVRP
- Lesson 4: Configuring STP and STP Extensions
    - ○ STP Overview and Configuration

https://kpcu.quickstart.com/configuring-cisco-nexus-7000-switches-v3-x-dcnx7k.html

- Configure STP Extensions
- Lesson 5: Configuring Q-in-Q
    - Q-in-Q VLAN Tunnels
    - Configure Q-in-Q VLAN Tunnels

Module 9: Port Channels and Virtual Port Channels on Cisco Nexus 7000 Series Switches

- Lesson 1: Describing Port Channels
    - Port Channel Operation
    - Configure Layer 2 and Layer 3 Port Channels
    - Verify Port Channels
    - Configure Port Channel Load Balancing
- Lesson 2: Describing vPCs
    - vPC Concept and Benefits
    - vPC Architecture
    - vPC Control and Data Plane Operation
    - vPC Peer Link Failure
    - vPC Peer Switch
    - Layer 3 and vPC Interactions
    - Supported Layer 3 and vPC Designs
    - vPC and FHRPs
    - Multicast with vPC
- Lesson 3: Configuring vPCs
    - vPC-Supported Hardware
    - Configure vPCs
    - Verify the vPC
    - Optimizing vPCs
- Lesson 4: Troubleshooting vPC
    - Initial Troubleshooting Checklist
    - Troubleshoot vPC Initialization
    - Troubleshoot vPC Peer Keepalives
    - Troubleshoot vPC Cisco Fabric Services
    - Troubleshoot Common vPC Issues

Module 10: Cisco FabricPath on Cisco Nexus 7000 Series Switches

- Lesson 1: Describing Cisco FabricPath Architecture
    - Cisco FabricPath Architecture
    - Cisco FabricPath MAC Address Learning
    - Basic Cisco FabricPath Data Plane Operation
    - Cisco FabricPath Interaction with Spanning Tree
    - Cisco FabricPath and IP Multicast Routing
    - Virtual Port Channel+
    - vPC+ and HSRP
    - Anycast HSRP
    - Cisco Fabric Extenders with Cisco FabricPath
- Lesson 2: Configuring Cisco FabricPath
    - Cisco FabricPath on Cisco Nexus 7000 Series Switches
    - Configure Cisco FabricPath

- Configure vPC+
  - Lesson 3: Troubleshooting Cisco FabricPath
    - Troubleshooting Cisco FabricPath
    - Cisco FabricPath Pong

Module 11: Cisco DFA

- Lesson 1: Describing Cisco DFA Architecture
  - Cisco DFA Architecture
  - Optimized Networking
  - Virtual Fabrics
  - Fabric Management
  - Cisco DFA Service Support
  - Workload Automation
  - Cisco DFA Deployment Requirements
  - Cisco Pri

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