



Implementing Cisco Data Center Unified Fabric 4.0 (DCUFI)

Days: 5

Format: Instructor-Led

Class Code: DCUFI

Certification Exams:

Certification Track:

Recommended Course Sequence

Knowledge of prerequisites
noted below.

*Course content is subject to change
without notice.*

Course Description:

Implementing Cisco Data Center Unified Fabric v4.0 is a 5-day ILT training program designed for systems and field engineers, consulting systems engineers, technical solutions architects, and Cisco integrators and partners who install and implement the Cisco Nexus 7000 and 5000 Switch, and the Cisco Nexus 2000 Fabric Extender. The course covers the key components and procedures needed to install, configure, manage, and troubleshoot the Cisco Nexus 7000 and 5000 Switches in the network and SAN environment.

Target Audience:

The primary audience for this course is as follows:

- Network engineers, systems engineers, consulting systems engineers, technical solutions architects, and Cisco integrators and Partners who sell, implement, and maintain Cisco Nexus products in the data center.

- The secondary audience for this course is as follows:

- Network designers, network administrators, and network managers responsible for identifying and managing Cisco Nexus products in the data center.

Prerequisites:

The knowledge and skills that a learner must have before attending this course are as follows:

- Good understanding of networking protocols - Recommended CCNA Certification
- Good understanding of the Fibre Channel protocol and the SAN environment - Recommended attendance of a Fibre Channel protocol class or equivalent experience
- Recommended attendance of the Implementing Cisco Storage Network Solutions (ICSNS) class or equivalent experience

Course Objectives:

Upon completing this course, the learner will be able to meet these overall objectives:

- Identify the Cisco Nexus product family, specifically the Cisco Nexus 7000 Switch chassis and components, the Cisco Nexus 5000 Switch, and the Cisco Nexus 2000 Fabric Extender
- Install the Cisco Nexus products in a Cisco Data Center Business Advantage environment
- Given a requirement, identify how to plan and implement virtual device contexts into the solution
- Evaluate the security features available on the Cisco Nexus 7000 Switch to identify which features should be implemented into a solution
- Evaluate and configure the Connectivity Management Processor on the Cisco Nexus 7000 Switch and identify the management options available
- Evaluate the service-level and network-level high availability of the Cisco Nexus switches and how to use the Cisco IOS In-Service Software Upgrade feature

Implementing Cisco Data Center Unified Fabric 4.0 (DCUFI)

- Discuss the Fibre Channel protocol including Fibre Channel addressing, flow control, and zoning
- Translate a given design into an implementation plan for configuring Fibre Channel over Ethernet on the Cisco Nexus switch
- Understand the processes, tools, and resources for troubleshooting the data center infrastructure, interconnectivity, and operations

Course Outline

Module 1: Cisco Nexus Product Overview

Lesson 1: Identifying the Cisco Data Center Business Advantage Architecture
<ul style="list-style-type: none">■ Cisco Data Center Business Advantage■ Components of the architecture■ Aggregation and core components■ Unified Fabric overview■ Placement of products■ Positioning of product families in the architecture
Lesson 2: Identifying Cisco Nexus Products
<ul style="list-style-type: none">■ The Cisco Nexus product family■ Key features and benefits of the Cisco Nexus line modules■ Key scalability features of the Cisco Nexus switches■ Power and cooling requirements of the Cisco Nexus switches
Lesson 3: Identifying the Cisco Unified Fabric Solution
<ul style="list-style-type: none">■ Cisco Unified Fabric pillars■ Cisco Unified Fabric convergence■ Cisco Unified Fabric scalability■ Cisco Unified Fabric intelligence■ Cisco Unified Fabric portfolio
Lesson 4: Integrating Services
<ul style="list-style-type: none">■ Identify how to integrate services into the infrastructure

Module 2: Cisco Nexus Switch Feature Configuration

Lesson 1: Configuring Virtual Device Contexts
<ul style="list-style-type: none">■ How VDCs can be used to consolidate the physical infrastructure■ Identify the architecture of VDCs, their use of resources on the physical switch, and how the Cisco NX-OS Software supports VDCs■ Configuring VDCs on the Cisco Nexus 7000 Switch■ Configuring VDC resource templates

Implementing Cisco Data Center Unified Fabric 4.0 (DCUFI)

<ul style="list-style-type: none">■ Configuring management settings for VDCs■ Identify the troubleshooting processes and tools that would be used to troubleshoot issues relating to VDCs■ Identify common VDC issues and the steps that would be taken to resolve the problem
Lesson 2: Configuring Layer 2 Switching Features
<ul style="list-style-type: none">■ Configuring basic interface parameters■ Comparison of the Cisco Nexus 7000 and Cisco Nexus 5000 Switch features■ Configuring Layer 2 interfaces■ Configuring VLANs■ Configuring Private VLANs■ Configuring Rapid PVST+■ Configuring MST■ Configuring STP extensions■ Identify potential Layer 2 issues and the tools to use to resolve the problem
Lesson 3: Configuring Port Channels
<ul style="list-style-type: none">■ Using port channels and vPCs in data centers■ Evaluate the use of port channels in the design■ Configuring port channels■ Evaluate the use of vPCs in the design■ Identify vPC architecture and components■ Configuring vPCs■ Configuring the fabric extender■ Identify potential vPC issues and the tools to use to resolve the problem
Lesson 4: Configuring Layer 3 Switching Features
<ul style="list-style-type: none">■ Routing protocol overview■ Configure Bidirectional Forwarding Detection■ Layer 3 virtualization overview■ Managing the unicast RIB and FIB■ Route Policy Manager overview■ Policy-based routing overview■ IPv6■ Identify potential layer 3 issues and the tools to use to resolve the problem
Lesson 5: Configuring IP Multicast
<ul style="list-style-type: none">■ Identifying components and architecture of IP multicasting■ Configuring IGMP■ Configuring PIM■ Configuring IGMP snooping■ Configuring MSDP■ Troubleshooting multicast issues

Implementing Cisco Data Center Unified Fabric 4.0 (DCUFI)

Module 3: Cisco Nexus Switch Advanced Feature Configuration

Lesson 1: Configuring Security Features
<ul style="list-style-type: none">■ Identify and position the security features in the data center■ Access control list configuration■ Port security configuration■ DHCP snooping configuration■ Dynamic ARP configuration■ IP Source Guard configuration■ uRPF configuration■ Configuring traffic storm control■ Configuring Control Plane Policing■ Understand how to use Cisco TrustSec
Lesson 2: Understanding Overlay Transport Virtualization
<ul style="list-style-type: none">■ Overview of OTV■ Positioning OTV in the Cisco Data Center Business Advantage network architecture■ Configure basic OTV features■ Configure Advanced OTV features■ Troubleshooting OTV issues
Lesson 3: Implementing Quality of Service
<ul style="list-style-type: none">■ Explain the purpose of QoS■ Understand how QoS is implemented on the Cisco Nexus switches and the default behaviors■ Positioning QoS in a Cisco Data Center Business Advantage network architecture■ Using the modular QoS command-line interface■ Configuring classification■ Configuring mutation mapping■ Configuring QoS policy maps■ Configuring QoS service policy■ Monitoring QoS statistics

Module 4: Cisco Nexus Series Switch Management

Lesson 1: Using the Connectivity Management Processor
<ul style="list-style-type: none">■ Evaluate the use of the CMP■ Configure available CMP options■ Verify the CMP configuration■ Upgrade the CMP image■ Using the CMP to monitor and manage the control plan of the Cisco Nexus 7000 Series Switch
Lesson 2: Configuring User Management
<ul style="list-style-type: none">■ Identify the user management features available on the Cisco Nexus switches■ Configure Authentication, Authorization and

Implementing Cisco Data Center Unified Fabric 4.0 (DCUFI)

Accounting (AAA) ■ Configure SSH ■ Configure User Accounts and Roles
Lesson 3: Understanding System Management
■ Identify the system management features available on the Cisco Nexus switches ■ Configuring Cisco Fabric Services ■ Configuring NTP ■ Configuring Cisco Discovery Protocol ■ Configuring system message logging ■ Configuring Smart Call Home ■ Configuring the Scheduler ■ Configuring SNMP ■ Using the XML interface to manage the Cisco Nexus switches ■ Implement Cisco DCNM to monitor the Cisco Nexus switches ■ How to apply and manage licensing

Module 5: Redundancy on Cisco Nexus Switches

Lesson 1: Understanding High Availability and Redundancy
■ Network-level high availability ■ System-level high availability ■ In-Service Software Upgrades ■ Upgrading the Firmware and EPLDs
Lesson 2: Implementing Cisco FabricPath
■ Implementing Cisco FabricPath ■ Troubleshooting Cisco FabricPath ■ Identify recommended diagnostic tools to use when troubleshooting Cisco FabricPath ■ Explain how Cisco FabricPath uses TRILL to provide maximum path forwarding

Module 6: Fibre Channel over Ethernet

Lesson 1: Understanding Fibre Channel Protocol
■ The SCSI protocol ■ The Fibre Channel Protocol frame structure ■ Fabric Login ■ Fibre Channel addressing schemes ■ The Fabric Shortest Path First protocol (FSPF) ■ VSANs and zoning ■ N_Port Virtualization (NPV) mode ■ N_Port ID Virtualization (NPIV) mode
Lesson 2: Understanding FCoE Protocol

Implementing Cisco Data Center Unified Fabric 4.0 (DCUFI)

<ul style="list-style-type: none">■ Unified Fabric I/O consolidation use and benefits■ FCoE adapters■ FCoE architecture■ FCoE End-Node (ENode) addressing■ FIP■ Multihop FCoE
Lesson 3: Identifying Data Center Bridging Ethernet Enhancements
<ul style="list-style-type: none">■ Identify the purpose of DCB■ Identify the purpose of priority flow control (PFC)■ Identify the purpose of Enhanced Transmission Selection■ Identify the purpose of the DCB Exchange (DCBX) protocol

Module 7: Fibre Channel over Ethernet Configuration

Lesson 1: Implementing FCoE
<ul style="list-style-type: none">■ Configure FCoE■ Configure FCoE VLANs and virtual interfaces■ Troubleshooting FCoE
Lesson 2: Configuring SAN Switching Features
<ul style="list-style-type: none">■ Configuring Fibre Channel interfaces■ Configuring domain parameters■ Configure and manage VSANs■ Configure VSAN trunking■ Configure SAN port channels■ Manage the FLOGI and FCNS databases
Lesson 3: Configuring NPV Mode
<ul style="list-style-type: none">■ NPV Overview■ Configuring NPV mode on the Cisco Nexus 5000 and 5500 Switches■ NPIV Overview■ Configuring NPIV on the Cisco Nexus 5000 and 5500 Switches■ Troubleshooting NPV and NPIV
Lesson 4: Using SAN Management Tools
<ul style="list-style-type: none">■ Cisco Fabric Manager■ Cisco Device Manager

Module 8: Troubleshooting on Cisco Nexus Switches

Lesson 1: Troubleshooting the Data Center Infrastructure
<ul style="list-style-type: none">■ The troubleshooting process■ Using the system messages■ Using logs to troubleshoot

Implementing Cisco Data Center Unified Fabric 4.0 (DCUFI)

- Troubleshooting modules

Lesson 2: Troubleshooting Tools and Resources

- Identify the troubleshooting features on the Cisco Nexus switches
- Using and configuring Remote Monitoring
- Using and configuring online diagnostics
- Using and configuring the Embedded Event Manager
- Using and configuring the Onboard Failure Logging feature
- Using Ethalyzer for packet analysis
- Using and configuring SPAN
- Using and configuring NetFlow