



Firefly Data Center Networking Infrastructure Design BootCamp

Length
4 days

Format
Lecture/lab

Track
DCNI Design
Specialist

Version
2.0

Course Description

Cisco Data Center Networking Infrastructure Design (DCNID) is a 4-day workshop-style course that covers the Cisco Data Center switching portfolio, including the Nexus 7000, Nexus 5000, Catalyst 6500, Catalyst 4900, and Ethernet Blade switches. The course describes how to design Data Center network architecture with the Nexus and Catalyst platforms, utilizing a variety of features ranging from continuous operation, process resiliency, integrated security services, and virtualization, to power efficiency and management enhancements.

By the end of this course, you will be able to identify customer requirements across the entire Cisco Data Center product and solutions portfolio, and to design secure, stable and highly available Data Center networks consisting of access, aggregation and core layers.

This course is an accelerated version of the 5-day Cisco DCNID course that focuses on preparing for both the certification exam and real-world design requirements.

Who Should Attend

This course is designed for Network Systems Engineers who design Data Center/enterprise networks.

Recommended Prerequisites

- CCDA, CCNP, or CCIE Routing and Switching certification, or equivalent knowledge and experience

DCNID

Learning Objectives

After completing this course, you will be able to:

- Discuss the challenges that network architects are facing today in the data center
- Describe the hardware and software architecture of Cisco Nexus 7000 and 5000 switches
- Explain data center network design strategies at component, network and architecture levels
- Select appropriate products and features to meet customer requirements for reliability, scalability, and security.

Related Training

- Implementing a Cisco Data Center Networking Infrastructure with the Cisco Catalyst Platform (DCNI-1)
- Implementing a Cisco Data Center Networking Infrastructure with the Cisco Nexus Platform (DCNI-2)



Learning
Solutions

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Course Outline

Module 1: Data Center Design Models

Lesson 1: Data Center Business Objectives

What is a Data Center?
Business Objectives
Consolidation in Data Centers
Virtualizing Network Services

Lesson 2: Data Center Networking Platforms and Modules

Catalyst Switches
Cisco Catalyst 4900M
Cisco Blade Switches
Application Control Engine
Security Service Modules
Integrated Network Analysis
Storage Networking
Server Fabric Switches
Cisco Nexus Switching Portfolio for the Data Center
Optical Transport

Lesson 3: Data Center Environmental Requirements

Environmental Requirements
Environmental Requirements
Cooling
Cabling
Special Consideration for Blade Server
Green Data Center

Module 2: Data Center Strategy

Lesson 1: Data Center Strategy

Catalyst 6500 Virtual Switching System
Catalyst 6500 Virtual Switching System
Catalyst 6500 Virtual Switching System
Unified Fabric and Unified I/O

Lesson 2: Host Technology

Blade Server Connectivity Objective:
Describe blade server connectivity
Cisco Data Center Virtual Switching Technology
Server Virtual Switching
Server Clusters
Cluster Types
Cluster Interconnects

Lesson 3: Application Delivery

Application Architecture Tiers
Cisco Application Optimization Delivery Products
Server Farms and Load Balancing
Appendix: ACE Appliance/Module Impact on Data Center Design
Network Topologies with ACE
Appliance/Module

Module 3: Nexus 7000

Lesson 1: Cisco Nexus 7010 Switch Positioning in the Data Center

Cisco Nexus 7010 Switch DC Positioning

Lesson 2: Hardware Architecture

Supervisor Engine Architecture
I/O Modules Architecture
Fabric Modules Architecture
Forwarding Engine Architecture
Fabric Scalability, Performance, and Capacity
Power Supply, Cooling System and Cable Management

Lesson 3: Software Architecture

NX-OS Software Architecture Design
Layer 2, Layer 3 and Routing protocols
Software Licensing Model



Learning Solutions



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Course Outline

Lesson 4: Switch Management

Operating System Manageability
Switch Management using DCNM
Switch Operating System Serviceability
QoS Configuration

Lesson 5: Continual Availability

Nexus 7010 Switch Continual Availability
Nexus Supervisor Switchover SSO
Nexus 7010 L3 Availability
Nexus 7010 L2 Availability
Nexus 7010 ISSU

Lesson 6: Cisco Nexus 7010 Switch Security

Switch Security Overview
Switch Integrated Security Features

Lesson 7: Cisco Nexus 7010 QoS Implementation

Data Center Network QoS
QoS Solutions
QoS Components and Features

Module 4: Nexus 5000

Lesson 1: Fibre Channel and FCoE

Data Center Requirements
Fibre Channel Protocol
Ethernet Extensions Used in FCoE Networks
MAC Addresses for FCoE
FCoE Discovery

Lesson 2: Nexus 5000 Overview

Data Center Solution Components
Cisco Nexus 5000 Product Family
Where Nexus 5000 Fits
Nexus 5000 Management Tools

Module 5: Data Center Design Models

Lesson 1: Data Center Application Design

Multi-Datcenter Redundancy
GSLB Overview
Route Health Injection
WAN Optimization and Branch Consolidation
Layer 2 Extensions for Data Center Interconnect
Layer 2 Extensions for Data Center Interconnect

Lesson 2: Data Center Design Overview

Multi-Tier Model Design
The Enterprise Composite Network Model

Lesson 3: Current Network Designs

Layer 2 and Layer 3 Access Design
Access Layer Looped Triangle Failure Analysis
Failure Analysis in Looped Square Design
Data Center Loop-Free Design
L3 Design
Routing Design
Integrated Services Design

Lesson 4: New Network Designs

Classic Design with VSS, VRF and VDC
Classic Design with VSS, VRF and VDC
Enhanced L2 Topology
Enhanced L2 Topology

Lesson 5: Data Center Sizing



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