

Understanding Cisco Data Center Foundations (DCFNDU) v1.0

What you'll learn in this course

The Understanding Cisco Data Center Foundations (DCFNDU) v1.0 course helps you prepare for entry-level data center roles. In this course, you will learn the foundational knowledge and skills you need to configure Cisco® data center technologies including: networking, virtualization, storage area networking, and unified computing. You will get an introduction to Cisco Application Centric Infrastructure (Cisco ACI), automation and cloud computing. You will get hands-on experience with configuring features on Cisco Nexus Operating System (Cisco NX-OS) and Cisco Unified Computing System (Cisco UCS).

This course does not lead directly to a certification exam, but it does cover foundational knowledge that can help you prepare for several CCNP and other professional-level data center courses and exams:

Courses	Exams
Implementing and Operating Cisco Data Center Core Technologies (DCCOR)	350-601 Implementing Cisco Data Center Core Technologies (DCCOR)
Designing Cisco Data Center Infrastructure (DCID)	350-610 Designing Cisco Data Center Infrastructure (DCID)
Troubleshooting Cisco Data Center Infrastructure (DCIT)	350-615 Troubleshooting Cisco Data Center Infrastructure (DCIT)
Implementing Cisco Application Centric Infrastructure (DCACI)	350-620 Implementing Cisco Application Centric Infrastructure (DCACI)
Introducing Cisco NX-OS Switches and Fabrics in the Data Center (DCINX)	n/a
Configuring Cisco Nexus Switches (DCCNX)	n/a

Course duration

- Instructor-led training: 5 days in the classroom with hands-on lab practice
- Virtual instructor-led training: 5 days of web-based classes with hands-on lab practice
- E-learning: Equivalent of 5 days of instruction with videos, practice, and challenges

How you'll benefit

This course will help you:

- Prepare for entry-level job roles in the high-demand area of data center environments
- Prepare for courses that support the Cisco Certified Network Professional Data Center certification exams
- Gain knowledge and hands-on skills through Cisco's unique combination of lessons and hands-on practice using enterprise-grade Cisco learning technologies, data center equipment, and software

Who should enroll

- Data center administrators
- Data center engineers
- Systems engineers
- Server administrators
- Network managers
- Cisco integrators and partners

How to enroll

- For instructor-led training, visit the [Cisco Learning Locator](#).
- For private group training, visit [Cisco Private Group Training](#).
- For e-learning, visit the [Cisco Learning Network Store](#).
- For digital library access, visit [Cisco Platinum Learning Library](#).
- For e-learning volume discounts, contact ask_cpil@cisco.com.

Technology areas

- Data center

Course details

Objectives

After taking this course, you should be able to:

- Describe the foundations of data center networking
- Describe Cisco Nexus products and explain the basic Cisco NX-OS functionalities and tools
- Describe Layer 3 first-hop redundancy
- Describe Cisco FEX connectivity
- Describe Ethernet port channels and vPCs
- Introduce switch virtualization, machine virtualization, and describe network virtualization
- Compare storage connectivity options in the data center
- Describe Fibre Channel communication between the initiator server and the target storage
- Describe Fibre Channel zone types and their uses
- Describe NPV and NPIV
- Describe data center Ethernet enhancements that provide a lossless fabric
- Describe FCoE
- Describe data center server connectivity
- Describe Cisco UCS Manager
- Describe the purpose and advantages of APIs
- Describe Cisco ACI
- Describe the basic concepts of cloud computing

Prerequisites

To fully benefit from this course, you should have the following knowledge and skills:

- Good understanding of networking protocols
- Good understanding of the VMware environment
- Basic knowledge of Microsoft Windows operating systems

These are the recommended Cisco courses that may help you meet these prerequisites:

- **Implementing and Administering Cisco Solutions (CCNA)**
- **Introducing Cisco Data Center Networking (DCICN)**
- **Introducing Cisco Data Center Technologies (DCICT)**

Outline

- Describing the Data Center Network Architectures
 - Cisco Data Center Architecture Overview
 - Three-Tier Network: Core, Aggregation, and Access
 - Spine-and-Leaf Network
 - Two-Tier Storage Network
- Describing the Cisco Nexus Family and Cisco NX-OS Software
 - Cisco Nexus Data Center Product Overview
 - Cisco NX-OS Software Architecture
 - Cisco NX-OS Software CLI Tools
 - Cisco NX-OS Virtual Routing and Forwarding
- Describing Layer 3 First-Hop Redundancy
 - Default Gateway Redundancy
 - Hot Standby Router Protocol
 - Virtual Router Redundancy Protocol
 - Gateway Load Balancing Protocol
- Describing Cisco FEX
 - Server Deployment Models
 - Cisco FEX Technology
 - Cisco FEX Traffic Forwarding
 - Cisco Adapter FEX
- Describing Port Channels and vPCs
 - Ethernet Port Channels
 - Virtual Port Channels
 - Supported vPC Topologies

- Describing Switch Virtualization
 - Cisco Nexus Switch Basic Components
 - Virtual Routing and Forwarding
 - Cisco Nexus 7000 VDCs
 - VDC Types
 - VDC Resource Allocation
 - VDC Management
- Describing Machine Virtualization
 - Virtual Machines
 - Hypervisor
 - VM Manager
- Describing Network Virtualization
 - Overlay Network Protocols
 - VXLAN Overlay
 - VXLAN BGP EVPN Control Plane
 - VXLAN Data Plane
 - Cisco Nexus 1000VE Series Virtual Switch
 - VMware vSphere Virtual Switches
- Introducing Basic Data Center Storage Concepts
 - Storage Connectivity Options in the Data Center
 - Fibre Channel Storage Networking
 - VSAN Configuration and Verification
- Describing Fibre Channel Communication Between the Initiator Server and the Target Storage
 - Fibre Channel Layered Model
 - FLOGI Process
 - Fibre Channel Flow Control
- Describing Fibre Channel Zone Types and Their Uses
 - Fibre Channel Zoning
 - Zoning Configuration
 - Zoning Management
- Describing Cisco NPV Mode and NPIV
 - Cisco NPV Mode
 - NPIV Mode
- Describing Data Center Ethernet Enhancements
 - IEEE Data Center Bridging
 - Priority Flow Control
 - Enhanced Transmission Selection
 - DCBX Protocol
 - Congestion Notification

- Describing FCoE
 - Cisco Unified Fabric
 - FCoE Architecture
 - FCoE Initialization Protocol
 - FCoE Adapters
- Describing Cisco UCS Components
 - Physical Cisco UCS Components
 - Cisco Fabric Interconnect Product Overview
 - Cisco IOM Product Overview
 - Cisco UCS Mini
 - Cisco IMC Supervisor
 - Cisco Intersight
- Describing Cisco UCS Manager
 - Cisco UCS Manager Overview
 - Identity and Resource Pools for Hardware Abstraction
 - Service Profiles and Service Profile Templates
 - Cisco UCS Central Overview
 - Cisco HyperFlex Overview
- Using APIs
 - Common Programmability Protocols and Methods
 - How to Choose Models and Processes
- Describing Cisco ACI
 - Cisco ACI Overview
 - Multitier Applications in Cisco ACI
 - Cisco ACI Features
 - VXLAN in Cisco ACI
 - Unicast Traffic in Cisco ACI
 - Multicast Traffic in Cisco ACI
 - Cisco ACI Programmability
 - Common Programming Tools and Orchestration Options
- Describing Cloud Computing
 - Cloud Computing Overview
 - Cloud Deployment Models
 - Cloud Computing Services

Lab outline

- Explore the Cisco NX-OS CLI
- Explore Topology Discovery
- Configure HSRP
- Configure the Cisco Nexus 2000 FEX
- Configure vPCs
- Configure vPCs with Cisco FEX
- Configure VRF
- Explore the VDC Elements
- Install VMware ESXi and vCenter
- Configure VSANs
- Validate FLOGI and FCNS
- Configure Zoning
- Configure Unified Ports on a Cisco Nexus Switch and Implement FCoE
- Explore the Cisco UCS Server Environment
- Configure a Cisco UCS Service Profile
- Configure Cisco NX-OS with APIs
- Explore the Cisco UCS Manager XML API Management Information Tree



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