

# Understanding Cisco Data Center Foundations (DCFNDU) v1.1

## What you'll learn in this course

The **Understanding Cisco Data Center Foundations (DCFNDU) v1.1** 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 configuring features on Cisco Nexus Operating System (Cisco NX-OS) and Cisco Unified Computing System (Cisco UCS). This course also earns you 30 Continuing Education (CE) credits towards recertification.

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
- Earn 30 CE credits toward recertification

## Who should enroll

- Data center administrators
- Data center engineers
- Systems engineers
- Server administrators
- Network managers
- Cisco integrators and partners
- Data center designers
- Technical solutions architects
- Network architects

## How to enroll

### E-learning

- To buy a single e-learning license, visit the [Cisco Learning Network Store](#)
- For more than one license, or a learning library subscription, contact us at [learning-bdm@cisco.com](mailto:learning-bdm@cisco.com)

### Instructor-led training

- Find a class at the [Cisco Learning Locator](#)
- Arrange training at your location through [Cisco Private Group Training](#)

## 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)**

## Outline

- Describing the Data Center Network Architectures
  - Cisco Data Center Architecture Overview
  - Three-Tier Network: Core, Aggregation, and Access
- Describing the Cisco Nexus Family and Cisco NX-OS Software
  - Cisco Nexus Data Center Product Overview
  - Cisco NX-OS Software Architecture
- Describing Layer 3 First-Hop Redundancy
  - Default Gateway Redundancy
  - Hot Standby Router Protocol
- Describing Port Channels and vPCs
  - Ethernet Port Channels
  - Virtual Port Channels
- Describing Switch Virtualization
  - Cisco Nexus Switch Basic Components
  - Virtual Routing and Forwarding
- Describing Machine Virtualization
  - Virtual Machines
  - Hypervisor
- Describing Network Virtualization
  - Overlay Network Protocols
  - VXLAN Overlay
- Introducing Basic Data Center Storage Concepts
  - Storage Connectivity Options in the Data Center
  - Fibre Channel Storage Networking
- Describing Fibre Channel Communication Between the Initiator Server and the Target Storage
  - Fibre Channel Layered Model

- FLOGI Process
- Describing Fibre Channel Zone Types and Their Uses
  - Fibre Channel Zoning
  - Zoning Configuration
- Describing Cisco NPV Mode and NPIV
  - Cisco NPV Mode
  - NPIV Mode
- Describing Data Center Ethernet Enhancements
  - IEEE Data Center Bridging
  - Priority Flow Control
- Describing FCoE
  - Cisco Unified Fabric
  - FCoE Architecture
- Describing Cisco UCS Components
  - Physical Cisco UCS Components
  - Cisco Fabric Interconnect Product Overview
- Describing Cisco UCS Manager
  - Cisco UCS Manager Overview
  - Identity and Resource Pools for Hardware Abstraction
- Using APIs
  - Common Programmability Protocols and Methods
  - How to Choose Models and Processes
- Automating the Data Center
- Describing Cisco ACI
  - Cisco ACI Overview
  - Multitier Applications in Cisco ACI
- Describing Cloud Computing
  - Cloud Computing Overview
  - Cloud Deployment Models

### Lab outline

- Explore the Cisco NX-OS CLI
- Explore Topology Discovery
- Configure HSRP
- Configure vPCs
- Configure VRF
- Explore the VDC Elements
- Install 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
- Explore Cisco ACI



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