

# Understanding Cisco Data Center Foundations

Learn via: **Classroom / Virtual Classroom / Online**

Duration: **5 Day**

<https://bilginc.com/en/training/understanding-cisco-data-center-foundations-4434-training/>

## Overview

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®).

## **Who should attend**

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

## 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)

## What You Will Learn

- 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 Fabric Extender (FEX) connectivity
- Describe Ethernet port channels and virtual port channel (VPCs)
- Introduce switch virtualization, machine virtualization, and 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 N-Port Virtualization (NPV) and N-Port Identifier Virtualization (NPIV)
- Describe data center Ethernet enhancements that provide a lossless fabric
- Describe Fibre Channel over Ethernet 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

## 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 Virtual Device Contexts (VDCs)
- VDC Types
- VDC Resource Allocation
- VDC Management

## Describing Machine Virtualization

- Virtual Machines
- Hypervisor
- VM Manager

## Describing Network Virtualization

- Overlay Network Protocols
- Virtual Extensible LAN (VXLAN) Overlay
- VXLAN Border Gateway Protocol (BGP) Ethernet VPN (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
- Virtual Storage Area Network (VSAN) Configuration and Verification

## Describing Fibre Channel Communication Between the Initiator Server and the Target Storage

- Fibre Channel Layered Model
- Fabric Login (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

- Institute of Electrical and Electronic Engineers (IEEE) Data Center Bridging
- Priority Flow Control
- Enhanced Transmission Selection
- Data Center Bridging Exchange (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 I/O Module (IOM) Product Overview
- Cisco UCS Mini
- Cisco Integrated Management Controller (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