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Learning Style: On Demand

Technology: Cisco

Difficulty: Intermediate

Course Duration: 40 Hours

Understanding Cisco Data Center Foundations (DCFNDU) V1.0 - On Demand



About 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, SAN 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®).

Course Objective:

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 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 application programming interfaces (APIs)
- Describe Cisco ACI
- Describe the basic concepts of cloud computing

Audience:

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

Prerequisite:

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)

Course 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

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