Understanding Cisco Data Center Foundations (DCFNDU)

Course Duration: 40Hours **Course code: DCFNDU**

1. Course Overview

The Understanding Cisco Data Center Foundations 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.

2. What you'll learn?

After completing 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 APIs
- Describe Cisco ACI
- Describe the basic concepts of cloud computing

3. Target Audience

Individuals looking to gain the knowledge and skills required for an entry level role in a Cisco Data Center environment.

4. Pre-Requisites

Attendees should meet the following prerequisites:

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

Recommended prerequisites:

- CCNA - Implementing and Administering Cisco Solutions

5. Course content

1- Describing the Data Center Network Architectures

- Cisco Data Center Architecture Overview
- Three-Tier Network: Core, Aggregation, and Access
- Spine-and-Leaf Network
- Storage Area Network
- Hypoconverged Storage Systems

2- Describing the Cisco Nexus Family and Cisco NX-OS Software

- Cisco Nexus Data Center Product Overview
- Cisco FEX Overview
- Cisco NX-OS Software Architecture
- Cisco NX-OS Software CLI Tools
- Cisco NX-OS Virtual Routing and Forwarding

3- Describing Layer 3 First-Hop Redundancy

- Default Gateway Redundancy
- Hot Standby Router Protocol
- Virtual Router Redundancy Protocol
- Gateway Load Balancing Protocol

4- Describing Port Channels and vPCs

- Ethernet Port Channels
- Virtual Port Channels

5- 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

6- Describing Machine Virtualization

- Virtual Machines
- Hypervisor
- VM Manager

7- 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

8- 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

9- Describing Fibre Channel Communication Between the Initiator Server and the Target Storage

- Fibre Channel Layered Model
- Fabric Login (FLOGI) Process
- Fibre Channel Flow Control

10- Describing Fibre Channel Zone Types and Their Uses

- Fibre Channel Zoning
- Zoning Configuration
- Zoning Management

11- Describing Cisco NPV Mode and NPIV

- Cisco NPV Mode
- NPIV Mode

12- 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

13-Describing FCoE

- Cisco Unified Fabric
- FCoE Architecture
- FCoE Initialization Protocol
- FCoE Adapters

14- Describing Cisco UCS Components

- Physical Cisco UCS Components
- Cisco HyperFlex Data Platform
- Cisco Fabric Interconnect Product Overview
- Cisco I/O Module (IOM) Product Overview
- Cisco UCS Mini
- Cisco Integrated Management Controller (IMC) Supervisor
- Cisco Intersight™

15- 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

16- Automating the Data Center

- Automation Basics
- Choosing the Automation Toolset
- Management and Orchestration Systems

17- Describing Cisco ACI

- Cisco ACI Overview
- Cisco ACI Topology and Hardware
- Cisco ACI Policy Model
- Cisco ACI External Connectivity Options
- Cisco ACI and VMM Integration
- Cisco ACI and Layer4-Layer 7 Integration
- Cisco ACI Management and Automation
- Cisco ACI Anywhere

18- Describing Cloud Computing

- Cloud Computing Overview
- Cloud Deployment Models
- Cloud Computing Services