

## Understanding Cisco Data Center Foundations

**Duration: 5 Days    Course Code: DCFNDU    Version: 1.1**

### 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. 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 professional-level data center courses and exams.

### 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

### Target Audience:

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

### Objectives:

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| <ul style="list-style-type: none"><li>■ <b>After completing this course, you should be able to:</b></li><li>■ Describe the foundations of data center networking</li><li>■ Describe Cisco Nexus products and explain the basic Cisco NX-OS functionalities and tools</li><li>■ Describe Layer 3 first-hop redundancy</li><li>■ Describe Cisco Fabric Extender (FEX) connectivity</li><li>■ Describe Ethernet port channels and virtual port channel (VPCs)</li><li>■ Introduce switch virtualization, machine virtualization, and network virtualization</li><li>■ Compare storage connectivity options in the data center</li><li>■ Describe Fibre Channel communication between the initiator server and the target storage</li></ul> | <ul style="list-style-type: none"><li>■ Describe Fibre Channel zone types and their uses</li><li>■ Describe N-Port Virtualization (NPV) and N-Port Identifier Virtualization (NPIV)</li><li>■ Describe data center Ethernet enhancements that provide a lossless fabric</li><li>■ Describe Fibre Channel over EthernetFCoE</li><li>■ Describe data center server connectivity</li><li>■ Describe Cisco UCS Manager</li><li>■ Describe the purpose and advantages of APIs</li><li>■ Describe Cisco ACI</li><li>■ Describe the basic concepts of cloud computing</li></ul> |
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### Prerequisites:

#### Attendees should meet the following prerequisites:

- Good understanding of networking protocols
- Good understanding of the VMware environment
- Basic knowledge of Microsoft Windows operating systems
- CCNA - Implementing and Administering Cisco Solutions

### Testing and Certification

#### Recommended as preparation for the following exams:

- There are no exams currently aligned to this course

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## Follow-on-Courses:

The following courses are recommended for further study:

- **DCCOR** - Implementing and Operating Cisco Data Center Core Technologies
  - **DCACI** - Implementing Cisco Application Centric Infrastructure
  - **DCCOR** - Implementing and Operating Cisco Data Center Core Technologies
  - **DCID** - Designing Cisco Data Center Infrastructure
  - **DCIT** - Troubleshooting Cisco Data Center Infrastructure
  - **DCMDS** - Configuring Cisco MDS 9000 Switches
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## Content:

### 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

### 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

### Describing Layer 3 First-Hop Redundancy

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

### Describing Port Channels and vPCs

- Ethernet Port Channels
- Virtual Port Channels

### 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 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™

### 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

### Automating the Data Center

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

### 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

### Describing Cloud Computing

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

### Labs

- Explore the Cisco NX-OS CLI
- Explore Topology Discovery
- Configure Hot Standby Router Protocol (HSRP)
- Configure VPCs
- Configure Virtual Routing and Forwarding (VRF)
- Explore the Virtual Device Contexts (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 Server Profile
- Configure Cisco NX-OS with APIs
- Explore the Cisco UCS Manager XML API Management Information Tree
- Explore Cisco ACI

## Further Information:

For More information, or to book your course, please call us on Head Office Tel.: +974 40316639

[training@globalknowledge.qa](mailto:training@globalknowledge.qa)

[www.globalknowledge.com/en-qa/](http://www.globalknowledge.com/en-qa/)

Global Knowledge, Qatar Financial Center, Burj Doha, Level 21, P.O.Box 27110, West Bay, Doha, Qatar