

## Understanding Cisco Data Center Foundations

**Duration: 5 Days**    **Course Code: DCFNDU**    **Version: 1.1**    **Delivery Method: Company Event**

### 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

#### Company Events

These events can be delivered exclusively for your company at our locations or yours, specifically for your delegates and your needs. The Company Events can be tailored or standard course deliveries.

### 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

### Testing and Certification

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

- There are no exams currently aligned to this course

- Good understanding of the VMware environment
  - Basic knowledge of Microsoft Windows operating systems
  - CCNA - Implementing and Administering Cisco Solutions
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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 01189 123456 / Northern Office 0113 242 5931

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