

Designing Cisco Data Centre Infrastructure

Learn via: **Classroom / Virtual Classroom**

Duration: **5 Days**

Overview

Designing Cisco Data Center Infrastructure (DCID) v6.0 is a five-day instructor-led course that focuses on data center design based on Cisco solutions. The course includes theoretical content, as well as design-oriented case studies that are in the form of activities. The course is designed to help students prepare for Cisco CCNP® Data Center certification and for professional-level data center roles.

The course includes information on designing data centers with Cisco components and technologies. It covers network designs with virtualization, Layer 2 and Layer 3 technologies and routing protocols, and data center interconnect design options. Also covered are device virtualization technologies such as virtual data centers and network function virtualization with virtual appliances including virtual switches, virtual routers, and virtual firewalls. Storage and SAN design is covered, with explanation of Fibre Channel networks and Cisco Unified Fabric. Design practices for the Cisco Unified Computing System (UCS) solution based on Cisco UCS B-Series and C-Series servers and Cisco UCS Manager are covered. Network management technologies include UCS Manager, Cisco Prime Data Center Network Manager, and Cisco UCS Director.

This course is part of the following Certifications: Cisco Certified Network Professional Data Center (CCNP Data Center)

Prerequisites

Students considered for this training should have attended the following classes or obtained an equivalent level of knowledge:

- Introducing Cisco Data Center Networking (DCICN)
- Introducing Cisco Data Center Technologies (DCICT)
- Implementing Cisco Data Center Infrastructure (DCII)
- Implementing Cisco Data Center Unified Computing (DCUCI)
- Implementing Cisco Data Center Virtualization and Automation (DCVAI)

The learner is expected to have the following skills and knowledge before attending this course:

- Implement data center networking (LAN and SAN)
- Describe data center storage
- Implement data center virtualization
- Implement Cisco Unified Computing System
- Implement data center automation and orchestration with the focus on Cisco ACI and UCS Director
- Describe products in the Cisco Data Center Nexus and MDS families

What You Will Learn

The goal of the course is to enable engineers to choose the components and design a scalable, reliable, and intelligent data center.

Upon completing this course, the learner will be able to meet these overall objectives:

- Describe Layer 2 switching and Layer 3 forwarding in a data center, including cabling and rack design for the access, aggregation, and core layers.
- Design vPC, Cisco FabricPath, OTV, and LISP in customer scenarios and describe management options in the LAN.
- Describe hardware virtualization and FEX technologies, compare the Cisco Nexus 1000v with VMFEX designs, discuss data center security threats and Cisco Virtual Application Container Services for IaaS, and describe management and automation options for the data center infrastructure.
- Describe storage and RAID options, describe the Fibre Channel concept and architecture, and design Fibre Channel and FCoE networks, along with management options.
- Describe the UCS C-Series, M-Series, and B-Series servers, with connectivity and adapter options. For the UCS B-Series deployment, you will be able to describe the blade chassis, I/O modules, and fabric interconnects, with a focus on south- and northbound connectivity and oversubscription. Compare the EHV and NPV network operations modes. Explain and distinguish among the different system integrated stack solutions and the management options for the UCS domains.
- Design the resource parameters for a UCS domain, starting with the setup and IP concepts, RBAC, and integration with authentication servers. Design the resource pools and policies used in UCS service profiles and templates.

Outline

Module 1: Data Center Network Connectivity Design

- Lesson 1: Describing High Availability on Layer 2
- Lesson 2: Describing Layer 3 Forwarding
- Lesson 3: Designing Data Center Topologies
- Lesson 4: Designing Data Center Interconnects with Cisco OTV
- Lesson 5: Designing a LISP Solution

Module 2: Data Center Infrastructure DesignObjective: Design

- Lesson 1: Describing Hardware and Device Virtualization
- Lesson 2: Describing FEX Options
- Lesson 3: Describing Virtual Networking
- Lesson 4: Describing Basic Data Center Security
- Lesson 5: Describing Advanced Data Center Security
- Lesson 6: Describing Virtual Appliances
- Lesson 7: Describing Management and Orchestration

Module 3: Data Center Storage Network Design

- Lesson 1: Describing Storage and RAID Options
- Lesson 2: Describing Fibre Channel Concepts
- Lesson 3: Describing Fibre Channel Topologies
- Lesson 4: Describing FCoE
- Lesson 5: Describing Storage Security
- Lesson 6: Describing Management and Orchestration

Module 4: Data Center Compute Connectivity Design

- Lesson 1: Describing Cisco UCS C-Series Servers and Use Cases
- Lesson 2: Describing Cisco UCS M-Series Servers and Use Cases
- Lesson 3: Describing Cisco UCS B-Series Servers and Use Cases
- Lesson 4: Describing Fabric Interconnect Connectivity
- Lesson 5: Describing Hyperconverged and Integrated Systems
- Lesson 6: Describing Management Systems
- Lesson 7: Describing Hadoop, SAP Hana, and IoT on Cisco UCS

Module 5: Data Center Compute Resource Parameters Design

- Lesson 1: Describing System-Wide Parameters
- Lesson 2: Describing RBAC
- Lesson 3: Describing Pools for Service Profiles
- Lesson 4: Describing Policies for Service Profiles
- Lesson 5: Describing Network Specific Adapters and Policies
- Lesson 6: Describing Templates in Cisco UCS Manager