

## DESIGNING CISCO DATA CENTER INFRASTRUCTURE (DCID v6.1)

### Temario

Focused on the designing of data centers with Cisco components and technologies. This course covers network designs with virtualization, Layer 2 and Layer 3 technologies, 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, routers and firewalls. Storage and SAN design is covered, with an 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. 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.

### Pre-requisitos

**Attendees should meet the following prerequisites:**

**Have attended or have knowledge equivalent to:**

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

### Dirigido a

Engineers and Architects involved in the design of a Cisco Data Center or Cisco Data Center Solution.

## **Objetivos del curso**

### **After completing this courses you should be able to:**

- 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.

## **Contenido**

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#### **Data Center Network Connectivity Design**

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

#### **Data Center Infrastructure Design**

- Describing Hardware and Device Virtualization
- Describing FEX Options
- Describing Virtual Networking
- Describing Basic Data Center Security
- Describing Advanced Data Center Security
- Describing Virtual Appliances
- Describing Management and Orchestration

## **Data Center Storage Network Design**

- Describing Storage and RAID Options
- Describing Fibre Channel Concepts
- Describing Fibre Channel Topologies
- Describing FCoE
- Describing Storage Security
- Describing Management and Orchestration

## **Data Center Compute Connectivity Design**

- Describing Cisco UCS C-Series Servers and Use Cases
- Describing Cisco UCS M-Series Servers and Use Cases
- Describing Cisco UCS B-Series Servers and Use Cases
- Describing Fabric Interconnect Connectivity
- Describing Hyperconverged and Integrated Systems
- Describing Management Systems
- Describing Hadoop, SAP Hana, and IoT on Cisco UCS

## **Data Center Compute Resource Parameters Design**

- Describing System-Wide Parameters
- Describing RBAC
- Describing Pools for Service Profiles
- Describing Policies for Service Profiles
- Describing Network Specific Adapters and Policies
- Describing Templates in Cisco UCS Manager

## **Design Activities**

- Design Virtual Port Channels
- Design FabricPath
- Design FHRP
- Design Routing Protocols
- Design Data Center Topology for a Customer
- Design Data Center Interconnect Using Cisco OTV
- Design Your VXLAN Network
- Design a FEX
- Design a Cisco Nexus 1000V-Based Solution
- Design a Cisco VACS Solution
- Design Management and Orchestration in Cisco UCS Solution
- Design a Fibre Channel Network
- Design and Integrate an FCoE Solution
- Design a Secure SAN
- Design Cisco UCS Director for Storage Networking
- Design Cisco UCS C-Series Servers Implementation

- Design Cisco UCS M-Series Servers Implementation
- Design a UCS Domain and Fabric Interconnect Cabling
- Design Cisco C-Series Integration with a UCS Domain
- Design a UCS Mini Solution
- Design UCS Fabric Interconnect Network and Storage Connectivity
- Design System-Wide Parameters in a Cisco UCS Solution
- Design an LDAP Integration with a UCS Domain
- Design Pools for Service Profiles in a Cisco UCS Solution
- Design Network-Specific Adapters and Policies in a Cisco UCS Solution