

# CISC-12 - DCID - DESIGNING CISCO DATA CENTER INFRASTRUCTURE V7.1

Categoria: Cisco

## INFORMAZIONI SUL CORSO



Durata:  
5 Giorni



Categoria:  
Cisco



Qualifica Istruttore:  
Cisco Certified  
Instructor



Dedicato a:  
Professionista IT



Produttore:  
Cisco

## OBIETTIVI

After completing this courses you should be able to:

- Describe the Layer 2 and Layer 3 forwarding options and protocols used in a data center
- Describe the rack design options, traffic patterns, and data center switching layer access, aggregation, and core
- Describe Locator/ID separation protocol
- Design a solution that uses Virtual Extensible LAN (VXLAN) for traffic forwarding
- Describe the hardware redundancy options; how to virtualize the network, compute, and storage functions; and virtual networking in the data center
- Describe solutions that use fabric extenders and compare Cisco Adapter Fabric Extender (FEX) with single root input/output virtualization (SR-IOV)
- Describe security threats and solutions in the data center
- Describe advanced data center security technologies and best practices
- Describe device management and orchestration in the data center
- Describe the storage options for the compute function and the different Redundant Array of Independent Disks (RAID) levels from a high-availability and performance perspective
- Describe Fibre Channel concepts and architecture
- Describe Fibre Channel topologies and industry terms
- Describe Fibre Channel over Ethernet (FCoE)
- Describe security options in the storage network
- Describe the management and automation options for the storage networking infrastructure
- Describe Cisco UCS servers and use cases for various Cisco UCS platforms
- Explain the connectivity options for fabric interconnects for southbound and northbound connections
- Describe the hyperconverged solution and integrated systems
- Describe the systemwide parameters for setting up a Cisco UCS domain
- Describe role-based access control (RBAC) and integration with directory servers to control access rights on Cisco UCS Manager
- Describe the pools that may be used in service profiles or service profile templates on Cisco UCS Manager
- Describe the different policies in the service profile
- Describe the Ethernet and Fibre Channel interface policies and additional network technologies
- Describe the advantages of templates and the difference between initial and updated templates
- Describe data center automation tools

## PREREQUISITI

Attendees should be able to:

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

Recommended prerequisites:

- CCNA - Implementing and Administering Cisco Solutions
- DCFNDU - Understanding Cisco Data Center Foundations
- DCCOR - Implementing and Operating Cisco Data Center Core Technologies

## CONTENUTI

### High Availability on Layer 2

- Overview of Layer 2 High-Availability Mechanisms
- Virtual Port Channels

### Layer 3 Connectivity

- First Hop Redundancy Protocols
- Improving Routing Protocol Performance and Security
- Enhance Layer 3 Scalability and Robustness

### Data Center Topologies

- Data Center Traffic Flows
- Cabling Challenges
- Access Layer
- Aggregation Layer
- Core Layer
- Spine-and-Leaf Topology
- Redundancy Options

### Locator/ID Separation Protocol

- Locator/ID Separation Protocol
- LISP VM Mobility
- LISP ESM Multihop Mobility
- LISP VPN Virtualization

### VXLAN Overlay Networks

- VXLAN Benefits over VLAN
- Layer 2 and Layer 3 VXLAN Overlay
- MP-BGP EVPN Control Plane Overview
- VXLAN Data Plane

### Hardware and Device Virtualization

- Hardware-Based High Availability
- Device Virtualization

- Cisco UCS Hardware Virtualization
- Server Virtualization
- SAN Virtualization
- N-Port ID Virtualization

### **Cisco FEX Options**

- Cisco Adapter FEX
- Access Layer with Cisco FEX
- Cisco FEX Topologies
- Virtualization-Aware Networking
- Single Root I/O Virtualization
- Cisco FEX Evaluation

### **Basic Data Center Security**

- Threat Mitigation
- Attack and Countermeasure Examples
- Securing the Management Plane
- Protecting the Control Plane
- RBAC and Authentication, Authorization, and Accounting (AAA)

### **Advanced Data Center Security**

- Cisco TrustSec in Cisco Secure Enclaves Architecture
- Cisco TrustSec Operation
- Firewalling
- Positioning the Firewall Within Data Center Networks
- Cisco Firepower® Portfolio
- Firewall Virtualization
- Designing for Threat Mitigation

### **Management and Orchestration**

- Network and License Management
- Cisco UCS Manager
- Cisco UCS Director
- Cisco Intersight
- Cisco NDFC Overview

### **Storage and RAID Options**

- Positioning DAS in Storage Technologies
- Network-Attached Storage
- Fibre Channel, FCoE, and Internet Small Computer System Interface (iSCSI)
- Evaluating Storage Technologies

### **Fibre Channel Concepts**

- Fibre Channel Connections, Layers, and Addressing
- Fibre Channel Communication
- Virtualization in Fibre Channel SAN

### **Fibre Channel Topologies**

- SAN Parameterization

- SAN Design Options
- Choosing a Fibre Channel Design Solution

## **FCoE**

- FCoE Protocol Characteristics
- FCoE Communication
- Data Center Bridging
- FCoE Initialization Protocol
- FCoE Design Options

## **Storage Security**

- Common SAN Security Features
- Zones
- SAN Security Enhancements
- Cryptography in SAN

## **SAN Management and Orchestration**

- Cisco DCNM for SAN
- Cisco DCNM Analytics and Streaming Telemetry
- Cisco UCS Director in the SAN
- Cisco UCS Director Workflows

## **Cisco UCS Servers and Use Cases**

- Cisco UCS C-Series Servers
- Fabric Interconnects and Blade Chassis
- Cisco UCS B-Series Server Adapter Cards
- Stateless Computing
- Cisco UCS Mini

## **Fabric Interconnect Connectivity**

- Using Fabric Interconnect Interfaces
- VLANs and VSANs in a Cisco UCS Domain
- Southbound Connections
- Northbound Connections
- Disjoint Layer 2 Networks
- Fabric Interconnect High Availability and Redundancy

## **Hyperconverged and Integrated Systems**

- Hyperconverged and Integrated Systems Overview
- Cisco HyperFlex™ Solution
- Cisco HyperFlex Scalability and Robustness
- Cisco HyperFlex Clusters
- Cluster Capacity and Multiple Clusters on One Cisco UCS Domain
- External Storage and Graphical Processing Units on Cisco HyperFlex
- Cisco HyperFlex Positioning

## **Cisco UCS Manager Systemwide Parameters**

- Cisco UCS Setup and Management
- Cisco UCS Traffic Management

## **Cisco UCS RBAC**

- Roles and Privileges
- Organizations in Cisco UCS Manager
- Locales and Effective Rights
- Authentication, Authorization, and Accounting
- Two-Factor Authentication

## **Pools for Service Profiles**

- Global and Local Pools
- Universally Unique Identifier (UUID) Suffix and Media Access Control (MAC) Address Pools
- World Wide Name (WWN) Pools
- Server and iSCSI Initiator IP Pools

## **Policies for Service Profiles**

- Global vs. Local Policies
- Storage and Basic Input/Output System (BIOS) Policies
- Boot and Scrub Policies
- Intelligent Platform Management Interface (IPMI) and Maintenance Policies

## **Network-Specific Adapters and Policies**

- LAN Connectivity Controls
- SAN Connectivity Controls
- Virtual Access Layer
- Connectivity Enhancements

## **Templates in Cisco UCS Manager**

- Templates in Cisco UCS Manager
- Service Profile Templates
- Network Templates

## **Designing Data Center Automation**

- Model-Driven Programmability
- Cisco NX-API Overview
- Programmability Using Python
- Cisco Ansible Module
- Cisco Intersight Cloud Orchestration Overview

## **Practice Activities**

- Design Virtual Port Channels
- Design First Hop Redundancy Protocol (FHRP)
- Design Routing Protocols
- Design Data Center Topology for a Customer
- Design Your VXLAN Network
- Create a Cisco FEX Design
- Design Management and Orchestration in a 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 a Cisco UCS Domain and Fabric Interconnect Cabling
- Design a Cisco UCS C-Series Server Implementation
- Design a Cisco UCS C-Series Integration with Cisco UCS Domain
- Design a Cisco UCS Mini Solution
- Design a Cisco UCS Fabric Interconnect Network and Storage Connectivity
- Design Systemwide Parameters in a Cisco UCS Solution
- Design an LDAP Integration with a Cisco UCS Domain
- Design Pools for Service Profiles in a Cisco UCS Solution
- Design Network-Specific Adapters and Policies in a Cisco UCS Solution

## INFO

**Esame:** 300-610 - Designing Cisco Data Center Infrastructure

**Materiale didattico:** Materiale didattico ufficiale Cisco in formato digitale

**Costo materiale didattico:** incluso nel prezzo del corso a Calendario

**Natura del corso:** Operativo (previsti lab su PC)