Designing Cisco Data Center Infrastructure

Référence : **DCID** Durée : **5 jours** Certification : **300-610**

CONNAISSANCES PREALABLES

• Describe data center storage. • Describe products in the Cisco Data Center Nexus and Multilayer Director Switch (MDS) families. • Implement Cisco Unified Computing System (Cisco UCS). • Implement data center automation and orchestration with the focus on Cisco Application Centric Infrastructure (ACI) and Cisco UCS Director. • Implement data center networking [Local Area Network (LAN) and Storage Area Network (SAN)]. • Implement data center virtualization.

PROFIL DES STAGIAIRES

• Cisco integrators or partners. • Consulting systems engineers. • Data center engineers. • Network administrators. • Network designers. • Network engineers. • Network managers. • Server administrators. • Systems engineers. • Technical solutions architects.

OBJECTIFS

• 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 the Cisco Overlay Transport Virtualization (OTV) technology that is used to interconnect data centers. • Describe Locator/ID separation protocol. • Design a solution that uses Virtual Extensible LAN (VXLAN) for traffic forwarding. • Describe 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 compute function and different Redundant Array of Independent Disks (RAID) levels from a high-availability and performance perspective. • Describe Fibre Channel concepts, topologies, architecture, and industry terms. • Describe Fibre Channel over Ethernet (FCoE). • Describe security options in the storage network. • Describe management and automation options for 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.

CERTIFICATION PREPAREE

Designing Cisco Data Center Infrastructure

METHODES PEDAGOGIQUES

- Mise à disposition d'un poste de travail par stagiaire
- Remise d'une documentation pédagogique papier ou numérique pendant le stage
- La formation est constituée d'apports théoriques, d'exercices pratiques, de réflexions et de retours d'expérience
- Le suivi de cette formation donne lieu à la signature d'une feuille d'émargement

FORMATEUR

Consultant-Formateur expert Data Center

METHODE D'EVALUATION DES ACQUIS

- Auto-évaluation des acquis par le stagiaire via un questionnaire
- Attestation de fin de stage adressée avec la facture

EduGroupe
Accompagner pour réussir

CONTENU DU COURS

Describing High Availability on Layer 2
- Overview of Layer 2 High-Availability Mechanisms
- Virtual Port Channels
- Cisco Fabric Path
- Virtual Port Channel+

Designing Layer 3 Connectivity
- First Hop Redundancy Protocols
- Improve Routing Protocol Performance and Security
- Enhance Layer 3 Scalability and Robustness

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

Designing Data Center Interconnects with Cisco OTV
- Cisco OTV Overview
- Cisco OTV Control and Data Planes
- Failure Isolation
- Cisco OTV Feature
- Optimize Cisco OTV
- Evaluate Cisco OTV

Describing Locator/ID Separation Protocol
- Locator/ID Separation Protocol
- Location Identifier Separation Protocol (LISP) Virtual Machine (VM) Mobility
- LISP Extended Subnet Mode (ESM) Multihop Mobility
- LISP VPN Virtualization

Describing VXLAN Overlay Networks
- Describe VXLAN Benefits over VLAN
- Layer 2 and Layer 3 VXLAN Overlay
- Multiprotocol Border Gateway Protocol (MP-BGP) Ethernet VPN (EVPN) Control Plane Overview
- VXLAN Data Plane

Describing Hardware and Device Virtualization

Describing 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

Describing Basic Data Center Security
- Threat Mitigation
- Attack and Countermeasure Examples
- Secure the Management Plane
- Protect the Control Plane
- RBAC and Authentication, Authorization, and Accounting (AAA)

Describing 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
- Design for Threat Mitigation

Describing Management and Orchestration
- Network and License Management
- Cisco UCS Manager
- Cisco UCS Director
- Cisco Intersight
- Cisco DCNM Overview

Describing Storage and RAID Options
- Position DAS in Storage Technologies
- Network-Attached Storage
- Fibre Channel, FCoE, and Internet Small Computer System Interface (iSCSI)
- Evaluate Storage Technologies

Describing Fibre Channel Concepts
- Fibre Channel Connections, Layers, and Addresses
- Fibre Channel Communication
- Virtualization in Fibre Channel SAN

Describing Fibre Channel Topologies
- SAN Parameterization
- SAN Design Options
- Choosing a Fibre Channel Design Solution

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

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

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

Describing 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

Describing Fabric Interconnect Connectivity

- Use of 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

Describing 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

Describing Cisco UCS Manager Systemwide Parameters

- Cisco UCS Setup and Management
- Cisco UCS Traffic Management

Describing Cisco UCS RBAC

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

Describing 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

Describing 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

Describing Network-Specific Adapters and Policies

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

Describing Templates in Cisco UCS Manager

- Cisco UCS Templates
- Service Profile Templates
- Network Templates

Designing Data Center Automation

- Model-Driven Programmability
- Cisco NX-API Overview
- Programmability Using Python
- Cisco Ansible Module
- Use the Puppet Agent

Certification Designing Cisco Data Center Infrastructure

- Cette formation prépare au passage de la certification Designing Cisco Data Center Infrastructure