CCNA Data Center

Introducing Cisco Data Center Networking (DCICN) v6.2

Course details

Objectives

After taking this course, you should be able to:

- Describe the characteristics and benefits of the Ethernet protocol
- List Ethernet standardization
- Describe the Open Systems Interconnection (OSI) and TCP/IP models
- Describe IPv4 and IPv6 network layer addressing
- Describe the packet delivery process
- Compare and contrast TCP/IP with the OSI model
- Examine the Cisco data center network architectures, the 2- and 3-tier network design, and the spine/leaf network design
- Describe Cisco Nexus® products and explain the basic functionalities and tools of Cisco NX-OS
- Describe issues with Spanning Tree Protocol (STP)
- Describe the routing process on Nexus switches
- Describe Layer 3 first-hop redundancy
- Describe and configure user security features
- Describe Access Control List (ACL) object groups
- Describe storage connectivity options in the data center
- Compare SCSI over IP (iSCSI), Fibre Channel, and Network-Attached Storage (NAS) connectivity for remote server storage
- Describe Fibre Channel storage networking, VLANs, VSANs, N-Port Virtualization (NPV), and N-Port Identifier Virtualization (NPIV)
- Describe communication between the initiator and target
- Describe Fibre Channel zone types and their uses
- Describe data center Ethernet enhancements that provide a lossless fabric
- Describe Fibre Channel over Ethernet
- Describe the components of a Cisco UCS server
- Describe the Cisco UCS physical connectivity for a fabric interconnect cluster
- Describe the Cisco UCS Manager interfaces

Prerequisites

- Good understanding of networking protocols
- Good understanding of the VMware environment
- Basic computer literacy
- Basic knowledge of the Microsoft Windows operating system
- Basic Internet skills

Outline

- Network Protocols and Host-to-Host Communication
    - Describing Ethernet
    - Describing the OSI and TCP/IP Models
    - Describing IPv4 and IPv6 Network Layer Addressing
    - Describing Packet Delivery on a Hierarchical Network
    - Describing the TCP/IP Transport Layer
- Basic Data Center Networking Concepts
    - Describing Data Center Network Architectures
    - Describing the Cisco Nexus Family and NX-OS
    - Implementing VLANs and Trunks
    - Describing Redundant Switched Topologies
- Advanced Data Center Networking Concepts
    - Describing the Routing Process on Cisco Nexus Switches
    - Describing Layer 3 First-Hop Redundancy
    - Describing AAA on Cisco Nexus Switches
    - Describing ACLs on Cisco Nexus Switches
- Basic Data Center Storage
    - Describing Storage Connectivity Options in the Data Center
    - Describing Fibre Channel Storage Networking
    - Describing VSANS
- Advanced Data Center Storage
    - Describing Communications Between Initiator and Target
    - Describing Fibre Channel Zone Types and Their Uses
    - Describing Cisco NPV Mode and NPIV

- Describing Data Center Ethernet Enhancements
- Describing Fibre Channel over Ethernet

- Cisco UCS Architecture
  - Describing Cisco UCS Server Hardware Components
  - Cisco UCS Physical Connectivity for a Fabric Interconnect Cluster
  - Describing the Cisco UCS Manager Interfaces

Lab outline

- Explore IPv4 and IPv6 Addressing
- Explore LAN Communication
- Explore Protocol Analysis
- Explore TCP and UDP Communication
- Explore the Cisco NX-OS Command-Line Interface
- Explore Topology Discovery and Documentation
- Implement VLANs and Trunks
- Map a Spanning Tree and Configure Port Channels
- Implement Multilayer Switching
- Configure OSPF
- Configure EIGRP
- Configure HSRP
- Configure AAA and Secure Remote Administration
- Configure ACLs
- Configure VSANs
- Validate FLOGI and FCNS
- Configure Zoning
- Explore the Cisco UCS Manager GUI

Introducing Cisco Data Center Technologies (DCICT) v6.2

Course details

Objectives

- After taking this course, you should be able to:
- Describe switch virtualization
- Describe machine virtualization
- Describe network virtualization, including overlays, virtual switches, and the Cisco Nexus® 1000V solution
- Describe Cisco FabricPath
- Describe Cisco Fabric Extender (FEX) connectivity
- Describe Ethernet port channels and virtual Port Channels (vPCs)
- Describe Cisco Unified Fabric
- Identify Cisco UCS components
- Describe the Cisco UCS organizational hierarchy and Role-Based Access Control (RBAC)
- Describe how to deploy servers in Cisco UCS
- Describe the purpose and advantages of Application Programming Interfaces (APIs)
- Describe cloud computing basic concepts
- Describe Cisco UCS Director and its functional blocks and deployment models
- Describe Cisco UCS Director orchestration features: policies, virtual data centers, workflows, and catalogs
- Describe Cisco ACI, traffic forwarding through the Cisco ACI fabric, and programming and orchestration capabilities
- Explain the traffic forwarding mechanisms in Cisco ACI
- Describe the programmability and orchestration capabilities of Cisco ACI

Prerequisites

- Good understanding of networking protocols
- Good understanding of the VMware environment

To fully benefit from this course, you should have completed the following course or obtained the equivalent level of knowledge:

- Introducing Cisco Data Center Networking (DCICN)

Outline

- Cisco Data Center Network Virtualization

    - Describing Switch Virtualization
    - Describing Machine Virtualization
    - Describing Network Virtualization
- Cisco Data Center Network Technologies Configuration
    - Describing Cisco FabricPath
    - Describing Cisco Fabric Extender
    - Describing Port Channels and Virtual Port Channels
    - Describing Cisco Unified Fabric
- Cisco Unified Computing System
    - Describing Cisco UCS Components
    - Cisco UCS RBAC
    - Deploying Servers in Cisco UCS
- Data Center Automation and Orchestration
    - Using Application Programming Interfaces
    - Cloud Computing
    - Describing Cisco UCS Director
    - Using Cisco UCS Director for Orchestration
- Cisco Application-Centric Infrastructure
    - Describing Cisco ACI
    - Describing Cisco ACI Traffic Forwarding
    - Programming and Orchestrating Cisco ACI

Lab outline

- Configure Virtual Routing and Forwarding by Using SSH
- Explore the Elements of Virtual Device Contexts
- Install VMware ESXi and vCenter
- Configure Cisco FabricPath
- Configure the Cisco Nexus 2000 Series Fabric Extender
- Configure Virtual Port Channels
- Configure Virtual Port Channels with FEX
- Configure Unified Ports on a Cisco Nexus Switch and Implement FCoE
- Explore the Cisco UCS Server Environment

- Configure Local RBAC
- Configure Cisco UCS to Boot Servers from SAN
- Configure Cisco NX-OS with APIs
- Explore the Management Information Tree of the Cisco UCS Manager XML API
- Configure User Accounts in Cisco UCS Director
- Add Virtual and Physical Accounts to Cisco UCS Director
- Customize Cisco UCS Director
- Explore Cisco UCS Director Monitoring Capabilities
- Use Cisco UCS Director Orchestration Features