Implementing and Operating Cisco Data Center Core Technologies (DCCOR)

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Implementing and Operating Cisco Data Center Core Technologies (DCCOR)

Course Duration
5 Days

Course Price
$4595.00
46 CLCs

Methods of Delivery
In-Person ILT
Virtual ILT
Onsite ILT

About this Class

In this Implementing and Operating Cisco Data Center Core Technologies course provides a comprehensive, end-to-end exploration of modern Cisco data center technologies, focusing on how switching, routing, storage, compute, security, automation, and application-centric networking integrate to form a resilient, scalable, and high-performance data center architecture. The curriculum begins with core data center networking foundations, including switching protocols, first-hop redundancy protocols, routing, multicast, and overlay technologies such as VXLAN, ensuring learners understand how traffic is efficiently forwarded, protected, and scaled within leaf-spine and fabric-based designs. It then expands into advanced concepts such as high-throughput converged fabrics, network infrastructure security, and Cisco Application-Centric Infrastructure (ACI), emphasizing how policy-based networking, packet flow visibility, virtual machine manager (VMM) integration, and network assurance improve operational consistency and application performance across on-premises and cloud-connected environments. Real-world deployment considerations are reinforced through discussions on cloud service models, infrastructure management, and network assurance concepts that help administrators maintain reliability and proactively identify issues. The course also delivers in-depth coverage of data center storage and compute, including Fibre Channel fabrics, FCoE unified networking, storage services, and security, alongside maintenance and operational best practices. Learners gain a strong understanding of Cisco Unified Computing System (UCS) architectures, including server form factors, network and SAN connectivity, service profiles, abstraction, and system security, all of which are critical for scalable server deployments and rapid workload provisioning. The final portion of the course focuses on data center automation and programmability, highlighting Cisco automation tools, integration with orchestration platforms, and scripting technologies that enable infrastructure as code, reduce manual configuration errors, and accelerate operational workflows. Hands-on labs reinforce these concepts by guiding learners through practical configurations of VXLAN, Cisco ACI fabrics and policies, Fibre Channel zoning, UCS service profiles, identity pools, authentication integration, and network automation using Ansible and Python, ensuring participants leave with both conceptual understanding and practical, job-ready skills for operating modern Cisco data center environments.

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How you will benefit

This class will help you

- Gain experience implementing, securing and automating network, compute, and storage infrastructure
- Gain knowledge and skills through Cisco's unique combination of lessons and hands-on practice using enterprise-grade Cisco learning technologies, data center equipment, and software
- Qualify for professional and expert-level job roles in the high-demand area of enterprise-class data center environments
- Prepare for the 350-601 DCCOR v1.2 exam
- Earn 64 CE credits toward recertification

Why Attend with Current Technologies CLC

- Our Instructors are the top 10% rated by Cisco
- Our Lab has a dedicated 1 Gig Fiber Connection for our Labs
- Our Labs run up to Date Code for all our courses

Who Should Attend

The job roles best suited to the material in this course are:

- Network Designers
- Network Administrators
- Network Engineers
- Systems Engineers
- Data Center Engineers
- Consulting Systems Engineers
- Technical Solutions Architects
- Cisco Integrators and Partners
- Field Engineers
- Server Administrators
- Network Managers
- Storage Administrators
- Program Managers
- Project Managers

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Objectives

After taking this course, you should be able to:

- Implement spanning tree protocol, port channels, and virtual port channels in the data center
- Implement first-hop redundancy protocols in the data center using Hot Standby Router Protocol (HSRP), Virtual Router Redundancy Protocol (VRRP), and Gateway Load Balancing Protocol (GLBP)
- Implement routing in the data center by using Open Shortest Path First (OSPF)v2, OSPFv3, and Border Gateway Protocol (BGP)
- Implement multicast functionality in the data center on the Cisco Nexus switches
- Implement overlay networks in the data center by using Virtual Extensible LAN (VXLAN)
- Implement network infrastructure security features on the Cisco Nexus switches
- Understand the architecture and features of high-performance Ethernet fabrics
- Introduce high-level Cisco Application Centric Infrastructure (ACI) concepts and describe various fabric discovery parameters
- Describe Cisco ACI building blocks and Virtual Machine Manager (VMM) domain integration
- Describe packet flow for various traffic types (unicast, multicast, and broadcast) in the data center
- Describe Cisco Cloud Service and deployment models
- Describe Cisco ACI fabric setup
- Implement network configuration management, describe software updates and their impacts, and implement network infrastructure monitoring
- Describe Cisco network assurance concepts such as Cisco Streaming Telemetry

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Objectives

After taking this course, you should be able to:
- Implement Fibre Channel fabric
- Implement storage infrastructure services in the data center such as distributed device aliases, zoning, N Port Virtualization (NPV), and Fibre Channel over IP (FCIP)
- Implement Fibre Channel over Ethernet (FCoE) unified fabric
- Implement storage infrastructure security features in the data center
- Describe storage infrastructure software updates and their impacts, and implement infrastructure monitoring
- Describe Cisco UCS Server form factors
- Implement Cisco UCS Fabric Interconnect and establish network connectivity for the Cisco UCS B-Series Blade Servers and Cisco UCS C-Series Rack Servers
- Implement Cisco Unified Computing Server abstraction
- Implement SAN connectivity for Cisco UCS
- Implement Cisco UCS security features in the data center
- Implement Cisco UCS configuration management, describe software updates and their impacts, and implement infrastructure monitoring
- Implement Cisco automation and scripting tools in the data center
- Describe and evaluate the Cisco integration with automation and orchestration software platforms, such as Ansible, Puppet, and Python
- Describe and evaluate Cisco data center automation and orchestration technologies

Prerequisites

There are no prerequisites for this training. However, the knowledge and skills you are recommended to have before attending this training are:
- Familiarity with Ethernet and TCP/IP networking
- Familiarity with SANs
- Familiarity with Fibre Channel protocol
- Identify products in the Cisco Data Center Nexus and Cisco MDS families
- Understanding of Cisco Enterprise Data Center architecture
- Understanding of server system design and architecture
- Familiarity with hypervisor technologies (such as VMware)

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Course Outline

Module 0: Introductions

Module 1: Implementing Data Center Switching Protocols
- Spanning Tree Protocol
- Port Channels Overview
- Virtual Port Channels Overview

Module 2: Implementing First-Hop Redundancy Protocols
- Hot Standby Router Protocol (HSRP) Overview
- Virtual Router Redundancy Protocol (VRRP) Overview
- First Hop Redundancy Protocol (FHRP) for IPv6

Module 3: Implementing Routing in Data Center*
- Open Shortest Path First (OSPF) v2 and Open Settlement Protocol (OSP) v3
- Border Gateway Protocol

Module 4: Implementing Multicast in Data Center*
- IP Multicast in Data Center Networks
- Internet Group Management Protocol (IGMP) and Multicast Listener Discovery (MLD)
- Multicast Distribution Trees and Routing Protocols
- IP Multicast on Cisco Nexus Switches

Module 5: Implementing Data Center Overlay Protocols
- Cisco Overlay Transport Virtualization
- Virtual Extensible LAN

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Course Outline

Module 6: Implementing Network Infrastructure Security*
- User Accounts and Role Based Access Control (RBAC)
- Authentication, Authorization, and Accounting (AAA) and SSH on Cisco NX-OS
- Keychain Authentication
- First Hop Security
- Media Access Control Security
- Control Plane Policing

Module 7: Describing Cisco Application-Centric Infrastructure
- Cisco ACI Overview, Initialization, and Discovery
- Cisco ACI Management
- Cisco ACI Fabric Access Policies

Module 8: Describing Cisco ACI Building Blocks and VMM Domain Integration
- Tenant-Based Components
- Cisco ACI Endpoints and Endpoint Groups (EPG)
- Controlling Traffic Flow with Contracts
- Virtual Switches and Cisco ACI VMM Domains
- VMM Domain EPG Association
- Cisco ACI Integration with Hypervisor Solutions

Module 9: Describing Packet Flow in Data Center Network*
- Data Center Traffic Flows
- Packet Flow in Cisco Nexus Switches
- Packet Flow in Cisco ACI Fabric

Module 10: Describing Cisco Cloud Service and Deployment Models
- Cloud Architectures
- Cloud Deployment Models

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Module 11: Describing Data Center Network Infrastructure Management, Maintenance, and Operations*

- Time Synchronization
- Network Configuration Management
- Software Updates
- Network Infrastructure Monitoring

Module 12: Explaining Cisco Network Assurance Concepts*

- Need for Network Assurance
- Cisco Streaming Telemetry Overview

Module 13: Implementing Fibre Channel Fabric

- Fibre Channel Basics
- Virtual Storage Area Network (VSAN) Overview
- SAN Port Channels Overview
- Fibre Channel Domain Configuration Process

Module 14: Implementing Storage Infrastructure Services

- Distributed Device Aliases
- Zoning
- N-Port Identifier Virtualization (NPIV) and N-Port Virtualization (NPV)
- Fibre Channel over IP
- Network Access Server (NAS) Concepts
- Storage Area Network (SAN) Design Options

Module 15: Implementing FCoE Unified Fabric

- Fibre Channel over Ethernet
- Describing FCoE

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Course Outline

Cont. Module 15
- FCoE Topology Options
- FCoE Implementation

Module 16: Implementing Storage Infrastructure Security*
- User Accounts and RBAC
- Authentication, Authorization, and Accounting
- Fibre Channel Port Security and Fabric Binding

Module 17: Describing Data Center Storage Infrastructure Maintenance and Operations*
- Time Synchronization
- Software Installation and Upgrade
- Storage Infrastructure Monitoring

Module 18: Describing Cisco UCS Server Form Factors*
- Cisco UCS B-Series Blade Servers
- Cisco UCS C-Series Rack Servers

Module 19: Implementing Cisco Unified Computing Network Connectivity
- Cisco UCS Fabric Interconnect
- Cisco UCS B-Series Connectivity
- Cisco UCS C-Series Integration

Module 20: Implementing Cisco Unified Computing Server Abstraction
- Identity Abstraction
- Service Profile Templates

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Course Outline

Module 21: Implementing Cisco Unified Computing SAN Connectivity
- iSCSI Overview
- Fibre Channel Overview
- Implement FCoE

Module 22: Implementing Unified Computing Security
- User Accounts and RBAC
- Options for Authentication
- Key Management

Module 23: Introducing Cisco HyperFlex Systems*
- Hyperconverged and Integrated Systems Overview
- Cisco HyperFlex Solution
- Cisco HyperFlex Scalability and Robustness

Module 24: Describing Data Center Unified Computing Management, Maintenance, and Operations*
- Compute Configuration Management
- Software Updates
- Infrastructure Monitoring
- Cisco Intersight™

Module 25: Implementing Cisco Data Center Automation and Scripting Tools*
- Cisco NX-OS Programmability
- Scheduler Overview
- Cisco Embedded Event Manager Overview
- Bash Shell and Guest Shell for Cisco NX-OS
- Cisco Nexus API

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Course Outline

Module 26: Describing Cisco Integration with Automation and Orchestration Software Platforms

- Cisco and Ansible Integration Overview
- Cisco and Puppet Integration Overview
- Python in Cisco NX-OS and Cisco UCS

Module 27: Describing Cisco Data Center Automation and Orchestration Technologies*

- Power On Auto Provisioning
- Cisco Data Center Network Manager Overview
- Cisco UCS Director Fundamentals
- Cisco UCS PowerTool

Lab Outline

- Lab 1: Configure VXLAN

- Lab 2: Explore the Cisco ACI Fabric

- Lab 3: Implement Cisco ACI Access Policies and Out-of-Band Management

- Lab 4: Implement Cisco ACI Tenant Policies

- Lab 5: Integrate Cisco ACI with VMware

- Lab 6: Configure Fibre Channel

- Lab 7: Configure Device Aliases

- Lab 8: Configure Zoning

- Lab 9: Configure NPV

- Lab 10: Provision Cisco UCS Fabric Interconnect

- Lab 11 Configure Server and Uplink Ports

- Lab 12: Configure VLANs

- Lab 13: Configure Cisco UCS Server Profile Using Hardware Identities

- Lab 14: Configure Basic Identity Pools

- Lab 15: Configure a Cisco UCS Service Profile Using Pools

- Lab 16: Configure an iSCSI Service Profile

- Lab 17: Configure Cisco UCS Manager to Authenticate Users with Microsoft Active Directory

- Lab 18: Configure Cisco Nexus Switches with Ansible

- Lab 19: Program a Cisco Nexus Switch with Python