

# Implementing and Operating Cisco Data Center Core Technologies (DCCOR) v1.0

## What you'll learn in this course

The **Implementing and Operating Cisco Data Center Core Technologies (DCCOR) v1.0** course helps you prepare for the **Cisco® CCNP® Data Center and CCIE® Data Center** certifications for advanced-level data center roles. In this course, you will master the skills and technologies you need to implement data center compute, LAN and SAN infrastructure. You will also learn the essentials of automation and security in data centers. You will gain hands-on experience deploying, securing, operating, and maintaining Cisco data center infrastructure including: Cisco MDS Switches and Cisco Nexus Switches; Cisco Unified Computing System™ (Cisco UCS®) B-Series Blade Servers, and Cisco UCS C-Series Rack Servers.

This course, including the self-paced material, helps prepare you to take the exam:

- **350-601 Implementing Cisco Data Center Core Technologies (DCCOR)**

## Course duration

- Instructor-led training: 5 days in the classroom with hands-on lab practice, plus the equivalent of 3 days of self-paced material
- Virtual instructor-led training: 5 days of web-based classes with hands-on lab practice, plus the equivalent of 3 days of self-paced material
- E-learning: Equivalent of 8 days of content with videos, practice, and challenges

## How you'll benefit

This course 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



## What to expect in the exam

This course will help you prepare to take the **350-601 DCCOR** exam. This exam tests your knowledge of implementing core data center technologies including network, compute, storage network, automation, and security.

After you pass **350-601 DCCOR**:

- You earn the **Cisco Certified Specialist - Data Center Core** certification and you satisfy the core requirement for these certifications:
  - **CCNP Data Center**
  - **CCIE Data Center**

## Who should enroll

- Network designers
- Network administrators
- Network engineers
- Systems engineers
- Data center engineers
- Consulting systems engineers
- Technical solutions architects
- Field engineers
- Cisco integrators and partners
- Server administrator
- Network manager

## How to enroll

### E-learning

- To buy a single e-learning license, visit the [Cisco Learning Network Store](#).
- For more than one license, or a learning library subscription, contact us at [learning-bdm@cisco.com](mailto:learning-bdm@cisco.com).

### Instructor-led training

- Find a class at the [Cisco Learning Locator](#).
- Arrange training at your location through [Cisco Private Group Training](#).

## Technology areas

- Data center



## Course details

### Objectives

After taking this course, you should be able to:

- Implement routing and switching protocols in Data Center environment
- Implement overlay networks in data center
- Introduce high-level Cisco Application Centric Infrastructure (Cisco ACI™) concepts and Cisco Virtual Machine manager (VMM) domain integration
- Describe Cisco Cloud Service and deployment models
- Implement Fibre Channel fabric
- Implement Fibre Channel over Ethernet (FCoE) unified fabric
- Implement security features in data center
- Implement software management and infrastructure monitoring
- Implement Cisco UCS Fabric Interconnect and Server abstraction
- Implement SAN connectivity for Cisco Unified Computing System™ (Cisco UCS®)
- Describe Cisco HyperFlex™ infrastructure concepts and benefits
- Implement Cisco automation and scripting tools in data center
- Evaluate automation and orchestration technologies

### Prerequisites

To fully benefit from this course, you should have the following knowledge and skills:

- 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)

These Cisco courses are recommended to help you meet these prerequisites:

- **Implementing and Administering Cisco Solutions (CCNA)**
- **Understanding Cisco Data Center Foundations (DCFNDU)**

### Outline

- Implementing Data Center Switching Protocols\*
  - Spanning Tree Protocol
  - Port Channels Overview
  - Virtual Port Channels Overview



- Implementing First-Hop Redundancy Protocols\*
  - Hot Standby Router Protocol (HSRP) Overview
  - Virtual Router Redundancy Protocol (VRRP) Overview
  - First Hop Redundancy Protocol (FHRP) for IPv6
- Implementing Routing in Data Center\*
  - Open Shortest Path First (OSPF) v2 and Open Shortest Path Protocol (OSPP) v3
  - Border Gateway Protocol
- 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
- Implementing Data Center Overlay Protocols
  - Cisco Overlay Transport Virtualization
  - Virtual Extensible LAN
- 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
- Describing Cisco Application-Centric Infrastructure
  - Cisco ACI Overview, Initialization, and Discovery
  - Cisco ACI Management
  - Cisco ACI Fabric Access Policies
- 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
- Describing Packet Flow in Data Center Network\*
  - Data Center Traffic Flows
  - Packet Flow in Cisco Nexus Switches
  - Packet Flow in Cisco ACI Fabric



- Describing Cisco Cloud Service and Deployment Models
  - Cloud Architectures
  - Cloud Deployment Models
- Describing Data Center Network Infrastructure Management, Maintenance, and Operations\*
  - Time Synchronization
  - Network Configuration Management
  - Software Updates
  - Network Infrastructure Monitoring
- Explaining Cisco Network Assurance Concepts\*
  - Need for Network Assurance
  - Cisco Streaming Telemetry Overview
- Implementing Fibre Channel Fabric
  - Fibre Channel Basics
  - Virtual Storage Area Network (VSAN) Overview
  - SAN Port Channels Overview
  - Fibre Channel Domain Configuration Process
- 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
- Implementing FCoE Unified Fabric
  - Fibre Channel over Ethernet
  - Describing FCoE
  - FCoE Topology Options
  - FCoE Implementation
- Implementing Storage Infrastructure Security\*
  - User Accounts and RBAC
  - Authentication, Authorization, and Accounting
  - Fibre Channel Port Security and Fabric Binding
- Describing Data Center Storage Infrastructure Maintenance and Operations\*
  - Time Synchronization
  - Software Installation and Upgrade
  - Storage Infrastructure Monitoring
- Describing Cisco UCS Server Form Factors\*
  - Cisco UCS B-Series Blade Servers
  - Cisco UCS C-Series Rack Servers
- Implementing Cisco Unified Computing Network Connectivity



- Cisco UCS Fabric Interconnect
- Cisco UCS B-Series Connectivity
- Cisco UCS C-Series Integration
- Implementing Cisco Unified Computing Server Abstraction
  - Identity Abstraction
  - Service Profile Templates
- Implementing Cisco Unified Computing SAN Connectivity
  - iSCSI Overview
  - Fibre Channel Overview
  - Implement FCoE
- Implementing Unified Computing Security
  - User Accounts and RBAC
  - Options for Authentication
  - Key Management
- Introducing Cisco HyperFlex Systems\*
  - Hyper converged and Integrated Systems Overview
  - Cisco HyperFlex Solution
  - Cisco HyperFlex Scalability and Robustness
- Describing Data Center Unified Computing Management, Maintenance, and Operations\*
  - Compute Configuration Management
  - Software Updates
  - Infrastructure Monitoring
  - Cisco Intersight™
- 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
- 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



- 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

\*This section is self-study material that can be done at your own pace after the instructor-led portion of the course.

### Lab outline

- Configure Overlay Transport Visualization (OTV)
- Configure Virtual Extensible LAN (VXLAN)
- Explore the Cisco ACI Fabric
- Implement Cisco ACI Access Policies and Out-of-Band Management
- Implement Cisco ACI Tenant Policies
- Integrate Cisco ACI with VMware
- Configure Fibre Channel
- Configure Device Aliases
- Configure Zoning
- Configure NPV
- Configure FCoE
- Provision Cisco UCS Fabric Interconnect Cluster
- Configure Server and Uplink Ports
- Configure VLANs
- Configure a Cisco UCS Server Profile Using Hardware Identities
- Configure Basic Identity Pools
- Configure a Cisco UCS Service Profile Using Pools
- Configure an Internet Small Computer Systems Interface (iSCSI) Service Profile
- Configure Cisco UCS Manager to Authenticate Users with Microsoft Active Directory
- Program a Cisco Nexus Switch with Python