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# Implementing and Operating Cisco Data Center Core Technologies

DURATION: 5 DAYS

COURSE CODE: DCCOR

FORMAT: LECTURE/LAB

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## COURSE DESCRIPTION

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 and for advanced-level data center roles.

This course should help you learn 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 get hands-on experience with 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 helps prepare you to take the Implementing Cisco Data Center Core Technologies (350-601 DCCOR) exam, which leads to the new CCNP Data Center, CCIE Data Center, and the Cisco Certified Specialist - Data Center Core certifications. The exam will be available beginning February 24, 2020.

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## WHO SHOULD ATTEND

Network designers, administrators, engineers, and managers

Systems engineers

Data center engineers

Consulting systems engineers

Technical solutions architects

Field engineers

Cisco integrators and partners

Server administrator

## 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
- Ability to 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) v1.0
- Understanding Cisco Data Center Foundations (DCFNDU) v1.0
- Introducing Cisco Data Center Networking (DCICN) v6.2
- Introducing Cisco Data Center Technologies (DCICT) v6.2
- Interconnecting Cisco Networking Devices Part 1 (ICND1)
- Interconnecting Cisco Networking Devices Part 2 (ICND2)

## LEARNING OBJECTIVES

Implement routing and switching protocols in a 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 UCS

Describe Cisco HyperFlex™ infrastructure concepts and benefits

Implement Cisco automation and scripting tools in data center

Evaluate automation and orchestration technologies

## COURSE OUTLINE

1. Implementing Data Center Switching Protocols\*
2. Spanning Tree Protocol
3. Port Channels Overview
4. Virtual Port Channels Overview
5. Implementing First-Hop Redundancy Protocols\*
6. Hot Standby Router Protocol (HSRP) Overview
7. Virtual Router Redundancy Protocol (VRRP) Overview
8. First Hop Redundancy Protocol (FHRP) for IPv6
9. Implementing Routing in Data Center\*
10. Open Shortest Path First (OSPF) v2 and Open Settlement Protocol (OSP) v3
11. Border Gateway Protocol
12. Implementing Multicast in Data Center\*
13. IP Multicast in Data Center Networks
14. Internet Group Management Protocol (IGMP) and Multicast Listener Discovery (MLD)
15. Multicast Distribution Trees and Routing Protocols
16. IP Multicast on Cisco Nexus Switches
17. Implementing Data Center Overlay Protocols
18. Cisco Overlay Transport Virtualization
19. Virtual Extensible LAN
20. Implementing Network Infrastructure Security\*
21. User Accounts and Role Based Access Control (RBAC)
22. Authentication, Authorization, and Accounting (AAA) and SSH on Cisco NX-OS
23. Keychain Authentication
24. First Hop Security
25. Media Access Control Security
26. Control Plane Policing
27. Describing Cisco Application-Centric Infrastructure
28. Cisco ACI Overview, Initialization, and Discovery
29. Cisco ACI Management
30. Cisco ACI Fabric Access Policies
31. Describing Cisco ACI Building Blocks and VMM Domain Integration
32. Tenant-Based Components
33. Cisco ACI Endpoints and Endpoint Groups (EPG)
34. Controlling Traffic Flow with Contracts
35. Virtual Switches and Cisco ACI VMM Domains
36. VMM Domain EPG Association
37. Cisco ACI Integration with Hypervisor Solutions
38. Describing Packet Flow in Data Center Network\*
39. Data Center Traffic Flows
40. Packet Flow in Cisco Nexus Switches
41. Packet Flow in Cisco ACI Fabric
42. Describing Cisco Cloud Service and Deployment Models
43. Cloud Architectures
44. Cloud Deployment Models
45. Describing Data Center Network Infrastructure Management, Maintenance, and Operations\*
46. Time Synchronization
47. Network Configuration Management
48. Software Updates
49. Network Infrastructure Monitoring
50. Explaining Cisco Network Assurance Concepts\*
51. Need for Network Assurance
52. Cisco Streaming Telemetry Overview
53. Implementing Fibre Channel Fabric
54. Fibre Channel Basics
55. Virtual Storage Area Network (VSAN) Overview

## COURSE OUTLINE

56. SAN Port Channels Overview
57. Fibre Channel Domain Configuration Process
58. Implementing Storage Infrastructure Services
59. Distributed Device Aliases
60. Zoning
61. N-Port Identifier Virtualization (NPIV) and N-Port Virtualization (NPV)
62. Fibre Channel over IP
63. Network Access Server (NAS) Concepts
64. Storage Area Network (SAN) Design Options
65. Implementing FCoE Unified Fabric
66. Fibre Channel over Ethernet
67. Describing FCoE
68. FCoE Topology Options
69. FCoE Implementation
70. Implementing Storage Infrastructure Security\*
71. User Accounts and RBAC
72. Authentication, Authorization, and Accounting
73. Fibre Channel Port Security and Fabric Binding
74. Describing Data Center Storage Infrastructure Maintenance and Operations\*
75. Time Synchronization
76. Software Installation and Upgrade
77. Storage Infrastructure Monitoring
78. Describing Cisco UCS Server Form Factors\*
79. Cisco UCS B-Series Blade Servers
80. Cisco UCS C-Series Rack Servers
81. Implementing Cisco Unified Computing Network Connectivity
82. Cisco UCS Fabric Interconnect
83. Cisco UCS B-Series Connectivity
84. Cisco UCS C-Series Integration
85. Implementing Cisco Unified Computing Server Abstraction
86. Identity Abstraction
87. Service Profile Templates
88. Implementing Cisco Unified Computing SAN Connectivity
89. iSCSI Overview
90. Fibre Channel Overview
91. Implement FCoE
92. Implementing Unified Computing Security
93. User Accounts and RBAC
94. Options for Authentication
95. Key Management
96. Introducing Cisco HyperFlex Systems\*
97. Hyperconverged and Integrated Systems Overview
98. Cisco HyperFlex Solution
99. Cisco HyperFlex Scalability and Robustness
100. Describing Data Center Unified Computing Management, Maintenance, and Operations\*
101. Compute Configuration Management
102. Software Updates
103. Infrastructure Monitoring
104. Cisco Intersight™
105. Implementing Cisco Data Center Automation and Scripting Tools\*
106. Cisco NX-OS Programmability
107. Scheduler Overview
108. Cisco Embedded Event Manager Overview
109. Bash Shell and Guest Shell for Cisco NX-OS
110. Cisco Nexus API
111. Describing Cisco Integration with Automation and Orchestration Software Platforms
112. Cisco and Ansible Integration Overview
113. Cisco and Puppet Integration Overview
114. Python in Cisco NX-OS and Cisco UCS
115. Describing Cisco Data Center Automation and Orchestration Technologies\*
116. Power On Auto Provisioning
117. Cisco Data Center Network Manager Overview
118. Cisco UCS Director Fundamentals
119. 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.

## DISCOVERY LABS

- 1: Configure Overlay Transport Visualization (OTV)
- 2: Configure Virtual Extensible LAN (VXLAN)
- 3: Explore the Cisco ACI Fabric
- 4: Implement Cisco ACI Access Policies and Out-of-Band Management
- 5: Implement Cisco ACI Tenant Policies
- 6: Integrate Cisco ACI with VMware
- 7: Configure Fibre Channel
- 8: Configure Device Aliases
- 9: Configure Zoning
- 10: Configure NPV
- 11: Configure FCoE
- 12: Provision Cisco UCS Fabric Interconnect Cluster
- 13: Configure Server and Uplink Ports
- 14: Configure VLANs
- 15: Configure a Cisco UCS Server Profile Using Hardware Identities
- 16: Configure Basic Identity Pools
- 17: Configure a Cisco UCS Service Profile Using Pools
- 18: Configure an Internet Small Computer Systems Interface (iSCSI) Service Profile
- 19: Configure Cisco UCS Manager to Authenticate Users with Microsoft Active Directory
- 20: Program a Cisco Nexus Switch with Python