Implementing and Operating Cisco Data Center Core Technologies (DCCOR)

Course Duration: 40 Hours **Course code: DCCOR**

1. Course Overview

The Implementing and Operating Cisco Data Center Core Technologies course helps you prepare for the Cisco CCNP Data Center and CCIE Data Center certifications and for advanced-level data center roles. Learn to master the skills and technologies you need to implement data center compute, LAN and SAN infrastructures. Understand the essentials of automation and security in data centers.

2. What you'll learn?

After completing 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

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- Implement Cisco automation and scripting tools in data center
- Evaluate automation and orchestration technologies

3. Target Audience

Individuals looking for the knowledge and skills required to implement, secure and automate network, compute and storage infrastructures.

4. Pre-Requisites

Attendees should meet the following prerequisites:

- 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)

Recommended prerequisites:

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

5. Course content

1- Implementing Data Center Switching Protocols

- Spanning Tree Protocol
- Port Channels Overview
- Virtual Port Channels Overview

2- Implementing First-Hop Redundancy Protocols

- Hot Standby Router Protocol (HSRP) Overview
- Virtual Router Redundancy Protocol (VRRP) Overview

3- Implementing Routing in Data Center

- Open Shortest Path First (OSPF) v2 and Open Settlement Protocol (OSP) v3
- Border Gateway Protocol

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

5- Implementing Data Center Overlay Protocols

- Virtual Extensible LAN

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

7- Describing Cisco Application-Centric Infrastructure

- Cisco ACI Overview, Initialization, and Discovery
- Cisco Nexus Dashboard Overview
- Cisco CLoud ACI Overview
- Cisco ACI Management
- Cisco ACI Fabric Access Policies

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

9- Describing Packet Flow in Data Center Network

- Data Center Traffic Flows
- Packet Flow in Cisco Nexus Switches
- Packet Flow in Cisco ACI Fabric

10- Describing Cisco Cloud Service and Deployment Models

- Cloud Architectures
- Cloud Deployment Models

11- Describing Data Center Network Infrastructure Management, Maintenance, and Operations

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

12- Explaining Cisco Network Assurance Concepts

- Need for Network Assurance
- Cisco Streaming Telemetry Overview

13- Implementing Fibre Channel Fabric

- Fibre Channel Basics
- Virtual Storage Area Network (VSAN) Overview

- SAN Port Channels Overview
- Fibre Channel Domain Configuration Process

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

15- Implementing FCoE Unified Fabric

- Fibre Channel over Ethernet
- Describing FCoE
- FCoE Topology Options
- FCoE Implementation

16- Implementing Storage Infrastructure Security

- User Accounts and RBAC
- Authentication, Authorization, and Accounting
- Fibre Channel Port Security and Fabric Binding

17- Describing Data Center Storage Infrastructure Maintenance and Operations

- Time Synchronization
- Software Installation and Upgrade
- Storage Infrastructure Monitoring

18- Describing Cisco UCS Server Form Factors

- Cisco UCS B-Series Blade Servers
- Cisco UCS C-Series Rack Servers

19- Implementing Cisco Unified Computing Network Connectivity

- Cisco UCS Fabric Interconnect
- Cisco UCS B-Series Connectivity
- Cisco UCS C-Series Integration

20- Implementing Cisco Unified Computing Server Abstraction

- Identity Abstraction
- Service Profile Templates

21- Implementing Cisco Unified Computing SAN Connectivity

- Cisco Unified Computing Storage Connectivity Options
- iSCSI Overview
- Fibre Channel Overview
- Implement FCoE

22- Implementing Unified Computing Security

- User Accounts and RBAC
- Options for Authentication
- Key Management

13- Introducing Cisco HyperFlex Systems*

- Hyperconverged and Integrated Systems Overview
- Cisco HyperFlex Solution
- Cisco HyperFlex Scalability and Robustness

14- Describing Data Center Unified Computing Management, Maintenance, and Operations

- Compute Configuration Management
- Software Updates
- Infrastructure Monitoring
- Cisco Intersight™

15- Implementing Cisco Data Center Automation and Scripting Tools

- Cisco NX-OS Programmability
- Scheduler Overview
- Cisco Embedded Event Manager Overview
- Open NX-OS Linux Network Architecture
- Bash Shell and Guest Shell for Cisco NX-OS
- Cisco Nexus API
- Cisco NX-OS Model-Driven Programmability
- Cisco NX-SDK

16- Describing Cisco Integration with Automation and Orchestration Software Platforms

- Cisco and Ansible Integration Overview
- Python in Cisco NX-OS and Cisco UCS
- HashiCorp Terraform Overview
- Cisco Application-Centric Infrastructure Automation Options

17- Describing Cisco Data Center Automation and Orchestration Technologies

- Power On Auto Provisioning
- Cisco Nexus Dashboard Overview
- Cisco Nexus Dashboard Fabric Controller Overview
- Cisco UCS PowerTool