

**There are 3 modules and six exams for CCNP Data-Center
4 exams are required to become CCNP Data-Center**

Module 1 - Implementation (Required)
(DCUCI 642-999 / DCUFI 642-997)

**Module 2 - Designing
(Electives)**

(DCUCD 642-998 / DCUFD 642-996)

**Module 3 - Troubleshoot
(Electives)**

(DCUCT 642-035 / DCUFT 642-980)

Note : You can choose module 1 and 2 or 1 and 3

Implementing Cisco Data-Center Unified Computing (642-999)

Exam Description: The 642-999 DCUCI Implementing Cisco Data Center Unified Computing exam is associated with the CCNP® DC certification and with the Cisco Unified Computing Support Specialist. This 90-minute, 65–75 question exam tests a candidate's knowledge of implementing Cisco Data Center Unified Computing. Concepts like setup of the computing environment in a standalone and rack-mountable configuration, provisioning of storage resources, backup, management functions and deployment of a virtualized environment are covered by this exam. The exam is closed book and no outside reference materials are allowed.

The following topics are general guidelines for the content likely to be included on the exam. However, other related topics may also appear on any specific delivery of the exam. In order to better reflect the contents of the exam and for clarity purposes, the guidelines below may change at any time without

1.0 Implement C-Series Standalone

- 1.1 Implement UCS C-Series rack servers
- 1.2 Implement firmware updates
- 1.3 Configure CIMC
- 1.4 Configure network and storage connectivity
- 1.5 Provision hard drives
- 1.6 Install ESXI on local hard drives
- 1.7 Configure logging and monitoring the methods for Cisco UCS

2.0 Configure Cisco UCS B-Series Connectivity

- 2.1 Configure B-Series overall connectivity
- 2.2 Implement UCS B-Series component installation
- 2.3 Configure B-Series LAN connectivity
- 2.4 Configure B-Series SAN connectivity

3.0 Manage Cisco UCS B-Series

- 3.1 Implement security in a Cisco UCS
- 3.2 Identify the steps necessary to manage software and firmware versions and upgrades in a Cisco UCS
- 3.3 Implement backup and import for Cisco UCS database
- 3.4 Configure logging and monitoring the methods for Cisco UCS
- 3.5 Configure the Call Home feature in a Cisco UCS system
- 3.6 Describe high availability for the fabric interconnect cluster

4.0 Provision Cisco UCS Compute Resources

- 4.1 Provision network connectivity in a Cisco UCS
- 4.2 Provision storage sources in a Cisco UCS
- 4.3 Provision resource pools in a Cisco UCS
- 4.4 Provision resource policies in a Cisco UCS
- 4.5 Provision service profiles in a Cisco UCS
- 4.6 Provision O/S parameters in a Cisco UCS
- 4.7 Provision the base UCS system configuration
- 4.8 Provision virtual HBAs
- 4.9 Provision VNICs and VNIC policies in a Cisco UCS
- 4.10 Provision C-Series integration

5.0 Implement Cisco UCS Server Virtualization Features

- 5.1 Provision UCS integration with VMware vCenter server
- 5.2 Provision UCS vm-fex
- 5.3 Provision direct path I/O

Implementing Cisco Data-Center Unified Fabric (642-997)

Exam Description:

The 642-997 DCUFI Implementing Cisco Data Center Unified Fabric exam is associated with the CCNP® DC certification and with the Cisco Unified Fabric Support Specialist. This 90- minute, 65–75 question exam tests a candidate's knowledge of implementing Cisco Data Center Unified Fabric architecture, security, management, high availability, virtualization in the network. The exam is closed book and no outside reference materials are allowed.

The following topics are general guidelines for the content likely to be included on the exam. However, other related topics may also appear on any specific delivery of the exam. In order to better reflect the contents of the exam and for clarity purposes, the guidelines below may change at any time without notice.

1.0 Describe the Cisco Unified Fabric Products in a Cisco Data Center Network Architecture

- 1.1 Describe the Cisco data center network architecture from a Cisco Nexus Series Switch point of view
- 1.2 Describe the Cisco SAN network architecture from a Cisco MDS SAN Switch point of view
- 1.3 Describe Fibre Channel over Ethernet
- 1.4 Describe the Cisco Nexus product family
- 1.5 Describe the key high-availability features of Cisco NX-OS
- 1.6 Describe the key unified fabric features of Cisco NX-OS
- 1.7 Describe the key scalability features of Cisco NX-OS
- 1.8 Describe the features and benefits of the major Cisco Nexus line card modules
- 1.9 Describe the network infrastructure connection to the Cisco UCS platform

2.0 Implement Security on Cisco Unified Fabric Products in a Cisco Data Center Architecture

- 2.1 Implement CTS
- 2.2 Implement integrated security features
- 2.3 Implement AAA

2.4 Implement RBAC

2.5 Implement zoning

3.0 Manage the Unified Fabric in a Cisco Data Center Architecture

3.1 Implement CMP

3.2 Manage the Unified Fabric using DCNM SAN

3.3 Manage the Unified Fabric using DCNM LAN

3.4 Upgrade EPLD

3.5 Implement SNMP in the Unified Fabric environment

3.6 Implement xml

3.7 Implement DeviceManager

3.8 Implement netflow

3.9 Implement SPAN

3.10 Implement Callhome

3.11 Implement EEM

3.12 Implement licensing

3.13 Implement cfs

3.14 Implement scheduler

4.0 Implement High Availability Features on Cisco Unified Fabric Products in a Cisco Data Center Architecture

4.1 Implement FHRP

4.2 Implement Graceful Restart

4.3 Implement non-stop forwarding

4.4 Implement Port-channels

4.5 Implement vPC

4.6 Implement FabricPath

4.7 Upgrade NX-OS using ISSU

5.0 Implement Cisco Unified Fabric Network Features and Functionality in a Cisco Data Center Environment

- 5.1 Implement QoS
- 5.2 Implement L2 functionality
- 5.3 Implement L3 functionality
- 5.4 Implement multicast functionality
- 5.5 Implement LISP
- 5.6 Implement OTV
- 5.7 Implement MPLS

6.0 Implementing Network Virtualization in Cisco Data Center Environment

- 6.1 Implement VDC
- 6.2 Implement adapter-fex
- 6.3 Implement vm-fex
- 6.4 Integrate Nexus with vCenter manager
- 6.5 Implement vn-link

7.0 Implement Storage features in a Cisco Data Center environment

- 7.1 Implement zoning
- 7.2 Implement npiv
- 7.3 Implement npv
- 7.4 Implement vsans
- 7.5 Implement FCoE
- 7.6 Implement multihop FCoE
- 7.7 Describe shared vs. dedicated ports
- 7.8 Describe the FibreChannel protocol
- 7.9 Implement DCB features
- 7.10 Implement CFS (Cisco Fabric Services)

Designing Cisco Data-Center Unified Computing (642-998)

Exam Description:

The 642-998 DCUCD Designing Cisco Data Center Unified Computing exam is associated with the CCNP® DC certification and with the Cisco Unified Computing Design Specialist. This 90-minute, 65–75 question exam tests a candidate's knowledge of designing Cisco Data Center Unified Computing, including design concepts in a server virtualization environment, scalability, reliability, performance and management. The exam is closed book and no outside reference materials are allowed.

The following topics are general guidelines for the content likely to be included on the exam. However, other related topics may also appear on any specific delivery of the exam. In order to better reflect the contents of the exam and for clarity purposes, the guidelines below may change at any time without notice.

1.0 Describe the Design Methodology

- 1.1 Describe developing business trends
- 1.2 Identify business requirements driving the data center design
- 1.3 Determine the requirements needed to create a data center solution
- 1.4 Describe the tools/process to characterize an existing data center
- 1.5 Describe the top down approach to network design

2.0 Describe Data Center Structure and Modularity

- 2.1 Describe network architectures for the data center
 - 2.1.a LAN
 - 2.1.b SAN
- 2.2 Describe the modular approach in network design
- 2.3 Describe the data center core layer
- 2.4 Describe the data center aggregation layer
- 2.5 Describe the data center access layer
- 2.6 Identify design considerations for connectivity between data centers
- 2.7 Identify the environments that use a Cisco data center virtualization solution
- 2.8 Identify the migration plan from existing to new infrastructure

3.0 Describe the Technologies Used within the Data Center

- 3.1 Describe switching protocols used in a data center network
- 3.2 Describe IPv4/IPv6 Addressing
- 3.3 Identify routing protocol considerations in a data center
- 3.4 Describe how various data center protocols impact the design of a data center network
- 3.5 Describe data center server deployment topologies
- 3.6 Describe how traffic flows may impact the design of a data center network
- 3.7 Describe methods for deploying an energy efficient data center
- 3.8 Describe data center virtualization technologies
- 3.9 Determine when to use each technology within a data center solution
- 3.10 Describe high availability design in the data center

4.0 Design the Access Layer of a Data Center

- 4.1 Select appropriate platforms and modules in the data center access layer
- 4.2 Identify scalability, availability, performance, and connectivity requirements in the data center access layer
- 4.3 Design for traffic flows in the data center access layer
- 4.4 Design a cabling plan and topology for the data center access layer
- 4.5 Design virtualization into the data center access layer

5.0 Design Virtualization Solution using Cisco UCS

- 5.1 Gather historical performance characteristics for the network, compute and storage components of the data center.
- 5.2 Given a particular set of data center applications and servers, identify the number of physical machines necessary to create a Cisco virtualized data center solution
- 5.3 Given a particular set of data center applications and servers, identify the networking requirements to create a Cisco virtualized data center solution
- 5.4 Describe the deployment of pass-thru switching (PTS) and integration with vCenter
- 5.5 Specify the infrastructure needed to deploy a specified Cisco data center virtualization solution

5.6 Deploy operating systems

5.7 Specify the UCS components of solution design

5.8 Identify Cisco technologies to mitigate security vulnerabilities

5.9 Secure data center network connectivity

5.10 Secure the data center infrastructure

6.0 Design Network Management Considerations into a Data Center

6.1 Describe the common industry and Cisco-specific data center network management tools

6.2 Design a network data collection strategy for a data center

Designing Cisco Data-Center Unified Fabric (642-996)

Exam Description:

The 642-996 DCUFD Designing Cisco Data Center Unified Fabric exam is one of the exams associated with the CCNP[®] DC certification and to the Cisco Unified Fabric Design Specialist certification. This 90-minute, 65–75 question exam tests a candidate's knowledge of designing Cisco Data Center Unified Fabric solutions, including reference network topologies, routing protocols, traffic design concepts, storage and storage networking architectures, scalability, availability, security, and management architectures. The exam is closed book and no outside reference materials are allowed.

The following topics are general guidelines for the content likely to be included on the exam. However, other related topics may also appear on any specific delivery of the exam. In order to better reflect the contents of the exam and for clarity purposes, the guidelines below may change at any time without notice.

1.0 Describe the Design Methodology

- 1.1 Describe developing business trends
- 1.2 Identify business requirements driving the Data Center design
- 1.3 Determine the requirements needed to create a Data Center solution
- 1.4 Describe the tools/process to characterize an existing Data Center
- 1.5 Describe the top down approach to network design

2.0 Describe Data Center Structure and Modularity

- 2.1 Describe network architectures for the Data Center
 - 2.1.a LAN
 - 2.1.b SAN
- 2.2 Describe the Modular Approach in Network Design
- 2.3 Describe the data center core layer
- 2.4 Describe the data center aggregation layer
- 2.5 Describe the data center access layer
- 2.6 Identify Design Considerations for connectivity between Data Centers
- 2.7 Identify the environments that use a Cisco data center virtualization solution
- 2.8 Identify the migration plan from existing to new infrastructure

3.0 Troubleshooting Storage Area Network in a Cisco Data Center

- 3.1 Describe switching protocols used in a data center network
- 3.2 Describe IPv4/IPv6 Addressing
- 3.3 Identify Routing Protocol Considerations in an Data Center
- 3.4 Describe how various data center protocols impact the design of a data center network
- 3.5 Describe data center server deployment topologies
- 3.6 Describe how traffic flows may impact the design of a data center network
- 3.7 Describe methods for deploying a Energy Efficient Data Center
- 3.8 Describe Data Center virtualization technologies
- 3.9 Determine when to use each technology within a Data Center solution
- 3.10 Describe high availability design in the data center

4.0 Design the Core Layer of a Data Center

- 4.1 Select the appropriate platforms and modules for use in the data center core layer
- 4.2 Identify scalability, availability, performance and connectivity requirements in the data center core layer.
- 4.3 Design for traffic flows in the data center core layer
- 4.4 Design for a collapsed data center core layer

5.0 Design the Aggregation Layer of a Data Center

- 5.1 Select appropriate platforms and modules in the data center aggregation layer
- 5.2 Identify scalability, availability, and performance requirements in the Data Center aggregation layer
- 5.3 Design for traffic flows in the data center aggregation layer
- 5.4 Design virtualization into the data center aggregation layer

6.0 Design the Access Layer of a Data Center

- 6.1 Select appropriate platforms and modules in the data center access layer
- 6.2 Identify scalability, availability, performance and connectivity requirements in the Data Center access layer

- 6.3 Design for traffic flows in the Data Center access layer
- 6.4 Design a cabling plan and topology for the Data Center access layer
- 6.5 Design virtualization into the data center access layer

7.0 Design Storage and SAN Solution

- 7.1 Consult with internal leading storage vendor experts for design criteria for proper LUN sizing and data protection
- 7.2 Given a particular set of data center applications and servers, identify the storage requirements to create a Cisco virtualized data center solution.
- 7.3 Describe block vs. filter
- 7.4 Describe different SAN topologies
- 7.5 Describe and select SAN Services
- 7.6 Describe Data replication
- 7.7 Connect the SAN Unified Fabric

8.0 Design Security Considerations into a Data Center

- 8.1 Identify Cisco technologies to mitigate security vulnerabilities
- 8.2 Secure Data center network connectivity
- 8.3 Secure the Data center infrastructure

9.0 Design Network Management Considerations into a Data Center

- 9.1 Describe the common industry and Cisco-specific data center network management tools
- 9.2 Design a network data collection strategy for a data center.

Troubleshooting Cisco Data-Center Unified Computing (642-035)

Exam Description:

The 642-035 Troubleshooting Cisco Data Center Unified Computing exam tests a candidate's skills of troubleshooting a virtualized computing environment based on Cisco Unified Computing System platform, focusing on features like storage and network connectivity, installation, memory issues, booting issues, drivers, BIOS and adapters connectivity issues.

This 90-minute, 65–75 questions exam is associated with the CCNP[®] DC Certification and Cisco Unified Computing Support Specialist Certification. The exam is closed book and no outside reference materials are allowed.

The following topics are general guidelines for the content likely to be included on the exam. However, other related topics may also appear on any specific delivery of the exam. In order to better reflect the contents of the exam and for clarity purposes, the guidelines below may change at any time without notice.

1.0 Troubleshooting UCS Architecture and System Internals

- 1.1 Extract diagnostic data i.e., collecting dumps and core files
- 1.2 Identify issues using FSM
- 1.3 Troubleshoot boot issues
 - 1.3.a Blades
 - 1.3.b OS
- 1.4 Identify using CLI/GUI defective hardware
- 1.5 Troubleshoot management 0 KVM IP overlap issues

2.0 Troubleshooting UCS Installation, Configuration, and Startup

- 2.1 Configure and troubleshoot RBAC
- 2.2 Configure and troubleshoot modes and perform reboots
- 2.3 Configure and troubleshoot power consumption, power availability, and power policies
- 2.4 Manage service profiles
- 2.5 Understand and troubleshoot the UCSM upgrade process

3.0 Troubleshooting UCS SAN/LAN/VLAN Connectivity

- 3.1 Configure and capture SPAN traces
- 3.2 Troubleshoot fiber channel services
- 3.3 Troubleshoot L2 issues

- 3.4 Troubleshoot link-level issues
- 3.5 Configure and troubleshoot jumbo frames
- 3.6 Troubleshoot dynamic vNIC

4.0 UCS Compute Troubleshooting

- 4.1 Troubleshoot CIMC GUI and CLI remote access methods
- 4.2 Using CLI/GUI Troubleshoot packet flow from server to the fabric
- 4.3 Identify the steps that need to be performed on a rack standalone prior to integration into the UCSM
- 4.4 Describe the various methods to update the server BIOS/CIMC/adapters/array controllers
- 4.5 Troubleshoot OS driver issues
- 4.6 Troubleshoot memory issues
- 4.7 Troubleshoot boot issues
- 4.8 Troubleshoot redundant paths
- 4.9 Troubleshoot different adapters
- 4.10 Describe the process for password recovery

5.0 UCS C-Series Standalone Troubleshooting

- 5.1 Troubleshoot using CIMC GUI and CLI remote access methods
- 5.2 Use CIMC utilities for performance validation and data gathering activities
- 5.3 Update the server with the various methods
 - 5.3.a BIOS
 - 5.3.b CIMC
 - 5.3.c Adapters
 - 5.3.d Array Controllers
 - 5.3.e LOM
 - 5.3.e LOM
- 5.4 Troubleshoot OS driver issues
- 5.5 Troubleshoot memory issues
- 5.6 Troubleshoot boot issues
- 5.7 Troubleshoot Local Disk and RAID controller
- 5.8 Troubleshoot FCoE Connectivity
- 5.9 Describe the process for password recovery

Maintaining & Troubleshooting Cisco Data-Center Unified Fabric (642-980)

Exam Description:

The 642-980 Troubleshooting Cisco Data Center Unified Fabric exam tests a candidate's troubleshooting skills in the Unified Fabric domain, troubleshooting connectivity issues, convergent I/O, Storage issues, as well as issues related to specific features like OTV (overlay transport virtualization). This 90-minute, 65–75 question exam is associated with the CCNP DC certification and Cisco Unified Fabric Support Specialist certification. The exam is closed book and no outside reference materials are allowed.

The following topics are general guidelines for the content likely to be included on the exam. However, other related topics may also appear on any specific delivery of the exam. In order to better reflect the contents of the exam and for clarity purposes, the guidelines below may change at any time without notice.

1.0 Troubleshooting Layer 2 Connectivity Issues in a Cisco Data Center Network

- 1.1 Identify and resolve Ethernet port-channels issues
- 1.2 Identify and resolve vPC issues
- 1.3 Identify and resolve FabricPath issues
- 1.4 Identify and resolve PVLAN issues

2.0 Troubleshooting FCoe Issues in a Cisco Data Center Network

- 2.1 Identify and resolve performance issues
- 2.2 Identify and resolve DCBX issues

3.0 Troubleshooting Storage Area Network in a Cisco Data Center

- 3.1 Identify and resolve Fabric merge issues
- 3.2 Identify and resolve npv/npiv issues
- 3.3 Identify and resolve SAN port-channels/trunk issues

4.0 Troubleshooting DCI Issues in a Cisco Data Center Network

- 4.1 Identify and resolve OTV issues
- 4.2 Identify and resolve HSRP issue in a DCI

5.0 Troubleshooting Platform Specific Issues in a Cisco Data Center Network

- 5.1 Identify and resolve cfs issues
- 5.2 Identify and resolve Config-Sync Issues
- 5.3 Identify and resolve ISSU issues
- 5.4 Identify and resolve Fex issues
- 5.5 Identify and resolve VDC issues
- 5.6 Identify and resolve Layer1 issues
- 5.7 Identify and resolve cpu memory
- 5.8 Identify and resolve control plane policing (COPP) issues