Designing Cisco Data Center Infrastructure

Duration: 5 Days **Course Code: DCID** **Version: 8.0**

Overview:

The **Designing Cisco Data Center Infrastructure (DCID)** training focuses on data center design based on Cisco solutions and technologies. The training includes theoretical content and design-oriented case studies that are in the form of activities. The training includes information on designing data centers with Cisco components and technologies. It covers network designs with virtualization, Layer 2 and Layer 3 technologies and routing protocols, and data center interconnect design options. Also covered are device virtualization technologies such as virtualized network devices with virtual appliances, including virtual switches, virtual routers, and virtual firewalls. Storage and SAN design is covered, including an explanation of Fibre Channel networks. Design practices for the Cisco Unified Computing System (UCS) solution based on Cisco UCS B-Series and C-Series servers, Cisco UCS-X are covered. Management and orchestration topics feature Cisco UCS Manager, Nexus Dashboard Fabric Controller (NDFC), and Cisco Intersight, with additional emphasis on automation solutions such as programmability, Ansible, and Terraform. The training also addresses the integration of artificial intelligence, real-world use cases, and the design of AI-ready infrastructure.
This training prepares you for the 300-610 DCID v1.2 exam. If passed, you earn the Cisco Certified Specialist – Data Center Design certification and satisfy the concentration exam requirement for the Cisco Certified Network Professional (CCNP) Data Center certification.
This training also earns you 40 Continuing Education (CE) credits toward recertification.
Note: Some learning activities in this training are theoretical in nature and do not involve hands-on lab equipment. These exercises are integral to the curriculum and are designed to ensure you achieve the intended learning outcomes.
Updated November 2026

Target Audience:

This class is intended for the following participants:
- Network Designers
- Network Administrators
- Network Engineers
- Systems Engineers
- Data Center Engineers
- Consulting Systems Engineers
- Technical Solutions Architects
- Cisco Integrators and Partners
- Server Administrators
- Network Managers
- Storage Administrators
- Program Managers
- Project Managers

Objectives:

- After this course participants should be able to:
- Describe the physical design of modern data centers and different network types
- Describe how to design and manage the physical layer infrastructure of modern data centers
- Understand the multi-layered concept of data center redundancy, encompassing hardware, software, topological, and site-level resiliency
- Describe the Layer 2 forwarding options and protocols that are used in a data center
- Describe the Layer 3 forwarding options and protocols that are used in a data center
- Describe virtual infrastructure options and their considerations when deploying
- Describe security threats and solutions in the data center
- Describe advanced data center security technologies and best practices
- Describe security options in the storage network
- Describe RBAC and integration with directory servers to control access rights on UCS Manager
- Describe key concepts in artificial intelligence, focusing on traditional AI, machine learning, and deep learning techniques and their applications.
- Describe generative AI, its challenges, and future trends, while examining the nuances between traditional and modern AI methodologies
- Explain how AI enhances network management and security through intelligent automation, predictive analytics, and anomaly

- Describe overlay networks and operation of VXLAN and ACI
- Describe Fabric Interconnect operation and connectivity
- Describe Cisco UCS hardware options and hardware design
- Describe UCS connectivity for LAN and SAN
- Describe design aspects of UCS servers, networking, and hardware
- Describe physical design of modern data centers and different network types
- Describe the storage options for the compute function and the different RAID levels from a high-availability and performance perspective
- Describe Fibre Channel concepts and architecture
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- Describe Fibre Channel topologies and design
- Describe the hyperconverged solution and integrated systems

detection

- Describe the importance of AI-specific hardware in reducing training times and supporting the advanced processing requirements of AI tasks
- Describe key network challenges from the perspective of AI/ML application requirements
- Explain the mechanisms and operations of RDMA and RoCE protocols
- Describe the role of optical and copper technologies in enabling AI/ML data center workloads
- Understand the compute hardware required to run AI/ML solutions
- Describe sustainable AI infrastructure practices, focusing on environmental and economic sustainability
- Describe Cisco network management models and license management approaches
- Provide learners with knowledge and skills to manage and automate compute infrastructure lifecycle using Cisco Intersight and related platforms for scalable, secure hybrid data centers
- Gain expertise in orchestrating, automating, and monitoring modern data center networks using Cisco Nexus Dashboard and its suite of integrated services
- Describe the design considerations of datacenter automation through programmability
- Analyze and plan for using orchestration with Ansible and Terraform to deploy, configure and operate Cisco data centers

Prerequisites:

There are no prerequisites for this training. However, the knowledge and skills you are recommended to have before attending this training are:

- Implement data center networking, including Local Area Network (LAN) and Storage Area Network (SAN)
- Describe data center storage
- Implement data center virtualization
- Implement Cisco Unified Computing System
- Implement data center automation and orchestration with the focus on Cisco Application Centric Infrastructure (ACI), Cisco Nexus Dashboard, and Cisco Intersight
- Describe products in the Cisco Data Center Nexus and Multilayer Director Switch (MDS) families

These skills can be found in the following Cisco Learning Offerings:

- Implementing and Administering Cisco Solutions (CCNA)
- Implementing Cisco Data Center Core Technologies (DCCOR)
- CCNA - Implementing and Administering Cisco Solutions
- DCFNDU - Understanding Cisco Data Center Foundations
- DCCOR - Implementing and Operating Cisco Data Center Core Technologies

Testing and Certification

Recommended as preparation for exam:

- **300-610** - **DCID** - Designing Cisco Data Center Infrastructure

This is one of the concentration exams for the CCNP Data Center Certification, to achieve the New CCNP Data Center Certification you will also need to take the **350-601** exam

Content:

Course Outline

- Data Center Topologies
- Layer 1 Connectivity
- Data Center Redundancy
- Layer 2 Connectivity
- Layer 3 Connectivity
- Virtual Resources
- Overlay Networks
- Fabric Interconnect Connectivity
- Cisco Unified Computing System Server Options
- Cisco UCS Network Design
- Cisco Unified Computing System Server Design
- Cisco Unified Computing System Configuration
- Storage Options and Design
- Fibre Channel Networks
- Storage Virtualization
- Fibre Channel Topologies
- Hyperconverged and Integrated Systems
- Basic Data Center Security
- Advanced Data Center Security
- Storage Security
- Cisco Unified Computing System Role-Based Access Control
- Fundamentals of AI
- Generative AI
- AI Use Cases
- AI-Enabling Hardware
- Key Network Challenges and Requirements for AI Workloads
- Application-Level Protocols
- AI Transport
- AI Compute Resources
- AI Sustainability
- Network and License Management
- Compute Management and Orchestration
- Network Orchestration
- Data Center Programmability and Automation
- Infrastructure as Code Automation

Lab Outline: There are no labs associated with this training.

Further Information:

For More information, or to book your course, please call us on 00 20 (0) 2 2269 1982 or 16142

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