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# Designing Cisco Data Center Infrastructure (DCID)

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- 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 Desigr 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

**How you'll benefit**

This course will help you:

- Make design choices for optimal data center infrastructure performance, virtualization, security, and automation
- Gain the practical and theoretical knowledge necessary to design a scalable, reliable, and intelligent data center based on Cisco technologies
- Qualify for professional-level job roles in the high-demand area of enterprise-class data center environments
- Prepare for the 300-610 DCID v1.2 exam
- Earn 40 CE credits toward recertification

**Price :**

$4095.00

**Duration :**

5 Days

**Certification Exam:**

300-610

CE Credit: 40

## Objective

**Upon completing this course, the student will be able to meet these objectives:**

- 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 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
- 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 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

## Who Should Attend

**The primary audience for this course is as follows:**

- 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

## 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)

## Course Outline

### Module 1: Data Center Topologies

### Module 2: Layer 1 Connectivity

### Module 3: Data Center Redundancy

### Module 4: Layer 2 Connectivity

### Module 5: Layer 3 Connectivity

### Module 6: Virtual Resources

### Module 7: Overlay Networks

### Module 8: Fabric Interconnect Connectivity

### Module 9: Cisco Unified Computing System Server Options

### Module 10: Cisco UCS Network Design

### Module 11: Cisco Unified Computing System Server Design

### Module 12: Cisco Unified Computing System Configuration

### Module 13: Storage Options and Design

### Module 14: Fibre Channel Networks

### Module 15: Storage Virtualization

### Module 16: Fibre Channel Topologies

### Module 17: Hyperconverged and Integrated Systems

**Module 18: Basic Data Center Security**

**Module 19: Advanced Data Center Security**

**Module 20: Storage Security**

**Module 21: Cisco Unified Computing System Role-Based Access Control**

**Module 22: Fundamentals of AI**

**Module 23: Generative AI**

**Module 24: AI Use Cases**

**Module 25: AI-Enabling Hardware**

**Module 26: Key Network Challenges and Requirements for AI Workloads**

**Module 27: Application-Level Protocols**

**Module 28: AI Transport**

**Module 29: AI Compute Resources**

**Module 30: AI Sustainability**

**Module 31: Network and License Management**

**Module 32: Compute Management and Orchestration**

**Module 33: Network Orchestration**

**Module 34: Data Center Programmability and Automation**

**Module 35: Infrastructure as Code Automation**