

# Cisco Certified Design Expert (CCDE)

## Introduction

To design a truly transformative IT solution, you need to know much more than just the technology. You also need to align with business priorities. You need to factor in the many constraints outside the control of the IT organization. You need to be able to see the big picture and align with it.

The Cisco® Certified Design Expert (CCDE) v3.0 certification is your proof that you have the knowledge to build effective solutions that conform to business requirements and stakeholder expectations, for today and tomorrow. This newly updated certification bridges technology and business requirements, and arms you with a breadth of knowledge and skills to navigate the waters of complex IT projects.

## Exams and Recommended Training

### 1. 400-007 CCDE: Cisco Certified Design Expert (Written Exam)

The CCDE v3.0 Written exam (400-007) validates high-level design aspects as well as business requirements within the context of Enterprise network architectures. The exam is a two-hour, multiple-choice test with 90-110 questions, that focuses on core Enterprise network architectures and technologies.

The below exam topics are general guidelines for the content likely to be included on the CCDE v3.0 Written exam. Your knowledge, skills, and abilities on these topics will be tested throughout the entire network lifecycle unless explicitly stated.

## Duration

2 hours

## Prerequisites

- There are no formal prerequisites for taking the CCDE, but you should have a thorough understanding of the exam topics before taking the exam.
- CCDE candidates are recommended to have five to seven years of experience with designing and architecting network solutions, as well as engaging in other related activities, such as pre-sales work.

## Target Audience

- Expert network automation engineer
- Expert software developer
- Expert system integration programmer
- Expert infrastructure architect
- Expert network designer and many more

## Course Outline

- Business Strategy Design
  - Impact on network design, implementation, and optimization using various customer project management methodologies (for instance waterfall and agile)
  - Solutions based on business continuity and operational sustainability (for instance RPO, ROI, CAPEX/OPEX cost analysis, and risk/reward)
- Control, Data, Management Plane and Operational Design
  - End-to-end IP traffic flow in a feature-rich network
  - Data, control, and management plane technologies
  - Centralized, decentralized, or hybrid control plane
  - Automation/orchestration design, integration, and on-going support for networks (for instance interfacing with APIs, model-driven management, controller-based technologies, evolution to CI/CD framework)
  - Software-defined architecture and controller-based solution design (SD-WAN, overlay, underlay, and fabric)
- Network Design
  - Resilient, scalable, and secure modular networks, covering both traditional and software-defined architectures, considering:
    - Technical constraints and requirements
    - Operational constraints and requirements
    - Application behavior and needs
    - Business requirements
    - Implementation plans
    - Migration and transformation
- Service Design
  - Resilient, scalable, and secure modular network design based on constraints (for instance technical, operational, application, and business constraints) to support applications on the IP network (for instance voice, video, backups, data center replication, IoT, and storage)
  - Cloud/hybrid solutions based on business-critical operations
    - Regulatory compliance
    - Data governance (for instance sovereignty, ownership, and locale)
    - Service placement
    - SaaS, PaaS, and IaaS
    - Cloud connectivity (for instance direct connect, cloud on ramp, MPLS direct connect, and WAN integration)
    - Security
- Security Design
  - Network security design and integration
    - Segmentation
    - Network access control
    - Visibility
    - Policy enforcement
    - CIA triad
    - Regulatory compliance (if provided the regulation)

## 2. CCDE v3.0 Practical Exam Topics (Practical Exam)

The CCDE v3.0 Practical Exam is an 8-hour scenario-based exam, that is built to be modular and provides you the flexibility to focus on your area of expertise, in addition to validating core Enterprise architecture technologies. For more information, please refer to CCDE v3.0 Written and Practical Exam Format.

The below exam topics are general guidelines for the content likely to be included on the CCDE v3.0 Practical Exam. Your knowledge, skills, and abilities on these topics will be tested throughout the entire network lifecycle unless explicitly stated.

## Duration

8 Hours

## Prerequisites

- There are no formal prerequisites for taking the CCDE, but you should have a thorough understanding of the exam topics before taking the exam.
- CCDE candidates are recommended to have five to seven years of experience with designing and architecting network solutions, as well as engaging in other related activities, such as pre-sales work.

## Course Outline

- Business Strategy Design
  - Impact on network design, implementation, and optimization using various customer project management methodologies (for instance waterfall and agile)
  - Solutions based on business continuity and operational sustainability (for instance RPO, ROI, CAPEX/OPEX cost analysis, and risk/reward)
- Control, Data, Management Plane and Operational Design
  - End-to-end IP traffic flow in a feature-rich network
  - Data, control, and management plane technologies
  - Centralized, decentralized, or hybrid control plane
  - Automation/orchestration design, integration, and on-going support for networks (for instance interfacing with APIs, model-driven management, controller-based technologies, evolution to CI/CD framework)
  - Software-defined architecture and controller-based solution design (SD-WAN, overlay, underlay, and fabric)
- Network Design
  - Resilient, scalable, and secure modular networks, covering both traditional and software-defined architectures, considering:
    - Technical constraints and requirements
    - Operational constraints and requirements
    - Application behavior and needs
    - Business requirements
    - Implementation plans
    - Migration and transformation
- Service Design
  - Resilient, scalable, and secure modular network design based on constraints (for instance technical, operational, application, and business constraints) to support applications on the IP network (for instance voice, video, backups, data center replication, IoT, and storage)
  - Cloud/hybrid solutions based on business-critical operations
    - Regulatory compliance
    - Data governance (for instance sovereignty, ownership, and locale)
    - Service placement
    - SaaS, PaaS, and IaaS
    - Cloud connectivity (for instance direct connect, cloud on ramp, MPLS direct connect,

- and WAN integration)
  - Security
- Security Design
  - Network security design and integration
    - Segmentation
    - Network access control
    - Visibility
    - Policy enforcement
    - CIA triad
    - Regulatory compliance (if provided the regulation)