

# CCDE



The Cisco Certified Design Expert (CCDE) is for expert-level network design engineers, expert-level network leads of IT infrastructure teams, and expert-level network leads of architecture teams working in job roles that require them to translate business needs, budget, and operational constraints into the design of a converged solution. The CCDE curriculum prepares designers to develop design solutions at the infrastructure level for large customer networks. Network engineers holding an active CCDE certification are recognized for their expert-level knowledge and skills in network infrastructure design. The deep technical networking knowledge that a CCDE brings ensures that they are well qualified to address the most technically challenging network infrastructure design assignments.

**Prerequisites:** There are no formal prerequisites for CCDE. No specific training or other professional certifications are required.

**Recommended Training:** SolutionEdge Executive Learning Program for CCDE is a complete, blended learning program to accelerate competency and build the skills that are necessary for expert certification.

**Exams :** CCDE Written Exam version 2.0 (352-001), CCDE Practical Exam Version 2.0

## Syllabus:

### Written Exam Version 2.0 (352-001)

**Exam Description:** Cisco CCDE Written Exam (352-001) version 2 is a 2-hour test with 80?110 questions that will validate that professionals have the expertise to gather and clarify network functional requirements, develop network designs to meet functional specifications, develop an implementation plan, convey design decisions and their rationale, and possess expert-level network infrastructure knowledge. The exam is closed book, and no outside reference materials are allowed.

## **1.0 Layer 2 Control Plane**

- 1.1 Describe fast convergence techniques and mechanisms
- 1.2 Describe loop detection and mitigation protocols
- 1.3 Describe mechanisms that are available for creating loop-free topologies
- 1.4 Describe the effect of transport mechanisms and their interaction with routing protocols over different types of links
- 1.5 Describe multicast routing concepts
- 1.6 Describe the effect of fault isolation and resiliency on network design

## **2.0 Layer 3 Control Plane**

- 2.1 Describe route aggregation concepts and techniques
- 2.2 Describe the theory and application of network topology layering
- 2.3 Describe the theory and application of network topology abstraction
- 2.4 Describe the effect of fault isolation and resiliency on network design or network reliability
- 2.5 Describe metric-based traffic flow and modification
- 2.6 Describe fast convergence techniques and mechanisms
- 2.7 Describe factors affecting convergence
- 2.8 Describe unicast routing protocol operation (OSPF, EIGRP, ISIS, BGP, and RIP) in relation to network design
- 2.9 Analyze operational costs and complexity
- 2.10 Describe the interaction between routing protocols and topologies
- 2.11 Describe generic routing and addressing concepts
- 2.12 Describe multicast routing concepts
- 2.13 Describe IPv6 concepts and operation

## **3.0 Network Virtualization**

- 3.1 Describe Layer 2 and Layer 3 tunnelling technologies
- 3.2 Analyze the implementation of tunnelling

## **4.0 Design Considerations**

- 4.1 Analyze various QoS performance metrics
- 4.2 Describe types of QoS techniques
- 4.3 Describe, implement, optimize, and troubleshoot CSC
- 4.4 Identify network management requirements
- 4.5 Identify network application reporting requirements
- 4.6 Describe technologies, tools, and protocols that are used for network management
- 4.7 Describe the reference models and processes that are used in network management, such as FCAPS, ITIL ), and TOGAF
- 4.8 Describe best practices for protecting network infrastructure
- 4.9 Describe best practices for protecting network services
- 4.10 Describe tools and technologies for identity management
- 4.11 Describe tools and technologies for IEEE 802.11 wireless deployment
- 4.12 Describe tools and technologies for optical deployment
- 4.13 Describe tools and technologies for SAN fabric deployment

## **Practical Exam v2.0**

**Exam Description:** Cisco CCDE Practical Exam v2.0 is an 8-hour, scenario-based exam that will validate that professionals have the expertise to gather and clarify network functional requirements, develop network designs to meet functional specifications, develop an implementation plan, convey design decisions and their rationale, and possess expert-level network infrastructure knowledge. The exam is closed book, and no outside reference materials are allowed.

### **1.0 Analyze Design Requirements**

- 1.1 Analyze business requirements, conflicts, and constraints
- 1.2 Analyze technical requirements, conflicts, and constraints
- 1.3 Analyze physical requirements
- 1.4 Analyze existing network

### **2.0 Develop Network Designs**

- 2.1 Identify the technology to resolve a specific design problem
- 2.2 Analyze the effect on the existing network and services
- 2.3 Incorporate best practices within the network design
- 2.4 Incorporate business requirements within the network design

### **3.0 Implement Network Design**

- 3.1 Analyze implementation options
- 3.2 Design an implementation plan

### **4.0 Validate and Optimize Network Design**

- 4.1 Analyze design choices based on specifications
- 4.2 Device administration (Cisco IOS routers, Cisco ASA, and Cisco ACS5.x)
- 4.3 Validate design(TrustSec model)
- 4.4 Optimize design