



CCNP Enterprise Overview

The CCNP Enterprise certification program prepares you for today's professional-level job roles in networking technologies. To earn CCNP Enterprise, you need to qualify two exams: a core exam and an enterprise concentration exam of your interest.

- The core exam aims on your knowledge and skills of enterprise infrastructure including dual-stack (IPv4 and IPv6) architecture, security, virtualization, network assurance, infrastructure, and automation. CCIE Enterprise Infrastructure and CCIE Enterprise Wireless certifications can also be achieved by passing this core exam.
- Concentration exams focus on emerging and industry-specific topics like SD-WAN, network design, automation and wireless.

About the training

- **Study Material:-** Live lectures, Streaming Recorded Videos, Online Lab Workbook, and Remote Virtual Lab access.
- **Duration:-** 3 Months

Requirements

Candidates are recommended to have basic knowledge of networking (at least CCNA level). CCNP aspirants often also have 3 to 5 years of experience implementing enterprise networking solutions.

What you will learn

- Examining Network Redundancy
- Basic information on Virtualization Protocols and Techniques
- Building Redundant Switched Topology
- Good understanding of Enterprise Network Security Architecture
- Understanding Cisco Enterprise Network Architecture

About Instructor

The trainer of the course has 14+ years experience of industrial training. He has delivered vast and complex project on the same in many organization around the globe. In his experienced life, he has conveyed 80+ corporate and retail programs.

Course Content

Required Exam (Core Exam)

- Overview of Cisco Enterprise Network Architecture
- Exploring Cisco Switching Paths
- Examining Campus LAN Connectivity
- Building Redundant Switched Topology
- Examining Layer 2 Port Aggregation
- Exploring EIGRP
- Examining OSPF
- Optimizing OSPF
- Exploring EBGp
- Examining Network Redundancy
- Examining NAT
- Fundamental knowledge on Virtualization Protocols and Techniques
- Exploring Virtual Private Networks and Interfaces
- Exploring Wireless Principles
- Understanding Wireless Deployment Options
- Exploring Wireless Roaming and Location Services
- Understanding Wireless AP Operation
- Exploring Wireless Client Authentication
- Troubleshooting Wireless Client Connectivity
- Basic information on Multicast Protocols
- Basic information on QoS
- Implementing Network Services
- Using Network Analysis Tools
- Examining Infrastructure Security
- Examining Secure Access Control
- Exploring Enterprise Network Security Architecture
- Interpretation of Automation and Assurance Using Cisco DNA Center
- Interpretation of the Cisco SD-Access Solution
- Exploring the Working Principles of the Cisco SD-WAN Solution
- Exploring the Basics of Python Programming
- Basic understanding on Network Programmability Protocols
- Basic understanding on APIs in Cisco DNA Center and vManage

Lab outline of Required Exam

- Identify the CAM
- Analyze Cisco Express Forwarding
- Troubleshoot VLAN and Trunk Issues
- Tuning Spanning Tree Protocol (STP) and build Rapid Spanning Tree Protocol (RSTP)
- Configure Multiple Spanning Tree Protocol
- Troubleshoot EtherChannel
- Analyze Multi-area OSPF
- Analyze OSPF Tuning

- Apply OSPF Optimization
- Observe OSPFv3
- Configure and Verify Single-Homed EBGP
- Analyze Hot Standby Routing Protocol (HSRP)
- Configure Virtual Router Redundancy Protocol (VRRP)
- Analyze NAT
- Configure and Verify Virtual Routing and Forwarding (VRF)
- Design and Verify a Generic Routing Encapsulation (GRE) Tunnel
- Design Static Virtual Tunnel Interface (VTI) Point-to-Point Tunnels
- Design Wireless Client Authentication in a Centralized Deployment
- Troubleshoot Wireless Client Connectivity Issues
- Design Syslog
- Design and Verify Flexible NetFlow
- Design Cisco IOS Embedded Event Manager (EEM)
- Troubleshoot Connectivity and Analyze Traffic with Ping, Traceroute, and Debug
- Configure and Verify Cisco IP SLAs
- Configure Standard and Extended ACLs
- Configure Control Plane Policing
- Implement Local and Server-Based AAA
- Writing and Troubleshooting Python Scripts
- Explore JavaScript Object Notation (JSON) Objects and Scripts in Python
- Use NETCONF Via SSH
- Use RESTCONF with Cisco IOS XE Software

Concentration Exams (Choose any One)

Concentration Exam Option 1: 300 – 410 ENARSI (Implementing Cisco Enterprise Advanced Routing and Services)

Theory Outline

- Implementing EIGRP
- Optimizing EIGRP
- Troubleshooting EIGRP
- Implementing OSPF
- Optimizing OSPF
- Troubleshooting OSPF
- Implementing Internal Border Gateway Protocol (IBGP)
- Optimizing BGP
- Implementing MP-BGP
- Troubleshooting BGP
- Configuring Redistribution
- Troubleshooting Redistribution
- Implementing Path Control
- Exploring MPLS

- Introducing MPLS L3 VPN Architecture
- Introducing MPLS L3 VPN Routing
- Configuring Virtual Routing and Forwarding (VRF)-Lite
- Implementing DMVPN
- Implementing DHCP
- Troubleshooting DHCP
- Introducing IPv6 First Hop Security
- Securing Cisco Routers
- Troubleshooting Infrastructure Security and Services

Lab Outline

- Design EIGRP Using Classic Mode and Named Mode for IPv4 and IPv6
- Verify the EIGRP Topology Table
- Design EIGRP Stub Routing, Summarization, and Default Routing
- Design EIGRP Load Balancing and Authentication
- LAB: Troubleshoot EIGRP Issues
- Configure OSPFv3 for IPv4 and IPv6
- Verify the Link-State Database
- Configure OSPF Stub Areas and Summarization
- Configure OSPF Authentication
- Troubleshoot OSPF
- Implement Routing Protocol Redistribution
- Manipulate Redistribution
- Manipulate Redistribution Using Route Maps
- Troubleshoot Redistribution Issues
- Implement PBR
- Design IBGP and External Border Gateway Protocol (EBGP)
- Implement BGP Path Selection
- Configure BGP Advanced Features
- Configure BGP Route Reflectors
- Configure MP-BGP for IPv4 and IPv6
- Troubleshoot BGP Issues
- Implement PBR
- Configure Routing with VRF-Lite
- Implement Cisco IOS DMVPN
- Obtain IPv6 Addresses Dynamically
- Troubleshoot DHCPv4 and DHCPv6 Issues
- Troubleshoot IPv4 and IPv6 Access Control List (ACL) Issues
- Configure and Verify Control Plane Policing
- Configure and Verify Unicast Reverse Path Forwarding (uRPF)
- Fix Network Management Protocol Issues: Lab 1
- Fix Network Management Protocol Issues: Lab 2

Concentration Exam Option 2: 300-415 ENSDWI - Implementing Cisco SD-WAN Solutions (SDWAN300)

Theory Outline

- Cisco SD-WAN Overlay Network
 - Examining Cisco SD-WAN Architecture
- Cisco SD-WAN Deployment
 - Examining Cisco SD-WAN Deployment Options
 - Deploying Edge Devices
 - Deploying Edge Devices with Zero-Touch Provisioning
 - Using Device Configuration Templates
 - Redundancy, High Availability, and Scalability
- Cisco SD-WAN Routing Options
 - Using Dynamic Routing
 - Providing Site Redundancy and High Availability
 - Configuring Transport-Side Connectivity
- Cisco SD-WAN Policy Configuration
 - Reviewing Cisco SD-WAN Policy
 - Defining Advanced Control Policies
 - Defining Advanced Data Policies
 - Implementing Application-Aware Routing
 - Apply Internet Breakouts and Network Address Translation (NAT)
- Cisco SD-WAN Migration and Interoperability
 - Examining Cisco SD-WAN Hybrid Scenarios
 - Performing a Migration
- Cisco SD-WAN Management and Operations
 - Performing Day-2 Operations
 - Performing Upgrades

Lab Outline

- Deploying Cisco SD-WAN Controllers
- Adding a Branch Using Zero Touch Provisioning (ZTP)
- Implementing Devices Using Configuration Templates
- Configuring Controller Affinity
- Performing Dynamic Routing Protocols on Service Side
- Performing Transport Location (TLOC) Extensions
- Implementing Control Policies
- Implementing Data Policies
- Implementing Application-Aware Routing
- Implementing Internet Breakouts
- Migrating Branch Sites
- Performing an Upgrade

Concentration Exam Option 3: 300-420 ENSLD - Designing Cisco Enterprise Networks
(ENSLD)

Theory Outline

- Designing EIGRP Routing
- Designing OSPF Routing
- Designing IS-IS Routing
- Designing BGP Routing and Redundancy
- Understanding BGP Address Families
- Designing the Enterprise Campus LAN
- Designing the Layer 2 Campus
- Designing the Layer 3 Campus
- Discovering the Cisco SD-Access Architecture
- Exploring Cisco SD-Access Fabric Design
- Designing Service Provider-Managed VPNs
- Designing Enterprise-Managed VPNs
- Designing WAN Resiliency
- Examining Cisco SD-WAN Architectures
- Cisco SD-WAN Deployment Design Considerations
- Configuring Cisco SD-WAN Routing and High Availability
- Understanding QoS
- Designing LAN and WAN QoS
- Understanding Multicast with Protocol-Independent Multicast-Sparse Mode
- Designing Rendezvous Point Distribution Solutions
- Designing an IPv4 Address Plan
- Exploring IPv6
- Deploying IPv6
- Introducing Network APIs and Protocols
- Understanding YANG, NETCONF, RESTCONF, and Model-Driven Telemetry

Lab Outline

- Designing Enterprise Connectivity
- Configuring an Enterprise Network with BGP Internet Connectivity
- Designing an Enterprise Campus LAN
- Designing Resilient Enterprise WAN
- Designing QoS in an Enterprise Network
- Designing an Enterprise IPv6 Network

Concentration Exam Option 4: 300-425 ENWLSD - Designing Cisco Enterprise Wireless Networks (ENWLSD)

Theory Outline

- Describing and Implementing a Structured Wireless Design Methodology
 - Planning Wireless Design with a Structured Methodology importance
 - Cisco Structured Design Model
 - Learn about Cisco Design Guides and Cisco Validated Designs for Wireless Networks
 - Role of the Project Manager When Designing Wireless Networks
- Exploring and Implementing Industry Protocols and Standards
 - Wireless Standards Bodies
 - Institute of Electrical and Electronics Engineers (IEEE) 802.11 Standard and Amendments
 - Wi-Fi Alliance (WFA) Certifications
 - Relevant Internet Engineering Task Force (IETF) Wireless RFCs
 - Practice Activity
- Exploring and Implementing Cisco Enhanced Wireless Features
 - Hardware and Software Choices for a Wireless Network Design
 - Cisco Infrastructure Settings for Wireless Network Design
 - Cisco Enhanced Wireless Features
- Examining Cisco Mobility and Roaming
 - Mobility and Intercontroller Mobility in a Wireless Network
 - Optimize Client Roaming in a Wireless Network
 - Cisco Workgroup Bridge (WGB) and WGB Roaming in a Wireless Network
- Exploring and Implementing the Wireless Design Process
 - Overview of Wireless Design Process
 - Meet with the Customers to Discuss the design of Wireless Network
 - Customer Information Gathering for a Wireless Network Design
 - Design the Wireless Network
 - Deployment of the Wireless Network
 - Validation and Final Adjustments of the Wireless Network
 - Wireless Network Design Project Documents and Deliverables
- Describing and Implementing Specific Vertical Designs
 - Designs for Wireless Applications
 - Wireless Network Design Within the Campus
 - Extend Wireless Networks to the Branch Sites

- Examining Special Considerations in Advanced Wireless Designs
 - High-Density Designs in Wireless Networks
 - Exploring Location and Cisco Connected Mobile Experiences (CMX) Concepts
 - Design for Location
 - FastLocate and HyperLocation
 - Bridges and Mesh in a Wireless Network Design
 - Redundancy and High Availability in a Wireless Network
- Describing and Implementing the Site Survey Processes
 - Site Survey Types
 - Special Arrangements Needed for Site Surveys
 - Safety Aspects to be Considered During Site Surveys
 - Site Survey Tools in Cisco Prime Infrastructure
 - Third-Party Site Survey Software and Hardware Tools
- Exploring and Implementing Wireless Network Validation Processes
 - Post-installation Wireless Network Validation
 - Making Post-installation Changes to a Wireless Network
 - Wireless Network Handoff to the Customer
 - Installation Report

Lab Outline

- Use Cisco Prime Infrastructure as a Design Tool
- Create a Predictive Site Survey with Ekahau Pro
- Do a Live Site Survey Using Access Point on a Stick (APoS)
- Simulate a Post-installation Network Validation Survey

Concentration Exam Option 5: 300-430 ENWLSI - Implementing Cisco Enterprise Wireless Networks (ENWLSI)

Theory Outline

- Securing and Troubleshoot the Wireless Network Infrastructure
- Perform and Troubleshoot Secure Client Connectivity
- Perform and Troubleshoot Quality of Service (QoS) in Wireless Networks
- Perform and Troubleshoot Advanced Wireless Network Services

Lab Outline

- Lab Familiarization (Base Learning Lab)
- Design Secure Management Access for Cisco Wireless LAN Controllers (WLCs) and Access Points (APs)

- Learn how to add Network Devices and External Resources to Cisco Prime Infrastructure
- Capture a Successful AP Authentication
- Perform Authentication, Authorization, and Accounting (AAA) Services for Central Mode WLANs
- Perform AAA Services for FlexConnect Mode Wireless LANs (WLANs)
- Design Guest Services in the Wireless Network
- Design Bring Your Own Device (BYOD) in the Wireless Network
- Capture Successful Client Authentications
- Configure QoS in the Wireless Network for Voice and Video Services
- Design Cisco Application Visibility and Control (AVC) in the Wireless Network
- Capture Successful QoS Traffic Marking in the Wireless Network
- Configure, Detect, and Locate Services on the Cisco CMX
- Identify Wireless Clients and Security Threats

Concentration Exam Option 6: 300-435 ENAUTO Implementing Automation for Cisco Enterprise Solutions (ENAU1)

Theory Outline

- Introducing Cisco SD-WAN Programmability
- Building Cisco SD-WAN Automation with Python
- Building Cisco SD-WAN Automation with Ansible
- Managing Configuration with Ansible and Network Automation and Programmability Abstraction Layer with Multivendor support (NAPALM)
- Perform On-Box Programmability and Automation with Cisco IOS XE Software
- Implementing Model-Driven Telemetry
- Day 0 Provisioning with Cisco IOS-XE
- Automating Cisco Meraki
- Implementing Meraki Integration APIs
- Perform Automation in Enterprise Networks
- Building Cisco DNA Center Automation with Python
- Automating Operations using Cisco DNA Center

Lab Outline

- Implement Administrative Tasks Using the Cisco SD-WAN API
- Design, Manage, and Operate Cisco SD-WAN Programmatically
- Consume SD-WAN APIs Using the Uniform Resource Identifier (URI) Module
- Build Reports Using Ansible-Viptela Roles
- Manage Feature Templates with Ansible

- Use NAPALM to Configure and Verify Device Configuration
- Perform On-Box Programmability and Automation with Cisco IOS XE Software
- Use Python on Cisco IOS XE Software
- Implement Streaming Telemetry with Cisco IOS XE
- Implement Cisco Meraki API Automation
- Explore Cisco Meraki Integration APIs
- Explore Cisco Meraki Webhook Alerts

Note: ***Most of the course topics are covered with hands-on lab exercises and others are theoretical

Thank You
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