Cisco CCNP Designing Enterprise Networks (300-420 ENSLD) v1.1

This Designing Cisco Enterprise Networks (300-420 ENSLD) training prepares a network administrator to earn their CCNP Enterprise, covering how to implement core enterprise network technologies, including dual stack architecture, network virtualization, security, infrastructure, and automation. For anyone with network administrators on their team, this Cisco training can be used for 300-420 ENSLD exam prep to earn your CCNP Enterprise certification.

CBT Nuggets course material →

STUDY PLAN

WEEK 1

Design an IPv4 and IPv6 Addressing Scheme

Introducing IPv4 Address Schemes

An IPv4 Refresher

Designing a Basic Subnet

Designing for an Enterprise

Considerations of VLSM

Summarizing IPv4 Addressing

Introducing IPv6 Addressing Schemes

IPv6 Address Structure

IPv6 Address Allocations

Stateless and Stateful Configuration

Configure IPv6 Addresses

Summarizing IPv6 Addressing

IS-IS Foundations and Design

Overview

Introducing IS-IS

The Levels of an ISO Network

Areas within an IS-IS Domain

The Router's Level and Behavior

Configuring the NET

Configuring Level 1 IS-IS Neighbors

Configuring Level 2 IS-IS Neighbors

Configure Borders with Level 1/2 ISs

Summarizing IS-IS Foundations

Introducing IS-IS Campus Designs

Securing IS-IS with Authentication

The Flat IS-IS Network Design

IS-IS in a 3-Tier Enterprise Campus

The Hybrid IS-IS Design

Summarizing IS-IS Designs

WEEK 2

Design Networks with EIGRP

Overview

Designing EIGRP Networks

EIGRP Neighborships

EIGRP Metrics

The Feasibility Condition

Autonomous Systems

Stub Routers

Summarization Points

EIGRP Authentication

Summarizing EIGRP Design

Designing Networks with OSPF

Overview

Introducing OSPF

Neighbor Adjacency Formation

Designated and Backup Designated Routers

The LSAs

OSPF Areas

Authentication

Summarizing OSPF

Break Through BGP Basics with Address Families

Overview

Beginning with BGP

The Point of BGP

Setting Up BGP

WEEK 3

eBGP vs iBGP

Next-Hop Self

The BGP Process

Update-Source Interface

Address Families

Summarizing BGP Basics

Solve BGP Scalability Issues

Overview

Introducing BGP's Scale Issues

The Multi-Hop Scenario

Route Reflectors

Examine Route Reflector Rule 1

Route Reflectors

Examine Route Reflector Rule 2

Route Reflectors

Examine Route Reflectors Rule 3

Exploring Confederations

Deploy and Trace a Confederation

Summarizing BGP Scaling Solutions

Understand the BGP Best Path Algorithm

Overview

Introducing BGP's Decision Making Process

Weight

Local Preference

WEEK 4

Originator and AIGP

AS Path

Origin Code and MED

eBGP vs iBGP

The Remaining Tiebreakers

Summarizing the BGP Best Path Algorithm

Design Networks with BGP

Overview

Introducing BGP Design

Load Balancing Outbound Connections - Single ISP

Load Sharing Outbound Connections - Mulithomed ISPs

Manipulate Inbound Connections - Single ISP

Manipulate Inbound Connections - Multihomed ISPs

BGP Communities

Route Reflector Design

Validating Your Design with Looking Glass

Summarizing BGP Design

Determine IPv6 Migration Strategies

Overview

Introducing IPv6 Transition Strategies

Dual Stack Environments

Tunneling IPv6 over IPv4

IPv6 Tunneling Concerns

Using LISP to Tunnel Traffic

Translating IPv6 into IPv4

Summarizing IPv6 Transition Technologies

Design High Availability in Campus Networks

Overview

Intro

Network Redundancy

WEEK 5

Hot Standby Router Protocol (HSRP)

Virtual Router Redundancy Protocol (VRRP)

Gateway Load Balancing Protocol (GLBP)

Bidirectional Forwarding Detection (BFD)

FHRP Design

Graceful Restart, SSO, and NSF

Review and Quiz

Explain the Hierarchical Network Model

Overview

Intro

The Hierarchical Network Model

Enterprise Campus Architecture

The Access Layer

The Distribution Layer

The Core Layer

Collapsed Designs

Review and Quiz

Design Campus L2 Infrastructures

Overview

Intro

Media Types

L2 and L3 Access Layer Design

STP Modes and Features

STP Designs

Reducing STP Footprint

WEEK 6

Power over Ethernet (PoE) and Wake on LAN (WoL)

Review and Quiz

Design Multicampus L3 Infrastructures

Overview

Intro

Routing Convergence, Summarization, and Filtering

Route Load Sharing

Route Redistribution

Virtual Routing and Forwarding (VRFs)

Optimal Topologies

Review and Quiz

Describe SD-Access Architecture

Overview

Intro

SD-Access Overview

SD-Access Architecture

SD-Access Device Roles

The SDA Control Plane - LISP

The SDA Data Plane - VXLAN

The SDA Policy Plane - CTS

SD-Access Wireless

SD-Access Automation

Review and Quiz

Design an SD-Access Fabric

Overview

Intro

Overlay and Network Segmentation Design

Underlay Design

WEEK 7

Control Plane Design

Border Design

Hardware Selection

Wireless Design

Multicast in SD-Access

Fabric in a Box

Multisite Designs

Review and Quiz

Compare WAN Connectivity Options

Overview

Intro

L2 and L3 VPN Services

Metro Ethernet and SONET/SDH

Dark and Lit Fiber

Cellular Connections

SD-WAN Customer Edge

Review and Quiz

Design Site-to-Site VPNs

Overview

Intro

DMVPN

L2 and L3 VPN Design

Generic Routing Encapsulation (GRE)

IPsec

GET VPN

Review and Quiz

Design Enterprise WAN High Availability

Overview

Intro

WAN Circuit Redundancy

WEEK 8

Routing Across Redundant WANs

Internet Circuit Redundancy

Measuring and Tracking SLA

Review and Quiz

Describe Cisco SD-WAN Architecture and Principles

Overview

Intro

Cisco SD-WAN Architecture

The SD-WAN Data Plane

The SD-WAN Control Plane

The SD-WAN Management Plane

The Orchestration Plane

VPNs, Colors, and TLOCs

Features and Benefits

Review and Quiz

Design Cisco SD-WAN

Overview

Intro

Control Plane Design

Overlay Design

LAN Design

Redundancy and High Availability

Securing the SD-WAN

Multicast Traffic

QoS in SD-WAN

Review and Quiz

WEEK 9

Select QoS Strategies

Overview

Intro

The Need for QoS

The IntServ Model

The DiffServ Model

Classification and Marking

Queuing and Scheduling

Review and Quiz

Design End-to-End QoS Policy

Overview

Intro

Congestion Management

Congestion Avoidance

Shaping and Policing

End-to-End QoS

QoS Design

Review and Quiz

Network Management and Telemetry Techniques

Overview

Designing for Network Management

In-Band vs Out-of-Band

SNMP

YANG, Netconf, and Restconf

Netflow

Syslog

WEEK 10

Summarizing Network Management Design

Introducing Telemetry Designs

Streaming Telemetry and Model-Driven Telemetry

The Subscription Cadence

Dial-In vs Dial-Out Telemetry

MDT Protocols

Summarizing Model-Driven Telemetry

Multicast Routing Foundations and Design

Overview

Introducing Multicast Fundamentals

The Point of Multicast

IGMP and PIM

Source Trees

Shared Trees

Rendezvous Points

Reverse Path Forwarding

Summarizing Multicast Fundamentals

Introducing Multicast Routing Design

Understanding IGMP

PIM Dense-Mode (PIM-DM)

PIM Sparse-Mode (PIM-SM)

Bidir-PIM

Source Specific Multicast (SSM)

MSDP

Summarizing Multicast Design

Understand Model Driven Programmability

Overview

Introduction to Model Driven Programmability

Transactional Configurations

Node Types & Leaf Attributes

Exploring YANG with Pyang

Linux Tricks for YANG

WEEK 11

YANG Data Modelling with the CLI

Understand YANG-Based Network Automation

Overview

IETF YANG Models

OpenConfig YANG Models

Native YANG Models

Pulling the Models

Design Considerations

Understand the NETCONF and RESTCONF protocols

Overview

Introduction to NETCONF

NETCONF RPCs

Introduction to RESTCONF

RESTCONF Methods

Separating Config & State

Network-Wide Transactions

Describe L2 Security Features

ENSLD v1.1 Update

STP Topology Protection

STP Loop Protection

Port Security

VACLs

Review and Quiz

Describe Cloud Deployments and Connectivity

Cloud Service Models

Cloud Deployment Models

Cloud Connectivity

gRPC and gNMI

Review and Quiz

Last updated 1.12.2026