

Cisco CCNP Implementing Cisco SD-WAN Solutions (300-415 ENSDWI)

Prepare for the CCNP Enterprise concentration exam with practical, easy-to-follow training and unlimited practice exams. Following the Implementing Cisco SD-WAN Solutions v1.1 blueprint, you'll master the SD-WAN architecture, deploy controllers and WAN Edge routers in cloud or on-prem environments, and migrate from legacy WANs. Hands-on demonstrations show you how to configure routing protocols (OMP, TLOCs, OSPF, BGP and EIGRP), build secure overlays with IPsec and GRE, and implement control, data and application-aware policies. You'll also learn segmentation, direct Internet access, built-in security features (firewall, IPS and URL filtering) and QoS, plus monitoring and automation with vManage and REST APIs. This Cisco training is your path to designing, deploying and operating enterprise SD-WAN networks, and gaining the confidence to sit the 300-415 ENSDWI exam.

[CBT Nuggets course material](#) →



WEEK 1

Describe Cisco SD-WAN Architecture

- Intro
- Traditional WANs
- SD-WAN Benefits and Features
- SD-WAN Planes
- Cisco SD-WAN Management
- Cisco SD-WAN Tunnels
- VPNs
- Traffic Forwarding
- Transport Locators (TLOCs)
- Overlay Management Protocol (OMP)
- Review and Quiz

Describe Cisco SD-WAN Components and Edge Platforms

- Overview
- Intro
- vEdge and cEdge
- Cisco's Edge Portfolio
- vSmart
- vBond
- vManage
- Review and Quiz
- BONUS - Catalyst 8000s

Describe Cisco SD-WAN Edge Capabilities

- Overview
- Intro

Automated Edge Provisioning
Zero Trust Model
SLA Tracking
Edge Redundancy
Application Policy
Cloud OnRamp for IaaS
Cloud OnRamp for SaaS
vAnalytics

WEEK 2

Review and Quiz

Build an SD-WAN Practice Lab

Overview
Introduction SD-WAN Lab
SD-WAN Lab Design
Virtualization Platform
Controller CLI Bootstrap Configuration
Infrastructure Routing
Linux Initial Configuration
CA Preparation on Linux
Using an Enterprise Certificate
Signed Certificates for Controllers
Controller Tunnel Interfaces
vEdge Bootstrap Commands
vEdge Certificates
WAN Edge Lists
Activating vEdge
cEdge Deployment

Summary

Describe Cloud and On-Prem Controller Deployments

Overview
Intro
Cisco Cloud Service
Private Deployment Model
Controller VPNs
Review and Quiz

Bootstrapping on-Prem Controllers

Overview
Introduction
Planning and Design
vManage Initial Configuration
vSmart Initial Configuration
vBond Initial Configuration
Summary

Configure and Verify Certificates

Overview
Introduction to Certificates
Certificates Overview
Enable an Enterprise Root Certificate
Create Signed Certs for Controller Network

WEEK 3

Install Signed Certs on Controller Network

Add Tunneling and Verify Certs

Summary

Troubleshoot SD-WAN Controller Issues

Overview

Troubleshoot the Control Plane

Consider Your Design First

Check the Obvious Culprits

The Show Commands

Debugging and Logging

Summarizing Control Plane Troubleshooting

Describe WAN Edge deployment

Overview

Introduction WAN Edge Deployment

WAN Edge Considerations

Transport Network Considerations

Branch Edge Fault Tolerance

Data Centers and Regions

Edge On-boarding Overview

Summary

Configure and Verify SD-WAN Data Plane

Overview

Introduction to the SD-WAN Data Plane

Overview of SD-WAN Data Plane

Data Plane IPsec Connections

4 WAN Circuits

Underlay and Overlay Connectivity

Summary

Zero Touch Provisioning in SD-WAN

Overview

Intro to ZTP Provisioning

ZTP Overview

Lab Prep for the Border Router

vEdge Cloud ZTP Prep

Using a WAN Edge List

Templates for ZTP

Bring the vEdge Online

Summary

Configure and Verify OMP

Overview

Introduction to OMP

Underlay and Overlay Review

WEEK 4

Verify the Overlay Network

OMP Default Behavior

OMP Manipulation

OMP summary

Configure and Verify TLOCs

Overview

Introduction to TLOCs

TLOC Overview

TLOC Colors

TLOC Restrict

TLOC Extension Overview

TLOC Summary

Configure and Verify TLOC Extensions

Overview

Introduction to TLOC Extensions

Overview of TLOC Extensions

Planning out TLOC Extensions

Configure a TLOC Extension

Configure a Tunnel Interface

Applying TLOC Extensions

Verifying TLOC Extensions

TLOC Extension Summary

Configure and Verify Feature Templates

Overview

Introduction to Templates

Templates Overview

Template Planning

Creating VPN Feature Templates

Creating VPN-Interface Feature Templates

Creating a Device Template

Attaching Devices to a Template

Templates Summary

Configure and Verify CLI Templates

Overview

Introduction to CLI Templates

Overview of CLI Templates

Creating a CLI Template

WEEK 5

Using Variables

Summary of CLI Templates

Configure OSPF in SD-WAN

Overview

Introduction to OSPF

OSPF Overview

OSPF Design

Adding Routers to Topology

Create OSPF Feature Templates for vEdges

Apply and Verify OSPF on vEdges

Configure and Verify OSPF on cEdges

OSPF Summary

Configure and Verify Controller Templates

Overview

Introduction to Controller Templates

Overview of Templates for Controllers

Templates for vSmart

Templates for vManage

Templates for vBond

Summary

Configure VRRP in SD-WAN

Overview

Introduction

VRRP Overview

VRRP Feature Templates

Apply VRRP via Device Template

Verify VRRP

VRRP Summary

Configure BGP in SD-WAN

Overview

Introduction to BGP in SD-WAN

Overview of BGP

Planning BGP

Configure BGP Feature Template

Apply a Device Template for BGP

Verify BGP Neighbor

Redistribute OMP into BGP

Redistribute BGP into OMP

Summary of BGP in SD-WAN

Cisco SD-WAN Policy Foundations

Overview

Introducing Your Return on Investment... Err, Policies

The Point of Policies

Understand Lists

Creating a Policy Match and Action

Applying and Deploying the Policy

Verifying the Policy Works

Summarizing Policy Components

Configure and Verify SD-WAN Data Policies

Overview

Introducing Data Policies

How Data Policies Are Different

Creating Data Policy Lists

Creating Data Policy Rules

Applying Data Policies

Verifying Data Policy Effects

Create Protocol-Specific Rules

Summarizing Data Policies

Configure Advanced Control Policies in SD-WAN

Overview

Introducing Control Policies

Hub and Spoke Topology Fundamentals

Deploying a Hub and Spoke Topology

Configuring Multiple Topologies for Multiple VPNs

Summarizing Advanced Control Policies

Configure SD-WAN Application Aware Routing

Overview

Introducing App-Aware Route Policies

How App-Aware Policies Really Work

Building Application Lists

Creating Application Rules
Apply the Application Policy
Verify the Policy Effects
Summarizing App-Aware Policies

Configure Direct Internet Access for SD-WAN

Overview
Introducing Direct Internet Access
How DIA Really Works
Configure NAT on Internet Interfaces
Configure the Tracker
Configure Lists for DIA
Configure DIA Matching Rules and Actions
Apply the DIA Policy
Verify the DIA Policy
Summarizing Direct Internet Access

Configure Direct Internet Access Failover

Overview
When Two Internets are Better Than One
How DIA Failover Really Works
Restricting IPSec Tunnel Creation
Advertise a Service VPN Default Route

Prefer an Outbound TLOC for DIA
Verify the Failover Works
Summarizing DIA Failover

Configure and Verify Service Chaining

Overview
Introducing Service Chaining
What Service Chaining Does
Advertise a Service into the VPN
Create a Centralized Control Policy
Verify the Service Chain Policy
Summarizing Service Chains

Describe Cisco SD-WAN Security

Overview
Intro
Edge Security
Application-Aware Firewall
IDS/IPS
URL Filtering
DNS Security
Advanced Malware Protection (AMP)
Review and Quiz

Configure QoS Policies

Overview
Introducing QoS in SD-WAN
Understand Queues in SD-WAN QoS
Create Class Maps
Create ACLs to Mark Traffic
Create the QoS Map
Create the QoS Policy
Push the Policy to vEdges
Push ACLs and QoS Maps to vEdges

Summarizing SD-WAN QoS

Describe vManage Monitoring and Reporting

Overview

Intro

vManage Capabilities

Alarms, Events, and Logs

RBAC Authentication

Review and Quiz

Configure and Verify SD-WAN Monitoring

Overview

Introducing Monitoring and Dashboarding in vManage

Streaming Telemetry and vManage

WEEK 8

Exploring the Device Dashboard

Device Real-Time Monitoring

The vAnalytics Service

Summarizing the Analytics Platform

Automate SD-WAN with the vManage API

Overview

Introducing the vManage API

Explore API Documentation

Getting Started with the API

Retrieve Event Data

Retrieve Control Connection Info

Retrieve Device Tunnel Statistics

Summarizing API Monitoring

Describe vManage Software Upgrades

Overview

Intro

SD-WAN Upgrade Process

SD-WAN Upgrade Demo

Review and Quiz