

# Cisco CCNP Implementing Cisco SD-WAN Solutions (300-415 ENSDWI) v1.2

This CCNP Enterprise course prepares professionals to deploy, manage, and troubleshoot Cisco SD-WAN solutions. Network engineers and operations leads will gain practical experience configuring vManage, setting up VPN segmentation, and securing multi-cloud environments. It's hands-on training for the 300-415 ENSDWI exam and real-world success.

[CBT Nuggets course material](#) →

## WEEK 1

### **Describe Cisco SD-WAN Architecture**

Traditional WANs  
Benefits of SD-WAN  
SD-WAN Planes and Devices  
Architecture Challenge

### **Describe Cisco SD-WAN Components**

SD-WAN Edge  
Cisco's Edge Portfolio  
SD-WAN Controller  
SD-WAN Validator  
SD-WAN Manager  
Component Challenge

### **Explain SD-WAN Control and Data Plane**

SD-WAN Tunnels  
Virtual Private Networks (VPNs)  
Transport Locators (TLOCs)  
Overlay Management Protocol (OMP)  
Diagram Challenge

### **Describe Cisco SD-WAN Edge Capabilities**

Zero Touch Provisioning  
Bidirectional Forwarding Detection (BFD)

## WEEK 2

Fabric Load-Balancing  
Multi-Region Fabrics (MRFs)

Architecture Challenge

### **Describe Cisco SD-WAN Cloud OnRamp**

Cloud OnRamp for SaaS

Cloud OnRamp for Multicloud

Middle-Mile Optimization

Architecture Challenge

### **Describe SD-WAN Controller Deployment**

Cloud Deployment

On-Prem Deployment

Controller VPNs

Certificates and Device Lists

Troubleshooting Issues

Controller Design Challenge

### **Review SD-WAN Foundational Concepts**

SD-WAN Architecture Quiz

SD-WAN Components Quiz

SD-WAN Technology Quiz

### **Deploy Cisco Modeling Labs (CML)**

Cisco Modeling Labs

CML Installation

CML Tour

CML Breakout Tool

Challenge

### **Deploy SD-WAN Controllers**

Design the Topology

Build the Topology

Configuring the Controllers

Initial Manager Configuration

Lab Challenge

### **Generate SD-WAN Controller Certificates**

Plan the Certificate Signing process

Root Certificate Provisioning

Generate and Install Signed Licenses

Manual Certificate Signing (Optional)

Lab Challenge

### **Deploy SD-WAN Edges**

Design the Topology

Edge Authentication

Edge List Generation

Build the Topology

Lab Challenge

### **Onboard SD-WAN Edges**

Intro

Bring Edges Online

Perform Initial Configuration

Challenge

### **Describe SD-WAN Edge Connectivity**

ZTP and PnP

Topologies and TLOCs

Color Design

Topology Challenge

### **Connect SD-WAN Edges**

Current State

Configure Tunnels and Colors - CLI

Configure Tunnels and Colors - GUI

Lab Challenge

### **Verify SD-WAN Edge Connectivity**

Control Connections

Control Configuration

Verify Tunnels

Edges and NAT

Lab Challenge

### **Deploy Edge VPNs**

Planning the Edge Networks

Configuring CML

VPN Configuration via GUI

Verify Connectivity

Lab Challenge

### **Deploy a Dual-Edge Site**

Planning the Edge Network

Route Distinguishers and Targets

Configuring CML

VPN Configuration via CLI

Verify Connectivity

Lab Challenge

### **Describe TLOC Extensions**

TLOC Extensions

TLOC Extension Design

TLOC Extension Routing

Lab Planning

Topology Challenge

### **Configure TLOC Extensions**

TLOC Extension Configuration

Extend the Underlay

Configure TLOC Extensions via CLI

Configure TLOC Extensions via Manager

Failover Testing

Lab Challenge

### **Review SD-WAN Onboarding**

Onboarding Quiz

Configuration Quiz

Topology Quiz

### **Explain Overlay Management Protocol (OMP)**

OMP Review

OMP Peerings

Route Propagation

Administrative Distance

## **WEEK 4**

Quiz Challenge

### **Explain OMP Route Types**

OMP Routes

OMP Route Attributes

TLOC Routes

Service Routes

Topology Challenge

### **Explain OMP Path Selection**

OMP Pathing

OMP Path Selection

OMP Tie-Breakers

Path Selection Challenge

### **Explain OMP Routing**

OMP Advertisements

Route Selection and Backup Paths

Routing Protocol Support

Topology Challenge

### **Configure OMP Path Distribution**

OMP Routes and IOS-XE

OMP Traffic Engineering

Route Limits

Configuration Groups

Configuration Challenge

### **Configure Routing Protocols with SD-WAN**

Lab Prep

Configure OSPF

Configure EIGRP

Configure BGP

Default Route Advertisement

Lab Challenge

### **Configure OMP Parameters**

OMP Graceful Restart

OMP Timers

Configuring OMP

IPsec Rekey Timer

Lab Challenge

### **Explain Backup Paths and Multicast**

Backup Path Review

Backup Path in the Lab

Multicast Support

Topology Challenge

### **Review OMP and Routing**

OMP Quiz

Routing Quiz

Path Selection Scenarios

### **Describe SD-WAN Policies**

Control and Data Policies

Centralized and Localized Policies

Inbound and Outbound Policies

Control Policy Framework

Direct Internet Access (DIA)

Topology Challenge

### **Configure SD-WAN Control Policies**

SD-WAN Controller Template

Topology Policy

VPN Membership Policy

Configuration Challenge

### **Configure Custom SD-WAN Topologies**

Custom Topologies

Creating a Custom Topology

Custom Topology Options

Challenge

### **Configure SD-WAN Data Policies**

Explicit and Implicit ACLs

Configuring ACLs

Overlapping ACLs

Challenge

### **Deploy SD-WAN Advanced Policies**

Path Redundancy

TLOC Action Configuration

Centralized Data Policies

DIA Static Configuration

DIA Data Policy Configuration

Configuration Challenge

### **Configure Application-Aware Routing**

Application Aware Routing

AAR Architecture

Configure Application Aware Routing

Predictive Path Recommendation (PPR)

Configuration Challenge

### **Configure SD-WAN Policies using CLI**

CLI Overview

Lists

Control and VPN Membership Policies

Access Control Lists (ACLs)

Application Aware Routing (AAR)

CLI Challenge

### **Review SD-WAN Policy Deployment**

Control Policy Quiz

Control Policy Challenge

Data Policy Quiz

Data Policy Challenge

### **Describe SD-WAN Security Services**

Service Insertion

Application Aware Firewall

Intrusion Prevention System (IPS)

Configuration Challenge

### **Describe SD-WAN Security Integrations**

URL Filtering

Advanced Malware Protection (AMP)

SSL and TLS Proxy

DNS Security with Umbrella

Secure Internet Gateway (SIG) and Cisco TrustSec (CTS)

Validation Challenge

### **Describe SD-WAN QoS**

QoS Overview

DSCP Classification

SD-WAN and QoS

Adaptive QoS

DSCP Classification Challenge

### **Configure SD-WAN QoS**

Lab Prep

Configuring QoS via GUI

Configuring QoS via CLI

Configuring Adaptive QoS

Configuration Challenge

### **Describe SD-WAN Application QoE**

TCP Optimization

Data Redundancy Elimination (DRE)

Packet Duplication

Forward Error Correction (FEC)

AppNav

Matching Challenge

### **Describe SD-WAN Management**

RBAC Authentication

Authentication Configuration

Monitoring and Reporting

Troubleshooting

Software Image Management

RBAC Configuration Challenge

### **Review SD-WAN Integrations and Management**

Security Quiz

QoS Quiz

QoS Configuration Challenge

AppQoE and Management Quiz