

## Course Outline

### Cisco SD-WAN Design Clinic for SEs Course SDWDES: 3 days Instructor Led

*All Cisco courses are delivered by a Cisco Authorized Platinum Learning Partner*

#### About this course

This 3-day course covers Cisco Software-Defined WAN (SD-WAN) which is an overlay architecture that overcomes the biggest drawbacks of traditional WAN. Students will be able to describe Cisco SD-WAN options over any transport (MPLS, Broadband, LTE, VSAT, etc.), describe and discuss different designs along with deployment scenarios and decide what troubleshooting, management, policy control and application visibility elements to apply across the enterprise. This hands-on course covers the Cisco SD-WAN solution and contains extensive practices and design workshop to reinforce the knowledge learned.

#### Audience profile

Systems engineers with a basic knowledge about Cisco SD-WAN solution willing to enhance their area of expertise.

#### At course completion

After completing this course, students will be able to:

- Describe how to deploy SD-WAN
- Describe how SD-WAN orchestration works
- Configure SD-WAN environment
- Describe and deploy Zero-Touch Provisioning
- Describe and deploy service insertion in SD-WAN
- Describe and deploy Cloud On Ramp options
- Describe and deploy SD-WAN Multitenancy
- Describe Cisco SD-WAN vAnalytics uses and how it helps to improve the design or redesign process
- Discuss and apply greenfield and brownfield design best practices in several environments and with different technologies
- Describe Smart Licenses and their uses in SD-WAN

#### Course Outline

##### Module 1: Cisco SD-WAN Solution Review

- High-level Cisco SD-WAN Deployment models
- Cisco SD-WAN high availability solution
- Cisco SD-WAN Scalability
- Cisco SD-WAN Solution Benefits

##### Module 2: Cisco SD-WAN Orchestration and Operations Essentials

- Introduction
- vManage NMS
- vSmart Controller
- vBond Orchestrator

## Course Outline

- Controller Resiliency Architecture
- Overlay Management Protocol (OMP)
- Cisco SD-WAN Circuit Aggregation Capabilities
- Secure Connectivity in Cisco SD-WAN
- Performance Tracking Mechanisms
- Application Discovery
- Dynamic Path Selection
- Performance Based Routing
- Dynamic Cloud Access
- Control Plane value

### Module 3: Zero Touch Provisioning

- Overview
- User Input Required for the ZTP Automatic Authentication Process
- Authentication between the vBond Orchestrator and an Edge Router
- Authentication between the Edge Router and the vManage NMS
- Authentication between the vSmart Controller and the vEdge Router

### Module 4: Cloud on Ramp

- Overview
- Deployment modes and requirements
- Cloud on Ramp configuration and monitoring

### Module 5: Service Insertion

- Overview
- Service insertion configuration and monitoring
- Deploying SD-WAN Firewall Zone Based Firewall
  - How to enable Zone Based Firewall
  - How to protect your network using Zones and Policies
  - Deploy ZBF through vManage GUI
  - Allowing Different VPn's to have communication

### Module 6: Multi-Tenancy

- Multi-Tenant Mode
- Creating Tenants
- Adding Controller
- Adding Vedges
- RBAC

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## Module 7: Analytics and REST API

- Dashboard
- Data Analytics
- vManage REST API
- vAnalytics
- Importance and uses of monitoring data
- Benefits of Analytics in the design or redesign process

## Module 8: Site Architecture and Deployment Models

- Site Capabilities
- Capacity Planning
- Scalability and High Availability considerations
- Application types and Topologies which support them
- vEdge Router / ISR SD-WAN Features and Capabilities
- vEdge form factors
- Greenfield and Brownfield projects
- Migration Considerations and Planning
- Control Plane value in deployment models

## Module 9: Use Cases

- Guest Wi-Fi
- Bandwidth Augmentation
- CloudExpress
- Cloud on Ramp for IaaS and SaaS
- Critical Applications SLA
- Regional Secure Perimeter
- Direct Internet Access (DIA)
- Solution Redundancy
- IWAN with SD-WAN use cases
- Meraki with Cisco SD-WAN Viptela use cases
- Legacy technologies and SD-WAN
- Traditional transport technologies with SD-WAN solution integration

## Module 10: Designing Cisco SD-WAN

- Design principles and Workflow
- Cisco Validated Models
  - Zscaler Internet Access (ZIA) and Cisco SD-WAN Deployment Guide

## Course Outline

- SD-WAN: Cloud onRamp for SaaS Deployment Guide
- Capacity and Capabilities
- Deployment Scenarios
- Advanced features and license support
- Case Study analysis
- Design documentation

### Module 11: Appendix: Smart Licensing Support

- Smart Licenses overview
- Account creation
- Account integration and synchronization with vManage
- License Downloading and installing
- ISR / SDWAN vEdge licensing options
- Demo

### Lab Outline

- Set the SD-WAN environment
- Configure and Deploy Control-Plane and Data Plane Connectivity
- Configure and Deploy an Overlay Network
- Provision and Deploy vManage advanced Policies
- Deploy Edge Router using ZTP
- Deploy Cloud on Ramp
- Deploy Service Insertion
- Deploy Multi-Tenant vManage
- Manage and Monitor vAnalytics
- Design Workshop Part 1: Validated Models
- Design Workshop Part 2: Deployment Scenarios
- Design Workshop Part 3: Requirements and Proposals
- Design Workshop Part 4: Device features and Placement on the Network
- Design Workshop Part 5: Case Study Discussion
- Smart Licensing Demo