



Cisco SD-WAN Day-N Advanced Monitoring & Troubleshooting (SDWADV)

COURSE OVERVIEW

This Cisco SD-WAN training is targeted to engineers and technical personnel involved in deploying, implementing, operating and optimizing Cisco SD-WAN solution, both in enterprise and Service Provider environments, including advanced features for centralized AAR/Data policies, QoS, application performance routing, configuration templates, control policies and troubleshooting common and advanced operating issues. The Cisco SD-WAN course is lab-intensive, and objectives are accomplished mainly through hands on learning.

Students taking this Cisco SD-Wan training course should be familiar with Wide Area Networks (WANs) in a variety of ways, which can be found below. Ideal candidates for this course include engineering and planning teams who evaluate WAN evolution, personnel involved in SD-WAN Design, Implementation and Operation, and others.

WHO WILL BENEFIT FROM THIS COURSE?

The primary audience for this course is as follows:

- Engineering and Planning team evaluating WAN evolution
- Personnel involved in SD-WAN Design, Implementation, and Operation
- Network Operations team with SD-WAN solution
- Cisco partners who sell and support SD-WAN solutions

PREREQUISITES

The knowledge and skills that the learner should have before attending this course are as follows:

- Familiarity with WAN Networks

COURSE OUTLINE

Module 1: Cisco SD-WAN Introduction

- High-level Cisco SD-WAN Deployment models
- Application-level SD-WAN solution
- Cisco SDWAN plan for HA and Scalability
- Cisco SD-WAN solution components: vManage NMS, vSmart Controller, vBond Orchestrator
- Edge Routers (cEdge & vEdge)
- Cloud Based Deployment vs On-Premises Deployment

Module 2: Zero Touch Provisioning

- Overview
- User Input Required for the ZTP Automatic Authentication Process
- Authentication between the vBond Orchestrator and WAN Edges
- Authentication between the Edge Routers and the vManage NMS
- Authentication between the vSmart Controller and the Edge Routers



Module 3: Cisco SD-WAN Solution

- 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
- Direct Internet Access
- Cisco SD-WAN In-built Security features: App Aware FW, Talos IPS, URL Filtering, Umbrella Integration & Advanced Malware Protection
- Dynamic Cloud Access: Cloud On-Ramp for SaaS and IaaS (AWS, Azure & GPC)

Module 4: Operations Best Practices

- Config: Test Configuration Changes Before Committing
- NAT: Secure Routers Acting as NATs
- Edge Routers: Connect to the Console Port
- vManage Operational Commands
- SD WAN Devices: Site ID Naming Conventions
- SD WAN Devices: Using the System IP Address
- vManage NMS: Disaster Recovery
- Disaster Recovery – Cluster failover scenarios
- vManage Disaster Recovery Checklist
- How to configure Disaster Recovery

Module 5: Application Monitoring (Including SD-AVC)

- vManage – Application Monitoring
- How to enable DPI on SD-WAN cEdge Routers
- Monitoring Application traffic per device/site
- How to enable SD-AVC on vManage and push to routers.
- Configuring application log collection parameters.
- vAnalytics
- vAnalytics dashboard walk-through
- vAnalytics Network Health
- vAnalytics Network Availability
- vAnalytics Applications
- Ecosystem Partner Solutions

Module 6: General Troubleshooting

- Check Application-Aware Routing Traffic
- Collect Device Data To Send to Customer Support
- Monitor Alarms and Events
- Monitor TCP Optimization
- Ping an SD WAN Device

- Run a Traceroute
- Simulate Flows
- Troubleshoot Cellular Interfaces
- Troubleshoot Device Bringup
- Use Syslog Messages
- Tunnel Health

Module 7: Troubleshooting: Data Plane Issues

- BFD Session Information and Troubleshooting a BFD Session
- Cflowd Issues
- Data Policies
- DPI Issues
- Symptom: Site Cannot Reach Applications in Datacenter
- Symptom: vManage Showing Edge Router or Interface Down
- Symptom: Site-Wide Loss of Connectivity (Blackout)
- Symptom: Poor Application Performance (Brownout)
- Issue Severity Assessment

Module 8: Troubleshooting: Routing Issues

- Troubleshooting NAT Issues for Control and Data connections
- BGP Information
- Multicast Information
- OMP Information
- OSPF Information
- PIM Information
- Symptom: Some or All Routes Missing from Edge Routing table
- Symptom: Data Traffic Using Suboptimal Path
- Symptom: Data Traffic Not Using All Transports

Module 9: Monitoring and Troubleshooting Application-Aware Routing

- Application Performance with Cloud-Express Service
- Tunnel Latency Statistics
- Tunnel Loss Statistics

Module 10: Troubleshooting Policy Related Issues

- Checking configuration o For Localized Policies
- For Centralized Policies
- How to check if FIA is enabled
- Confirming and troubleshooting TCAM Issues
- Enabling Various Policy Level Logs
- FRM Logs
- EPBR Logs
- FNF Logs during config
- Collecting Log Files
- How to deal with too many logs



Module 11: Network Operations

- Check Alarms and Events
- Check User Accounts and Permissions
- Deploy the SD WAN Overlay Network
- Determine the Status of Network Sites
- Control Connections
- Data Connections
- OMP Status
- Enabling Embedded Packet Captures and Packet Trace on Cisco cEdges

Module 12: Security Certificate Troubleshooting

- Generate a Certificate Signing Request
- Issues when installing a certificate
- Using Cisco Signed Certificates vs 3rd Party Signed Certificates
- Upload the Edge Serial Number File

Module 13: SD WAN Devices Maintenance

- Decommission a vEdge Cloud Router
- Determine the Status of a Network Device
- Migrate a Controller's Virtual Machine Using vMotion
- Remove an Edge Router's Serial Number from the vManage NMS
- Replace an Edge Router
- Restore the vManage NMS
- Set Up User Accounts to Access SD-WAN Devices
- Validate or Invalidate an Edge Router
- Software Versions Installed on a Device
- Troubleshooting platform crash issues

Module 14: SD WAN Device Operation and Troubleshooting

- Determine Changes to a Configuration Template
- Determine Why a Device Rejects a Template
- Alarm Severity Levels
- Hardware Alarms
- Checking Alarms and Notifications
- LEDs
- Additional Information
- Restore an Edge Router
- Remove Edge Router Components

Lab Outline:

- Lab 1: Deploy and configure the Cisco SD-WAN Fabric
 - Configure and Deploy Control-Plane Connectivity
 - Configure and Deploy an Overlay Network
 - Provision and Deploy vManage Templates
 - Provision and Deploy vManage Policies



- Lab 2: Operational Best Practices
- Lab 3: Installing SD-AVC and monitoring CFlowd & DPI
- Lab 4: Cisco SD-WAN Control Plane Troubleshooting
- Lab 5: Cisco SD-WAN Data Plane Troubleshooting
- Lab 6: Cisco SD-WAN Troubleshoot Routing Issues
 - Basic route troubleshooting on the SD-WAN XE Image
 - Debugs on the Cisco SD-WAN XE Image
- Lab 7: Troubleshooting Cisco SD-WAN Policies
- Lab 8: Configuring a vManage Disaster Recovery Backup
- Lab 9: Troubleshooting platform crash files
- Lab 10: Configuring Cisco SD-WAN Alarms, Alerts and Notifications

WHY TRAIN WITH SUNSET LEARNING INSTITUTE?

Sunset Learning Institute (SLI) has been an innovative leader in developing and delivering authorized technical training since 1996. Our goal is to help our customers optimize their technology Investments by providing convenient, high quality technical training that our customers can rely on. We empower students to master their desired technologies for their unique environments.

What sets SLI apart is not only our immense selection of trainings options, but our convenient and consistent delivery system. No matter how complex your environment is or where you are located, SLI is sure to have a training solution that you can count on!

Premiere World Class Instruction Team

- All SLI instructors have a four-year technical degree, instructor level certifications and field consulting work experience
- Sunset Learning has won numerous Instructor Excellence and Instructor Quality Distinction awards since 2012

Enhanced Learning Experience

- The goal of our instructors during class is ensure students understand the material, guide them through our labs and encourage questions and interactive discussions.

Convenient and Reliable Training Experience

- You have the option to attend classes live with the instructor, at any of our established training facilities, or from the convenience of your home or office
- All Sunset Learning Institute classes are guaranteed to run – you can count on us to deliver the training you need when you need it!

Outstanding Customer Service

- You will work with a dedicated account manager to suggest the optimal learning path for you and/or your team
- An enthusiastic student services team is available to answer any questions and ensure a quality training experience



Interested in Private Group Training?
[Contact Us](#)