



Advanced Cisco SD-WAN Routing, Templates, Policy Configure, and Tshoot (ADV-SDWAN-CT)

In this Advanced Lab focused SD-WAN Course, Students will learn Advanced Techniques to Deploy Templates with the theme of reusability. Students will then focus on deploying advanced Security Policies and learning how to troubleshoot security issues. Students will then focus on deploying advanced Local Policies and learning how to troubleshoot Local Policy issues. Students will then focus on deploying Advanced Central Policies and learning how to troubleshoot Central Policy issues.

- Explore and Troubleshoot the initial environment
- Design, Configure, and Troubleshoot Clusters and High Availability
- Learn Advanced Techniques to Deploy Templates with the theme of reusability
 - Deploy and Troubleshoot Transport Bridging
 - Deploy and Troubleshoot Routing including OSPF, BGP, EIGRP
 - Deploy and Troubleshoot Multicast Routing
- Design, Configure, and Troubleshoot APP-QoS, SD-AVC and QoS Policies
- Design, Configure, and Troubleshoot Advanced Security Policies
- Design, Configure, and Troubleshoot SDWAN Direct Internet Access (DIA)
- Design, Configure, and Troubleshoot SDWAN Unified Communication Integrations
- Design, Configure, and Troubleshoot Local Policies
- Design, Configure, and Troubleshoot Application Aware Routing
- Design, Configure, and Troubleshoot Central Policies (Sites, Hub Spoke, Full Mesh and Custom Topologies)
- Design, Configure, and Troubleshoot Central Policies Including Service Chaining
- Design, Configure, and Troubleshoot Central Policies Including Traffic Rules & CFLOW
- Design, Configure, and Troubleshoot Migration from IWAN

Why Attend with Current Technologies CLC

- Our Instructors are the top 10% rated by Cisco
- Our Lab has a dedicated 1 Gig Fiber Connection for our Labs
- Our Labs run up to Date Code for all our courses

Prerequisites

- Implementing and Configuring Cisco SDWAN (ICSDWAN-CT)

Objectives

- SD-WAN Review
- Clusters and High Availability
- SD-AVC and QoS Policies
- Advanced Template Design and Troubleshooting
- Advanced Security Policies on vEdge and IOS-XE Platforms
- Advanced Local Policies on vEdge and IOS-XE Platforms
- Advanced Central Policies on vEdge and IOS-XE Platforms
- Advanced Troubleshooting of Policies on vEdge and IOS-XE Platforms

Outline

Module 0: Introductions

Module 1: Cisco SD-WAN Overview

- Dashboard
- SD-WAN Architecture
- SD-WAN WAN Edges
 - cEdges
 - vEdges
- SD-WAN Controllers
 - vBond
 - vSmart
 - vManage
- SD-WAN Fabric

Module 2: SD-WAN Advanced Settings

- SD-WAN Smart Licensing
- Advanced Controller Settings
- Overlay and WAN Edge Recommended Settings
- Site Design
- System IP Design
- Multitenant Design
- LTE Operation
- New Enhanced WAN Edge Features
- WAN Edge Etherchannel

Module 3: SD-WAN Clustering and High Availability

- Controller High Availability
- Controller Scalability
- Active vManage, Backup Inactive vManage
- Clustering vManages
- Resource Groups

Course Duration

5 day

Course Price

\$4,795.00

Methods of Delivery

- Instructor Led
- Virtual ILT
- On-Site

- RBAC Enhancements
- Disaster Recovery

Module 4: SD-WAN Templates

- Template Overview
- Future Templates
- Device template using Future Templates
- Device template using CLI Templates
- Designing templates for Reusability
- Attaching Devices to Templates

Module 5: APP-QoE, SD-AVC and QoS Policies

- App QoE
- SD-AVC
- Application Aware Routing
- Bidirectional Forwarding Detection (BFD)
 - BFD Hello Timer and Multiplier
 - BFD Measurements
- Custom Application definitions / NBAR / DPI
- TCP Optimization
- Data Redundancy Elimination (DRE)
- Forward Error Correction (FEC)
- Packet Duplication
- APPNAV Deployment
- WAAS Integration

Module 6: Bridging

- Transparent Bridging
- Bridging Template Configuration
- cEdge Bridging Template Configuration
- vEdge Bridging Template Configuration
- Monitoring Bridging

Module 7: Routing Protocols

- Static Routes
- Dynamic Routing Protocols
 - OMP Templates
 - OMP Policies
 - BGP Templates
 - BGP Policies
 - OSPF Templates
 - OSPF Policies
 - EIGRP Templates
 - EIGRP Policies
- On Demand Tunnels
- Route Leaking

Module 8: Multicast

- Multicast Terms
- Requirements
- vEdge Multicast Support
- cEdge Multicast Support
- Multicast RPs
- Multicast Replicators
- PIM IGMP

Module 9: Direct Internet Access (DIA) Overview

- SD-WAN Direct Internet Access (DIA)
- SD-WAN DIA Requirements
- SD-WAN Direct Internet Access Use Cases
- SD-WAN Direct Internet Access Design Components
- SD-WAN Direct Internet Access Design Considerations
- SD-WAN Direct Internet Access Failover Scenarios
- Cisco SD-WAN Direct Internet Access Monitoring

Module 10: Unified Communications

- Voice Integration in SD-WAN
- Supported Cards / Features
- Voice Feature Templates
 - Call Routing
 - SRST
 - Voice Card
- Voice Policies
- FXO, FXS, FXS DID
- T1, PRI
- DSP Configuration
- CUBE Functionality
- IOS-XE UC Device Template

Module 11: SD-WAN Security Policy

- Security Options
- Umbrella
- Secure Internet Gateway (SIG)
 - Cloud Firewall
 - DNS Layer Security
 - Secure Web Gateway
 - Cloud Access Security Broker
 - Interactive Threat Intel
- Scaler
- Authentication/Encryption/Integrity
- Firewall
- IPS (Snort)
- URL Filtering

- Web Layer Security
- Pairwise IPsec Keys
- TLS Decryption
- Geo-Fencing

Module 12: SD-WAN Local Policy

- Policy Configuration Overview
- Policy Framework-Localized Policies
- Local Control Policy
- QOS Maps
- Rewrite Policies
- Policers
- Device Access Policies
- Access Control Lists
- Local Control (Route) Policy
- Localized Control Policy Configuration
- Local Data Policy
- Configure Localized Data Policy for IPv4

Module 13: SD-WAN Central Policy

- Policy Creation and Management Guidelines
- Centralized Control Policies
 - Hub & Spoke / Mesh / Custom
- Centralized Data Policies
 - Application Aware Routing
 - QOS Policies
- Service Chaining
- Traffic Flow Monitoring with Cflowd
- Policy Construction
- Platform Support and Scalability

Module 14: SDWAN Migration

- Sequence of Migration
- Migration Planning
- DC/Hub Site Migration
- Branch/Spoke Site Migration

LAB OUTLINE

Lab 1: Review & Troubleshoot Initials SDWAN Environment

- Review Environment
- Troubleshooting Initial Connectivity
- Troubleshooting Initial Control Connections

Lab 2: Create and Troubleshoot SDWAN Clusters

- Create a 3 Node SDWAN Cluster
- Monitor Cluster Troubleshoot Cluster

Lab 3: Template

- Advanced Techniques for Template Creation
- Variable Naming Conventions for Reusability
- Create Feature Template for reuse across all vEdge devices
- Export and Import Templates via API
- Troubleshoot Template Deployment

Lab 4: Deploy and Troubleshoot Hardware Routers with ztp.

- Troubleshoot and Deploy 4331 Router
- Troubleshoot and Deploy vEdge Router

Lab 5: Implement Routing Protocol

- Configure Transparent Routing
- Configure BGP Template and Local Policy on the Transport VPN
- Configure OSPF Template and Local Policy on the Transport VPN
- Configure BGP Template and Local Policy on the Service Side (LAN) VPN
- Configure OSPF Template and Local Policy on the Service Side (LAN) VPN
- Configure EIGRP Template and Local Policy on the Service Side (LAN) VPN
- Configure Multicast on vEdge
- Configure Multicast on IOS-XE
- Monitor Routing
- Troubleshooting Routing Protocols

Lab 6: Advanced Firewall Policy Design

- Setup and deploy a realistic firewall Configuration on vEdge and IOS-XE
- Setup IPS/URL Filtering on IOS-XE Device
- Setup Web Layer Security
- Monitoring Security Policy
- Test and Troubleshoot a Firewall Policy

Lab 7: Designing and Implementing Local Policies and QoS Policies

- Design and Implement Lists to Support Local Policies
- Design Access List
- Advanced QoS Design on Interfaces / Sub Interfaces
- Creating Shapers and Policers
- Rewriting QoS for External MPLS Circuit
- Remarking for Cisco Enterprise QoS Model
- Setup Port Mirroring for traffic analysis

Lab 8: Create Advanced Central Policies

- Advanced List Design Techniques
- Advanced Site Design

- Design and Troubleshoot a Hub and Spoke Topology
- Design, Configure, and Troubleshoot a Full Mesh Topology
- Design, Configure, and Troubleshoot a Hub and Spoke Topology with a Full Mesh Core
- Design, Configure, and Troubleshoot Custom Control Policies with Traffic Engineering
- Design, Configure, and Troubleshoot a Service Chain with an ASA Firewall
- Design, Configure, and Troubleshoot a QoS Policy at the VPN Level
- Design, Configure, and Troubleshoot Extranet with a 3rd Party Provider
- Design, Configure, and Troubleshoot Application Aware Routing Policy

Lab 9: Monitoring the Environment

- Monitoring using vManage
- Monitoring using the CLI
- Monitoring using vAnalytics

Lab 10: Troubleshooting

- Troubleshooting Hardware Issues
- Troubleshooting Control Connections
- Troubleshooting Certificate Issues
- Troubleshooting Controllers
- Troubleshooting BFD Sessions
- Troubleshooting Templates
- Troubleshooting Local Policies
- Troubleshooting Central Policies