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ADV Cisco SD-WAN Design, Troubleshoot, Topology, Configuration & Policy Groups, & Features

WHERE GREAT TRAINING HAPPENS EVERYDAY!

ADV Cisco SD-WAN Design, Troubleshoot, Topology, Configuration & Policy Groups, & Features

About this Class

In this ADV Cisco SD-WAN Design, Troubleshoot, Topology, Configuration & Policy Groups, & Features five-day, advanced hands-on course, students build on foundational Cisco Catalyst SD-WAN knowledge to develop the design, configuration, integration, optimization, and troubleshooting skills required for complex enterprise deployments. Designed as the next step for engineers who have completed courses such as Implementing Cisco Catalyst SD-WAN Solutions (ENSDWI) or Installing, Configuring, Monitoring and Troubleshooting Cisco Catalyst SD-WAN (SDWAN-CT), the course addresses the knowledge gap that often emerges after initial deployment, when engineers must support production environments, implement advanced capabilities, troubleshoot complex issues, and adapt the architecture to changing business requirements.

The course focuses on Cisco Catalyst SD-WAN versions 20.18 and 26.x, including the evolving operational model built around Configuration Groups, Feature Profiles, Policy Groups, Network Hierarchy, and advanced Topology capabilities. Students gain extensive hands-on experience designing and deploying Configuration Groups with Feature Profiles and Policy Groups using Application Priority, Service-Level Agreement (SLA) requirements, Next-Generation Firewall (NGFW) services, DNS Security, and Cisco Secure Access. These capabilities provide administrators with a more streamlined and scalable approach to managing configurations, policies, security, and application behavior across large SD-WAN environments.

Students move beyond basic deployment concepts to examine how the complete SD-WAN architecture operates. This includes controller and device High Availability (HA), advanced underlay and overlay routing, Overlay Management Protocol (OMP), Open Shortest Path First (OSPF), Border Gateway Protocol (BGP), multicast, Direct Internet Access (DIA), and Custom Overlay Routing. Students explore how Network Hierarchy and Topology can be used to control traffic paths between sites, regions, data centers, cloud environments, and shared services while supporting applications such as Microsoft 365 and Cisco Secure Access.

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About this Class

Advanced security is integrated throughout the course rather than treated as a separate feature. Students examine the design and configuration of on-premises and cloud-delivered security services, including Next-Generation Firewall, Intrusion Prevention System (IPS), URL Filtering, DNS Defense, and Cisco Secue Access. This provides engineers with the knowledge needed to determine where security services should be applied and how SD-WAN routing, application policies, and security architectures interact in hybrid enterprise environments.

The course also explores advanced Cisco Collaboration integration, including Cisco Unified Border Element (CUBE) and voice deployments across the SD-WAN infrastructure. Students learn how application-aware routing, SLA policies, path selection, QoS considerations, and WAN resiliency can be applied to business-critical voice and collaboration traffic.
A major emphasis is placed on advanced troubleshooting and real-world deployment scenarios. Students troubleshoot Configuration Groups, Feature Profiles, Policy Groups, routing, topology, application policies, security services, and connectivity across the underlay and overlay. The advanced format also provides opportunities to discuss complex architectures, deployment roadblocks, design decisions, feature adoption, migration strategies, and operational challenges encountered in production environments.

By the end of the course, students will be prepared to move beyond simply operating a deployed SD-WAN environment and take a more active role in designing, enhancing, securing, integrating, and troubleshooting it. Engineers will develop the practical skills required to fully utilize advanced Cisco Catalyst SD-WAN capabilities and build scalable, resilient, secure, and application-aware solutions across branch, data center, cloud, and hybrid infrastructures.

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Course Duration

5 Days

Course Price

$4,295.00
43 CLCs

Methods of Delivery

In-Person ILT
Virtual ILT
Onsite ILT

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

The knowledge and skills you are recommended to have before attending this training are:

- Installing, Configuring, Monitoring and Troubleshooting Cisco Catalyst (SDWAN) v20.18

How you will benefit

This class will help you:

- Builds on the SDWAN class. Focuses on Advanced Features (Routing, Templates, Configuration Groups, Policies, SASE Security, Thousand Eyes Integration, Advanced QoS)
- Enhance voice integration and configuration expertise
- Will help prepare for the 300-415 ENSDWI Certification Between SDWAN and ADVANCED SDWAN

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Objectives

- Cisco Catalyst SD-WAN Architecture, Advanced Features, and High Availability
- Design, Configure, Optimize, and Troubleshoot Configuration Groups, Feature Profiles, and Policy Groups
- Design, Configure, and Optimize Application Priority, SLA, APP-QoE, SD-AVC, and QoS Policies
- Design, Configure, and Optimize Network Hierarchy, Advanced Topology, and Custom Overlay Routing
- Design, Configure, and Optimize Advanced Underlay and Overlay Routing with OMP, OSPF, BGP, and Multicast
- Design, Configure, and Optimize Direct Internet Access (DIA), Microsoft 365, and Cloud/SaaS Routing
- Design, Configure, and Optimize Advanced Security with NGFW, IPS, URL Filtering, DNS Defense, and Cisco Secure Access
- Design, Configure, and Optimize Cisco CUBE, Voice, and Collaboration Integration
- SD-WAN Migration, Configuration Modernization, and Advanced Feature Adoption

Who Should Attend

The job roles best suited to the material in this course are:

- Network Engineers: Professionals tasked with the design, implementation, and maintenance of the network infrastructure. This includes managing both Catalyst SD-WAN and data communication systems, ensuring they meet the high standards required for government operations.
- System Administrators: Individuals responsible for the daily management and configuration of the network systems. Their role is crucial in ensuring the reliable operation of Catalyst SD-WAN and WAN services across various departments.

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Cont. Who Should Attend

- IT Professionals: This group includes a wide range of IT personnel working who require a robust understanding of secure and reliable Catalyst SD-WAN network systems. Their work is critical in ensuring that these networks comply with stringent standards and regulations.
- Technical Support Staff: These are the frontline personnel who provide essential technical support for Catalyst SD-WAN network systems within the environments. Their expertise ensures that any issues are promptly resolved to maintain network integrity and security.
- Cisco Certified Professionals: Individuals who have already achieved Cisco certifications and are looking to further their knowledge and expertise specifically in Catalyst SD-WAN Networks and Technologies. This course offers them an opportunity to specialize in Catalyst SD-WAN solutions, enhancing their skill set in the context of the network requirements

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Course Outline

Module 0: Introductions

- Introductions
  - Get familiar with the course structure and participants.

Module 1: Cisco Catalyst SD-WAN Review

- Catalyst SD-WAN Control Plane Overview
  - An overview of Catalyst SD-WAN architecture and capabilities.
- SD-WAN Platform
  - Platform selection and deployment strategies.
- Potential issues within SD-WAN Fabric

Module 2: Advanced SDWAN Control Component Deployment

- On-Prem Controller Deployment
- Create Manager VM Instance
- Initial SD-WAN Manager Setup
- Create Validator VM Instance
- Create Controller VM Instance
- Add Control Components to Manager
- Enterprise CA Configuration
- Controller High Availability
- Orchestration Plane for Air Gap
- Management Plane for Airgap
- Additional Considerations for Air Gap Networks
- Verify Control Plane
- Manager Day-0 Setup

Module 3: Design & Advanced Settings

- Feature Summary by Version
- Design and Plan Topology
- Offline Licensing

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Course Outline

Cont. Module 3

- SD-WAN Configuration and Settings
- Ether Channel Support (20.6)
- LTE Design and Deployment Options
- C1100TG Terminal Gateway (20.16)
- Cisco Cyber Vision

Module 4: SD-WAN High Availability

- SD-WAN High Availability
- Manager Clustering
- SD-WAN Disaster Recovery
- Troubleshooting Cluster Operation
- LACP Configuration

Module 5: Template & Config Groups Optimization

- SD-WAN Device Configuration
- Using Python to Import / Export Templates
- Parsing JSON with Python
- Template Operations
- Configuration Groups Overview
- Creating Configuration Groups
- Deploy Configuration Group Workflow
- View/ Edit Configuration Groups
- Configuration Groups vs Templates
- Tagging
- Configuration Catalog
- Control Components Settings (20.18)

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Course Outline

Module 6: SD-WAN APP-QoE, SD-AVC and QoS Policies

- Application Quality of Experience (APPQoE)
  - Enhancing app experience.
- SD-AVC
- Application Classification From 20.10
- Custom Application Identification
  - Defining custom apps.
- Application Catalog Enhancements (20.16)
- Bidirectional Forwarding Detection (BFD)
  - Monitor and recover tunnel loss.
- Cloud onRamp for SaaS for Office 365
  - Optimize O365 performance.
- QoS Design
- Per Tunnel QOS
  - QoS settings per tunnel.
- Adaptive QOS
  - Dynamic adjustments to QoS.
- SD-WAN 17.6/20.6 - Per VPN QOS
  - VPN-based traffic control.
- Upstream and Downstream Throttle (20.18)
- TCP Optimization
  - Improve TCP traffic performance.
- Service Nodes for AppQoE
  - Offload services to nodes.
- Forward Error Correction (FEC)
  - Error correction techniques.
- Packet Duplication
  - Resiliency for critical apps.
- QoS Queueing Statistics (20.18)

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Course Outline

Module 7: Bridging

- Transparent Bridging
  - Enable Layer 2 bridging in SD-WAN.
- cEdge Bridging Template Configuration
  - Bridge config for IOS-XE.

Module 8: Routing Protocols

- SD-WAN Routing
  - Dynamic and static underlay routes.
- Static Routes
  - Configure static routing.
- VRRP Enhancements
  - Redundancy enhancements.
- HSRP Standby Router
- OMP Routing
- Border Gateway Protocol (BGP)
- BGP Review
- BGP Templates
- BGP Lists
- BGP Local Route Policies
- BGP Troubleshooting
- Open Shortest Path First (OSPF)
- SD-WAN OSPF
- OSPF Templates
- OSPF Local Policies
- OSPF Monitoring
- OSPF Troubleshooting
- Enhanced Interior Gateway Routing Protocol (EIGRP)
- EIGRP Template Configuration

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Course Outline

Cont. Module 8

- EIGRP Monitoring and Troubleshooting
- SD-WAN On Demand Tunnels
  - Create tunnels dynamically.
- Route Leaking
  - Cross-VPN route redistribution.
- SD-WAN 17.7
- Service VPN Route Leaking

Module 9: Multicast

- Multicast Overview
- Support for Mulitcast

Module 10: Direct Internet Access (DIA)

- Direct Internet Access (DIA)
- Direct Internet Access (DIA) Design
- Deploying DIA
- Central Data Policy
- NAT DIA Route
- DIA NAT Troubleshooting

Module 11: SD-WAN Voice Configuration

- SD-WAN UC Support
- Voice Card Feature Template
- Call Routing Feature Template
- Survivable Remote Site Telephony (SRST)
- Voice Policy
- Create a Voice Port Policy
- Voice Port Translation Profile
- FXO Supervisory Disconnect
- Webex Calling Local Survivability Gateway

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Course Outline

Module 12: SD-WAN Security

- Security Overview
- General overview of secure SD-WAN.
- Fabric Security
- On-Prem Security
- Snort/IPS
- Custom IPS Signatures (20.18)
- Advanced Malware Protection/AMP
- URL Filtering
- TLS/SSL Decryption
- Unified Logging
- Cloud Security
- Secure Internet Gateway (SIG)
- Cisco and ZScalar SIG
- Manager ZScaler Workflow for Auto-GRE SIG Tunnel
- ZScaler Workflow
- L7 Health Check Inside ZScaler Auto-GRE Tunnel
- Secure Access Service Edge (SASE)
- Configure Tunnels with Cisco Catalyst SD-WAN
- Cisco Secure Access Configuration

Module 13: SD-WAN Local Policies

- Localized Policies Overview
- Local Control Policies
- Local Data Policies
- Local Data Policy - QoS
- Configure Local Policies

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Course Outline

Module 14: SD-WAN Central Policies

- Centralized Policies Overview
- Central Policy Functionality
- Centralized Policies
- Centralized Control Policies
- Service Chains
- Centralized Data Policies
- Application Aware Routing
- Central Data Policies - Cflowd
- Control Policy - VPN Membership Policy
- Policy Construction
- Policy Troubleshooting
- Centralized Control Policy
- Control Policies & Troubleshooting Workflow
- Centralized Data & AAR Policies Troubleshooting

Module 15: SD-WAN Policy Groups

- What are Policy Groups?
- Groups of Interest (Policy Objects)
- Application Priority and SLA
- NGFW
- SIG/SSE and DNS Security
- Policy Group Creation
- Associate and Deploy Policy Groups
- UX 2.0 Topology

Module 16: Multi-Region Fabric

- Multi-Region Fabric
- MGMT Regions

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Course Outline

Module 17: Network Wide Path Insights (NWPI)

- NWPI
- NWPI Enhancements (20.18)

Module 18: Cisco SD-WAN Migration (Viptela) Migration Strategies

- Secure Automated WAN
- Migration and Deployment Models
- Controllers Design
- DC and Branches Design
- Migration and Onboarding Strategy
- Implementing Automated WAN
- UX Conversion Tool

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Lab Outline

- Lab 0: Lab Access via View Horizon Client
- Lab 1: Controller Verification
- Lab 2: Modify Controller Settings
- Lab 3: NYC-DC1 Device Template
- Lab 4: EMEA-DC2 Configuration Group
- Lab 5: Editing the EMEA DC2 Configuration Group
- Lab 6: Deploying the Configuration Group for DC2
- Lab 7: Create BR-West-Coast Configuration Group
- Lab 8: Editing the BR-West-Coast Configuration Group
- Lab 9: Deploying the BR-West-Coast Configuration Group
- Lab 10: Integration Between SD-WAN and ISE
- Lab 11: Security Policy Lists Configuration
- Lab 12: Security Policy Configuration
- Lab 13: Unified Security Policy Configuration
- Lab 14: Local Policy List Configuration
- Lab 15: Localized Policy Configuration
- Lab 16: Central Policy List Configuration
- Lab 17: Centralized Policy Configuration
- Lab 18: Creating Security Objects
- Lab 19: Creating Network Objects
- Lab 20: Create and Deploy EMEA-DC2 Policy Group
- Lab 21: Creating Additional UX-2.0 Policies
- Lab 22: Topology
- Lab 23: Template Backup and Restore
- Lab 24: Network Wide Path Insight

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