SDWAN - INSTALLING, CONFIGURING, MONITORING AND TROUBLESHOOTING CISCO CATALYST SD-WAN V20.18/17.18

Course Code: 821651

In this 5-day immersive, hands-on course covering Cisco Catalyst (Viptela) SD-WAN version 20.18 / IOS-XE 17.18, students will gain in-depth knowledge and practical skills to deploy, configure, manage, and troubleshoot Cisco SD-WAN environments. The course explores controller and edge device deployment, Zero Touch Provisioning (ZTP), device and feature template creation, and SD-WAN Manager interface operations. Students will work with advanced features including OMP, BFD, QoS, DRE, security integration (SASE, Umbrella, FW, IPS), and local and centralized policy design. Labs include deploying controllers, onboarding routers (vEdge, ISR, C8000V), upgrading environments, configuring policies, enabling Cloud On-Ramp for SaaS applications like O365 and Webex, and leveraging analytics and troubleshooting tools like ThousandEyes and vManage. By course end, students will be proficient in building robust, secure, and optimized enterprise SD-WAN solutions across cloud and hybrid infrastructures.

This release begins the Journey of streamlining Configuration Groups and Policy Groups, empowering network administrators with greater control and efficiency. This release is pretty close to feature complete, and the first release that I would tell customers that it is time to look to convert Configuration Templates to Configuration Groups.

Here are some of the Updates:

Configuration Groups: Simplifying Network Management

With the advent of configuration groups, network administrators can now create and manage device configurations more effectively. The feature allows for the grouping of devices based on specific criteria, enabling consistent and centralized configuration deployment. By reducing manual configurations on individual devices, configuration groups ensure uniformity and significantly decrease the potential for errors, leading to a more streamlined and reliable network management process.

Policy Groups: Enhanced Policy Management

The introduction of policy groups in **Cisco SD-WAN 20.18** marks a substantial improvement in policy management. This feature allows administrators to define and apply policies to specific groups of devices or regions, facilitating more

granular control over network behavior. By aligning policies with organizational requirements and regional compliance standards, policy groups enhance security and performance across the network. This targeted approach ensures that policies are both effective and relevant to the specific needs of different network segments.

The release of **Cisco SD-WAN 20.18** underscores the importance of adopting configuration and policy groups to optimize network operations. These features not only simplify the management of complex network environments but also enhance scalability and responsiveness to organizational changes. By leveraging configuration groups, administrators can ensure maintaining a secure and efficient network infrastructure.

Use this course towards your Cisco Continuing (CE) Education Credits (40)

What You'll Learn

This class will help you:
- Master deploying and configuring SD-WAN Controllers, vEdge Devices, and Cisco IOS-XE Devices
- Understand local and central policies
- Learn and master Monitoring and Troubleshooting the SDWAN Solution.

Who Needs to Attend

This course is suitable for Network Engineers, System Administrators, IT Professionals, Technical Support Staff, and Cisco-Certified Professionals looking to enhance their skills and proficiency with Cisco Catalyst SD-WAN network management tailored for networks.

The course is highly recommended for:
- **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.
- **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.

Prerequisites

There are no prerequisites for this training.

However, the knowledge and skills you are recommended to have before attending this training are:

- Knowledge of software-defined networking (SDN) concepts as applied to large scale live network deployments
- Strong understanding of enterprise WAN design
- Strong understanding of routing protocol operation, including both interior and exterior routing protocol operation
- Familiarity with transport layer security (TLS) and IP security (IPsec)

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- SD-WAN WAN Architecture Overview
  - ⬦ Review SD-WAN architecture fundamentals
- Cisco SD-WAN Solution Overview
  - ⬦ Overview of Cisco SD-WAN platform
- New Features by Version
  - ⬦ Explore features introduced in new versions
- Licensing for Cisco SD-WAN
  - ⬦ Understand licensing models and options
- SD Routing Overview (20.15.X)
  - ⬦ Routing features available in version 20.15.X

Module 2: Cisco SD-WAN Controllers

- Cisco SD-WAN Controller Architecture
  - ⬦ Architecture for control plane components
- Cisco Catalyst SD-WAN Portal
  - ⬦ Portal-based access and management
- Multitenant Tenancy
  - ⬦ Controller tenancy model
- Controller High Availability
  - ⬦ Controller redundancy and failover
- Verify Control Plane
  - ⬦ Confirm control connectivity and functions

Module 3: Catalyst SD-WAN Platforms

- SD-WAN Platform Overview
  - ⬦ Overview of SD-WAN compatible platforms
- SD-WAN vEdge Platforms

- ☒ Capabilities of vEdge hardware
- Cisco ISR 4000 Series Routers
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  - ☒ Use of ASR routers in SD-WAN
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- Cellular Gateways for SDWAN
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  - ☒ Redundancy options for WAN edge

Module 4: Cisco SD-WAN WAN Edge Deployments

- Adding Device to the PNP Portal
  - ☒ Onboarding devices to SD-WAN
- Device Initial Bootup and Image Selection
  - ☒ Initial software provisioning
- SD-WAN Zero Touch Provisioning
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- SD-WAN Quick Connect
  - ☒ Rapid manual setup
- Manually Provision SD-WAN IOS-XE
  - ☒ CLI-based setup of edge devices
- Verifying SD-WAN WAN Edge Configuration
  - ☒ Confirming WAN edge deployment

Module 5: Catalyst SD-WAN SD Routing

- SD Routing Overview
  - ☒ Routing technologies supported in SD-WAN.
- SD Routing Onboarding
  - ☒ Enable SD routing in the platform.
- SD Routing Configuration
  - ☒ Configure routing protocols and policies.
- SD Routing Management
  - ☒ Monitoring and verification.

Module 6: Configuring SD-WAN Manager

- Dashboard Overview and Changes
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Module 7: SD-WAN Software Upgrades

- Upgrading the SD-WAN Environment
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- Upgrade SD-WAN Controllers
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- Software Upgrade Workflow Version 20.10 / 17.10
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  - ☐ Best practices for access control
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  - ⬜ Web access control
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  - ⬜ Use of templates to simplify management
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Module 14: SD-WAN Policy Groups

- What are Policy Groups?
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- Groups of Interest (Policy Objects)
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  - ⬚ Build new policy groups
- Associate and Deploy Policy Groups
  - ⬚ Activate across the network
- UX 2.0 Topology
  - ⬚ Improved interface for topology mapping

Module 15: Cisco SD-WAN with ThousandEyes Integration

- ThousandEyes Introduction
    - ⬚ Digital experience monitoring
- Architecture and SD-WAN Deployment
    - ⬚ Deploying with SD-WAN

Module 16: Cloud On Ramp for SaaS

- Cloud OnRamp - Overview
    - ⬚ What OnRamp enables
- Cloud OnRamp for SaaS Overview
    - ⬚ End-to-end SaaS optimization
- Cloud OnRamp for M365
    - ⬚ Microsoft apps acceleration
- Cloud OnRamp for Webex
    - ⬚ Better experience for Webex
- Cloud OnRamp for Enterprise & Custom Apps
    - ⬚ Non-standard SaaS apps
- Cloud OnRamp for SaaS – Security
    - ⬚ Securing SaaS access
- Deployment Use cases
    - ⬚ Example architectures
- Cloud OnRamp for SaaS Configuration
    - ⬚ Initial deployment
- Cloud OnRamp for SaaS Monitoring
    - ⬚ Health visibility

Module 17: Analytics 3.0

- SD-WAN Analytics Overview
    - ⬚ Data collection and use cases
- SD-WAN Analytics Dashboards
    - ⬚ Visual insights for metrics
- SD-WAN Analytics KPIs and Scores
    - ⬚ Performance indicators
- SD-WAN Analytics Bandwidth Forecasting
    - ⬚ Predict future bandwidth needs
- SD-WAN Analytics Troubleshooting
    - ⬚ Identify root causes
- SD-WAN Analytics IDP Onboarding
    - ⬚ IDP integration with analytics
- SD-WAN Analytics Onboarding & Access Workflow
    - ⬚ Enable analytics for sites

Module 18: Monitoring & Troubleshooting the SD-WAN Solution

- SD-WAN Troubleshooting Overview
    - ⬚ Approach to resolving issues
- SD-WAN Technical Support Access
    - ⬚ TAC support options

- Controller Failure Scenarios
  - ⬚ Recovering from controller issues
- Troubleshooting Controllers
  - ⬚ Isolate and fix controller faults
- Troubleshooting Control Connections
  - ⬚ Fix routing and tunnel issues
- Typical Control Connection Issues
  - ⬚ Common misconfigurations
- Troubleshooting Data Plane
  - ⬚ Check traffic flow issues
- Troubleshooting Routing
  - ⬚ Check route leaks or flaps
- Centralized Policies Troubleshooting
  - ⬚ Misapplied or misconfigured policies
- Packet Forwarding Troubleshooting
  - ⬚ Verify path decisions
- Device Configuration and Upgrades Failure
  - ⬚ Upgrade failure recovery
- vDiagnose - Diagnostic Tool for SD-WAN
  - ⬚ In-depth diagnostics
- Troubleshooting cEdge
  - ⬚ Troubleshoot IOS XE edges
- Troubleshooting using SD-WAN Manager
  - ⬚ GUI-based diagnosis
- Device Troubleshooting
  - ⬚ Command-based troubleshooting
- Using the GUI for cli show command under Troubleshooting > Real-time
  - ⬚ Real-time visibility
- CLI Troubleshooting
  - ⬚ Command line issue resolution
- Network-Wide Path Insights
  - ⬚ End-to-end flow tracking
- NetFlow Collectors
  - ⬚ Flow visibility using NetFlow
- SNMP Overview
  - ⬚ Basic device monitoring
- SD-WAN Logs
  - ⬚ View event logs
- SD-WAN Reporting
  - ⬚ Custom and scheduled reporting
- SD-WAN Manager APIs & Programmability
  - ⬚ Automate via API

Appendix A: Deploying SD-WAN Controllers

- On-Prem Controller Deployment
  - ⬚ Manual deployment in local DC

- Create vManage VM Instance on ESXi or KVM
    - ⬚ Virtual appliance setup
- Initial vManage Setup
    - ⬚ Bootstrap process
- Create vBond VM Instance on ESXI or KVM
    - ⬚ Orchestrator deployment
- Create vSmart VM Instance on ESXI or KVM
    - ⬚ Control-plane setup
- Add Controllers to vManage
    - ⬚ Unified visibility in vManage
- Enterprise CA Configuration
    - ⬚ Configure certificate authority

Classroom Live Labs

- Lab 0: Lab Access via View Horizon Client
- Lab 1: Exploring the Manager1 Interface
- Lab 2: Manually Deploying a WAN Edge
- Lab 3: Upgrade SD-WAN Environment
- Lab 4: vSmart CLI Template Configuration
- Lab 5: Import vEdge Feature Templates
- Lab 6: Modifying Feature Templates
- Lab 7: cEdge Feature Template Configuration
- Lab 8: BR2 Device Templates Configuration
- Lab 9: Create EMEA-DC2 Configuration Group
- Lab 10: Editing the EMEA DC2 Configuration Group
- Lab 11: Deploying the Configuration Group for DC2
- Lab 12: Creating Security Groups of Interest
- Lab 13: Creating Groups of Interest
- Lab 14: Create and Deploy EMEA-DC2 Policy Group
- Lab 15: Creating Additional UX-2.0 Policies
- Lab 16: Topology
- Lab 17: Security Policy Lists Configuration
- Lab 18: Security Policy Configuration
- Lab 19: Local Policy List Configuration
- Lab 20: Localized Policy Configuration
- Lab 21: Central Policy List Configuration
- Lab 22: Centralized Policy Configuration
- Lab 23: Template Backup and Restore
- Appendix A: Optional Controller Configuration

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Module 5: Catalyst SD-WAN SD Routing

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Module 15: Cisco SD-WAN with ThousandEyes Integration

- ThousandEyes Introduction
  - ⬚ Digital experience monitoring
- Architecture and SD-WAN Deployment
  - ⬚ Deploying with SD-WAN

Module 16: Cloud On Ramp for SaaS

- Cloud OnRamp - Overview
  - ⬚ What OnRamp enables
- Cloud OnRamp for SaaS Overview
  - ⬚ End-to-end SaaS optimization
- Cloud OnRamp for M365
  - ⬚ Microsoft apps acceleration
- Cloud OnRamp for Webex
  - ⬚ Better experience for Webex
- Cloud OnRamp for Enterprise & Custom Apps
  - ⬚ Non-standard SaaS apps
- Cloud OnRamp for SaaS – Security
  - ⬚ Securing SaaS access
- Deployment Use cases
  - ⬚ Example architectures
- Cloud OnRamp for SaaS Configuration
  - ⬚ Initial deployment
- Cloud OnRamp for SaaS Monitoring
  - ⬚ Health visibility

Module 17: Analytics 3.0

- SD-WAN Analytics Overview
  - ⬚ Data collection and use cases
- SD-WAN Analytics Dashboards
  - ⬚ Visual insights for metrics
- SD-WAN Analytics KPIs and Scores
  - ⬚ Performance indicators
- SD-WAN Analytics Bandwidth Forecasting
  - ⬚ Predict future bandwidth needs
- SD-WAN Analytics Troubleshooting
  - ⬚ Identify root causes
- SD-WAN Analytics IDP Onboarding
  - ⬚ IDP integration with analytics
- SD-WAN Analytics Onboarding & Access Workflow
  - ⬚ Enable analytics for sites

Module 18: Monitoring & Troubleshooting the SD-WAN Solution

- SD-WAN Troubleshooting Overview
  - ⬚ Approach to resolving issues
- SD-WAN Technical Support Access
  - ⬚ TAC support options

- Controller Failure Scenarios
  - ⬜ Recovering from controller issues
- Troubleshooting Controllers
  - ⬜ Isolate and fix controller faults
- Troubleshooting Control Connections
  - ⬜ Fix routing and tunnel issues
- Typical Control Connection Issues
  - ⬜ Common misconfigurations
- Troubleshooting Data Plane
  - ⬜ Check traffic flow issues
- Troubleshooting Routing
  - ⬜ Check route leaks or flaps
- Centralized Policies Troubleshooting
  - ⬜ Misapplied or misconfigured policies
- Packet Forwarding Troubleshooting
  - ⬜ Verify path decisions
- Device Configuration and Upgrades Failure
  - ⬜ Upgrade failure recovery
- vDiagnose - Diagnostic Tool for SD-WAN
  - ⬜ In-depth diagnostics
- Troubleshooting cEdge
  - ⬜ Troubleshoot IOS XE edges
- Troubleshooting using SD-WAN Manager
  - ⬜ GUI-based diagnosis
- Device Troubleshooting
  - ⬜ Command-based troubleshooting
- Using the GUI for cli show command under Troubleshooting > Real-time
  - ⬜ Real-time visibility
- CLI Troubleshooting
  - ⬜ Command line issue resolution
- Network-Wide Path Insights
  - ⬜ End-to-end flow tracking
- NetFlow Collectors
  - ⬜ Flow visibility using NetFlow
- SNMP Overview
  - ⬜ Basic device monitoring
- SD-WAN Logs
  - ⬜ View event logs
- SD-WAN Reporting
  - ⬜ Custom and scheduled reporting
- SD-WAN Manager APIs & Programmability
  - ⬜ Automate via API

Appendix A: Deploying SD-WAN Controllers

- On-Prem Controller Deployment
  - ⬜ Manual deployment in local DC

- Create vManage VM Instance on ESXi or KVM
    - ☐ Virtual appliance setup
- Initial vManage Setup
    - ☐ Bootstrap process
- Create vBond VM Instance on ESXI or KVM
    - ☐ Orchestrator deployment
- Create vSmart VM Instance on ESXI or KVM
    - ☐ Control-plane setup
- Add Controllers to vManage
    - ☐ Unified visibility in vManage
- Enterprise CA Configuration
    - ☐ Configure certificate authority

Virtual Classroom Live Labs

- Lab 0: Lab Access via View Horizon Client
- Lab 1: Exploring the Manager1 Interface
- Lab 2: Manually Deploying a WAN Edge
- Lab 3: Upgrade SD-WAN Environment
- Lab 4: vSmart CLI Template Configuration
- Lab 5: Import vEdge Feature Templates
- Lab 6: Modifying Feature Templates
- Lab 7: cEdge Feature Template Configuration
- Lab 8: BR2 Device Templates Configuration
- Lab 9: Create EMEA-DC2 Configuration Group
- Lab 10: Editing the EMEA DC2 Configuration Group
- Lab 11: Deploying the Configuration Group for DC2
- Lab 12: Creating Security Groups of Interest
- Lab 13: Creating Groups of Interest
- Lab 14: Create and Deploy EMEA-DC2 Policy Group
- Lab 15: Creating Additional UX-2.0 Policies
- Lab 16: Topology
- Lab 17: Security Policy Lists Configuration
- Lab 18: Security Policy Configuration
- Lab 19: Local Policy List Configuration
- Lab 20: Localized Policy Configuration
- Lab 21: Central Policy List Configuration
- Lab 22: Centralized Policy Configuration
- Lab 23: Template Backup and Restore
- Appendix A: Optional Controller Configuration

Feb 9 - 13, 2026 | 8:00 AM - 5:00 PM CST

Apr 6 - 10, 2026 | 8:00 AM - 5:00 PM CDT

Jul 6 - 10, 2026 | 8:00 AM - 5:00 PM CDT

Oct 5 - 9, 2026 | 8:00 AM - 5:00 PM CDT