

Cisco SD-WAN Advanced Monitoring and Troubleshooting

Durée: 4 Jours Réf de cours: N1_SDWADV

Résumé:

SDWADV is a 4-day Cisco SD-WAN training 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 and scripting. Students taking this Cisco SD-WAN training course should be familiar with Wide Area Networks (WANs) in a variety of ways. Ideal candidates for this course include engineering and planning teams who evaluate WAN evolution and personnel involved in SD-WAN Design, Implementation and Operation.

Public visé:

The primary audience for this course is as follows:

- Systems Engineers
- Technical Solutions Architects
- Field Engineers

Objectifs pédagogiques:

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| ■ After completing this course you should be able to: | ■ In-depth Troubleshooting of the SD-WAN Fabric |
| ■ Understand Cisco SD-WAN Architecture | ■ Explore Advanced SD-WAN Policy Configuration |
| ■ Monitor Day-N SD-WAN Operations | ■ Identify Insights into Software-Defined Application Visibility Control |

Pré-requis:

Attendees should meet the following prerequisites:

- Knowledge of WAN architectures and routing networking concepts
- High-level familiarity with basic network protocols and applications
- Familiarity with common application delivery methods
- Fundamental Understanding of APIs
- Basic Cisco SD-WAN familiarity

Contenu:

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
- 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 SDWAN 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)

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
- For Localized Policies
- For Centralized Policies
- How to check if FIA is enabled
- Confirming and troubleshooting TCAM Issues
- Enabling Various Policy Level Logs
- FPM 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

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

Labs:

- Lab 1: Deploy and configure the Cisco SD-WAN Fabric
- Lab 2: Operational Best Practices
- Lab 3: Installing SD-AVC and monitoring CFlowD ; DPI
- Lab 4: Cisco SD-WAN Control Plan Troubleshooting
- Lab 5: Cisco SD-WAN Data Plane Troubleshooting
- Lab 6: Cisco SD-WAN Troubleshoot Routing Issues
- 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

- 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

- 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

Autres moyens pédagogiques et de suivi:

- Compétence du formateur : Les experts qui animent la formation sont des spécialistes des matières abordées et ont au minimum cinq ans d'expérience d'animation. Nos équipes ont validé à la fois leurs connaissances techniques (certifications le cas échéant) ainsi que leur compétence pédagogique.
- Suivi d'exécution : Une feuille d'embarquement par demi-journée de présence est signée par tous les participants et le formateur.
- En fin de formation, le participant est invité à s'auto-évaluer sur l'atteinte des objectifs énoncés, et à répondre à un questionnaire de satisfaction qui sera ensuite étudié par nos équipes pédagogiques en vue de maintenir et d'améliorer la qualité de nos prestations.

Délais d'inscription :

- Vous pouvez vous inscrire sur l'une de nos sessions planifiées en inter-entreprises jusqu'à 5 jours ouvrés avant le début de la formation sous réserve de disponibilité de places et de labs le cas échéant.
- Votre place sera confirmée à la réception d'un devis ou "booking form" signé. Vous recevrez ensuite la convocation et les modalités d'accès en présentiel ou distanciel.
- Attention, si cette formation est éligible au Compte Personnel de Formation, vous devrez respecter un délai minimum et non négociable fixé à 11 jours ouvrés avant le début de la session pour vous inscrire via moncompteformation.gouv.fr.

Accueil des bénéficiaires :

- En cas de handicap : plus d'info sur globalknowledge.fr/handicap
- Le Règlement intérieur est disponible sur globalknowledge.fr/reglement