

Cisco SD-WAN Operations Troubleshooting and Best Practices

Durée: 5 Jours **Réf de cours: SDWOTS** **Version: 1.0** **Méthodes d'apprentissage: Virtual Learning**

Résumé:

SDWOTS is a 5-day course covering the deployment options, operations and features of Cisco Software-Defined WAN (SD-WAN). SD-WAN is an overlay architecture that overcomes the biggest drawbacks of traditional WAN. Students will learn how to design, configure and operate a Cisco SD-WAN utilizing any transport (MPLS, Broadband, LTE, VSAT etc.). Candidates will discuss and build an SD-WAN environment starting from Day 0 provisioning and will also be able to provide troubleshooting, management, policy control and application visibility across the enterprise network. This hands-on Course covers the Cisco SD-WAN product and contains extensive labs to reinforce the knowledge learned.

Virtual Learning

This interactive training can be taken from any location, your office or home and is delivered by a trainer. This training does not have any delegates in the class with the instructor, since all delegates are virtually connected. Virtual delegates do not travel to this course, Global Knowledge will send you all the information needed before the start of the course and you can test the logins.

Public visé:

Individuals who are planning, implementing or administering a Cisco SD-WAN Solution.

Objectifs pédagogiques:

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|---|--|
| ■ After completing this course you should be able to : | ■ Configure SD-WAN Policies |
| ■ Describe how to Deploy SD-WAN | ■ Deploy, Maintain and Troubleshoot Edge Devices |
| ■ Configure a SD-WAN Environment | ■ Operate SD-WAN Devices and Software |
| ■ Deploy Plug and Play Zero-Touch provisioning | ■ Troubleshoot SD-WAN Environment |
| ■ Implement SD-WAN Security | |

Pré-requis:

Attendees should meet the following prerequisites:

- Familiarity with WAN Networks

Test et certification

Recommended as preparation for the following exams:

- There are no exams currently aligned to this course

Contenu:

Cisco SD-WAN Introduction

- High-level Cisco SD-WAN Deployment models
- Application level SD-WAN solution
- Cisco SDWAN high availability solution
- Cisco SD-WAN Scalability
- Cisco SD-WAN Solution Benefits

Cisco SD-WAN Orchestration

- Introduction
- vManage NMS
- vSmart Controller
- vBond Orchestrator
- Controller Resiliency Architecture

Site Architecture and Deployment Models

- Site Capabilities
- vEdge Router
- vEdge form factors

Plug and Play Connect Portal - Zero Touch Provisioning

- Overview
- Understanding Cisco Plug and Play Connect Portal
- Edge registration, licensing and onboarding
- Understanding the legacy ZTP Portal for vEdge
- User Input Required for the ZTP Automatic Authentication Process
- Authentication between the vBond Orchestrator and an Edge Router
- Authentication between the Edge Routers and the vManage NMS
- Authentication between the vSmart Controller and the Edge Router

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
- Dynamic Cloud Access
- Understanding the Cisco SD-WAN Onramp
- Understanding Direct Internet Access (DIA) and it's advantages
- Zone Based Firewall
- Umbrella integration
- SD-WAN security features overview

Operations Best Practices

- Config: Test Configuration Changes Before Committing

Troubleshooting Methods

- Remote Access
- Console Access
- LAN Interfaces
- WAN Interfaces
- Control Connections

General Troubleshooting

- Check Application-Aware Routing Traffic
- Collect Device Data To Send to Customer Support
- Monitor Alarms and Events
- Monitor TCP Optimization
- Ping a Viptela Device
- Run a Traceroute
- Simulate Flows
- Troubleshoot Cellular Interfaces
- Troubleshoot Device Bringup
- Troubleshoot WiFi Connections
- Use Syslog Messages
- Tunnel Health

Troubleshooting: Data Plane Issues

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

Troubleshooting: Routing Issues

- BGP Information
- Multicast Information
- OMP Information
- OSPF Information
- PIM Information
- Symptom: Some or All Routes Missing from vEdge Routing table
- Symptom: Data Traffic Using Suboptimal Path
- Symptom: Data Traffic Not Using All Transports

Application-Aware Routing

- Application Performance with CloudExpress Service
- Tunnel Latency Statistics
- Tunnel Loss Statistics

Interface Troubleshooting

Security Certificate Troubleshooting

- Generate a Certificate
- Upload the vEdge Serial Number File
- Certificate
- CSR

Viptela Devices Maintenance

- Decommission a vEdge Cloud Router
- Determine the Status of a Network Device
- Locate an Edge Device
- Migrate a Controller's Virtual Machine Using vMotion
- Reboot a Device
- 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 Viptela Devices
- Validate or Invalidate a vEdge Router
- Software Versions Installed on a Device
- Status of a vBond Orchestrator
- Status of a vEdge Router
- Status of a vSmart Controller

Viptela 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 a cEdge/vEdge Router
- Remove cEdge/vEdge Router Components

Working With Viptela Support

- Case Priority Levels and Response Times
- Information for Opening Cases
- Viptela Customer Support Portal
- Other Ways to Contact Support

Labs:

- Introduction to the Cisco SD-WAN
- Add a vSmart Controller to the vManage Inventory
- Add a vEdge Router to the vManage Inventory
- Add a cEdge Router to the vManage Inventory
- Add vEdge to vManage Inventory
- Control-Plane Connectivity
- Overlay Network
- Zero-Touch Provisioning
- vManage Templates

■ NAT: Secure Routers Acting as NATs ■ cEdge/vEdge Routers: Connect to the Console Port ■ cEdge/vEdge Routers: Use the Poweroff Command ■ cEdge/Viptela Devices: Site ID Naming Conventions ■ Edge Devices: Using the System IP Address ■ vManage NMS: Disaster Recovery	■ Reset an Interface ■ All Interfaces ■ ARP Table Entries ■ Cellular Interface Information ■ DHCP Server and Interface Information ■ Interface MTU Information ■ Management Interfaces ■ VRRP Information ■ WAN Interfaces	■ vManage Basic Policies ■ Application Aware Policies ■ Advanced Policies ■ Internet Exit lab (DIA) ■ Zone Based Firewall lab ■ URL Filter ■ AMP Lab ■ Analytics from vManage ■ MultiTenant Mode and Tenants ■ Troubleshooting Methods ■ Troubleshooting Data Plane Issues ■ Troubleshooting Routing Issues ■ Best Practices
Application Monitoring	Network Operations	
■ vManage ■ vAnalytics ■ Ecosystem Partner Solutions	■ Check Alarms and Events ■ Check User Accounts and Permissions ■ Deploy the Viptela Overlay Network ■ Determine the Status of Network Sites ■ Control Connections ■ Data Connections ■ Network Performance with vAnalytics Platform ■ OMP Status	

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'émargement 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