Cisco SD-WAN Operations Troubleshooting and Best Practices

Duration: 5 Days   Course Code: SDWOTS   Version: 1.0   Delivery Method: Virtual Learning

Overview:

SD-WAN: Advanced Operations & Troubleshooting Bootcamp focuses on the Cisco Software-Defined WAN (SD-WAN) solution. It is an overlay architecture that overcomes the biggest drawbacks of a traditional WAN. Students will be able to operate a Cisco SD-WAN over any transport (MPLS, Broadband, LTE, VSAT etc.) and provide troubleshooting, management, policy control and application visibility across the enterprise. 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.

Target Audience:

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

Objectives:

- **After completing this course you should be able to :**

- Describe how to deploy SD-WAN

- Configure a SD-WAN environment

- Deploy Zero-Touch provisioning

- Implement SD-WAN security

- Configure SD-WAN policies

- Operate SD-WAN devices and software

- Troubleshoot a SD-WAN environment

Prerequisites:

Attendees should meet the following prerequisites:

- Familiarity with WAN Networks
- CCNA - Implementing and Administering Cisco Solutions
- ENCOR - Implementing and Operating Cisco Enterprise Network Core Technologies

Testing and Certification

Recommended as preparation for the following exams:

- There are no exams currently aligned to this course

Content:

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

Zero Touch Provisioning

- Overview
- User Input Required for the ZTP Automatic Authentication Process
- Authentication between the vBond Orchestrator and a vEdge Router
- Authentication between the vEdge Router and the vManage NMS
- Authentication between the vSmart Controller and the vEdge 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

Operations Best Practices

- Config: Test Configuration Changes Before Committing
- NAT: Secure Routers Acting as NATs
- vEdge Routers: Connect to the Console Port
- vEdge Routers: Use the Poweroff Command
- Viptela Devices: Site ID Naming Conventions
- Viptela Devices: Using the System IP Address
- vManage NMS: Disaster Recovery

Application Monitoring

- vManage

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 Connnections
- 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 a Viptela Device
- Migrate a Controller's Virtual Machine Using vMotion
- Reboot a Device
- Remove a vEdge Router's Serial Number from the vManage NMS
- Replace a vEdge 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 vEdge Router
- Remove 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 vEdge to vManage Inventory
- Control-Plane Connectivity
- Overlay Network
- Zero-Touch Provisioning
- vManage Templates
- vManage Basic Policies
- Application Aware Policies
- Advanced Policies
- Analytics
- MultiTenant Mode and Tenants
- Troubleshooting Methods
- Troubleshooting Data Plane Issues

- vAnalytics
- Ecosystem Partner Solutions

- 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

Network Operations

- 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

- Troubleshooting Routing Issues
- Best Practices

Further Information:

For More information, or to book your course, please call us on Head Office 01189 123456 / Northern Office 0113 242 5931

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