Cisco NSO Administration and DevOps

Durée: 4 Jours   **Réf de cours: NSO303**   **Version: 5.0**   **Méthodes d'apprentissage: Intra-entreprise & sur-mesure**

Résumé:

The **Cisco Network Services Orchestrator (NSO) Administration and DevOps** course continues the learning journey of the NSO Essentials for Programmers and Network Architects and NSO Advanced for Python Programmers trainings by introducing you to the system administration and DevOps focusing on NSO. This includes the robust bridge linking network automation and orchestration tools, examining the development, operation, and administration task functions. You will learn how to set up, configure, deploy, and maintain a Cisco NSO solution, and learn best practices for using DevOps. The examples shown in this training demonstrate real-world scenarios to prepare you for deployment and management of new or existing NSO instances.

The training guides you through the setup of production-ready NSO instances using system installation with access control settings, the deployment of NSO in Docker containers, and introduces modern DevOps concepts and tools such as Git and Continuous Delivery/Continuous Deployment (CI/CD). You will learn how to migrate Continuous Diagnostics and Mitigation (CDM) devices, how to build Network Configuration Protocol (NETCONF) Network Element Drivers (NEDs) from the NSO Command-Line Interface (CLI), how to handle NSO Alarms, and many more features that benefit you in your journey with Cisco NSO.

This course is worth 32 Continuing Education (CE) Credits

Formation intra-entreprise

Cette formation est délivrable en session intra-entreprise, dans vos locaux ou dans les nôtres. Son contenu peut être adapté sur-mesure pour répondre aux besoins de vos collaborateurs. Contactez votre conseiller formation Global Knowledge ou adressez votre demande à info@globalknowledge.fr.

Public visé:

System and Network administrators who need to be able to install, configure and maintain a Cisco Network Services Orchestrator solution

Objectifs pédagogiques:

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

- Describe network and IT convergence

- Describe Cisco NSO architecture

- Describe Linux

- Configure Cisco NSO

- Set up access control to Cisco NSO system

- Describe Cisco NSO Integration Options

- Explain version control systems and basic git concepts

- Describe the purpose of continuous integration and continuous delivery

- Implement Cisco NSO high availability

- Describe scalable system management

- Describe software development methodologies

- Describe service maintenance

- Perform NED upgrades

- Use Cisco NSO for managing services and their associated device configurations

- Describe Cisco NSO change management

- Explain service problem management

- Use Cisco NSO for service monitoring and compliance reporting

- Describe Cisco NSO inventory management

- Describe Cisco NSO use cases

Pré-requis: Test et certification

Attendees should meet the following prerequsites:

- Basic knowledge of the Cisco command - line interface (CLI)
- Basic knowledge of the command line of UNIX-like operating systems
- Basic knowledge of Yet Another Next Generation (YANG) data modelling
- Basic knowledge of Python software development
- NSO201 - NSO Essentials for Programmers and Network Architects

Recommended as preparation for the following exams:

- There are no exams currently aligned to this course.

Contenu:

Network and IT Convergence

- Network and IT Convergence Overview
- Service Provider Business Process
- Service Provider Business Process Change

Cisco NSO Architecture

- Integration of NSO into Business Environments
- NSO Logical Architecture
- NSO Components
- Key NSO Concepts

Cisco NSO Setup

- Setup Requirements
- Cisco NSO System Installation
- Installing NEDs

Cisco NSO Access Control

- Access Control Architecture
- Authentication Options
- Client Authentication Options
- Role-Based Access Control
- NSO Hardening

Cisco NSO Integration Options

- Integration Options Overview
- NETCONF API
- Web Integration
- CLI Tools
- PnP Scripts

Cisco NSO in Version Control System Environment

- Version Control Systems Overview
- Git Basic Concepts

Continuous Integration and Continuous Delivery with Cisco NSO

- Testing
- Continuous Integration
- Continuous Delivery
- Docker Setup

Cisco NSO Scalability and High Availability

- Large or Complex NSO Environments
- High Availability
- High-Availability Cluster Communications
- Layered Services Architecture
- Service Migration to LSA

Cisco NSO Scalable System Management

- Management of Large NSO Environments
- NCT Tool
- NCT Alternatives

Cisco NSO Software Development Methodologies

- Software Development Methodologies Overview
- Waterfall
- Agile
- DevOps

Cisco NSO Service Maintenance

- Service Maintenance Procedures
- Service Upgrade Options
- Service Upgrade Risk Assessment
- Service Upgrade Procedure
- Service Backup and Restore
- Service Maintenance Tools

NED Upgrades

- NED Overview
- NED Upgrade Risk Assessment
- NED Ugrade and CDM Migration
- Changing NED Logic
- NED Conflict with other NMSs
- NETCONF NED Builder

Configuration Management in Cisco NSO

- Configuration Management Overview
- Reverting to Previous Known Good Configuration
- Replacing a Device
- Service Management Tools

Change Management in Cisco NSO

- Change Management Overview
- Service Change Management
- Service Instance Change Management

Service Problem Management in Cisco NSO

- Incident Management
- Incident Management with NSO
- Problem Management with NSO
- Nano Services

Cisco NSO Service Monitoring and Compliance Reporting

- Service Status Monitoring
- Commit Queues
- Compliance Reports

Cisco NSO Inventory Management

- Inventory Management Overview
- Using NSO Built-In Inventory
- Integrating External Resources

Cisco DevOps Use Case

- Setup DevOps with NSO
- Put It All Together: NSO and DevOps Example

Labs

- Perform NSO System Install
- Implement Role-Based Access and PAM
- Using Cisco NSO APIs
- Learn to work with Git
- Use NSO in Docker
- Configure High Availability
- Migrating a Monolithic Service to LSA
- Deploy LSA Services
- Use the Network Connectivity Tool (NCT)
- Perform Service Backup and Restore
- Migrate a CDM Device
- Build a NETCONF NED
- Replace a Device
- Troubleshoot NSO Alarms and Services
- Manage Commit Queue
- Create a Compliance Report

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