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NetOps training: Automating the management of your network infrastructure

5 days (35 hours)

Presentation

With NetOps, you can benefit from a [modern, flexible and automated network](#) infrastructure. As a result, you'll be able to deploy your systems more quickly, and avoid dysfunctions between production and network teams due to DevOps implementation.

Thanks to NetOps, network administrators are adapting to the integration of DevOps into their organization. This involves the use of new tools such as Ansible or Kubernetes, which considerably reduce manual network configuration and management tasks.

[Automation is fundamental](#) to the NetOps engineer, because it not only simplifies and accelerates network deployment. It also helps to create more reliable networks, and to enhance system performance and security.

Our NetOps training course will introduce you to the benefits of DevOps, how to automate your tasks with Python, and how to automate the management of a local area network (SD-LAN), a wide area network (SD-WAN) and a datacenter local area network (SD-DC).

Objectives

- Program in Python and use Ansible to automate network management
- Virtualizing an environment with Docker and Kubernetes
- Automate local area network management (SD-LAN)
- Automate WAN management (SD-WAN)
- Automate management of a data center local area network (SD-DC)

Target audience

- Network developers
- Network administrators
- Infrastructure engineers
- Network engineers
- Cloud engineers
- System administrators
- DevOps

Prerequisites

- Knowledge of Python
- Knowledge of DevOps and agility
- Professional experience in network administration

NetOps training program

What is NetOps?

- Introduction to DevOps and agility
- How has DevOps transformed network administration?
- DevOps Versus NetOps
- NetOps best practices

Python programming for network administration

- Introduction
- Linux fundamentals
- Creating a lab for automation
- Use of libraries and integration with Ansible and Cisco

Ansible overview and configuration

- What is Ansible?
- The benefits of the tool
- Component presentation
- Plugin configuration
- Installing Git repos
- Installing Ansible using best practices

Handling Ansible

- Overview of different data formats (JSON, XML and YANG)
- Create your first orders
- Playbooks

- Creating filters and modules
- Vaults and lookups

Automate infrastructure management

- Overview of conditions, loops and result captures
- ZDD (Zero Downtime Deployment)
- Delegating tasks
- Deploying your infrastructure
- Managing mistakes
- Test automation

Virtualizing an environment

- Introduction to Docker and Kubernetes
- Pods, containers and nodes
- The difference between containers and virtual machines
- Virtualize your environment with Docker
- How the network works with Kubernetes
- Overview of network management components (LoadBalancer, ClusterIP, NodePort, Ingress)
- Managing your network with Kubernetes

Cisco DNA Center

- Introducing Cisco DNA Center
- The benefits of the tool
- Presentation of the various components (Netflow, Stackwise, Cloud and SDN)

Configure your local area network (SD-LAN) with Cisco DNA Center

- The role of different agents (Seed Device, PnP Agent...)
- System planning (determining IP address pools, switches)
- SNMP configuration

Managing and automating your SD-LAN network

- Understanding SDN
- Introducing SD-Access
- Integrating SD-Access
- Steps to validate before automating your network (disconnect management port, ports are connected in 2nd layer...)
- Start automating your LAN
- End automation
- Adding switches and links
- Troubleshooting

Cisco ACI

- Introducing Cisco ACI
- Architectural overview
- The different layers and concepts
- External network connection
- Programming with Cisco ACI

Automate management of your data center local area network (SD-DC)

- Resource configuration
- Create Cisco ACI scripts (WebArya)
- Using Ansible
- Debugging

Optimization

- Ensuring network performance
- Cisco Code Exchange
- Best practices for saving resources

Cisco SD-Wan Solutions

- Introducing Cisco SD-Wan Solutions
- Architectural overview
- A reminder of the special features of a wide-area local network
- Configuration

Automate the management of your SD-WAN network

- Examine different deployment methods
- Cisco SD-WAN Viptela
- Using data with POSTMAN APIs
- Python programming with Cisco SD-WAN Viptela

Companies concerned

This training course is aimed at both individuals and companies, large or small, wishing to train their teams in a new advanced computer technology, or to acquire specific business knowledge or modern methods.

Positioning on entry to training

Positioning on entry to training complies with Qualiopi quality criteria. As soon as

On final registration, the learner receives a self-assessment questionnaire which enables us to assess his or her estimated level of proficiency in different types of technology, and his or her expectations and personal objectives for the forthcoming training course, within the limits imposed by the selected format. This questionnaire also enables us to anticipate any connection or security difficulties within the company (intra-company or virtual classroom) which could be problematic for the follow-up and smooth running of the training session.

Teaching methods

Practical course: 60% Practical, 40% Theory. Training material distributed in digital format to all participants.

Organization

The course alternates theoretical input from the trainer, supported by examples, with brainstorming sessions and group work.

Validation

At the end of the session, a multiple-choice questionnaire verifies the correct acquisition of skills.

Sanction

A certificate will be issued to each trainee who completes the course.