



Implementing NetDevOps

- 5 Days
- Lecture and Hands-on Labs

Course Overview

Imagine managing a network with tens of thousands of devices. The mere thought of centralizing this data might seem overwhelming. You know that if you did have a single source of truth and a testing network that was identical to your production network, then these things become possible:

- Test changes on a network that is configured identically to your production network.
- Test rollbacks on a network that is configured identically to your production network.
- Rollback changes in seconds.
- Know the configuration of all your systems in REAL TIME.
- Convert, upgrade, or change configuration in seconds.
- Testing is conducted thoroughly and with complete peace of mind using Cisco Modeling Labs, not on your production network.
- Yet, the cost of not doing so is far greater than you might expect.

Managing a large network, with its hundreds or even tens of thousands of devices, is daunting. The prospect of loading all that data into a single source of truth may seem too great a challenge, and you might be tempted to avoid it. However, the benefits of managing your network with a single source of truth and a testing lab that is identical to the appropriate portion of your production network are undeniable. This course will teach you how you can accomplish it. Review this course online at https://www.alta3.com/courses/mdd

Who Should Attend

- Students interested in the "Dev" portion of NetDevOps
- Core Team
- Network Engineers
- Network Administrators
- NetDevOps Ansible Developers
- NetDevOps Python Developers
- Administrators interested in Automation
- Individuals interested in expanding traditional DevOps to include NetDevOps skills

What You'll Learn

- NetDevOps Framework and Single Source of Truth
- Proficiency in Essential NetDevOps Tools
- Source of Truth Implementation
- Network Automation Techniques
- Network Security and Secrets Management
- Virtual Network Simulation
- CI/CD Integration for Network Management
- Data Verification and Management
- Configuration Management with Templates
- Real-World Network Management Application

Outline

Introduction to NetDevOps

- \blacksquare Lecture: NetDevOps: Network Management for the Agile Era
- 🗐 Lecture: Understanding NetDevOps: Source of Truth
- 🗐 Lecture: Overview of NetDevOps Processes
- 🗐 Lecture: Data Collection to Verification

NetDevOps Essentials

- 🗐 Lecture: NetDevOps Essential Tools
- 🗐 Lecture: The NetDevOps Pipeline

Ansible

- \blacksquare Lecture: Introduction to Ansible
- 🖳 Lecture + Lab: Installing Ansible
- 🗐 Lecture: Introduction to YAML
- \Box Lecture + Lab: Ansible.cfg files
- 🗐 Lecture: Ansible Inventories
- 🖳 Lecture + Lab: Ansible Host Inventory
- \blacksquare Lecture: Ansible Cisco Collections

Netbox

- 🖳 Lecture + Lab: Introduction to Netbox
- 🖳 Lecture + Lab: Setting up your Organization
- \Box Lecture + Lab: The Netbox API
- 🖳 Lecture + Lab: IP Address Management
- \blacksquare Lecture + Lab: Making Connections
- 🖳 Lecture + Lab: Setting Up WIFI

CML

- 🗐 Lecture: Cisco Modeling Labs (CML)
- 🖳 Lecture + Lab: CML Manual Topography
- 🖳 Lecture + Lab: CML Dynamic Inventory
- 🖳 Lecture + Lab: Building CML Lab with Ansible
- 🖳 Lecture + Lab: Converting Netbox Config to CML Topology
- 🖳 Lecture + Lab: CML Facts Ansible Modules
- 🗐 Lecture: SSH to CML Nodes
- \Box Lecture + Lab: SSH to CML Nodes

Essential Ansible Tools

- \blacksquare Lecture + Lab: Ansible Vault
- 💭 Lecture: Introduction to Jinja2
- 🖳 Lecture + Lab: Writing Basic Jinja2 Templates
- 🖳 Lecture + Lab: NetBox Cisco Config Templates

Access Security

• \blacksquare Lecture: AAA plus NetDevOps Secrets Mangement

Data Collection to Verification

- 🖳 Lecture + Lab: Prepare GitLab Repository for Cisco Data Collection
- 🖳 Lecture + Lab: Convert Cisco Network Topology Spreadsheets to Ansible Inventory
- 🖳 Lecture + Lab: Gathering Cisco Network Device Information with Ansible
- \blacksquare Lecture + Lab: Loading Gathered Cisco Data into Netbox
- \blacksquare Lecture + Lab: Verify Ingested Data in CML

CI/CD Pipeline to Implement Change

- 🖳 Lecture + Lab: Netbox-Jinja2 Device Config with Ansible
- 🖳 Lecture + Lab: Rolling Back Network Changes

Validation

- 🖳 Lecture + Lab: Detecting Manual Interference Outside the Source of Truth
- 🗐 Lecture: Managing the Hot Fix
- \blacksquare Lecture + Lab: Managing Config Drift

Prerequisites

CCNA or similar experience

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