



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.

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

-  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

-  Lecture: Introduction to Ansible
-  Lecture + Lab: Installing Ansible
-  Lecture: Introduction to YAML
-  Lecture + Lab: Ansible.cfg files
-  Lecture: Ansible Inventories
-  Lecture + Lab: Ansible Host Inventory
-  Lecture: Ansible Cisco Collections





Netbox

-  Lecture + Lab: Introduction to Netbox
-  Lecture + Lab: Setting up your Organization
-  Lecture + Lab: The Netbox API
-  Lecture + Lab: IP Address Management
-  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
-  Lecture + Lab: SSH to CML Nodes






Essential Ansible Tools

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

Access Security

-  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
-  Lecture + Lab: Loading Gathered Cisco Data into Netbox
-  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
-  Lecture + Lab: Managing Config Drift

Prerequisites

CCNA or similar experience