Current Technologies
Computer Learning Centers

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WHERE GREAT TRAINING HAPPENS EVERYDAY!

Designing, Deploying and Managing Network Automation Systems

Designing, Deploying and Managing Network Automation Systems

The Designing, Deploying and Managing Network Automation Systems (AUTOCOR) training prepares you for a professional role as a network automation engineer. It focuses on designing and implementing automation systems, from writing Python scripts and Ansible playbooks, and applying Terraform for network automation, to building complex CI/CD pipelines that integrate multiple tools. The training also shows how to leverage AI for network automation by building Large Language Model (LLM)-powered network agents and by using MCP servers. Additionally, the training focuses on operational aspects of managing a modern, automated network and explores secure coding practices, collecting logs, containerization, and model-driven telemetry. Overall, the training focuses on practical implementation that directly prepares you to design, deploy, and operate automated networks.

This training prepares you for the 350-901 AUTOCOR v2.0 exam. If passed, you earn the Cisco Certified Specialist - Automation Core certification and satisfy the core exam requirement for the Cisco Certified Network Professional (CCNP) Automation and Cisco Certified Internetwork Expert (CCIE) Automation certifications. This training also earns you 32 Continuing Education (CE) credits toward recertification.

How you'll benefit

This class will help you:

- Explore industry-standard automation tools, including Python, Ansible, and Terraform, to design and implement robust Infrastructure as Code (IaC) solutions
- Integrate Generative AI and LLMs into network workflows by building intelligent agents and utilizing MCP servers for advanced automation
- Construct automated CI/CD pipelines using GitLab, Cisco Modeling Labs (CML), and pyATS to streamline network testing, validation, and deployment
- Enhance network operations and security through the application of model-driven telemetry, secure coding practices, and containerized environments using Docker Compose
- Prepare for the 350-901 AUTOCOR v2.0 exam
- Earn 32 CE credits toward recertification

Course Duration
5 days

Course Price
$4,295.00 or 44 CLCs

Methods of Delivery
- Instructor Led
- Virtual ILT
- On-Site

Why Attend with Current Technologies CLC

- Our Instructors are in the top 10% rated by Cisco
- Our Lab has a dedicated 1 Gig Fiber Connection for our Labs
- Our Labs run up to Date Code for all our courses

Who Should Attend

The primary audience for this course is as follows:

- Individuals seeking the CCNP Automation certification
- Network Automation Engineers
- Network Engineers with coding experience

- DevOps Engineers working with network infrastructure
- System Engineers
- Network Site Reliability Engineers (SREs)

Prerequisites

However, the knowledge and skills you are recommended to have before attending this training are:

- Hands-on experience with a programming language (specifically Python)
- Experience with common network designs and configurations
- Understanding of the utilization of APIs
- Awareness of network device APIs such as NETCONF and RESTCONF
- Understanding of the basics of version control with Git
- Familiarity with platforms like GitLab and GitHub
- Comfort with the Linux shell, SSH, files, and virtual environments
- Exposure to Docker/containerization
- Basic knowledge of AI and LLMs

OUTLINE

Module 1: Network Automation Toolkits

Module 2: Network Task Automation with Python

Module 3: REST APIs in Network Automation

Module 4: Network Automation with Ansible

Module 5: Network Automation with Terraform

Module 6: Infrastructure as Code Implementation

Module 7: Network Change Tracking with Git

Module 8: Configuration Change Deployment with CI Pipelines

Module 9: Cisco Modeling Labs Integration for Test Network Environments

Module 10: Network State Validation with pyATS

Module 11: Model-Driven Telemetry for Network Monitoring

Module 12: Network Automation Solution Troubleshooting

Module 13: Secure Coding Practices for Network Automation

Module 14: Network Automation Environment Containerization with Docker Compose

Module 15: Trusted TLS Certificates Deployment for Secure Communication

Module 16: Generative AI for Network Automation

Module 17: AI Agents for Network Automation

Module 18: LLM and MCP Server Integration

LAB OUTLINE

- Lab 1: Use Python to Automate Common Network Tasks
- Lab 2: Explore REST API Documentation
- Lab 3: Automate API Calls with Python Requests
- Lab 4: Construct and Send RESTCONF Requests
- Lab 5: Automate the Device Configuration with RESTCONF
- Lab 6: Create a Network Automation Solution with Ansible
- Lab 7: Automate Network Infrastructure with Terraform
- Lab 8: Manage Router Interfaces as Code
- Lab 9: Start Tracking Your Network State with GitLab
- Lab 10: Build a GitLab CI Pipeline for Network Configuration
- Lab 11: Create a Testing Network Environment with Cisco Modeling Labs
- Lab 12: Build a Python Script to Launch Test Topologies in Cisco Modeling Labs
- Lab 13: Integrate Cisco Modeling Labs Topologies into CI Pipeline
- Lab 14: Create a Configuration Validation Tool with pyATS
- Lab 15: Integrate pyATS Testing into Automated Pipelines
- Lab 16: Set Up MDT on a Cisco Router Using YANG Suite
- Lab 17: Troubleshoot an Automation Script
- Lab 18: Harden an Automation Script
- Lab 19: Containerize Automation Components
- Lab 20: Set Up Local LLM with Ollama
- Lab 21: Build a Network Automation Tool with Python and Ollama
- Lab 22: Build and Launch a FastMCP Server