Implementing Automation for Cisco Data Center Solutions

Duration: 3 Days   Course Code: DCAUI   Version: 1.2   Delivery Method: Virtual Learning

Overview:

The Implementing Automation for Cisco Data Center Solutions (DCAUI) course teaches you how to implement Cisco® Data Center automated solutions including programming concepts, orchestration, and automation tools.

The goal of this course is to highlight the tools and benefits of leveraging programmability and automation in the Cisco-powered Data Center. Examined platforms include Cisco ACI (the controller-based Data Center environment), Cisco NX-OS on all Cisco Nexus platforms for device-centric automation, and Cisco UCS for Data Center compute. Their current ecosystem of APIs, software development toolkits, and relevant workflows is inspected in detail together with open industry standards, tools, and APIs, such as Python, Ansible, Git, JSON/YAML, NETCONF/RESTCONF, and YANG.

This course is worth 24 Continuing Education (CE) credits.

Virtual Learning

This interactive training can be taken from any location, your office or home and is delivered by a trainer. This training does not have any delegates in the class with the instructor, since all delegates are virtually connected. Virtual delegates do not travel to this course, Global Knowledge will send you all the information needed before the start of the course and you can test the logins.

Target Audience:

Individuals looking to understand how to implement automated solutions in a Cisco Data Center

Objectives:

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

- Review Cisco ACI fundamental concepts, GUI workflows, and create the case for implementing automation

- Introduce the Cisco ACI REST API, the tools already available on the Cisco APIC, and understand basic API interaction using Postman

- Understand the functionality provided by the Python ACI libraries and write scripts that apply configuration and verify state on the Cisco ACI fabric

- Understand Cisco ACI Ansible modules, build playbooks that apply Infrastructure-as-Code concepts to Cisco ACI tenant configuration, and generate a health report using Ansible

- Understand Cisco ACI Apps Center integration and the benefits of integrating Kubernetes infrastructure with Cisco ACI

- Understand the API types and capabilities available on Cisco Nexus product family

- Understand Day 0 operations and how ZTP, POAP, and iPXE fulfill these goals with their respective tooling

- Understand functionality provided by the on-box tooling on the Cisco Nexus series switches and implement simple solutions to improve daily operations

- Use Python and Ansible to leverage the NX-API to implement and verify configuration state using modern workflows

- Understand the paradigm shift of Model-Driven Telemetry and explore a fully set up pipeline for data collection and analysis

- Understand the Cisco UCS developer tools and implement management workflows leveraging Cisco UCS APIs, Python, and Ansible modules

- Review Cisco NDFC product capabilities and understand how its API can be leveraged to automate the Cisco Data Center

- Understand the advantages of using Cisco Intersight and how to implement automation tasks using its REST APIs via Python and Ansible

- Describe Terraform plans for Cisco ACI deployments

Prerequisites: Testing and Certification

Attendees should meet the following prerequisites:

- Basic programming language concepts
- Basic understanding of virtualization and VMware
- Ability to use Linux and Command Line Interface (CLI) tools, such as Secure Shell (SSH) and bash
- CCNP level data center knowledge
- Foundational understanding of Cisco ACI
- CCNA - Implementing and Administering Cisco Solutions
- DCCOR - Implementing and Operating Cisco Data Center Core Technologies
- CSAU - Introducing Automation for Cisco Solutions
- DNAPUC - Programming Use Cases for Cisco Digital Network Architecture

Recommended as preparation for the following exam:

- **300-635** - Automating Cisco Data Center Solutions (DCAUTO) exam

After you pass **300-635 DCAUTO** exam, you earn the **Cisco Certified DevNet Specialist – Data Center Automation and Programmability** certification, and you satisfy the concentration exam requirements for both the CCNP Data Center certification and the Cisco Certified DevNet Professional certification.

Content:

Describing the Cisco ACI Policy Model

- Cisco ACI Overview
- Cisco ACI Object Model Hierarchy
- Reasons for Automating Cisco ACI

Describing the Cisco APIC REST API

- Introduction to the Cisco ACI REST API
- Cisco ACI REST API Clients

Using Python to Interact with the ACI REST API

- Python for Cisco ACI Automation
- Cobra SDK and Arya

Using Ansible to Automate Cisco ACI

- Ansible ACI Modules

Describing Cisco ACI Apps Center and Kubernetes

- Cisco ACI Hosting Capabilities
- Cisco ACI Application Types
- Integrating the Kubernetes Infrastructure and Cisco ACI

Understanding Terraform for Cisco ACI

- Construct a Terraform Plan to Use and ACI
- Interpret a Terraform Plan to Use the Cisco Intersight Provider
- Identify the Steps in the Cisco Intersight API Authentication Method
- Manage Cisco UCS Servers Through Cisco Intersight API

Introducing Cisco NX-OS Programmability

- Cisco Nexus Platform
- Cisco NX-OS Programmability

Describing Day-Zero Provisioning with Cisco NX-OS

- Day-Zero Operations
- Describing iPXE
- Power on Auto Provisioning

Implementing On-Box Programmability and Automation with Cisco NX-OS

- On-Box Programmability on Cisco NX-OS

Implementing Off-Box Programmability and Automation with Cisco NX-OS

- NX-API Enhancement
- Model-Driven Programmability on Cisco NX-OS
- Ansible for Cisco NX-OS

Understanding Model-Driven Telemetry

- Model-Driven Telemetry

Automating Cisco UCS Using Developer Tools

- Cisco UCS Overview
- Cisco UCS Manager XML API
- Cisco IMC XML API
- Python SDK
- Cisco UCS Manager Ansible Modules

Describing Cisco NDFC

- Cisco NDFC
- Cisco NDFC API

Describing Cisco Intersight

- Cisco Intersight
- Cisco Intersight APIs

Labs:

- Discovery Lab 1: Use Cisco APIC Web GUI
- Discovery Lab 2: Discover the Cisco APIC REST API
- Discovery Lab 3: Use Postman with the APIC REST API
- Discovery Lab 4: Use Python with the Cisco APIC REST API
- Discovery Lab 5: Configure and Verify Cisco ACI Using Acitoolkit
- Discovery Lab 6: Use Cobra and Arya to Recreate a Tenant
- Discovery Lab 7: Manage Configuration Using Ansible
- Discovery Lab 8: Set Up a New Tenant the NetDevOps Way
- Discovery Lab 9: Create an Infrastructure Health Report
- Discovery Lab 10: Set Up Power on Auto Provisioning on the Cisco Nexus 9000
- Discovery Lab 11: Use Bash and Guest-Shell on Cisco NX-OS
- Discovery Lab 12: Use Python to Enhance CLI Commands
- Discovery Lab 13: Trigger a Python Script Using Cisco Embedded Event Manager (EEM)
- Discovery Lab 14: Configure and Verify Using NX-API and Python
- Discovery Lab 15: Configure and Verify Using NETCONF/YANG
- Discovery Lab 16: Use Ansible with Cisco NX-OS
- Discovery Lab 17: Connect, Query, and Modify Cisco UCS Manager Objects Using Cisco UCS PowerTool
- Discovery Lab 18: Connect, Query, and Modify Cisco UCS Integrated Management

Controller (IMC) Objects Using Cisco IMC PowerTool
- Discovery Lab 19: Utilize Cisco UCS Python Software Development Kit (SDK)
- Discovery Lab 20: Utilize Cisco IMC Python SDK
- Discovery Lab 21: Implement Ansible Playbooks to Modify and Verify the Configuration of Cisco UCS Manager

Further Information:

For More information, or to book your course, please call us on 0800/84.009

info@globalknowledge.be

www.globalknowledge.com/en-be/