Implementing Automation for Cisco Data Center Solutions (DCAUI)

Course Duration: 40 Hours **Course code: DCAUI**

1. Course 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.

2. What you'll learn?

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

3. Target Audience

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

4. Pre-Requisites

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

Recommended prerequisites:

- CCNA - Implementing and Administering Cisco Solutions
- DCCOR - Implementing and Operating Cisco Data Center Core Technologies

- CSAU - Introducing Automation for Cisco Solutions

5. Course content

1- Describing the Cisco ACI Policy Model

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

2- Describing the Cisco APIC REST API

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

3- Using Python to Interact with the ACI REST API

- Python for Cisco ACI Automation
- Cobra SDK and Arya

4- Using Ansible to Automate Cisco ACI

- Ansible ACI Modules

5- Describing Cisco ACI Apps Center and Kubernetes

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

6- 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

7- Introducing Cisco NX-OS Programmability

- Cisco Nexus Platform
- Cisco NX-OS Programmability

8- Describing Day-Zero Provisioning with Cisco NX-OS

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

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

- On-Box Programmability on Cisco NX-OS

10- 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

11- Understanding Model-Driven Telemetry

- Model-Driven Telemetry

12- 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

13- Describing Cisco NDFC

- Cisco NDFC
- Cisco NDFC API

14-Describing Cisco Intersight

- Cisco Intersight
- Cisco Intersight APIs

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