Course Outline

Implementing Automation for Cisco Data Center Solutions (DCAUI)

Course Summary

Description

The Implementing Automation for Cisco Data Center Solutions (DCAUI) v1.0 course teaches you how to implement Cisco® Data Center automated solutions including programming concepts, orchestration, and automation tools. Through a combination of lessons and hands-on practice, you will manage the tools and learn the benefits of programmability and automation in the Cisco-powered Data Center. You will examine Cisco Application Centric Infrastructure (Cisco ACI®), software-defined networking (SDN) for data center and cloud networks, Cisco Nexus® (Cisco NX-OS) platforms for device-centric automation, and Cisco Unified Computing System (Cisco UCS®) for Data Center compute. You will study their current ecosystem of application programming interfaces (APIs), software development toolkits, and relevant workflows along with open industry standards, tools, and APIs, such as Python, Ansible, Git, JavaScript Object Notation (JSON), Yaml Ain't Markup Language (YAML), Network Configuration Protocol (NETCONF), Representational State Transfer Configuration Protocol (RESTCONF), and Yet Another Generation (YANG). This course prepares you for the 300-635 Automating Cisco Data Center Solutions (DCAUTO) v1.0 certification exam.

This course will help you: Gain high-demand knowledge and skills in modern programming language to create powerful APIs that enhance network functioning, and prepare for the 300-635 DCAUTO exam.

Objectives

After taking this course, students will be able to:

- Review Cisco ACI fundamental concepts and GUI workflows, and create the case for implementing automation
- Introduce the Cisco ACI REST API, the tools already available on the Cisco Application Policy Infrastructure Controller (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 Zero Touch Provisioning (ZTP), PowerOn Auto Provisioning (POAP), and enhanced Pre-boot eXecution Environment (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 operation
- 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

Course Summary (cont'd)

Topics

- Describing the Cisco ACI Policy Model
- Describing the Cisco APIC REST API
- Using Python to Interact with the ACI REST API
- Using Ansible to Automate Cisco ACI
- Describing Cisco ACI Apps Center and Kubernetes Integration
- Introducing Cisco NX-OS Programmability
- Describing Day-Zero Provisioning with Cisco NX-OS
- Implementing On-Box Programmability and Automation with Cisco NX-OS
- Implementing Off-Box Programmability and Automation with Cisco NX-OS
- Understanding Model-Driven Telemetry
- Automating Cisco UCS Using Developer Tools
- Implementing Workflows Using Cisco UCS Director
- Describing Cisco DCNM
- Describing Cisco Intersight

Audience

This course is designed for network and software engineers who hold the following job roles:

- Network engineer
- Systems engineer
- Wireless engineer
- Consulting systems engineer
- Technical solutions architect
- Network administrator
- Wireless design engineer
- Network manager
- Site reliability engineer
- Deployment engineer
- Sales engineer
- Account manager

Prerequisites

Before taking this course, you should have the following knowledge and skills:

- 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

The following Cisco courses can help you gain the knowledge you need to prepare for this course:

- Implementing and Administering Cisco Solutions (CCNA®)
- Introducing Automation for Cisco Solutions (CSAU)
- Implementing and Operating Cisco Data Center Core Technologies (DCCOR)
- Programming Use Cases for Cisco Digital Network Architecture (DNAPUC)
- Introducing Cisco Network Programmability (NPICNP)

Duration

Three days