Implementing Automation for Cisco Service Provider Solutions

Duration: 180 Days **Course Code: SPAUI** **Version: 1.0** **Delivery Method: Elearning (Self-paced)**

Overview:

The Implementing Automation for Cisco Service Provider Solutions (SPAUI) course provides the knowledge and skills required to implement and support automation solutions in a Service Provider network infrastructure, using network programmability principles, protocols, tools, and mechanisms. Through a combination of lessons and hands-on labs, you will learn to deploy, configure, monitor, and operate Service Provider network environments using modern data models. These models allow you to represent operational data and new network management protocols in order to administer hundreds or thousands of devices in a single operation, replacing traditional, time-consuming, error prone, device-by-device Command Line Interface (CLI) management. The course also introduces powerful automation solutions that can streamline network operations.
This course covers Yet Another Next Generation (YANG) data models and validation tools, Representational State Transfer Configuration Protocol RESTCONF and Network Configuration Protocol (NETCONF) management protocols, model-driven telemetry with Google Remote Procedure Call (gRPC) and Google Network Management Interface (gNMI), traffic automation with XR Transport Control (XTC), Secure Shell (SSH)-based automation tools like NetMiko and Ansible, orchestration provided by Network Services Orchestration (NSO), Network Function Virtualization (NFV) lifecycle management with Elastic Services Controller (ESC), and network operations automation with WAN Automation Engine (WAE).

Associated Certification: CCNP Service Provider, Cisco Certified DevNet Professional, Cisco Certified DevNet Specialist - Service Provider Automation and Programmability

Associated Exam: 300-535 SPAUTO

Duration: This is the elearning equivalent of a 3 day ILT course

Target Audience:

Individuals looking to use network programmability to scale and streamline Service Provider network infrastructure.

Objectives:

- **After completing this course you shoud be able to:**
- Use NETCONF and RESTCONF programmability protocols on Cisco devices
- Describe and use tools to validate YANG data models on Cisco devices
- Describe and configure model-driven telemetry on Cisco devices
- Describe and configure network traffic automation with Cisco XTC
- Describe and use network automation tools that utilize SSH
- Automate service provider network configuration with Cisco NSO
- Describe how to automate virtualized resources with Cisco ESC
- Describe how to automate service provider WAN with Cisco WAE

Prerequisites:

Attendees should meet the following prerequsites:

- CCNP equivalent level of knowledge for Routing and Switching (R&S)
- Cisco Internetworking Operating System (IOS XE) and Cisco IOS XR working experience
- SP Operations experience with routing, Multi-Protocol Label Switching (MPLS) and Virtual Private Network (VPN) Solutions
- Network Programmability Basics (Network Programming Foundations, APIs and Protocols, Network Model Driven APIs and

Testing and Certification

Recommended as preparation for the following exams:

- **300-535 SPAUTO -** Implementing Automation for Cisco Service Provider Solutions exam

Passing the 300-535 SPAUTO exam, will provide you with the Cisco Certified DevNet Specialist - Service Provider Automation and Programmability certification, as well as satisfying the concentration exam requirement for both the CCNP Service Provider certification and the Cisco Certified DevNet Professional certification.

Protocols, Configuration Management with Ansible, Service Provider Network Automation workflows)
- PRNE-CPLL - Programming for Network Engineers - CPLL
- SPCOR - Implementing and Operating Cisco Service Provider Network Core Technologies
- SPRI - Implementing Cisco Service Provider Advanced Routing Solutions
- SPVI - Implementing Cisco Service Provider VPN Services
- CSAU - Introducing Automation for Cisco Solutions

Content:

Implementing Network Device Programmability Interfaces with NETCONF and RESTCONF

- Implement NETCONF Protocol
- Implement RESTCONF Protocol

Implementing Model-Driven Programmability with YANG

- YANG Data Models
- YANG Tools
- YANG Development Kit

Implementing Model-Driven Telemetry

- Implementing Model-Driven Telemetry with gRPC
- Implementing Model-Driven Telemetry with gNMI

Automating Service Provider Network Traffic with Cisco XTC

- Cisco XTC Fundamentals
- Configure Cisco XTC

Automating Networks with Tools That Utilize SSH

- Implement Device Configurations with Python Netmiko Library
- Implement Device Configurations with Ansible Playbooks

Orchestrating Network Services with Cisco NSO

- Cisco NSO Fundamentals
- Cisco NSO Device Manager
- Cisco NSO Services
- Implement Device Configurations with Python

Automating Virtualized Resources with Cisco Elastic Services Controller

- Cisco ESC Architecture
- Cisco ESC Resource Management

Automating the WAN with Cisco WAE

- Describe the Cisco WAE Components

Labs

- Explore NETCONF Protocol in Cisco Devices
- Configure Cisco IOS XE Devices with RESTCONF
- Explore Cisco and OpenConfig YANG Data Models with YANG Tools
- Use ncclient and Python to Configure Cisco Devices
- Use YANG Development Kit (YDK) to Configure Cisco Devices
- Configure Model-Driven Telemetry with gRPC
- Configure Model-Driven Telemetry with gNMI
- Configure Path Disjointness with Cisco XTC
- Use Python Netmiko Library to Configure Cisco Devices
- Use Ansible to Configure Cisco Devices
- Use Cisco NSO Device Manager
- Create a Loopback Service Template
- Use Cisco NSO REST API with Postman
- Explore and Use Cisco WAE Features

Further Information:

For More information, or to book your course, please call us on 00 971 4 446 4987

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