Implementing Automation for Cisco Service Provider Solutions (SPAUI)

Description

The **Implementing Automation for Cisco Service Provider Solutions (SPAUI)** training prepares you 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 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 training also introduces powerful automation solutions that can streamline network operations.

This training 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).

This training prepares you for the Automating and Programming Cisco® Service Provider Solutions (300-535 SPAUTO) v1.0 exam. If passed, you earn the Cisco Certified DevNet Specialist – Service Provider Automation and Programmability certification and satisfy the concentration exam requirements for the Cisco Certified Network Professional (CCNP) Service Provider and Cisco Certified DevNet Professional certifications. Introducing Automation for Cisco Solutions (CSAU) is required prior to enrolling in this training because it provides crucial foundational knowledge essential to success. This training also earns you 24 Continuing Education (CE) credits toward recertification.

How you'll benefit

This training will help you:

- Use network programmability to scale and streamline Service Provider network infrastructure
- Gain hands-on experience in using modern data models to manage Service Provider network infrastructure
- Prepare for the 300-535 SPAUTO v1.0 exam
- Earn 24 CE credits toward recertification

Who should enroll

- Network Administrators
- Network Architects
- Network Designers
- Network Engineers
- Network Managers
- Network Operations Center (NOC) Personnel
- Network Supervisors

Technology areas

- Network Automation
- Service Provider

Objectives

- 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

There are no prerequisites for this training. However, the knowledge and skills you are recommended to have before attending this training are:

- CCNP equivalent level of knowledge for Routing and Switching (R and 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 Protocols, Configuration Management with Ansible, Service Provider Network Automation workflows)

These skills can be found in the following Cisco Learning Offerings:

- Introducing Automation for Cisco Solutions (CSAU)
- Implementing and Operating Cisco Service Provider Network Core Technologies (SPCOR)
- Implementing Cisco Service Provider Advanced Routing Solutions (SPRI)
- Implementing Cisco Service Provider VPN Services (SPVI)

Outline

- Implementing Network Device Programmability Interfaces with NETCONF and RESTCONF
- Implementing Model-Driven Programmability with YANG
- Implementing Model-Driven Telemetry
- Automating Service Provider Network Traffic with Cisco XTC
- Automating Networks with Tools That Utilize SSH
- Orchestrating Network Services with Cisco NSO
- Automating Virtualized Resources with Cisco Elastic Services Controller
- Automating the WAN with Cisco WAE

Lab Outline

- 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

What to expect on the exam

Automating and Programming Cisco Service Provider Solutions (300-535 SPAUTO) v1.0 is a 90-minute exam associated with the Cisco Certified DevNet Specialist – Service Provider Automation and Programmability certification and satisfies the concentration exam requirements for the CCNP Service Provider and Cisco Certified DevNet Professional certifications.

This exam tests your knowledge of implementing service provider automated solutions, including:

- Programming concepts
- Orchestration
- Programming OS
- Automation tools

Links

- Cisco U. Learning Path
- Cisco Learning Network Store
- Cisco Learning Locator