
Cisco® Implementing Automation for Cisco® Service Provider Solutions v1.0 (SPAUI)

Overview

This course 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 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 also prepares you for the CCNP-Service Provider concentration exam 300-535.**

Prerequisite Comments

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

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 Protocols, Configuration Management with Ansible, Service Provider Network Automation workflows)

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

Implementing Cisco Service Provider Advanced Routing Solutions (SPRI)

Implementing Cisco Service Provider VPN Services (SPVI)

Introducing Automation for Cisco Solutions (CSAU)

Target Audience

This course is designed for Service Provider networking professionals in job roles such as:

Network administrators

Network architects

Network designers

Network engineers

Network managers

Network Operations Center (NOC) personnel

Network supervisors

Course Objectives

After taking this course, you should 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

Course Outline

1 - Implementing Network Device Programmability Interfaces with NETCONF and RESTCONF

Implement NETCONF Protocol
Implement RESTCONF Protocol

2 - Implementing Model-Driven Programmability with YANG

YANG Data Models
YANG Tools
YANG Development Kit

3 - Implementing Model-Driven Telemetry

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

4 - Automating Service Provider Network Traffic with Cisco XTC

Cisco XTC Fundamentals
Configure Cisco XTC

5 - Automating Networks with Tools That Utilize SSH

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

6 - Orchestrating Network Services with Cisco NSO

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

7 - Automating Virtualized Resources with Cisco Elastic Services Controller

Cisco ESC Architecture
Cisco ESC Resource Management

8 - Automating the WAN with Cisco WAE

Describe the Cisco WAE Components

Related Courses, Certifications, Exams

- Cisco® Introducing Automation for Cisco® Solutions v1.1 (CSAU)
 - Cisco® Implementing Cisco® Service Provider Advanced Routing Solutions v1.0 (SPRI)
 - Cisco® Implementing Cisco® Service Provider VPN Services 1.0 (SPVI)
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