Objetivos

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

Pre-requisitos

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

- **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)**
- **Introducing Automation for Cisco Solutions (CSAU)**

Contenido

- 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

Laboratorio

- 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