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JUNOS PLATFORM AUTOMATION AND DEVOPS (JAUT)

Course Code: 100562

Learn how to automate Junos using DevOps automation tools, protocols and technologies.

This five-day course provides students with knowledge of how to automate Junos using DevOps automation tools, protocols and technologies. Students receive hands-on development experience with tools and languages relevant to automating the Junos OS platform in a DevOps environment. The course includes an introduction to the Junos XML API, and NETCONF but focuses on using Python, PyEZ, and Ansible to automate Junos.

The course introduces students to Junos commit, operation (op), event, and SNMP scripts. JSON, YAML, and Jinja2 are introduced as these languages facilitate Junos automation. The course also introduces the Junos Extension Toolkit and related APIs. Finally, the course discusses the use of JSNAPy and Junos ZTP autoinstallation tools.

Through demonstrations and hands-on labs, students will gain experience in automating the Junos operating system and device operations.

This course uses Junos OS Release 17.1R1, PyEZ 2.0, Python 2.7, and Ansible 2.3.

What You'll Learn

After successfully completing this course, you should be able to:

- Describe the NETCONF protocol.
- Explain the capabilities of the Junos OS XML API.
- Describe the use of XSLT, SLAX, and XPath in the XML API.
- Describe the Junos Automation UI and explain the role of gRPC, NETCONF, and REST in Junos Automation.
- Identify the languages, frameworks, management suites, and tools used in automating Junos.
- Describe the YANG Protocol and explain the capabilities of YANG.
- Use the YANG model to issue Junos commands and to configure Junos.
- Explain the benefits of using JSON and YAML.
- List where JSON and YAML are used in Junos Automation.
- Convert between JSON, YAML, and XML.

- Describe the features and benefits of using Python in Junos automation.
- Configure Junos devices to use Python and create simple Python scripts.
- Describe the function of Junos operation, commit, event, and SNMP scripts.
- Implement Junos operation, commit, event, and SNMP scripts using Python.
- Identify how Junos automation uses Jinja2 and create Python scripts that use Jinja2.
- Explain how PyEZ makes Junos automation easier.
- Use PyEZ to gather facts from Junos, perform configuration tasks, and use PyEZ to manipulate the file system and perform system upgrades to Junos.
- Implement OpenConfig in the Junos OS.
- Describe the process of implementing custom YANG modules.
- Implement a translation script for a custom YANG module.
- Explain the use of the Junos REST API in automation.
- Use the Junos REST API to get information from Junos.
- Describe what JET is and what it includes.
- Create a project in the JET IDE.
- Execute scripts using on-box and off-box automation.
- Describe how Ansible is used in Junos automation and install Ansible.
- Create Ansible playbooks to automate Junos.
- Describe how JSNAPy can help automate Junos devices.
- Implement JSNAPy into a Junos environment.
- Describe how ZTP works.
- Configure in-band ZTP and out-of-band ZTP.

Who Needs to Attend

This course benefits individuals responsible for configuring and monitoring devices running the Junos OS.

Prerequisites

Students should have intermediate - level networking knowledge and an understanding of the Open Systems Interconnection (OSI) model and the TCP/IP protocol suite.

Students should also have familiarity with a programming language such as C, C++, Perl, Python, Ruby, or Java. Students should also attend the Introduction to the Junos Operating System (IJOS) course prior to attending this class.

Lastly, a high level understanding of object-oriented programming is a plus, but not a requirement.

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