Systems & Network Training

DevOps for network engineers

A 5 day **Hands on** training course

Description

This course is not a soft skills course covering the concepts of DevOps but instead concentrates on the technical side of tools and languages for network DevOps. Particular technologies focussed on are ansible, git and Python enabling delegates to leave the course ready to starting automating their network. Hands on sessions follow all major sections. More detailed courses on individual aspects of this course are available.

Key outcomes

By the end of the course delegates will be able to:

- ✔ Evaluate network automation tools.
- ✔ Automate tasks with ansible.
- ✔ Use git for version control.
- ✔ Use python to manage network devices.
- ✔ Use python libraries for network devices.

Training approach

This structured course uses Instructor Led Training to provide the best possible learning experience. Small class sizes ensure students benefit from our engaging and interactive style of teaching with delegates encouraged to ask questions throughout the course. Quizzes follow each major section allowing checking of learning. Hands on sessions are used throughout to allow delegates to consolidate their new skills.

Details

Who will benefit?
Administrators automating tasks.

Prerequisites
TCP/IP foundation for engineers.

Duration: 5 days

Customer rating: ★★★★★

Generic training	Small class sizes	Hands On training	Our courseware	Customise your course
Generic training compliments product specific courses covering the complete picture of all relevant devices including the protocols "on the wire".	We limit our maximum class size to 8 delegates; often we have less than this. This ensures optimal interactivity between delegates and instructor.	The majority of our courses use hands on sessions to reinforce the theory.	We write our own courses; courseware does not just consist of slides and our slides are diagrams not bullet point text.	Please contact us if you would like a course to be customised to meet your specific requirements. Have the course your way.
"Friendly environment with expert teaching that teaches the why before the how." G.C. Fasthosts	*"Excellent course. The small class size was a great benefit..."* M.B. IBM	*"Not many courses have practice added to it. Normally just the theoretical stuff is covered."* J.W. Vodafone	*"Comprehensive materials that made the course easy to follow and will be used as a reference point."* V.B. Rockwell Collins	*"I was very impressed by the combination of practical and theory. Very informative. Friendly approachable environment, lots of hands on."* S.R. Qinetiq

DevOps for network engineers

What is DevOps
Programming and automating networks, networks and clouds, AWS, OpenStack, SDN, DevOps for network operations.

Initial configuration
Configuring SSH, ZTP, POAP. Hands on: Initial lab configuration.

Getting started with ansible
The language, the engine, the framework. Uses of ansible, orchestration. The architecture, Controlling machines, nodes, Agentless, SSH, modules. Configuration management, inventories, playbooks, modules, roles. Hands on: Installing ansible, running ad hoc commands.

Ansible playbooks
ansible-playbook, YAML, plays, tasks, handlers, modules. Playbook variables. Register module, debug module. Hands on: Running playbooks.

Ansible Inventories
/etc/ansible/hosts, hosts, groups, static inventories, dynamic inventories. Inventory variables, external variables. Limiting hosts. Hands on: Static inventories, variables in inventory files.

Ansible modules for networking
Built in modules, custom modules, return values. Core modules for network operations. Cisco and/ or Juniper modules. ansible_connection. Ansible 2.6 CLI. Hands on: Using modules.

Ansible templating and roles
Configuration management, full configurations, partial configurations. The template module, the assemble module, connection: local, Jinja2 templates, variables, if, for, roles. Hands on: Generating multiple configurations from a template.

Network programming and modules
Why use Python? Why use ansible? alternatives, ansible tower, Linux network devices.

Programming with Python
Scripting versus application development, Python interactive mode, Python scripts, Python 2.7 vs Python 3. A simple Python script. Variables, loops, control statements, operators. PEP style guide. Python IDEs. Hands on: Simple Python programs.

More Python programming
Functions. Classes, objects and instances, modules, libraries, packages. Python strings, Python file handling, pip list, pip install, Hands on: Python programming with pyping.

Git
Distributed version control, repositories, Git and GitHub, Alternatives to GitHub, Installing git, git workflows, creating repositories, adding and editing files, branching and merging, merge conflicts. Hands on working with Git.

Python and networking
APIs, Sockets, Telnetlib, pysnmp, ncclient, ciscoconfparse.

Paramiko SSH and Netmiko
Integrating Python and network devices using SSH. Netmiko, Netmiko methods. Hands on: Netmiko.

PyEZ
Juniper, NETCONF, installing PyEZ, a first pyEZ script, pyEZ configuration management. Hands on: Juniper configuration management with pyEZ.

NAPALM
What is NAPALM, NAPALM operations, getters, Replace, merge, compare, commit, discard. Hands on: Configuration with NAPALM. Integrating ansible and NAPALM.

Python and REST
REST APIs, enabling the REST API. Accessing the REST API with a browser, cURL, Python and REST, the request library. Hands on: Using a REST API with network devices.

Step back

TCP/IP foundation for engineers

DevOps for network engineers

Step forward

Essential NFV

Essential SDN