

Network Programming & Automation

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Why Network Automation?

Really?

Types Network Automation

- Device Compliance
- Data Collection
- Reporting
- Configuration Management

Getting Started

What are our options?

- Native Programming
- Open Source Tools
- Commercial Tools

Thinks to think about:

- Support
- Control
- Extensibility

One more thing...

Be the Automator and not the Automated

Live Demos

Tonight, we will see three mini-demos:

- Automated Cable Verification of Junos vMX Devices using Ansible
- Pushing BGP configuration leveraging a basic OpenConfig BGP model to IOS-XRv with Ansible
- Quick look into RESTCONF on Cisco IOS-XE on CSR 1000V

Take advantage of virtual network appliances

Before the Demos

What are these terms, tech, and tools?

Ansible

- Open source tool by Red Hat
- Lowest barrier to entry for automation
 - Great for network and systems automation
 - Supports IOS, XR, Junos, Cumulus, EOS, and more *out of the box*

OpenConfig

OpenConfig Working Group (WG) - Working group developing vendor neutral data models. Here is the sample BGP model being used in the demo:

```
<config>
  <bgp xmlns="http://openconfig.net/yang/bgp" nc:operation=create>
    <global>
      <config>
        <as>65512</as>
        <router-id>100.1.1.1</router-id>
      </config>
    </global>
  </bgp>
</config>
```

Unfortunately, there is only one device currently OC-BGP that is **publicly** available (IOS-XR). Other vendors and/or platforms should support it soon. Tonight's demo will use IOS-XRv

Postman

Chrome plug-in for working with web based (HTTP) APIs, i.e. REST API

It'll be easier to see in action!

Demo Time

References

- Slides and playbooks for this presentation including the OC BGP Ansible module :
 - <https://github.com/networktoCode/inog9>
- Tutorials on Network to Code - <http://networktoCode.com/products/labs/tutorials/>
- Courses (Public & Private) - <http://networktoCode.com/products/training/>
- [Network Automation Book](#) - Matt Oswalt, Scott Lowe, and Jason Edelman
- Slack Team dedicated to Network Automation - self sign up slack.networktoCode.com
 - Channels include #ansible, #napalm, #netmiko, #trigger, #nsot for open source projects (just to name a few). Vendor channels too.
 - 1000+ members and growing
- And remember, Be the Automator...not the automated