Ansible: Network Automation

>>> ansible | network_automation
set(['napalm', 'ntc-ansible', 'ansible_2_1'])

$ whoami

Kirk Byers
Network Engineer:
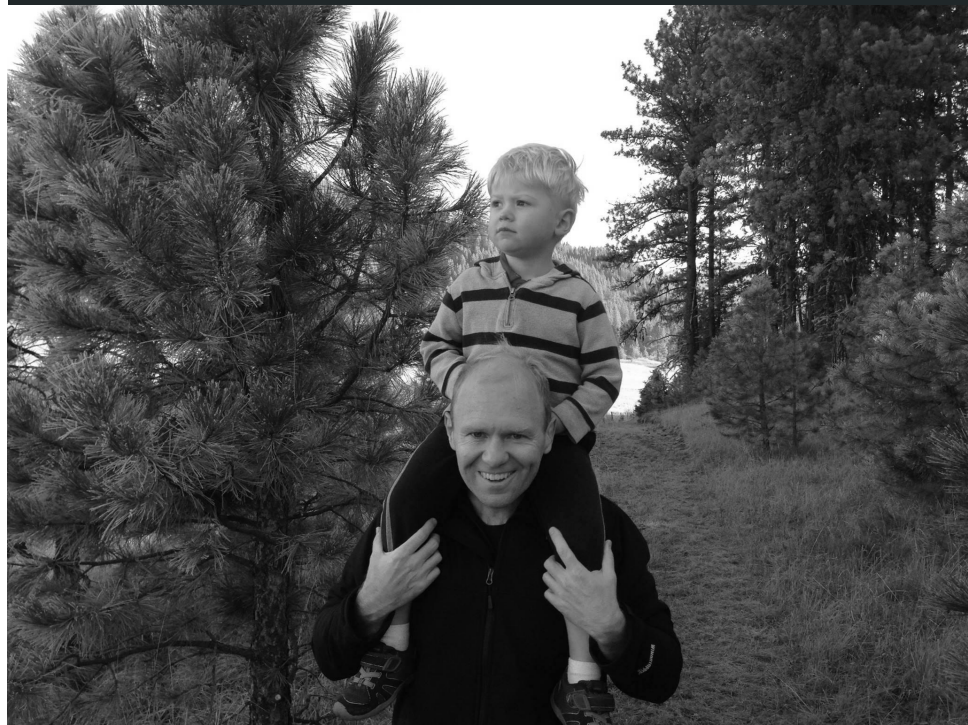CCIE #6243 (emeritus)

Programmer:
Netmiko
Napalm-ios

Free course on Python for
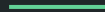Network Engineers:
    https://pynet.twb-tech.com

Which platforms: is it just Linux?

Flickr: Ricky Wright

Initial points:

1. Networking is not just the data-center.
2. Networking life cycle is longer than server life cycle.
3. Networking is judged more directly on uptime/downtime.
4. If you care about automation, make your purchases count.

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What can we do?

Config templating
Config management
Information gathering
Operational actions

Which libraries?
Ansible-2.1
NAPALM
ntc-ansible

Config templating

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Config management

Generalized vs Specific Features
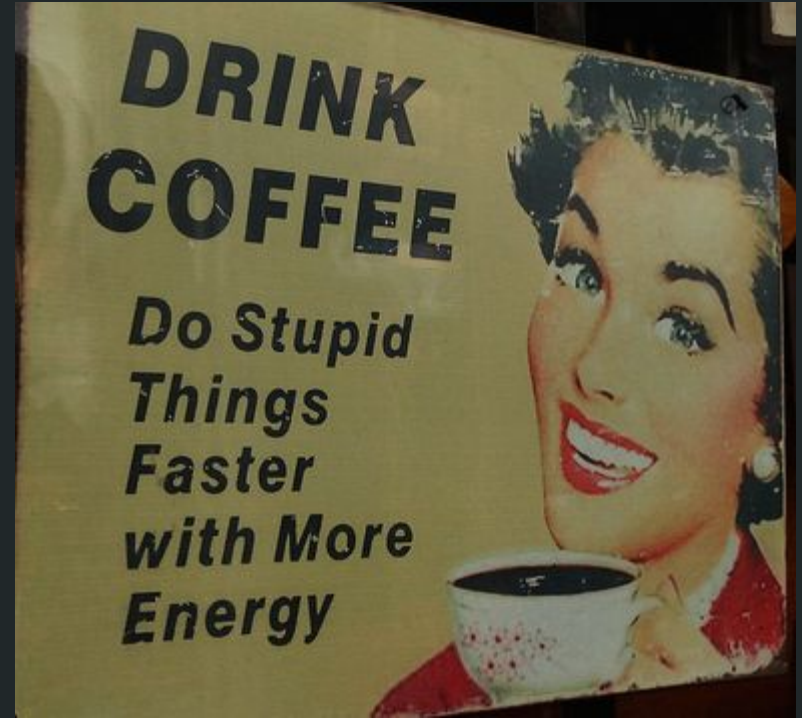Line-by-line vs File Operations

Ansible 2.1 Modules

{platform}_command
{platform}_config
{platform}_template

Example:

Change hostname and save configuration on Cisco IOS, Arista, and Juniper.

DRINK COFFEE

Do Stupid Things Faster with More Energy

Flickr: Ben Sutherland

{platform}_config interesting line-by-line features.

parents
before
match (line, exact, strict)
replace

```
{platform}_config

  - name: Add TEST1 ACL
    ios_config:
      provider: "{{ creds }}"
      lines:
        - permit ip host 1.1.1.1 any log
        - permit ip host 2.2.2.2 any log
        - permit ip host 3.3.3.3 any log
        - permit ip host 4.4.4.4 any log
        - permit ip host 5.5.5.5 any log
      parents: ["ip access-list extended TEST1"]
      before: ["no ip access-list extended TEST1"]
      replace: block
      match: exact
```

NAPALM

Getters
Config Management

NAPALM
Config Mgmt

Replace (full config)
Merge (partial config)
Compare config
Discard config
Rollback
Commit

```
!
clock timezone America/Los_Angeles
!
vlan 999
    name BLUE
!
interface Ethernet1
    spanning-tree portfast
!
interface Ethernet2
!
interface Ethernet3
!
interface Ethernet4
!
interface Ethernet5
!
interface Ethernet6
!
interface Ethernet7
!
interface Management1
    shutdown
!
interface Vlan1
    ip address 10.220.88.28/24
!
ip route 0.0.0.0/0 10.220.88.1
!
ip routing
!
management api http-commands
    no shutdown
!
!
end
pynet-sw1#
```

Example:

Load full configuration files for Cisco IOS, Arista, Juniper.

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ntc-ansible

Operational actions

ntc-ansible

ntc_config_command.py

ntc_show_command.py

ntc_save_config.py

ntc_get_facts.py

ntc_file_copy.py

ntc_install_os.py

ntc_reboot.py

ntc_rollback.py

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ntc_config_command

```
- ntc_config_command:
    host: "{{ host }}"
    username: "{{ username }}"
    password: "{{ password }}"
    platform: cisco_ios
    commands:
      - 'logging buffered 21000'
```


Flickr: bertknot

ntc_show_command

```
- ntc_show_command:
    host: "{{ host }}"
    username: "{{ username }}"
    password: "{{ password }}"
    platform: cisco_ios
    command: 'show ip int brief'
```


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Wrap up:

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The end…

Questions?

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