6.1 Ansible Playbooks

Ansible Modules

▷ Scripts that accomplish a task

▷ Mostly in Python, small percentage of them are in PowerShell for Windows.

▷ Self-made modules can be in any language

▷ Lots of Network Modules

Ansible Run Methods

▷Use ssh to copy the Python module to remote host, run, clean up.

▷Run locally and use Paramiko to ssh to host or call remote host API (This is the way most network modules are run).

▷AdHoc one-liner

Ansible Playbooks

▷ Modules are your tools, Playbook is the instruction manual for which tool to use, when to use them, and in what order.

▷ No need to learn all the features at once, start small and pick up more features as you need them.

Playbook

```
1   ---                                                      Playbook
2   - name: First Network Playbook
3     connection: network_cli                                Play
4     hosts: all
5     tasks:
6       - name: show version
7         ios_command:                                       Task
8           commands: show version
9
10        register: output
11
12      - name: show output
13        debug:
14          var: output.stdout
15
16      - name: copy output to file
17        copy: content="{{ output }}" dest=./output/{{ inventory_hostname }}.txt
18  ...
```

Modules (→ ios_command, register)

YAML

▷ Starts with "---" and end with "…"

▷ All members of a list are lines with the same indentation level with '-' and a space

▷ A Dictionary are lines with the same indentation level with (key: value) pair

▷ Indentation is important

YAML

```yaml
1  ---
2  - name: First Network Playbook
3    connection: network_cli
4    hosts: all
5    tasks:
6      - name: show version
7        ios_command:
8          commands: show version
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10       register: output
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12     - name: show output
13       debug:
14         var: output.stdout
15
16     - name: copy output to file
17       copy: content="{{ output }}" dest=./output/{{ inventory_hostname }}.txt
18 ...
```

Dictionary

List

List

YAML Beginning / End

Resources

▷Intro to Playbooks

http://docs.ansible.com/ansible/playbooks_intro.html

▷YAML Syntax

http://docs.ansible.com/ansible/YAMLSyntax.html

▷Working with Modules

http://docs.ansible.com/ansible/latest/user_guide/modules.html

▷YAML Lint

http://www.yamllint.com/

Next: Playbook Examples

Suggestion

Keep in simple, follow a pattern ☺

…. at least for now

Playbook

```
1  ---                                          Playbook
2  - name: First Network Playbook
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16     - name: copy output to file
17       copy: content="{{ output }}" dest=./output/{{ inventory_hostname }}.txt
18 ...
```

Modules (pointing to `ios_command:` and `register:`)

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YAML

OSPF Configuration Workflow

▷Configure Basic OSPF

▷Verifying OSPF Adjacencies

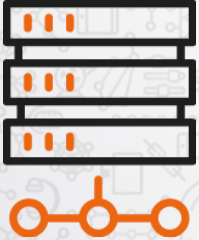▷Verifying the OSPF Database

New in Version 2

"Up and Running" with Network Devices

Save Time + Be More Productive

Prerequisites

▷ (optional) Basic Networking Knowledge

Why Ansible?

Ansible has thousands of users, hundreds of customers and over 2,400 community contributors

,600+ | 29,000+ | 230+
NSIBLE ODULES | GITHUB STARS | MEETUPS WORLDWIDE

JOIN OUR COMMUNITY

CISCO

" The work the Ansible team is doing... is something the entire industry should be paying attention to.

Lew Tucker
VP & CTO, Cloud Computing
Cisco

OpenStack Integration

JUNIPEr
NETWORKS

" Red Hat Ansible Tower allows us to easily streamline the delivery of applications and services to both OpenStack & Amazon Clouds in a cost effective, simple, & secure manner.

Jeremy Pruitt
Cloud & Automation
Juniper

IT Automation with Ansible Tower

Credit: https://www.ansible.com/

Come Join me to save time and be more productive as Network Engineers!

OSPF Configuration Workflow

▷Configure Basic OSPF

▷Verifying OSPF Adjacencies

▷Verifying the OSPF Database

Tracking Topology Changes

▷ When a new LSA is received it is checked against the database for changes such as...

- Sequence number is used to:
    - track new vs old LSAs
- Age is used to:
    - Keep information new
    - Withdraw old information
        - Periodic flooding occurs after 30 minutes
            - "paranoid" update
    - LSAs that reach MaxAge (60 minutes) are withdrawn
- Checksum
    - Used to avoid transmission & memory corruption

Tracking Topology Changes

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- Age
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    - Withdraw old information
        - Periodic flooding occurs after 30 minutes
        - LSAs that reach MaxAge (60 minutes) are withdrawn
- Checksum
    - Used to avoid transmission & memory corruption
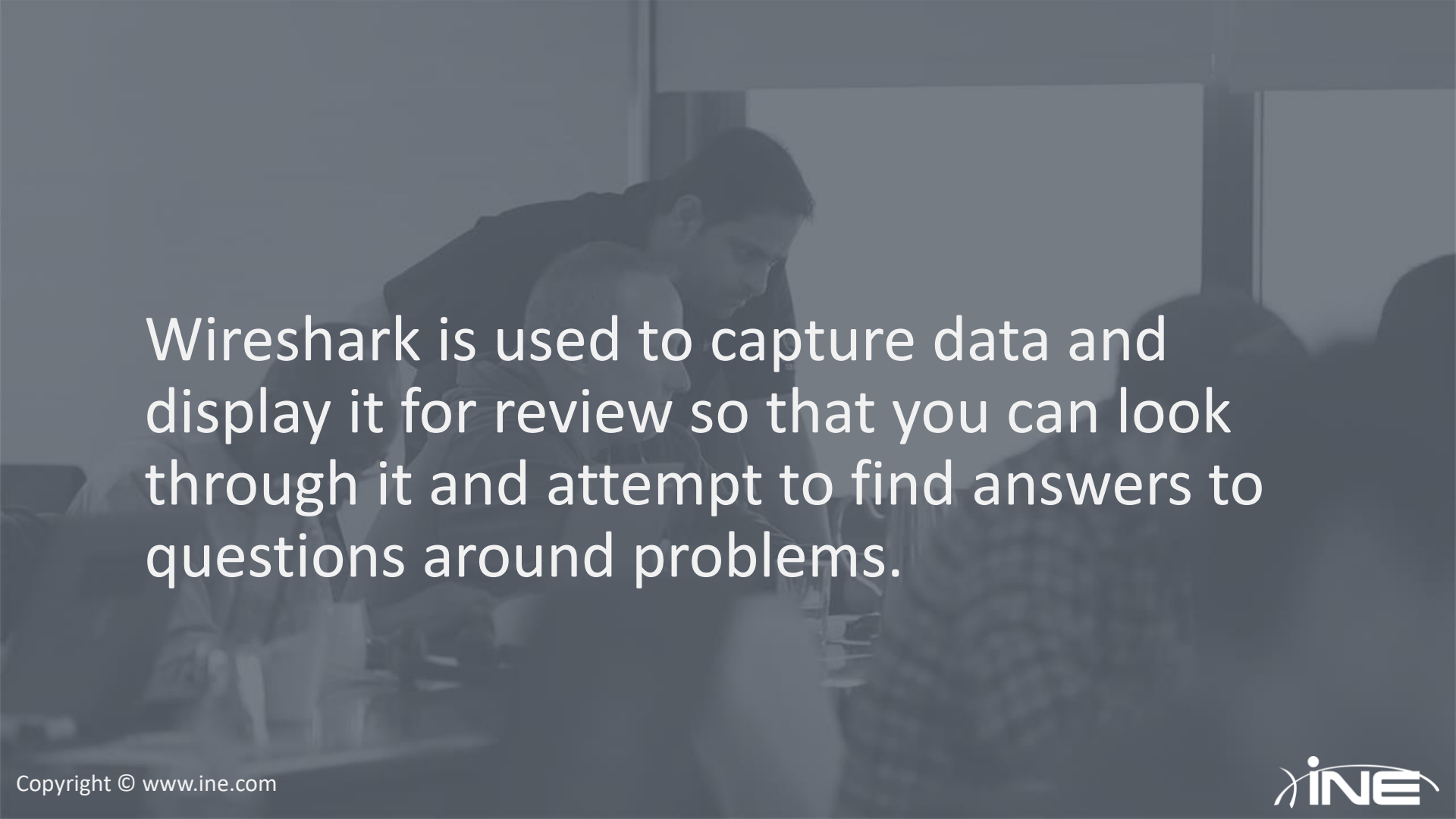
Tracking Topology Changes

▷ When a new LSA is received it is checked against the database for changes such as…

- Sequence number
- Age
  - Used to keep information new and withdraw old information
  - Periodic flooding occurs after 30 minutes
  - LSAs that reach MaxAge (60 minutes) are withdrawn
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- Age
- Checksum

Product/Topology Diagram

Wireshark is used to capture data and display it for review so that you can look through it and attempt to find answers to questions around problems.

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