7.1 Ansible Network Automation Trends

Changes in 2.2

- https://www.ansible.com/blog/ansible-network-updates
- Template module verging into Config modules, with Config modules adding more features.
- Return structured text after command execution
- Working on more Network Facts
- More community, more testing, more documentation

Changes in 2.3

- https://docs.ansible.com/ansible/2.5/porting_guides/porting_guide_2.3.html#networking
- Support of ProxyCommands
- Persistent SSH Connection

Changes in 2.4

- https://www.ansible.com/blog/networking-features-in-ansible-2-4
- More declarative modules
- Aggregate Resources
- Additional platforms and support

Changes in 2.5

- https://www.ansible.com/blog/coming-soon-networking-features-in-ansible-2.5
- network_cli and netconf connection types
- Network Facts
- Persistent SSH connection
- Network Best Practices documentation
- Better logging
- More declarative intent
- Additional Platforms and Modules

Next: Declarative Example

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

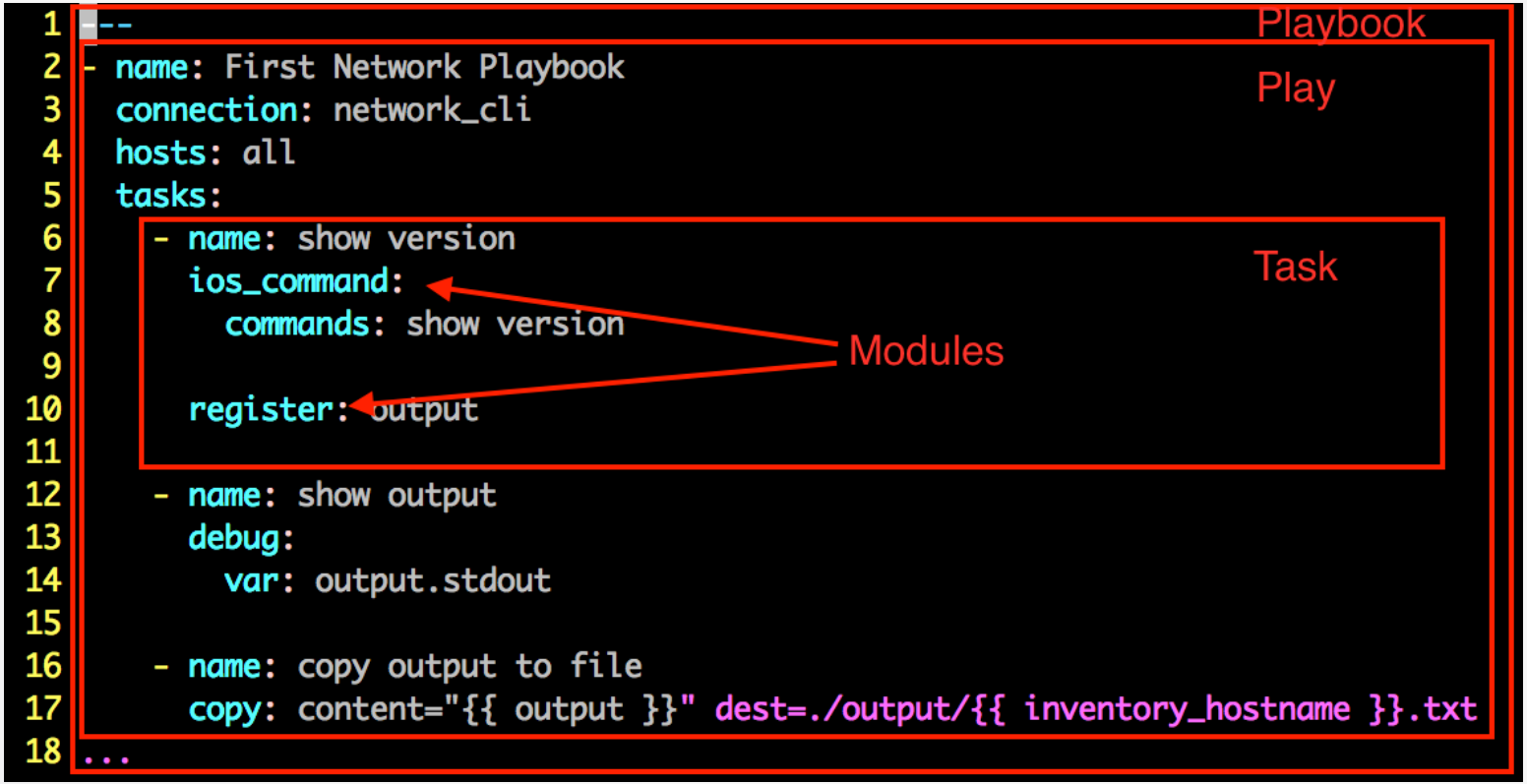
Ansible Run Methods

- 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.

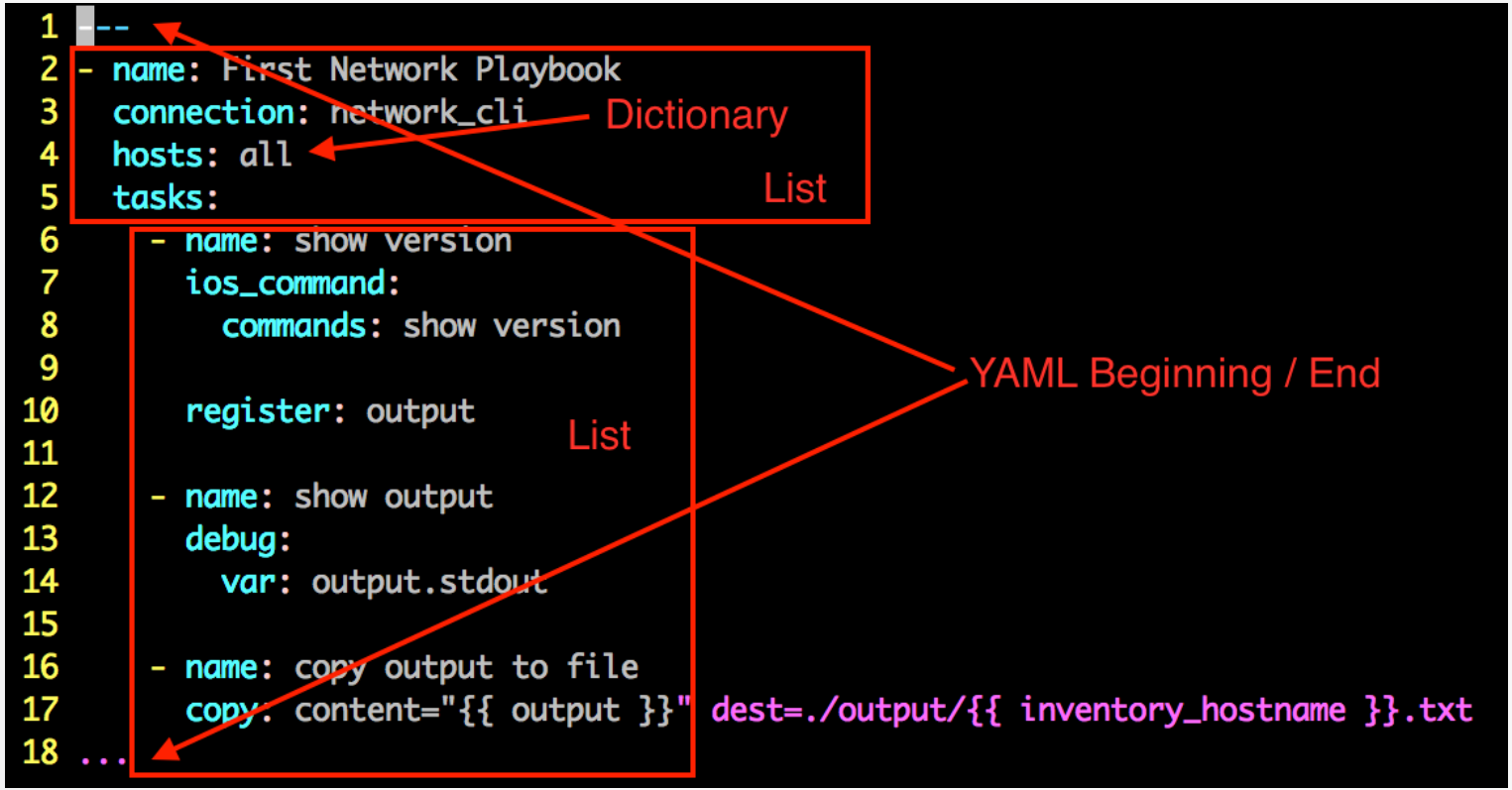
Playbook



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



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

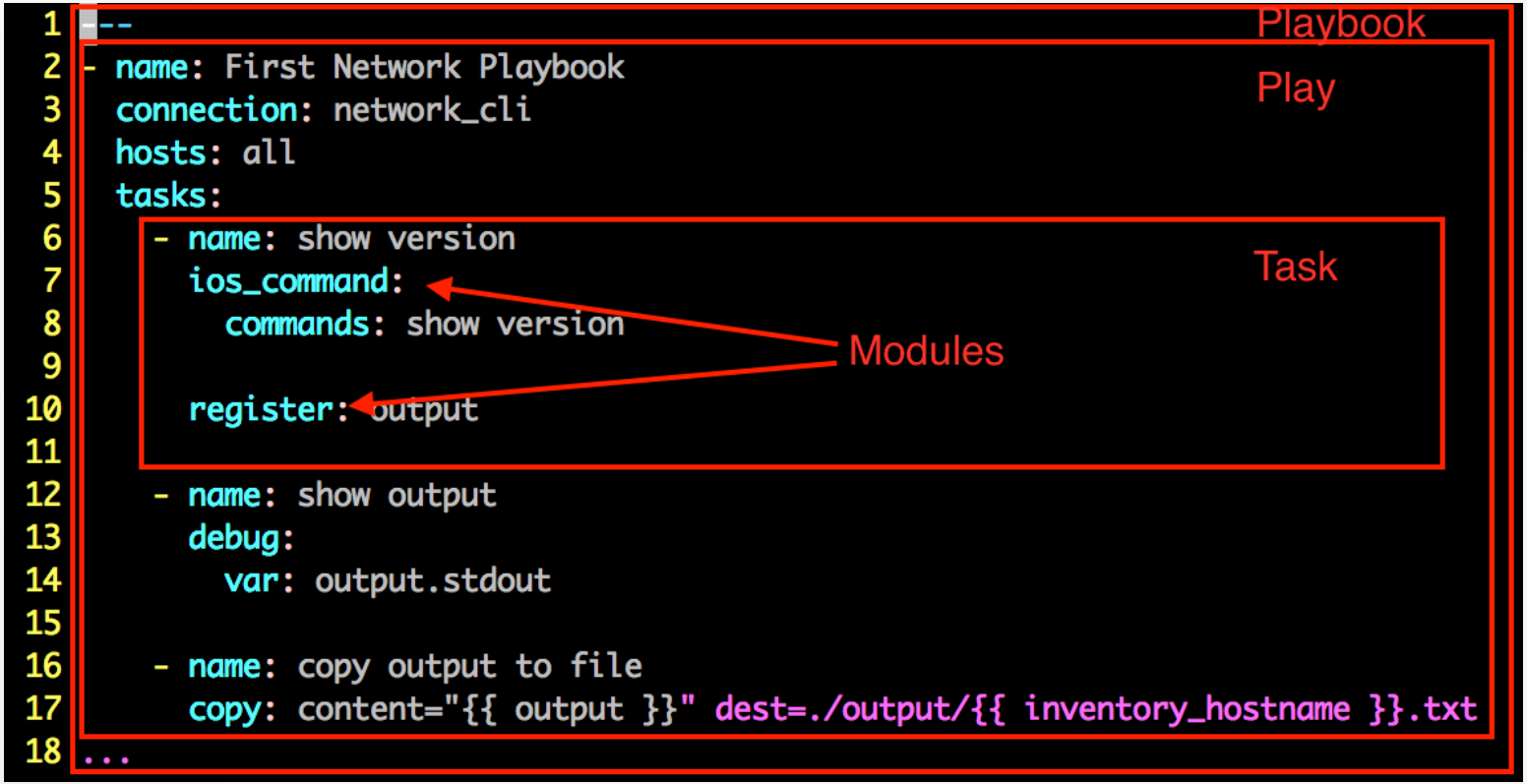
http://www.yamllint.com/

Suggestion

Keep in simple, follow a pattern ☺

…. at least for now

Playbook



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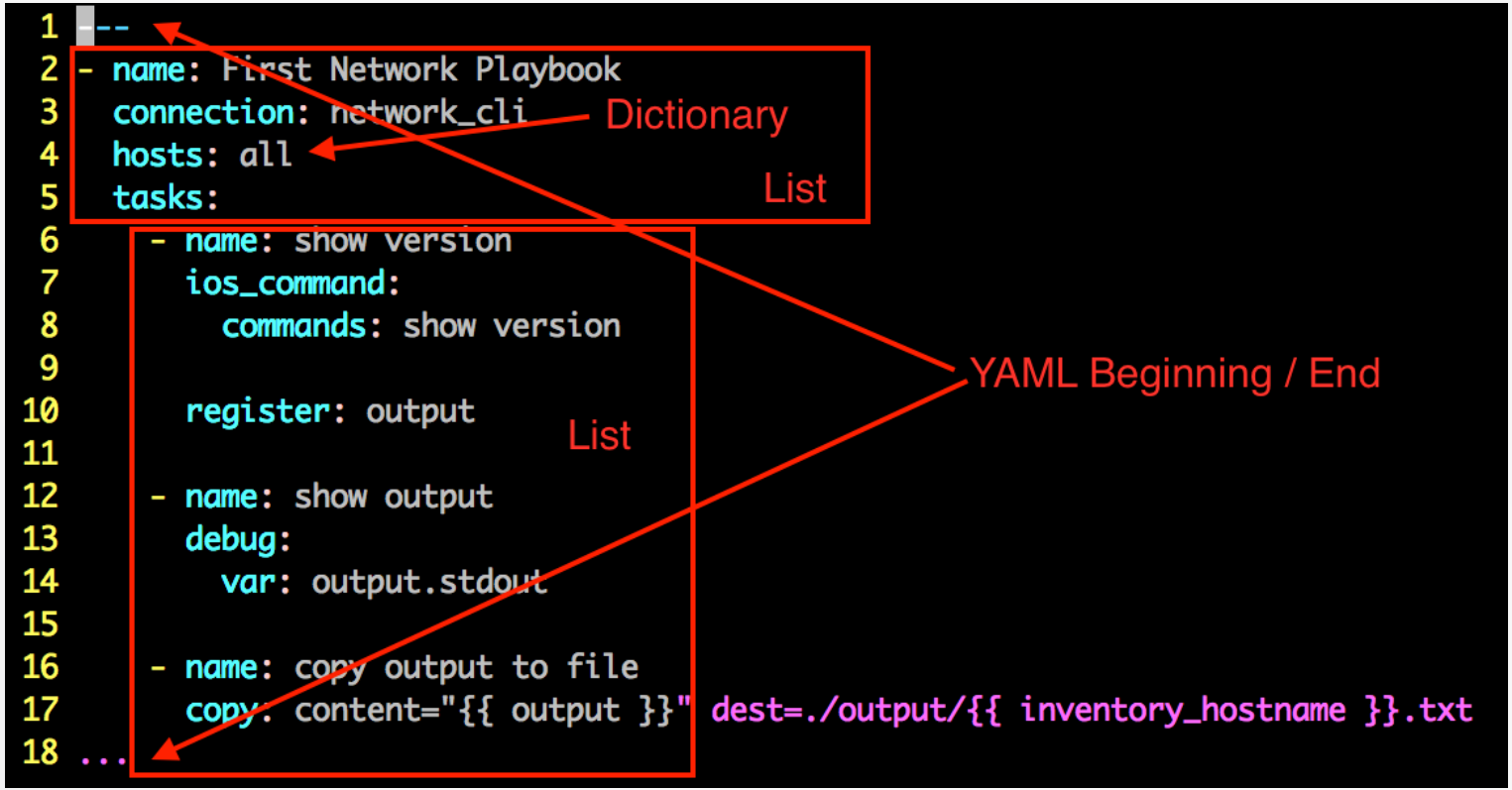


OSPF Configuration Workflow

- Configure Basic OSPF
- Verifying OSPF Adjacencies
- Verifying the OSPF Database

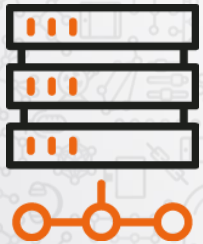
New in Version 2

"Up and Running" with Network Devices

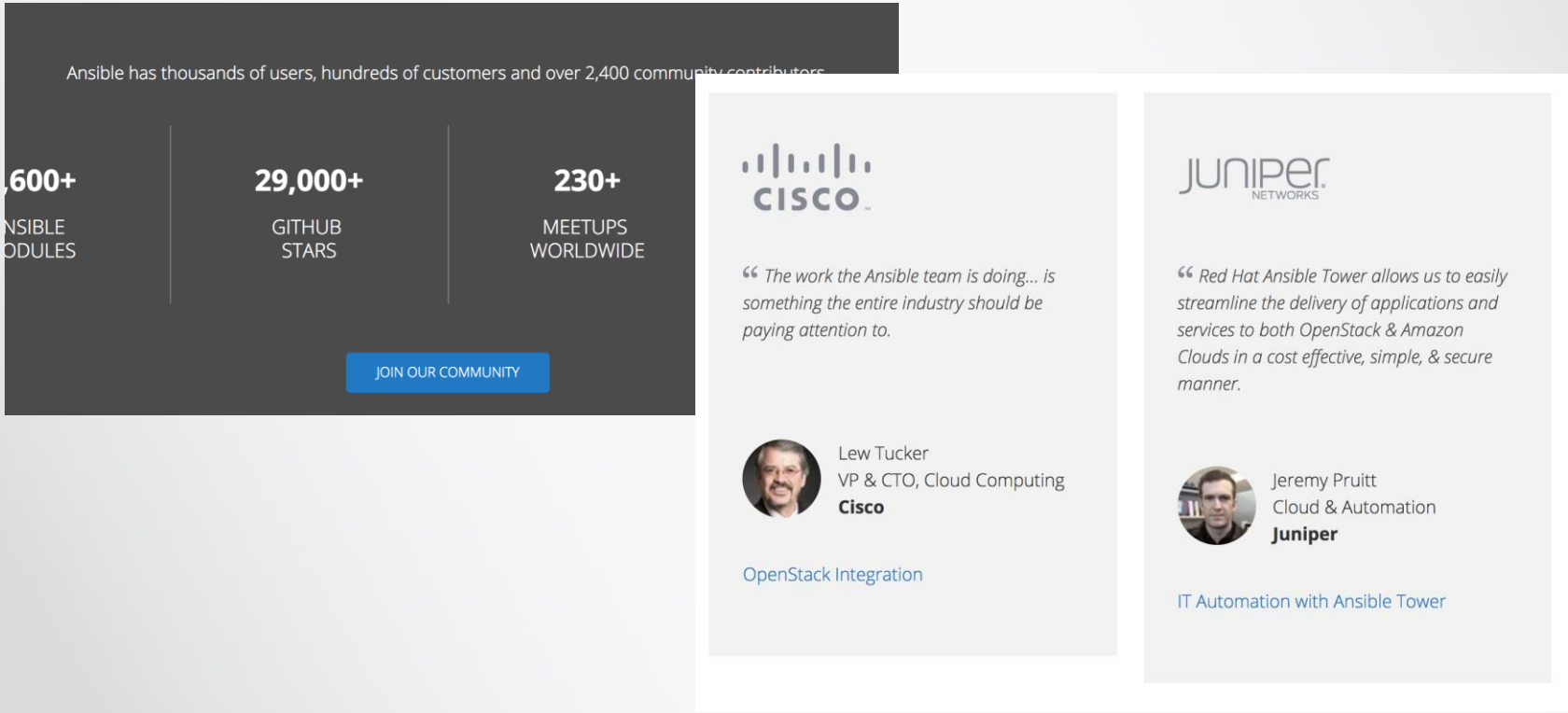
Save Time + Be More Productive

Prerequisites

- (optional) Basic Networking Knowledge



Why Ansible?



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

OSPF Configuration Workflow

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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

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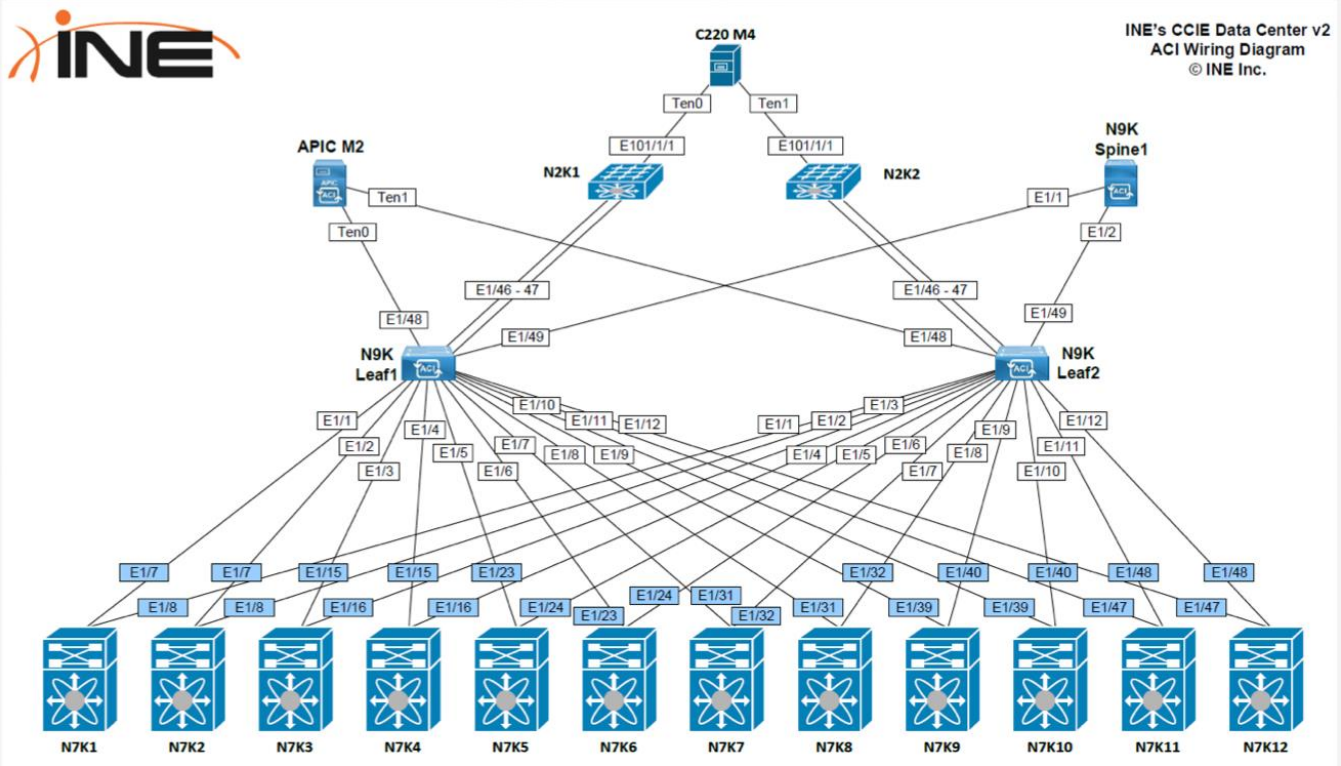
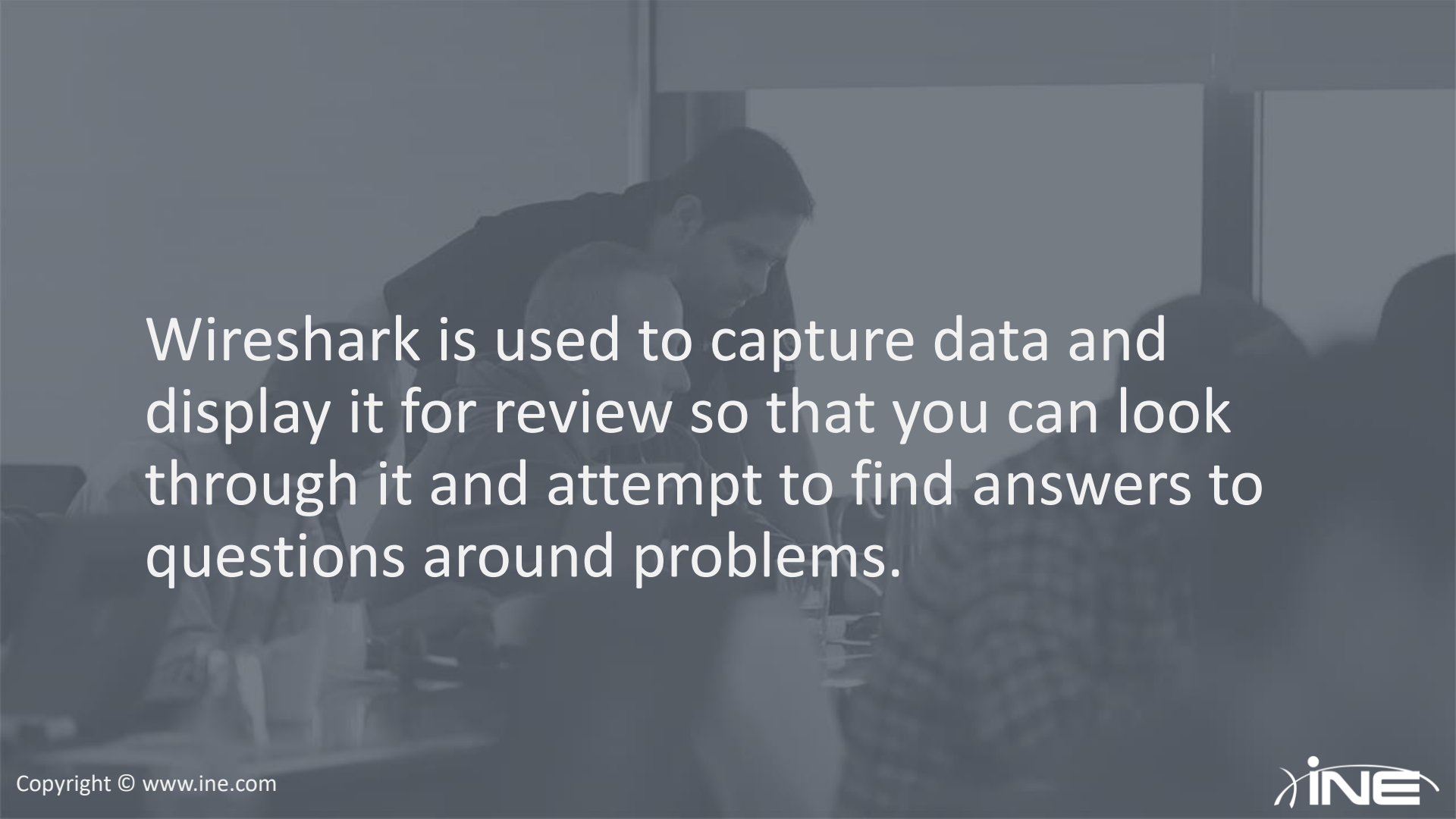


Product/Topology Diagram



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.