What are we going to discuss today?

- What are the scenarios of the network automation?
- Why Ansible is so popular for network automation?
- What is new in Ansible 2.10?
- How the convert your playbooks from Ansible 2.* to 2.10? [LIVE DEMO]
- What’s next?

About karneliuk.com

Training services

Regular trainings:
- Network automation live online
- Network automation self-paced

Corporate trainings:
- Network automation tailored to company network vendors (e.g. Nokia, Arista, Cisco, Cumulus, etc)

Individual sessions:
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Network automation:
- Advisory on automation tools
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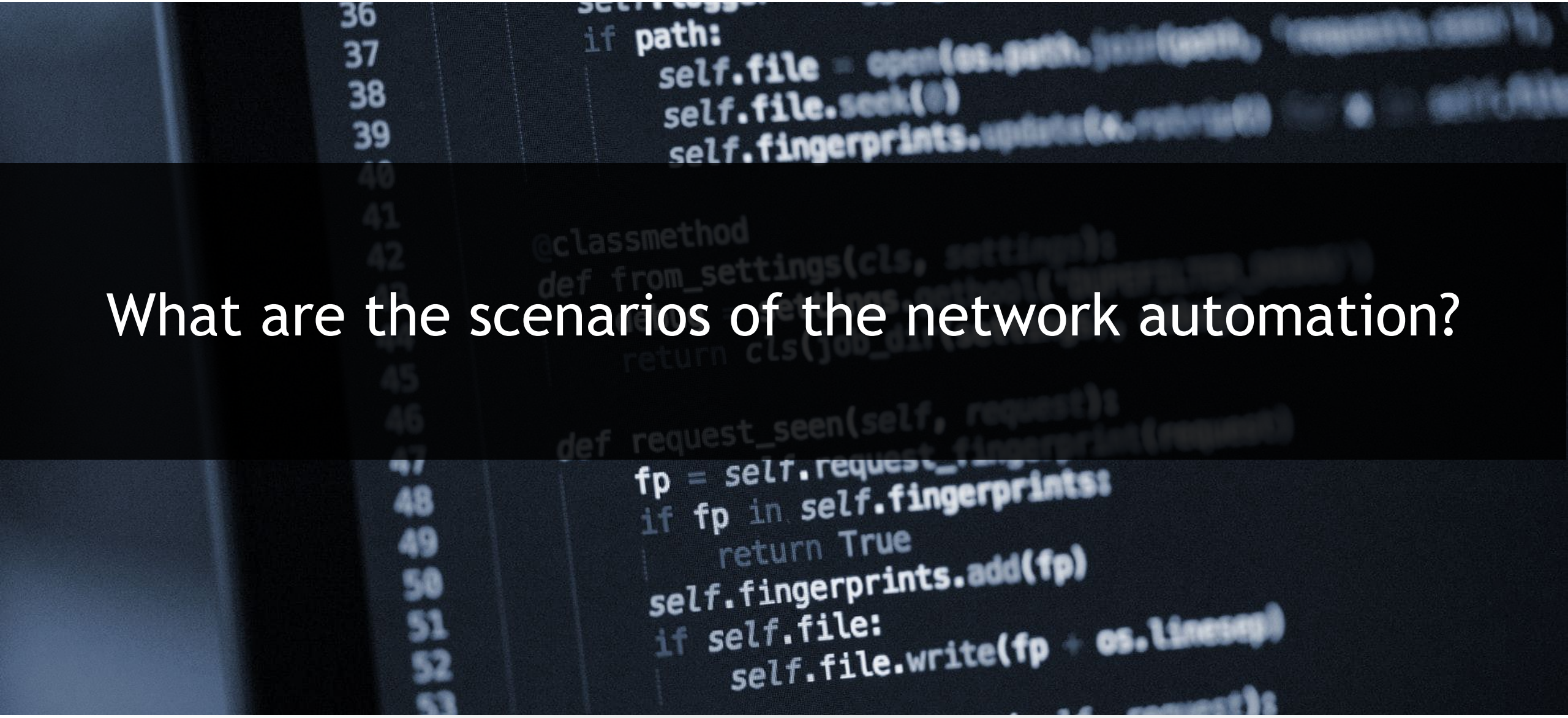
Network technologies:
- Audit and analysis of your network
- Design and testing (Nokia, Arista, Cisco, Cumulus) for service providers and data centres
- Documentation (design, configuration, slide decks)
- Integration and optimisation

Our happy customers

NOKIA, CityFibre, A1, Viasat, telelink, Cisco, Fiber Internet Center (BUILDING PROACTIVE MANAGED FIBER NETWORKS SINCE 2001)

Our expertise

Cisco, NOKIA, paloalto NETWORKS, DELL, {REST}, Ansible, Terraform, influxdb, Kapacitor, docker, OpenConfig, ARISTA, CUMULUS, Mellanox TECHNOLOGIES, WatchGuard, ANSIBLE, python, Grafana, telegraf, netbox, KVM



What are the scenarios of the network automation?

What are the scenarios of the network automation?

Basic...

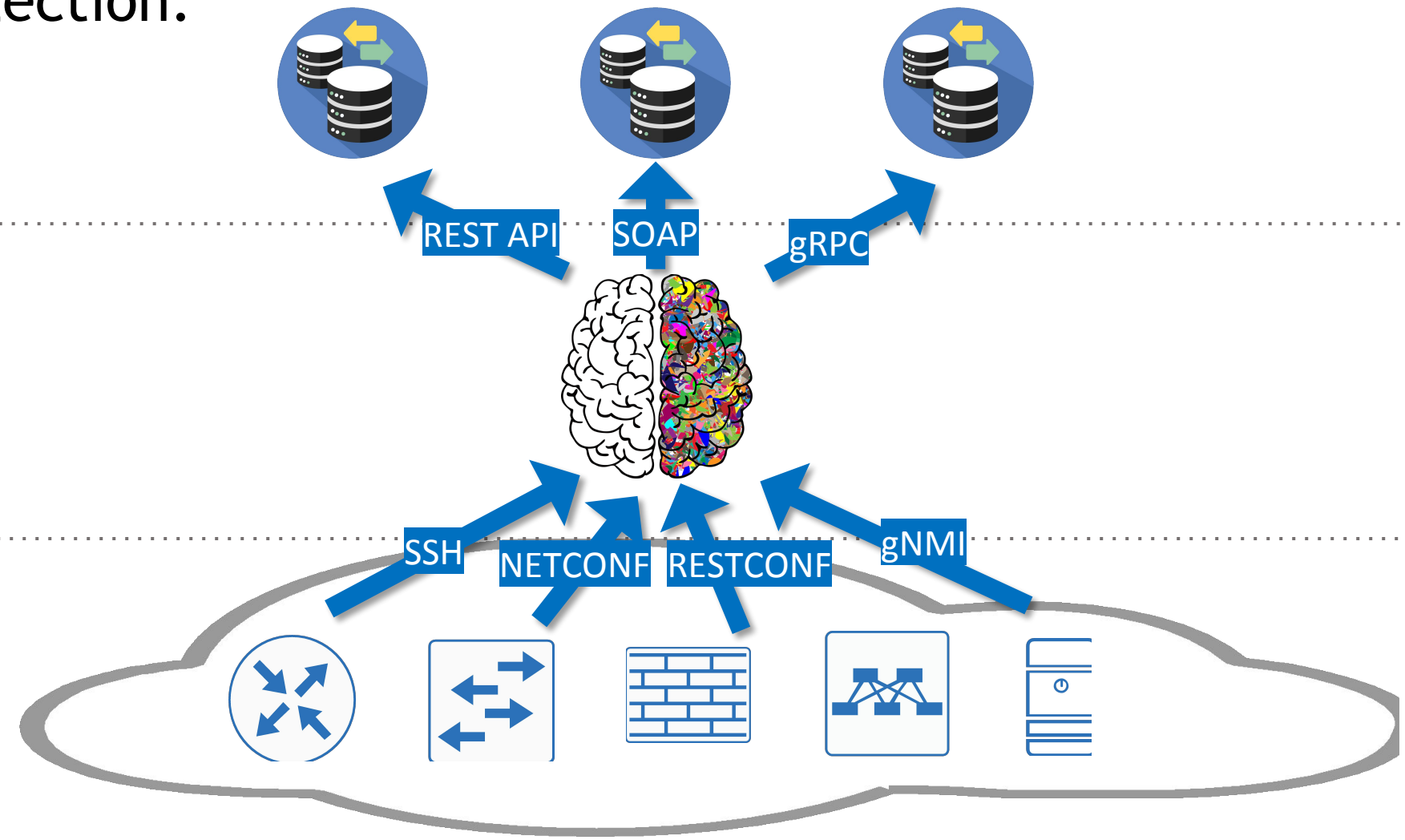
What are the scenarios of the network automation?

Information collection:

OSS/BSS stack

Automation engine

IT/Network Infrastructure



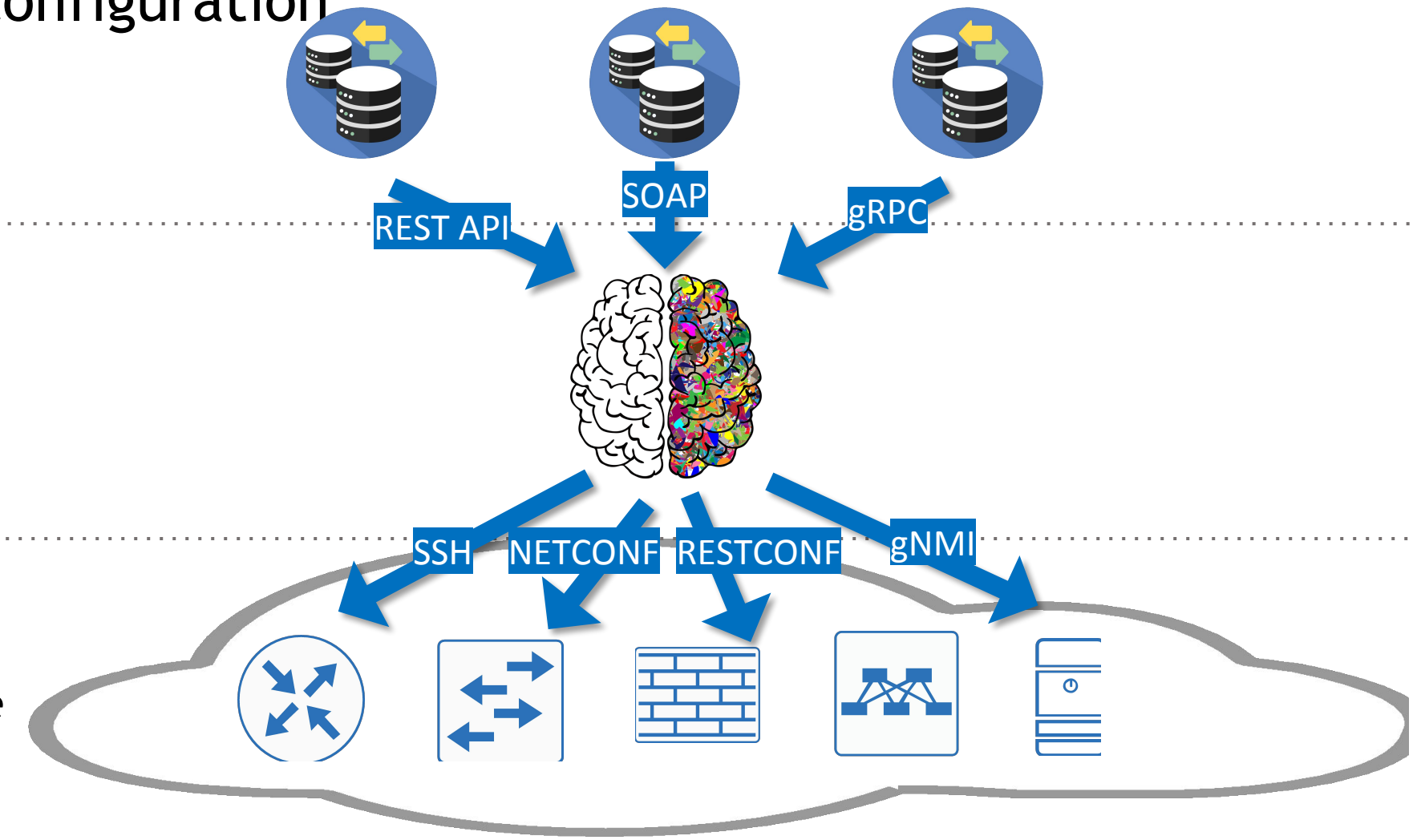
What are the scenarios of the network automation?

Infrastructure configuration:

OSS/BSS stack

Automation engine

IT/Network Infrastructure



What are the scenarios of the network automation?

...Advanced

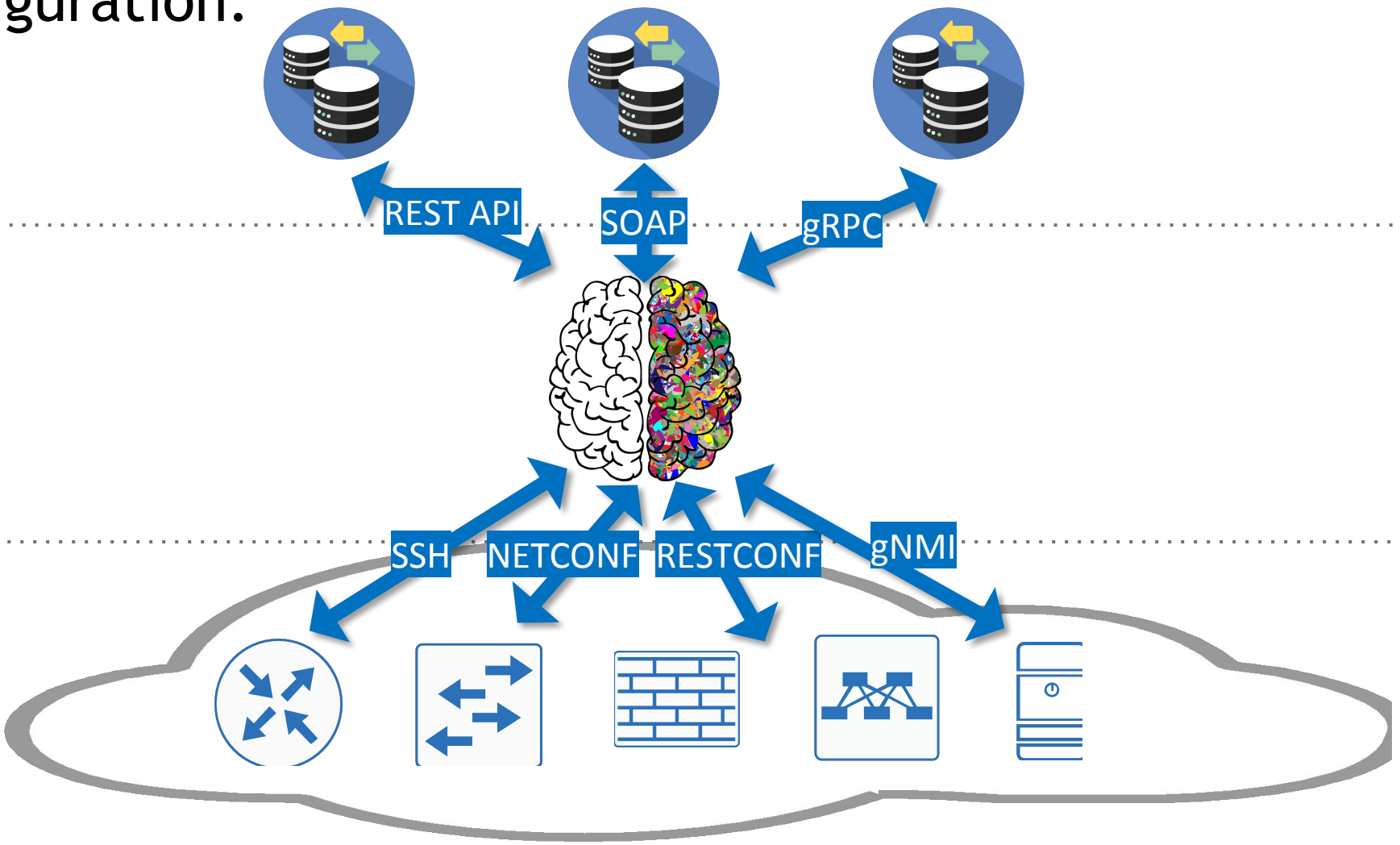
What are the scenarios of the network automation?

Fact-based configuration:

OSS/BSS stack

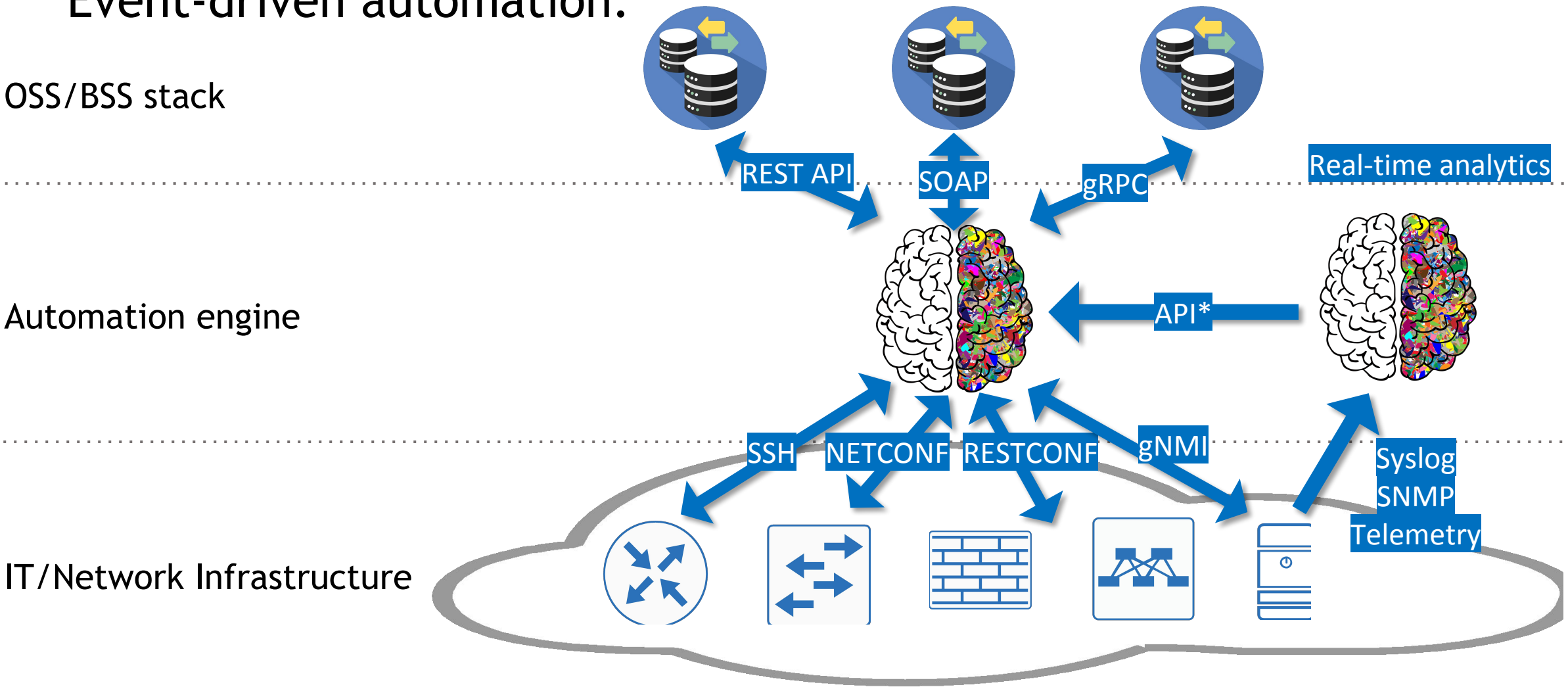
Automation engine

IT/Network Infrastructure



What are the scenarios of the network automation?

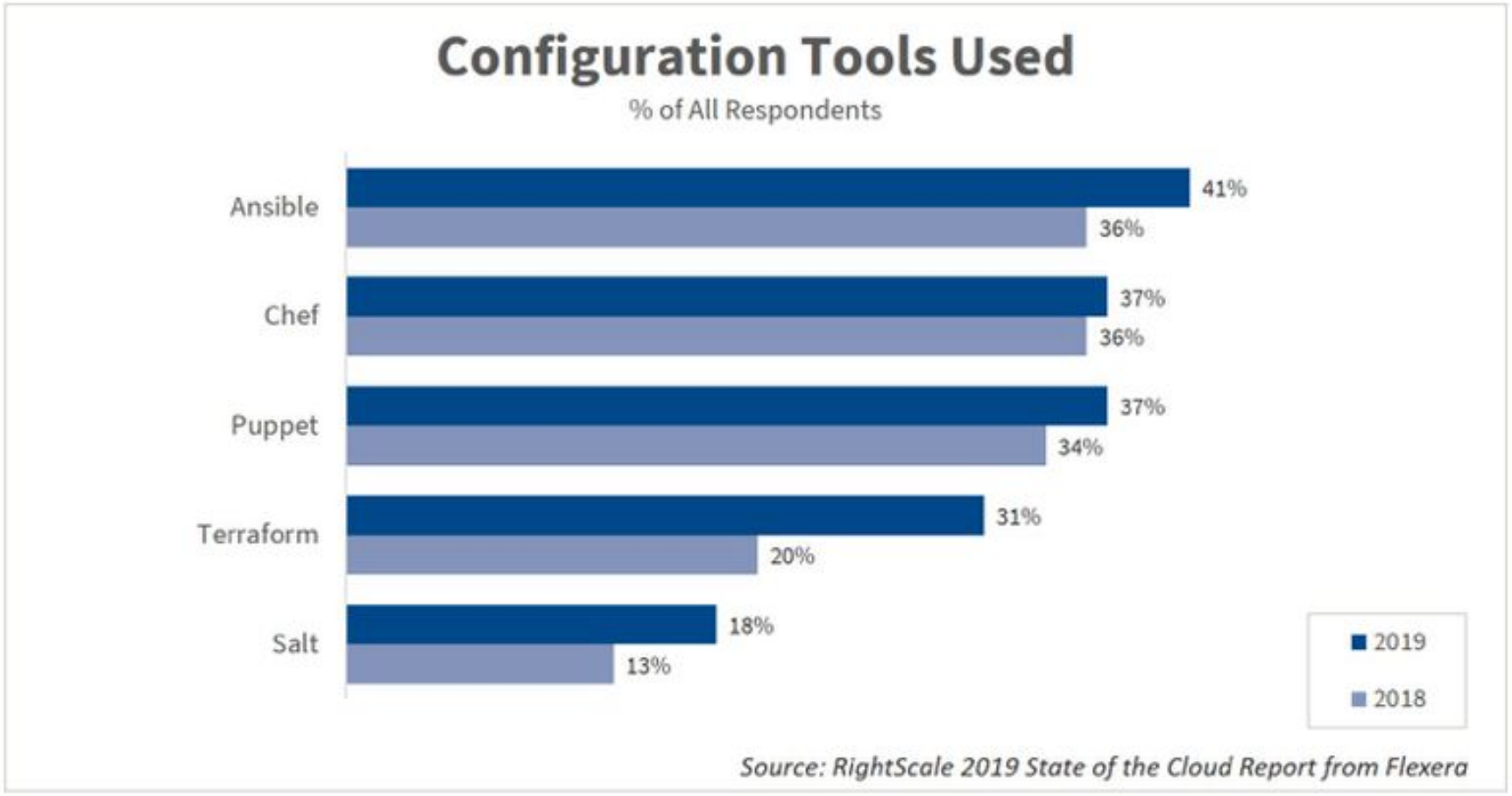
Event-driven automation:



Why Ansible is so popular for network automation?

Why Ansible is so popular for network automation?

Popularity of the configuration management tools:



Why Ansible is so popular for network automation?

Why Ansible is so popular:

Huge amount of modules

Open source

Free of charge

Great community

Agentless

Extended features and paid support (if needed)

Why Ansible is so popular for network automation?

Ansible vs Terraform for network automation:

> 50 vendors supported
~ 1000 modules

https://docs.ansible.com/ansible/2.9/modules/list_of_network_modules.html

7 vendors supported
7 providers

https://www.terraform.io/docs/providers/type/network-index.html

Why Ansible is so popular for network automation?

And not only networks...

Networks

Infrastructure



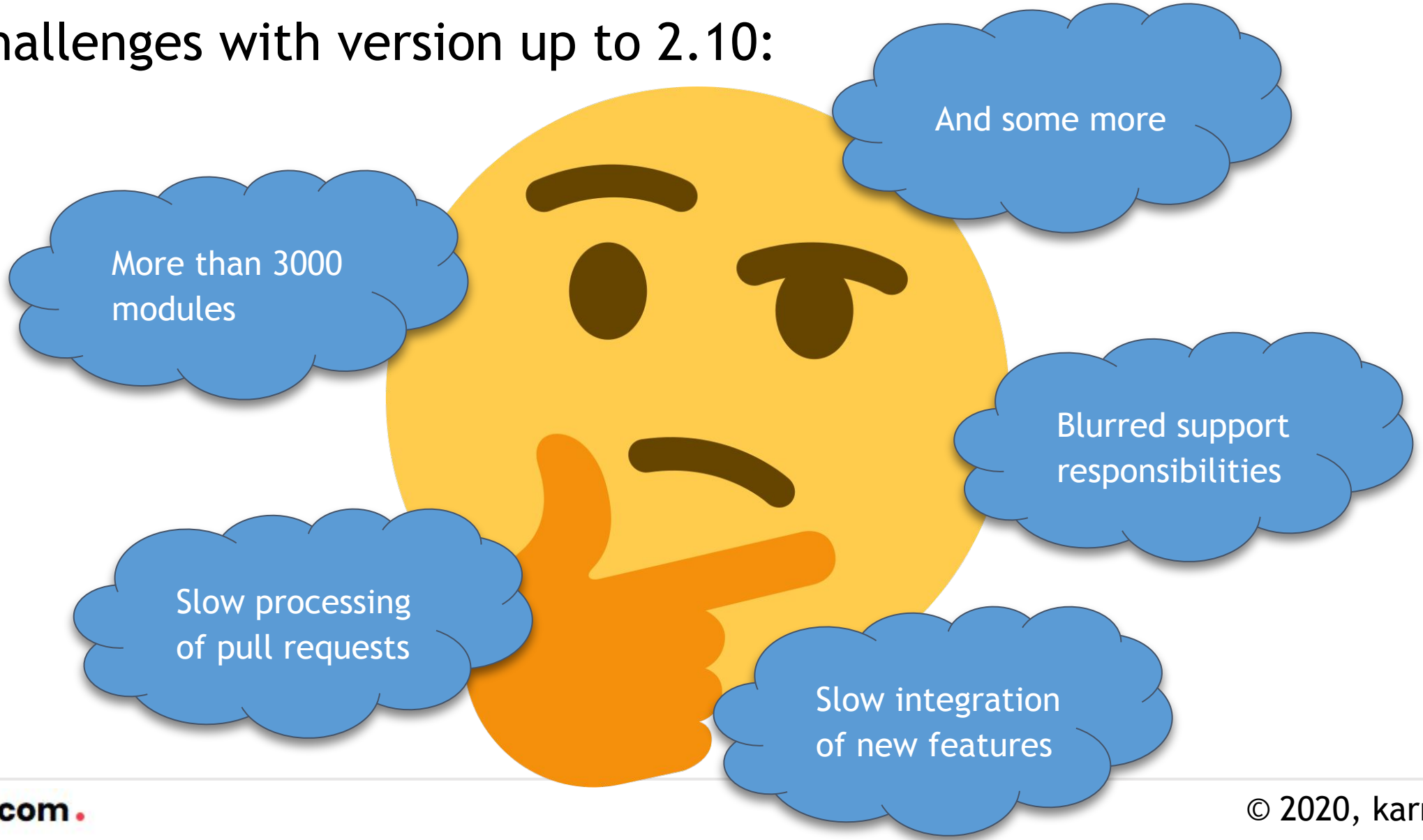
Clouds


Applications

What is new in Ansible 2.10?

What is new in Ansible 2.10?

Challenges with version up to 2.10:



What is new in Ansible 2.10?

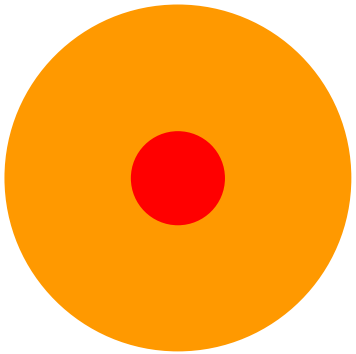
Solution for challenges - divide and conquer:

Core part (Ansible base)

- “Engine only”
- Core functionality
- Long-term stability
- Unbundle non-essential modules

Extended part (Community-driven additions)

- “All extra you need”
- Any functionality you need
- Quick and frequent updates
- Support by collection authors



What is new in Ansible 2.10?

Collection and roles:

Roles

Same as ordinary roles, just easier to distribute and reuse

```
site.yml
webservers.yml
fooservers.yml
roles/
    common/
        tasks/
        handlers/
        files/
        templates/
        vars/
        defaults/
        meta/
    webservers/
        tasks/
        defaults/
        meta/
```

Collections

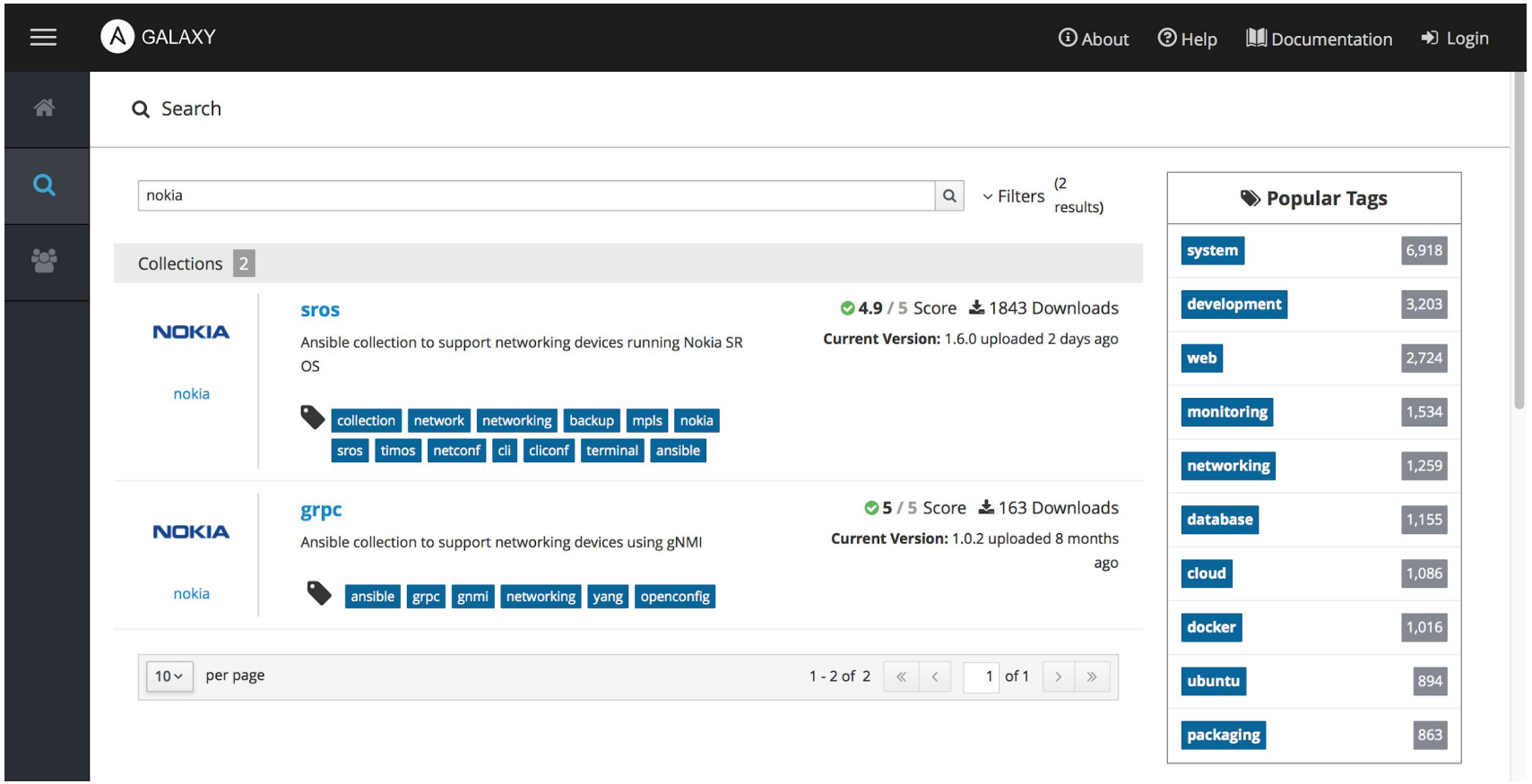
Collections are a distribution format for Ansible content that can include playbooks, roles, modules, and plugins.

```
collection/
├── docs/
├── galaxy.yml
├── plugins/
│   ├── modules/
│   │   └── module1.py
│   ├── inventory/
│   └── .../
├── README.md
├── roles/
│   ├── role1/
│   ├── role2/
│   └── .../
├── playbooks/
│   ├── files/
│   ├── vars/
│   ├── templates/
│   └── tasks/
└── tests/
```

https://docs.ansible.com/ansible/latest/galaxy/user_guide.html

What is new in Ansible 2.10?

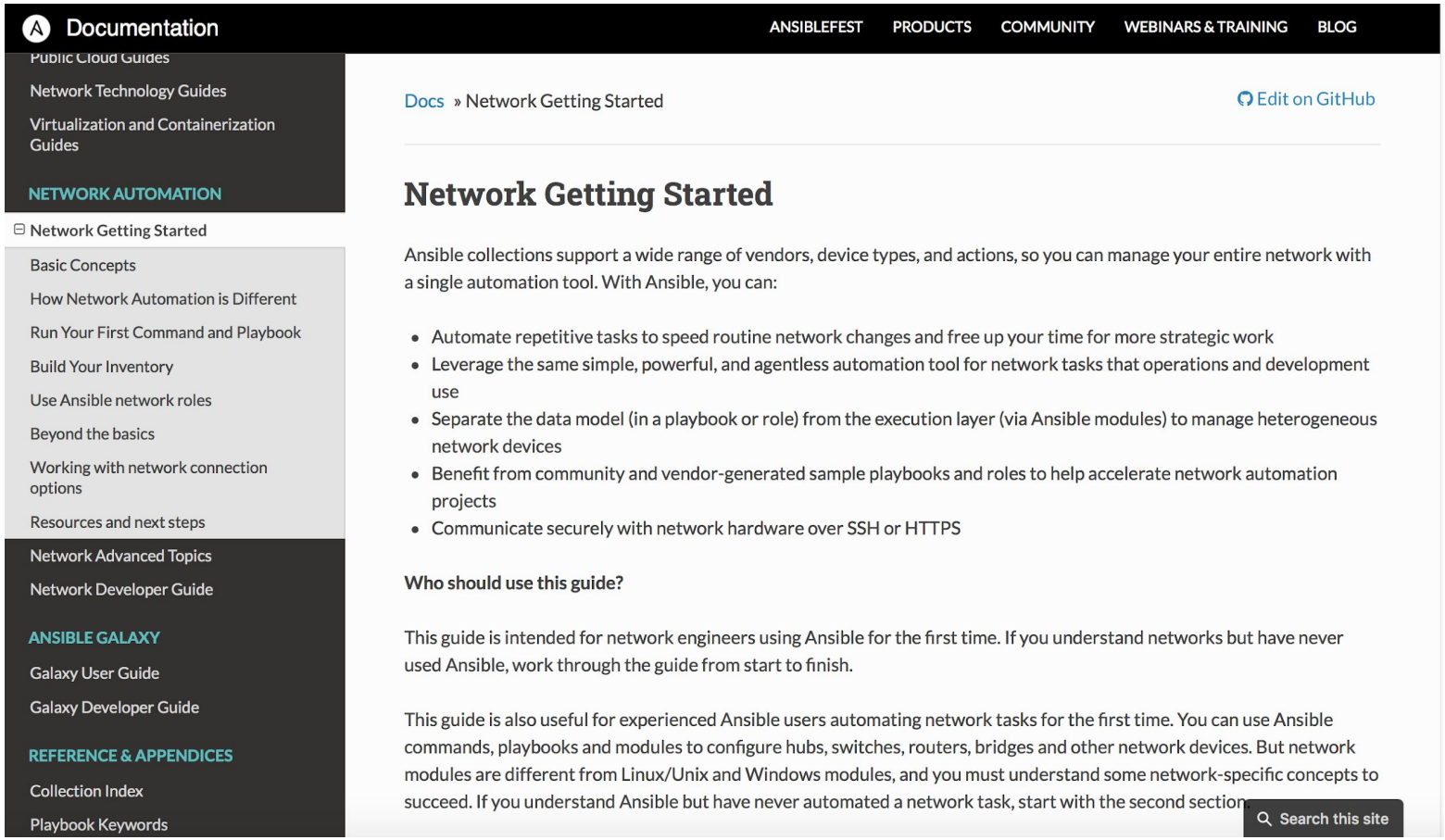
Home for roles and collections - Ansible Galaxy:



http://galaxy.ansible.com

What is new in Ansible 2.10?

New documentation structure:



https://docs.ansible.com/ansible/latest/network/getting_started/index.html

What is new in Ansible 2.10?

New installation approach:

You need first uninstall your current version (if lower than Ansible 2.10)
Install the new package as **ansible-base.**
NOTE: * In CentOS it is available ye only via **pip**.
** multiple modules are not being installed by default (e.g. paramiko, sshpass), so you need to install them via pip or dnf on your own

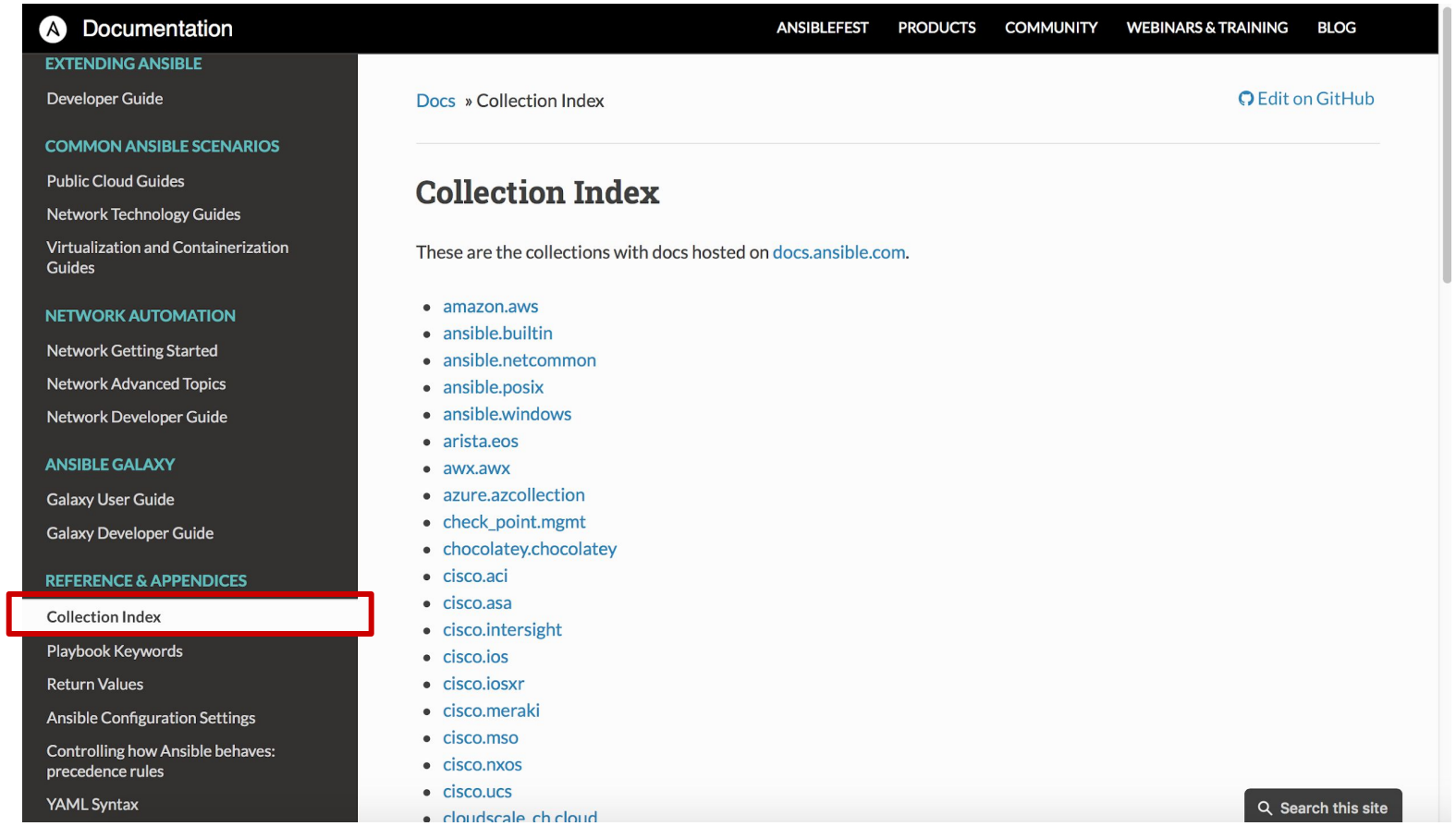
```
# Removing existing Ansible (e.g. 2.9)
$ sudo dnf remove ansible

# Installing Ansible 2.10
$ pip install ansible-base

$ ansible --version
ansible 2.10.2
  config file = None
  configured module search path = ['/home/aaa/.ansible/plugins/modules',
'/usr/share/ansible/plugins/modules']
```

https://docs.ansible.com/ansible/latest/installation_guide/intro_installation.html

What is new in Ansible 2.10?

New naming conventions (modules → collections):

There are no modules, only collections now



https://docs.ansible.com/ansible/latest/collections/index.html

What is new in Ansible 2.10?

New naming conventions (network operating systems):

Settings by Platform

		`ansible_connection:` settings available			
Network OS	`ansible_network_os:`	network_cli	netconf	httpapi	local
Arista EOS [†]	`arista.eos.eos`	✓		✓	✓
Ciena SAOS6	`ciena.saos6.saos6`	✓			✓
Cisco ASA [†]	`cisco.asa.asa`	✓			✓
Cisco IOS [†]	`cisco.ios.ios`	✓			✓
Cisco IOS XR [†]	`cisco.iosxr.iosxr`	✓			✓
Cisco NX-OS [†]	`cisco.nxos.nxos`	✓		✓	✓
Cloudengine OS	`community.network.ce`	✓	✓		✓
Dell OS6	`dellemc.os6.os6`	✓			✓
Dell OS9	`dellemc.os9.os9`	✓			✓
Dell OS10	`dellemc.os10.0s10`	✓			✓
Ericsson ECCLI	`community.network.eric_eccli`	✓			✓
Extreme EXOS	`community.network.exos`	✓		✓	

https://docs.ansible.com/ansible/latest/network/user_guide/platform_index.html

What is new in Ansible 2.10?

New and old naming conventions (plugins):

Use built-in documentation to get information about plugins

```
(venv) [aaa@nnat new_ansible]$ ansible-doc -t connection -l
ansible.netcommon.httpapi     Use httpapi to run command on network appliances
ansible.netcommon.napalm      Provides persistent connection using NAPALM
ansible.netcommon.netconf     Provides a persistent connection using the netconf
protocol
ansible.netcommon.network_cli Use network_cli to run command on network appliances
ansible.netcommon.persistent  Use a persistent unix socket for connection
local                         execute on controller
paramiko_ssh                  Run tasks via python ssh (paramiko)
psrp                          Run tasks over Microsoft PowerShell Remoting Protocol
ssh                           connect via ssh client binary
winrm                         Run tasks over Microsoft's WinRM
```

https://docs.ansible.com/ansible/latest/plugins/connection.html#plugin-list

How the convert your playbooks from Ansible 2.* to 2.10?

How the convert your playbooks from Ansible 2.* to 2.10?

Step #1: Check if you playbook is still working (1)

EXAMPLE

```
$ cat legacy.yml
---
- name: ANSIBLE 2.9 PLAYBOOK FORMAT
  hosts: net
  connection: network_cli
  gather_facts: no

  tasks:
    - name: COLLECTING INFORMATION FROM {{ ansible_network_os }}
      eos_command:
        commands:
          - show hostname
      register: temp_vars

    - name: VALIDATING INFO
      debug:
        msg: "{{ temp_vars }}"
...
```

How the convert your playbooks from Ansible 2.* to 2.10?

Step #1: Check if you playbook is still working (2)

```
$ ansible-playbook legacy.yml -i hosts
PLAY [ANSIBLE 2.9 PLAYBOOK FORMAT] *********************************************************************

TASK [COLLECTING INFORMATION FROM eos] *****************************************************************
ok: [EOS425]

TASK [SECOND TEST TASK] ********************************************************************************
ok: [EOS425] => {
    "msg": {
        "ansible_facts": {
            "discovered_interpreter_python": "/usr/libexec/platform-python"
        },
        "changed": false,
        "failed": false,
        "stdout": [
            "Hostname: EOS425\nFQDN:     EOS425"
        ],
        "stdout_lines": [
            [
                "Hostname: EOS425",
                "FQDN:     EOS425"
            ]
        ]
    }
}

PLAY RECAP *********************************************************************************************
EOS425                     : ok=2    changed=0    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
```

How the convert your playbooks from Ansible 2.* to 2.10?

Step #2: Check what is the name of network operating system

Ansible 2.9

```
$ cat host_vars/EOS425.yml
---
ansible_ssh_host: 10.0.2.100
ansible_user: aaa
ansible_password: aaa
ansible_network_os: eos
...
```

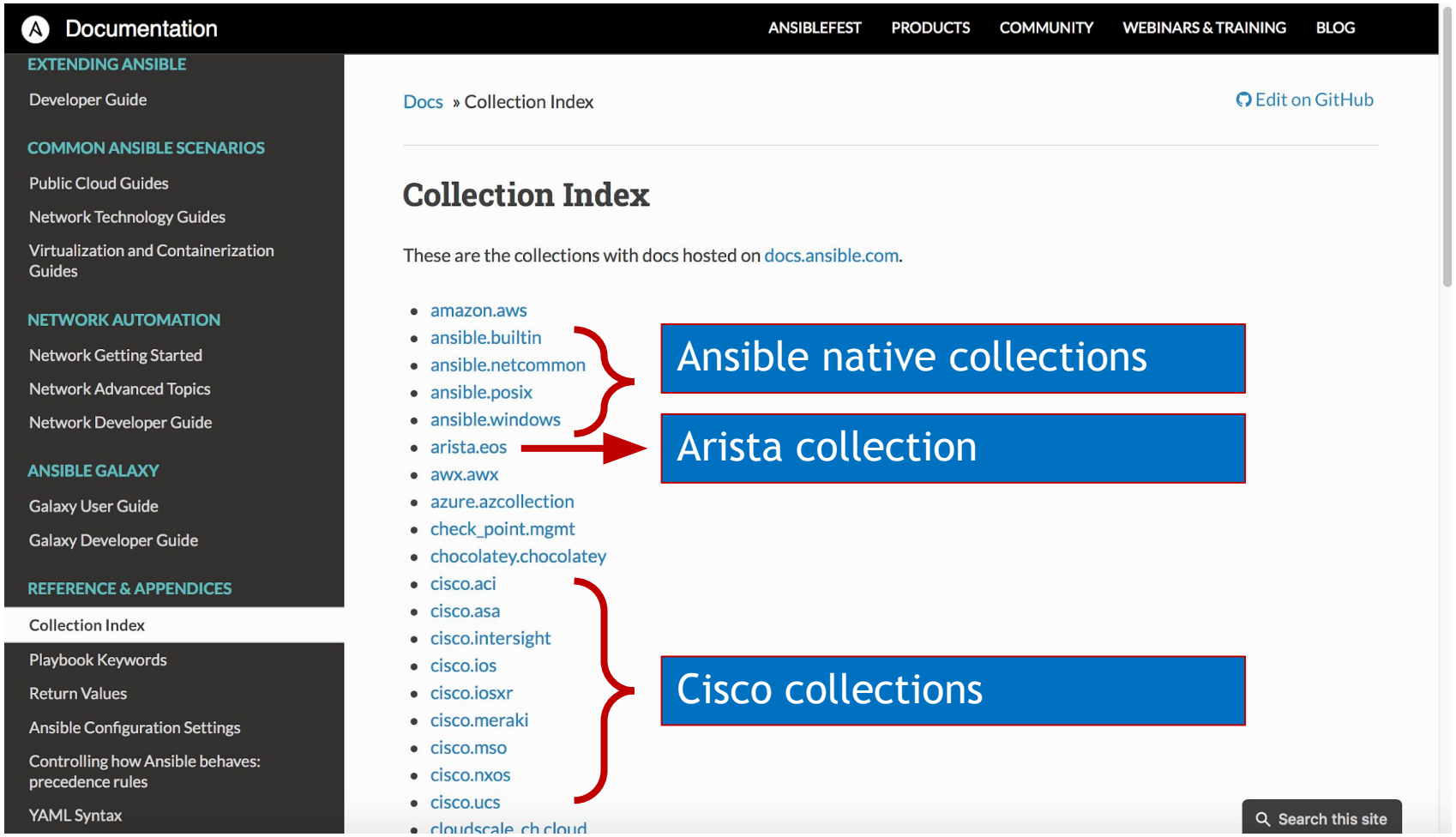
Ansible 2.10

```
$ cat host_vars/EOS425.yml
---
ansible_ssh_host: 10.0.2.100
ansible_user: aaa
ansible_password: aaa
ansible_network_os: arista.eos.eos
...
```

Collection namespace

How the convert your playbooks from Ansible 2.* to 2.10?

Step #3: Check which collections are needed



Looking further? Go to: http://galaxy.ansible.com

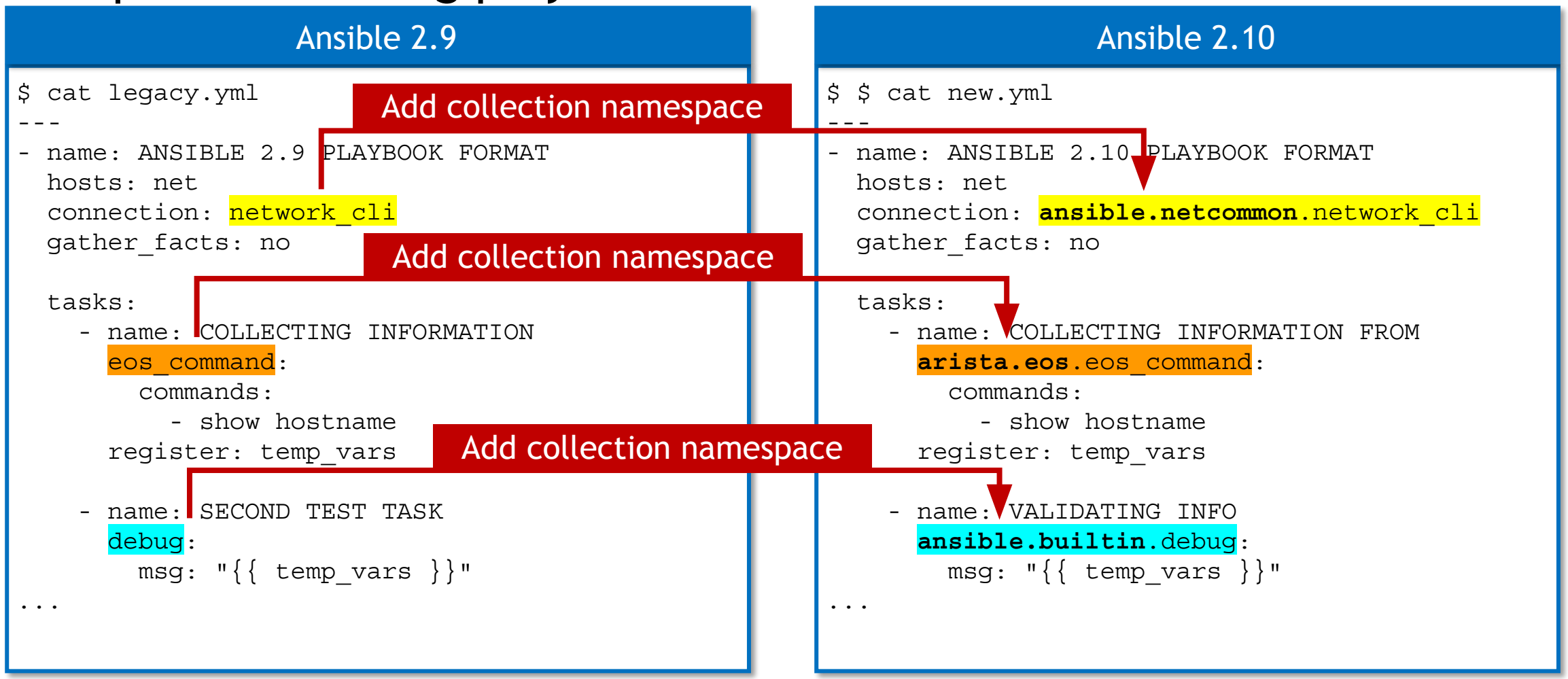
How the convert your playbooks from Ansible 2.* to 2.10?

Step #4: Check if the collection is available or install it

```
# Removing existing Ansible (e.g. 2.9)
$ ls -l ~/.ansible/collections/ansible_collections/
total 0
drwxrwxr-x. 3 aaa aaa 23 Jul 23 22:26 ansible
drwxrwxr-x. 3 aaa aaa 17 Jul 23 22:26 arista
drwxrwxr-x. 3 aaa aaa 19 Oct 24 22:23 cisco
drwxrwxr-x. 3 aaa aaa 18 Jul 21 21:10 nokia


# Installing the collection
$ ansible-galaxy collection install arista.eos
Starting galaxy collection install process
Process install dependency map
Starting collection install process
Skipping 'arista.eos' as it is already installed
```

How the convert your playbooks from Ansible 2.* to 2.10?

Step #5: Rewriting playbook



How the convert your playbooks from Ansible 2.* to 2.10?

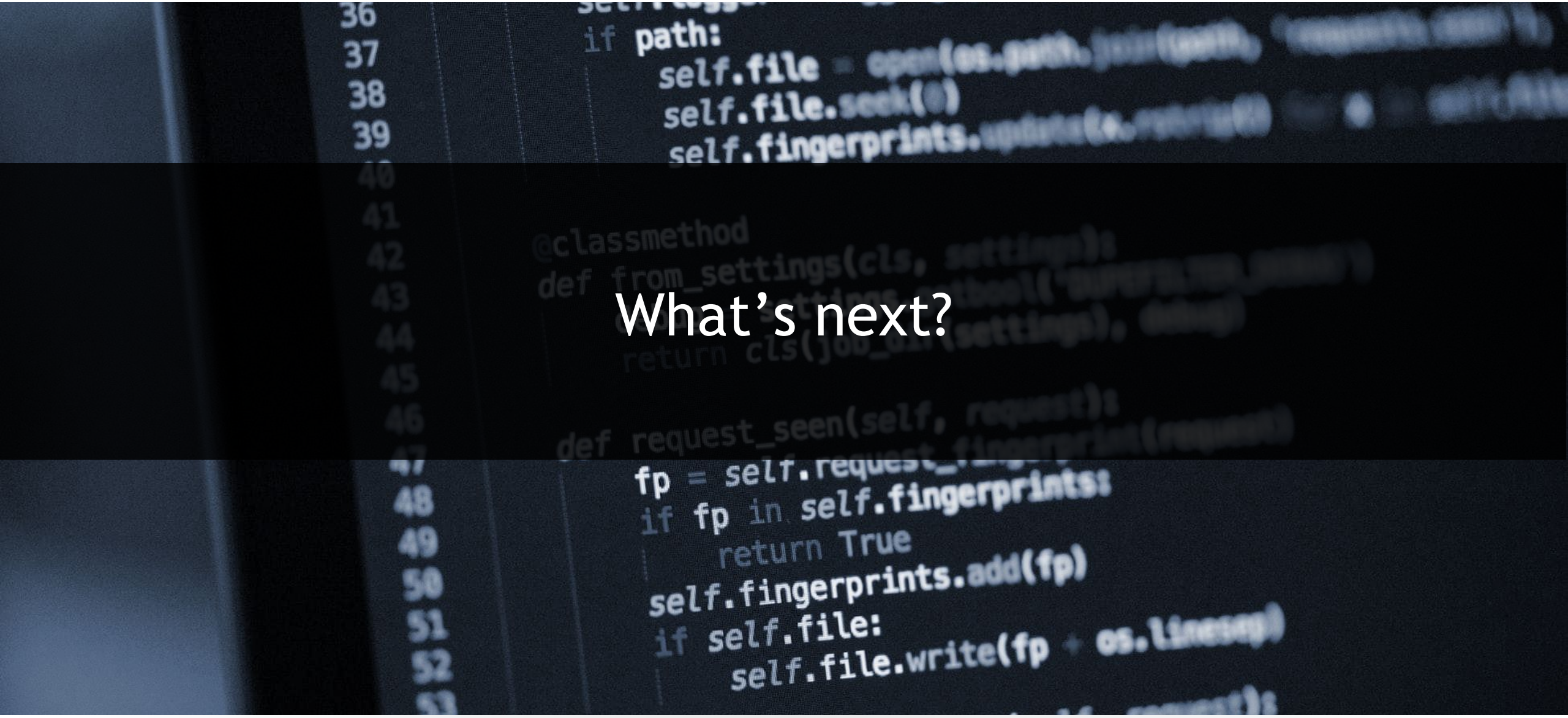
Step #6: Running new playbook

```
$ ansible-playbook new.yml -i hosts
PLAY [ANSIBLE 2.10 PLAYBOOK FORMAT] ********************************************************************************

TASK [COLLECTING INFORMATION FROM arista.eos.eos] ******************************************************************
ok: [EOS425]

TASK [VALIDATING INFO] *********************************************************************************************
ok: [EOS425] => {
    "changed": false,
    "msg": {
        "ansible_facts": {
            "discovered_interpreter_python": "/usr/libexec/platform-python"
        },
        "changed": false,
        "failed": false,
        "stdout": [
            "Hostname: EOS425\nFQDN:     EOS425"
        ],
        "stdout_lines": [
            [
                "Hostname: EOS425",
                "FQDN:     EOS425"
            ]
        ]
    }
}

PLAY RECAP *********************************************************************************************************
EOS425                     : ok=2    changed=0    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
```

How the convert your playbooks from Ansible 2.* to 2.10?

[LIVE DEMO] Converting Playbook from Ansible 2.9 to 2.10

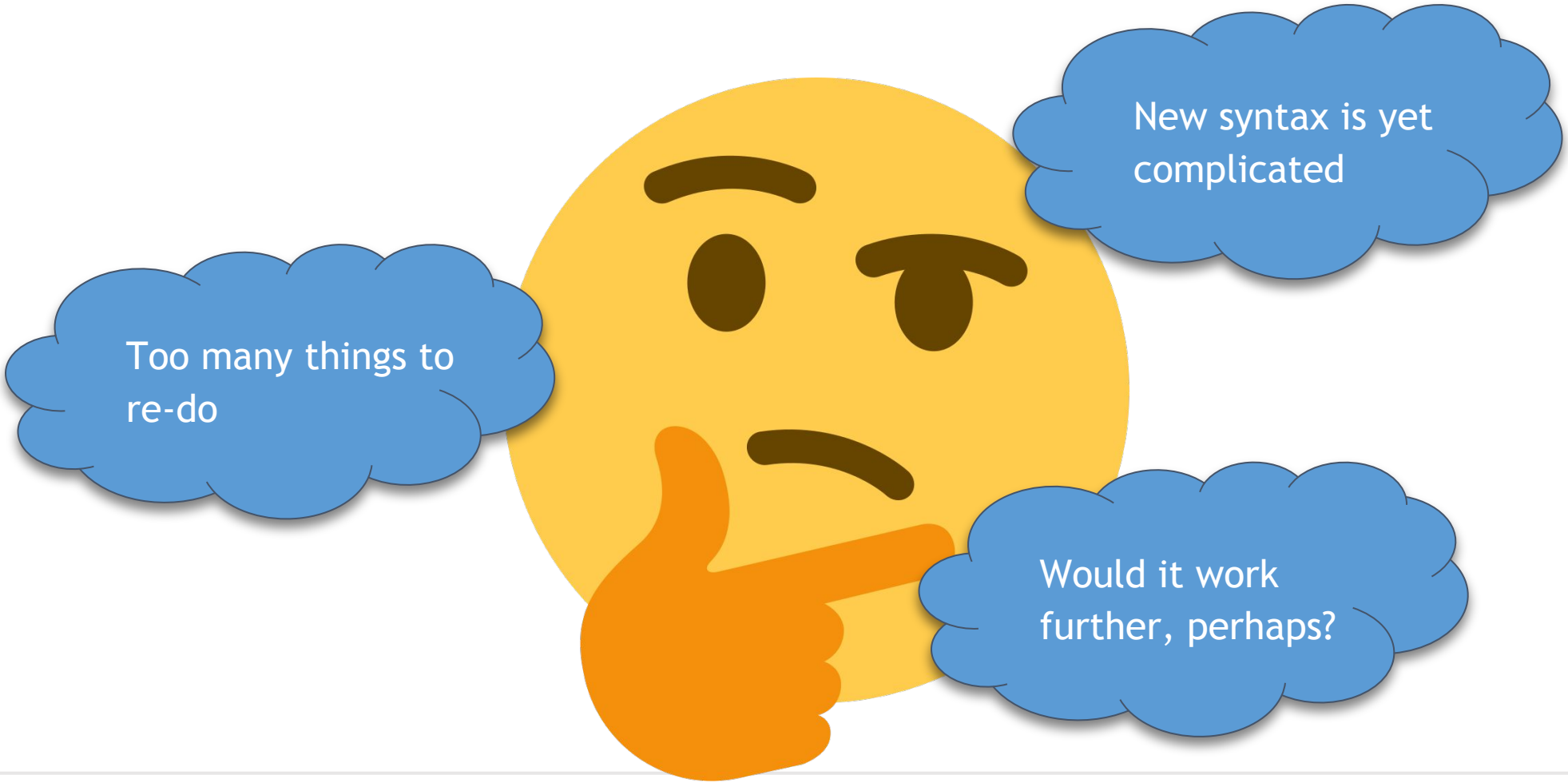
Time to get hands dirty!



What's next?

What’s next?

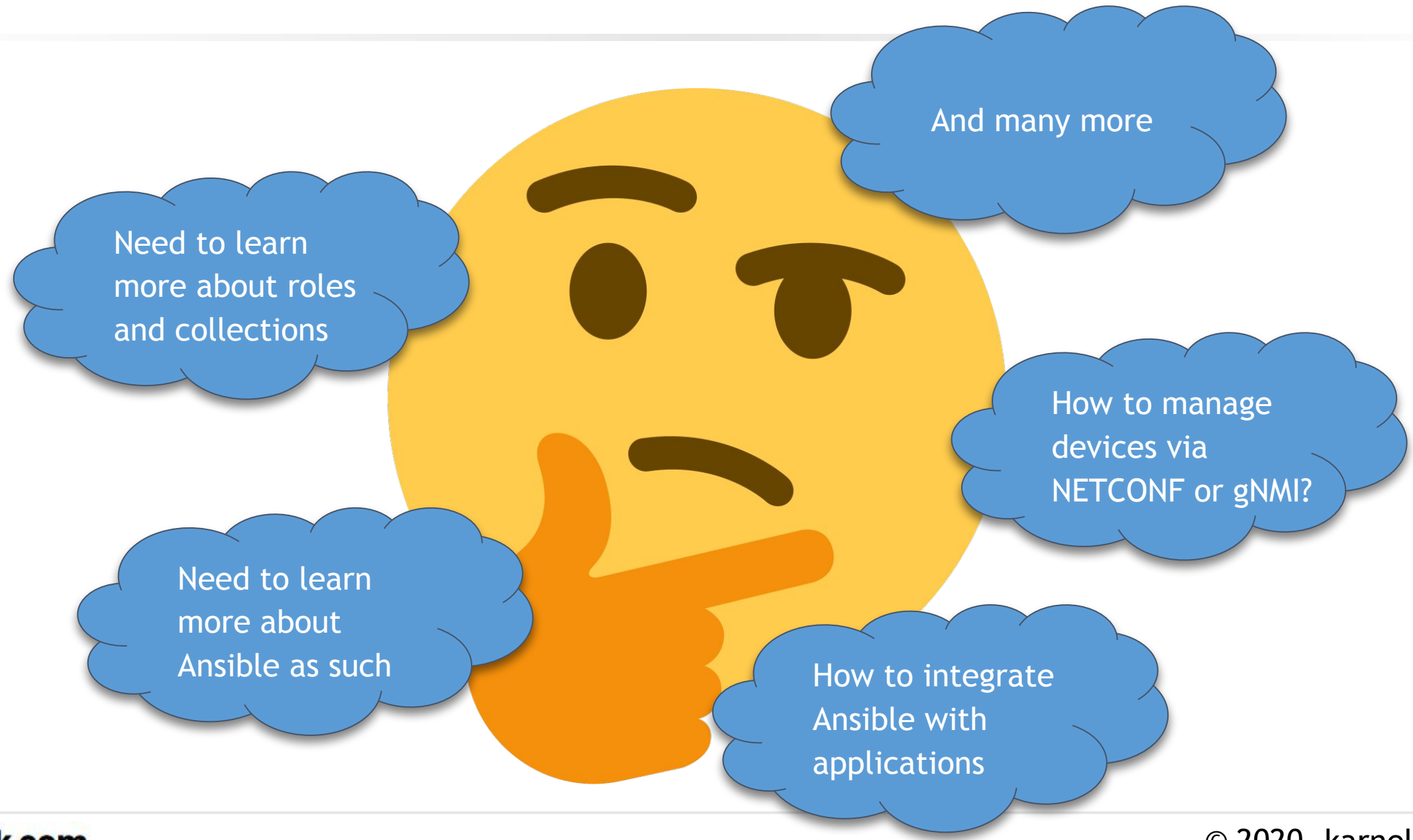
Challenge - Should I change now, if playbook still works



What’s next?

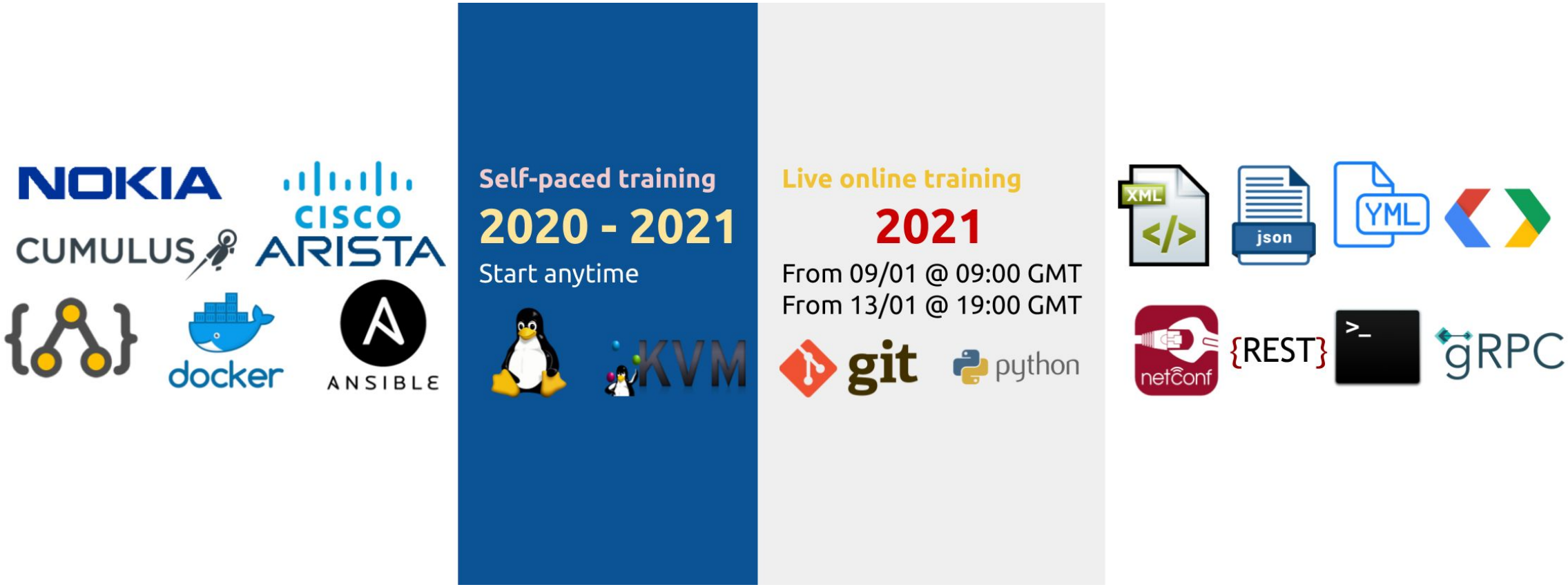
Challenge - Start changes now

What's next?



What's next?

Join us to learn much more about network automaton:



https://training.karneliuk.com

Thank you very much for your attention!

You can reach us on:

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Phone: +44 7752 159339

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