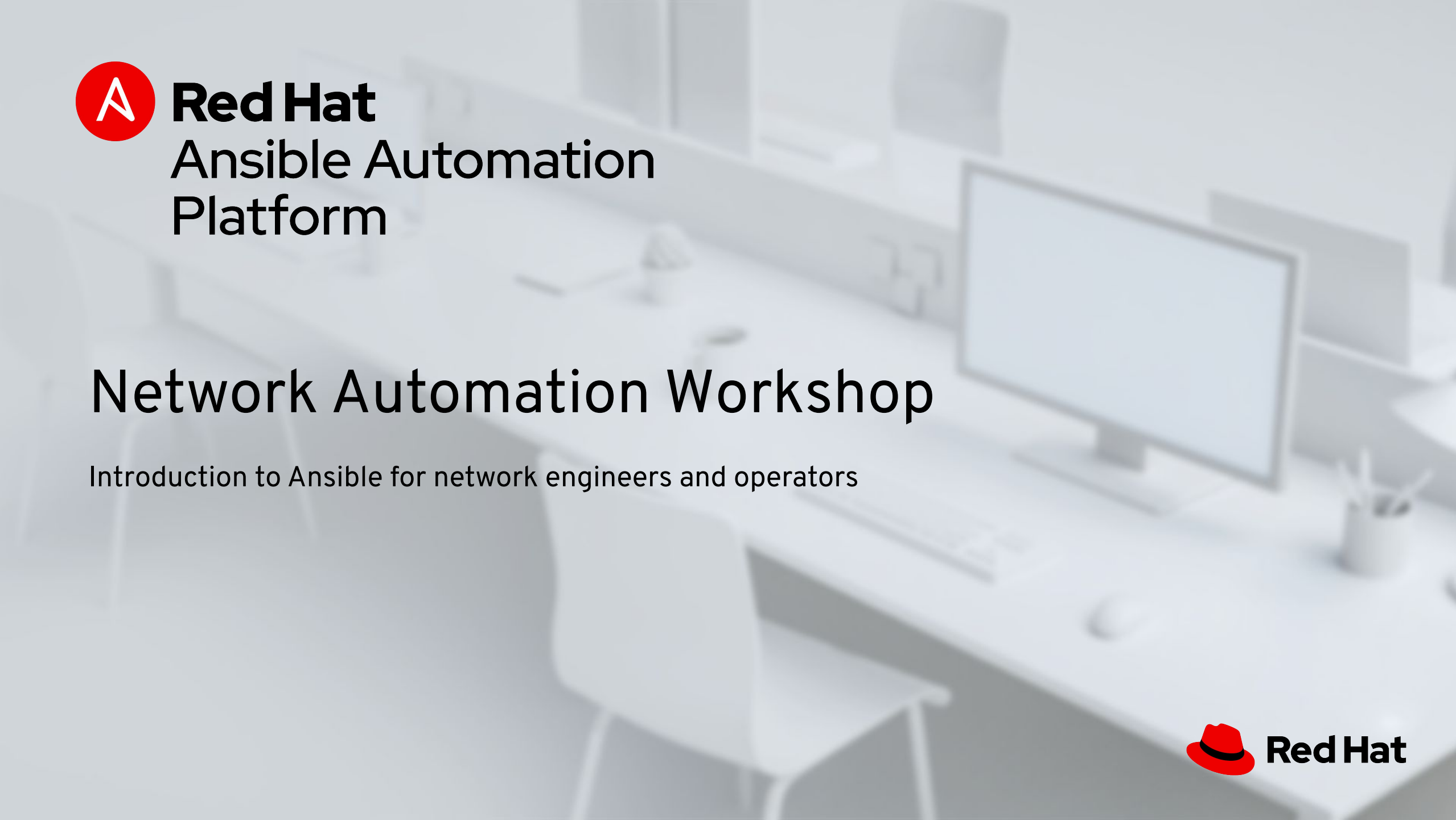

Red Hat
Ansible Automation
Platform

Network Automation Workshop

Introduction to Ansible for network engineers and operators

Red Hat

Housekeeping

- Timing
- Breaks
- Takeaways

What you will learn

- Introduction to Ansible automation
- How Ansible works for network automation
- Understanding Ansible modules and playbooks
- Executing Ansible playbooks to:
  - Make configuration changes
  - Gather information (Ansible facts)
- Using Jinja to template network configurations
- Using Ansible Tower to scale automation to the enterprise

Introduction

Topics Covered:

- What is the Ansible Automation Platform?
- What can it do?
- Why Network Automation?
- How Ansible Network Automation works

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Platform

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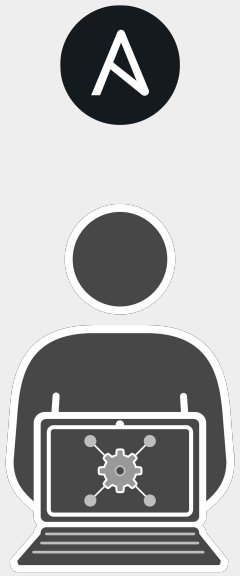


Automation happens when one person meets a problem they never want to solve again

Red Hat

Teams are automating...

Lines Of Business

Network

Security

Operations

Developers

Infrastructure

Ad-hoc Automation is happening in silos

Developers → Ansible used in silo

Security → DIY scripting automation

Infrastructure → Open source config management tool

Network → Proprietary vendor supplied automation

Is organic automation enough?

Why Ansible?

Simple

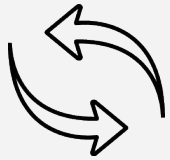
Human readable automation

No special coding skills needed

Tasks executed in order

Usable by every team

Get productive quickly



Powerful

App deployment

Configuration management

Workflow orchestration

Network automation

Orchestrate the app lifecycle

Agentless

Agentless architecture

Uses OpenSSH & WinRM

No agents to exploit or update

Get started immediately

More efficient & more secure

Red Hat

What can I do using Ansible?

Automate the deployment and management of your entire IT footprint.

Do this...

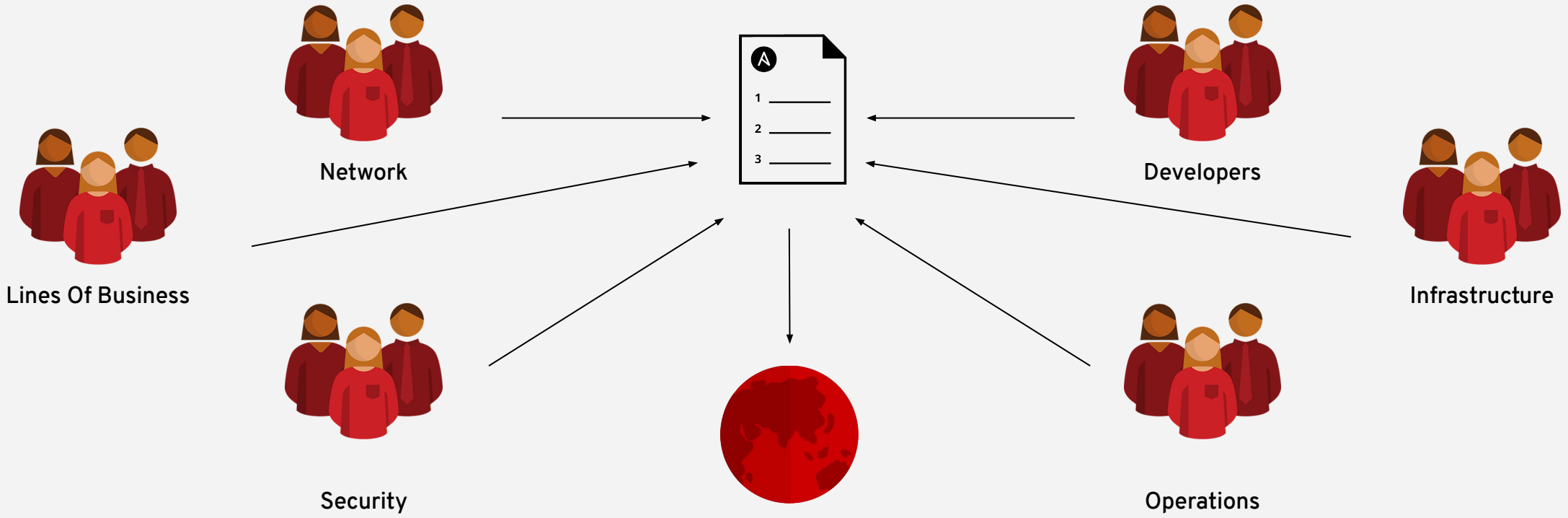
Orchestration	Configuration Management	Application Deployment	Provisioning	Continuous Delivery	Security and Compliance

On these...

Firewalls	Load Balancers	Applications	Containers	Clouds
Servers	Infrastructure	Storage	Network Devices	**And more...**

Red Hat

When automation crosses teams, you need an automation platform



Red Hat Ansible Automation Platform

Network | Lines of business | Security |  | Operations | Infrastructure | Developers

Engage	**Ansible SaaS:** Engage users with an automation focused experience
Scale	**Ansible Tower:** Operate & control at scale
Create	**Ansible Engine:** Universal language of automation

Fueled by an open source community

Red Hat

Ansible automates technologies you use

Time to automate is measured in minutes

Cloud

AWS
Azure
Digital Ocean
Google
OpenStack
Rackspace
+more

Operating Systems

RHEL
Linux
Windows
+more

Virt & Container

Docker
VMware
RHV
OpenStack
OpenShift
+more

Storage

Netapp
Red Hat Storage
Infinidat
+more

Windows

ACLs
Files
Packages
IIS
Regedits
Shares
Services
Configs
Users
Domains
+more

Network

A10
Arista
Aruba
Cumulus
Bigswitch
Cisco
Dell
Extreme
F5
Lenovo
MikroTik
Juniper
OpenSwitch
+more

Security

Checkpoint
Cisco
CyberArk
F5
Fortinet
Juniper
IBM
Palo Alto
Snort
+more

Monitoring

Dynatrace
Datadog
LogicMonitor
New Relic
Sensu
+more

Devops

Jira
GitHub
Vagrant
Jenkins
Slack
+more

Red Hat Ansible Tower

by the numbers:

94% Reduction in recovery time following a security incident

84% Savings by deploying workloads to generic systems appliances using Ansible Tower

67% Reduction in man hours required for customer deliveries

Financial summary:

146%

ROI on Ansible Tower

<3 MONTHS

Payback on Ansible Tower

SOURCE: *"The Total Economic Impact™ Of Red Hat Ansible Tower, a June 2018 commissioned study conducted by Forrester Consulting on behalf of Red Hat."*
redhat.com/en/engage/total-economic-impact-ansible-tower-20180710

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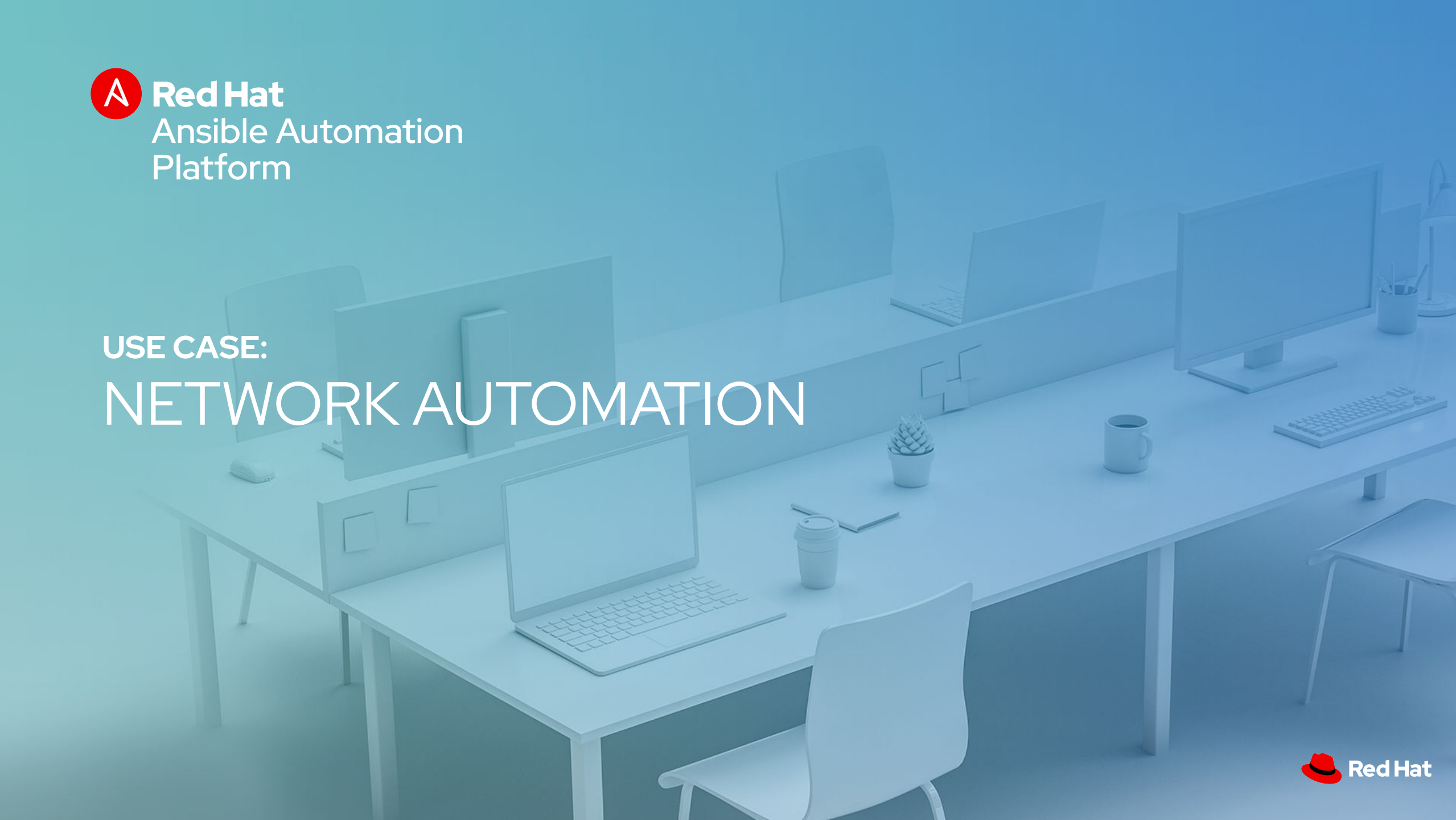


USE CASE:

NETWORK AUTOMATION

Red Hat

Source: Gartner, *Look Beyond Network Vendors for Innovation.* January 2018


NOT AS SIMPLE ANYMORE
A 3

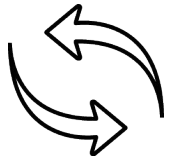
WHY ANSIBLE?
(for networks)

SIMPLE

For operators, not developers

Download and go

Existing knowledge reuse



POWERFUL

Connect via Plugins

Easy platform enablement

Leverage Linux tools

AGENTLESS

Ideal for network gear

No agents to exploit or update

Standards-based SSH

ANSIBLE NETWORK AUTOMATION

65+
Network
Platforms

1000+
Network
Modules

15*
Galaxy
Network Roles

ansible.com/for/networks
galaxy.ansible.com/ansible-network

**Roles developed and maintained by Ansible Network Engineering*

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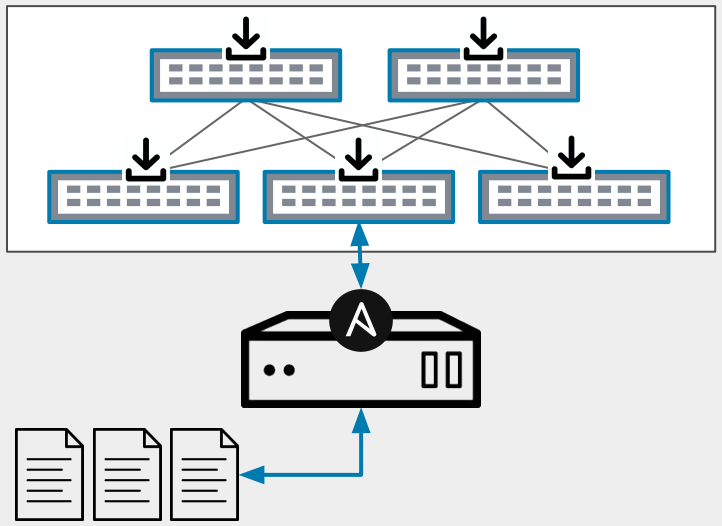
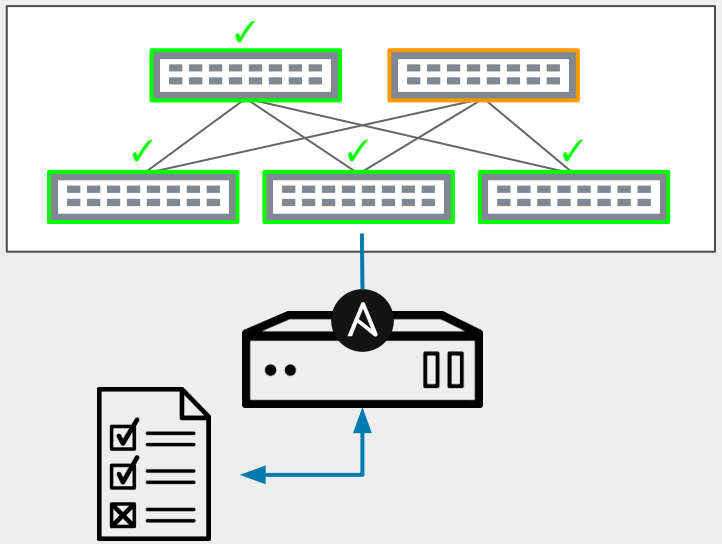
Common use cases



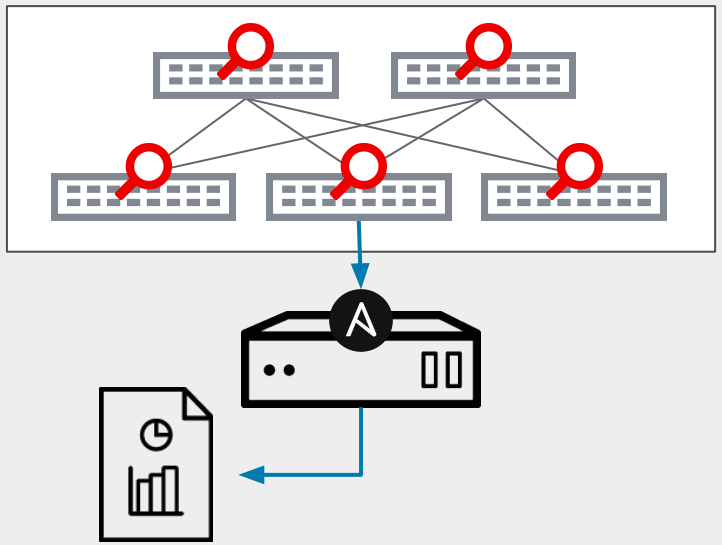
Backup and Restore

- Schedule backups
- Restore from any timestamp
- Build workflows that rollback



Configuration Compliance

- Check configuration standards
- Track configuration drift
- Enforce configuration policy



Dynamic Documentation

- Build reports
- Grab software versions, MTU, interfaces status
- Audit system services and other common config

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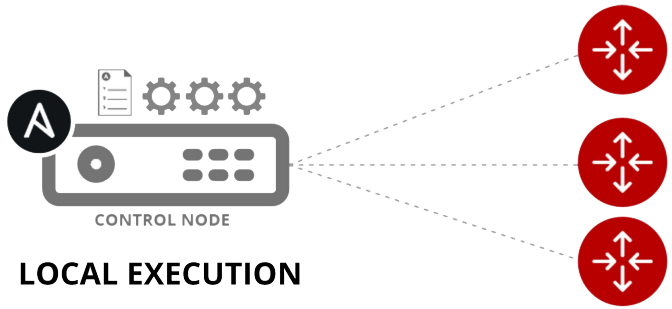
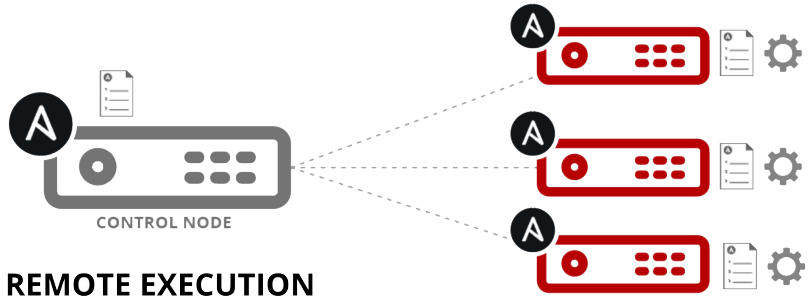
How Ansible Network Automation works

Module code is executed locally on the control node



NETWORKING DEVICES

Module code is copied to the managed node, executed, then removed



LINUX/WINDOWS HOSTS

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Platform

Red Hat Ansible Engine:

Universal language of automation

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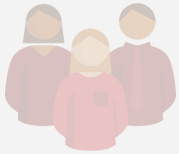
Red Hat Ansible Automation Platform

Network | Lines of business | Security | Operations | Infrastructure | Developers



Engage — **Ansible SaaS:** Engage users with an automation focused experience

Scale — **Ansible Tower:** Operate & control at scale

Create

Simple	**Powerful**	**Agentless**
Human readable automation	Thousands of integrations	No agents to exploit or update

Fueled by an open source community

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Exercise 1

Topics Covered:

- Understanding Inventory
- An example Ansible Playbook

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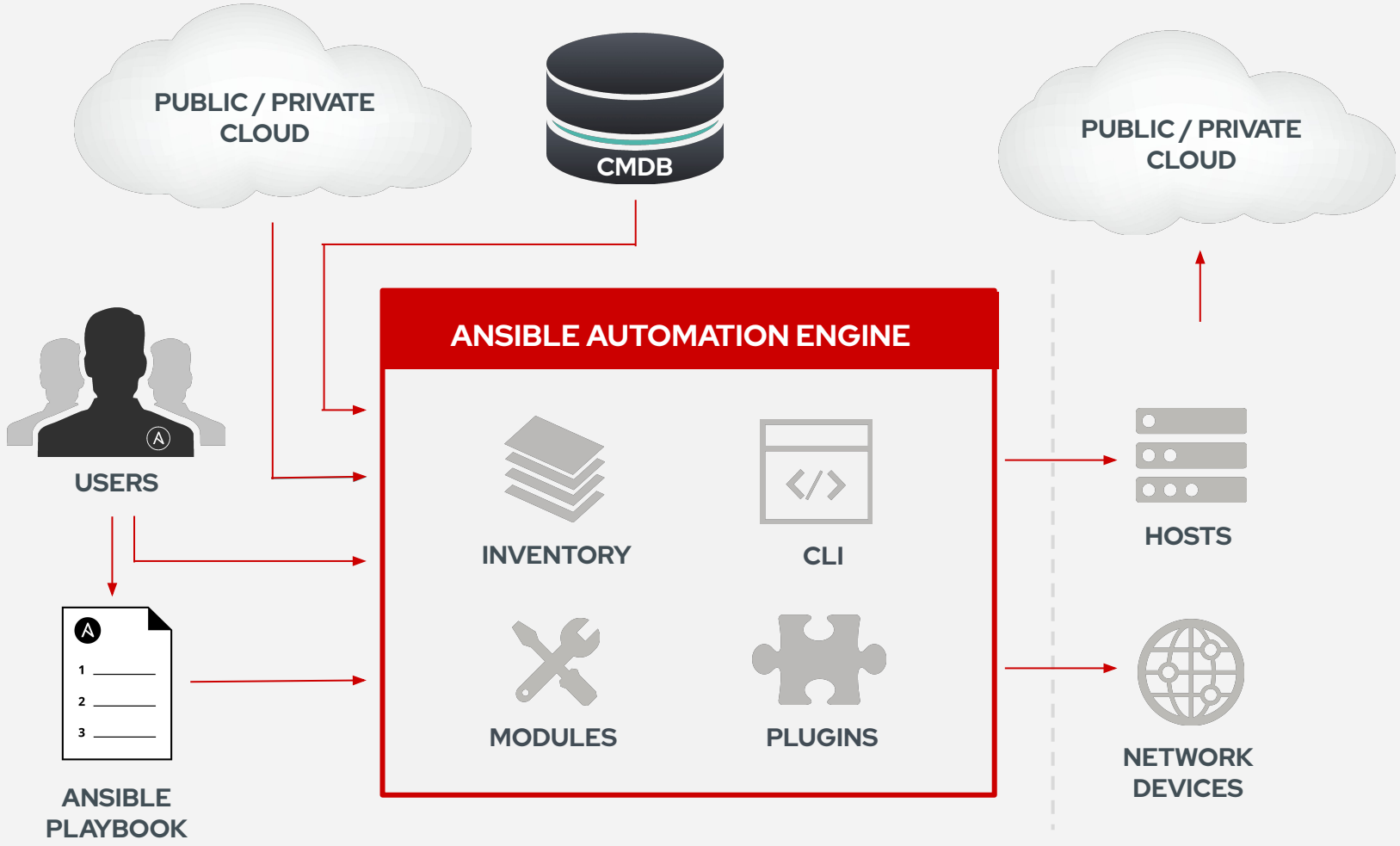
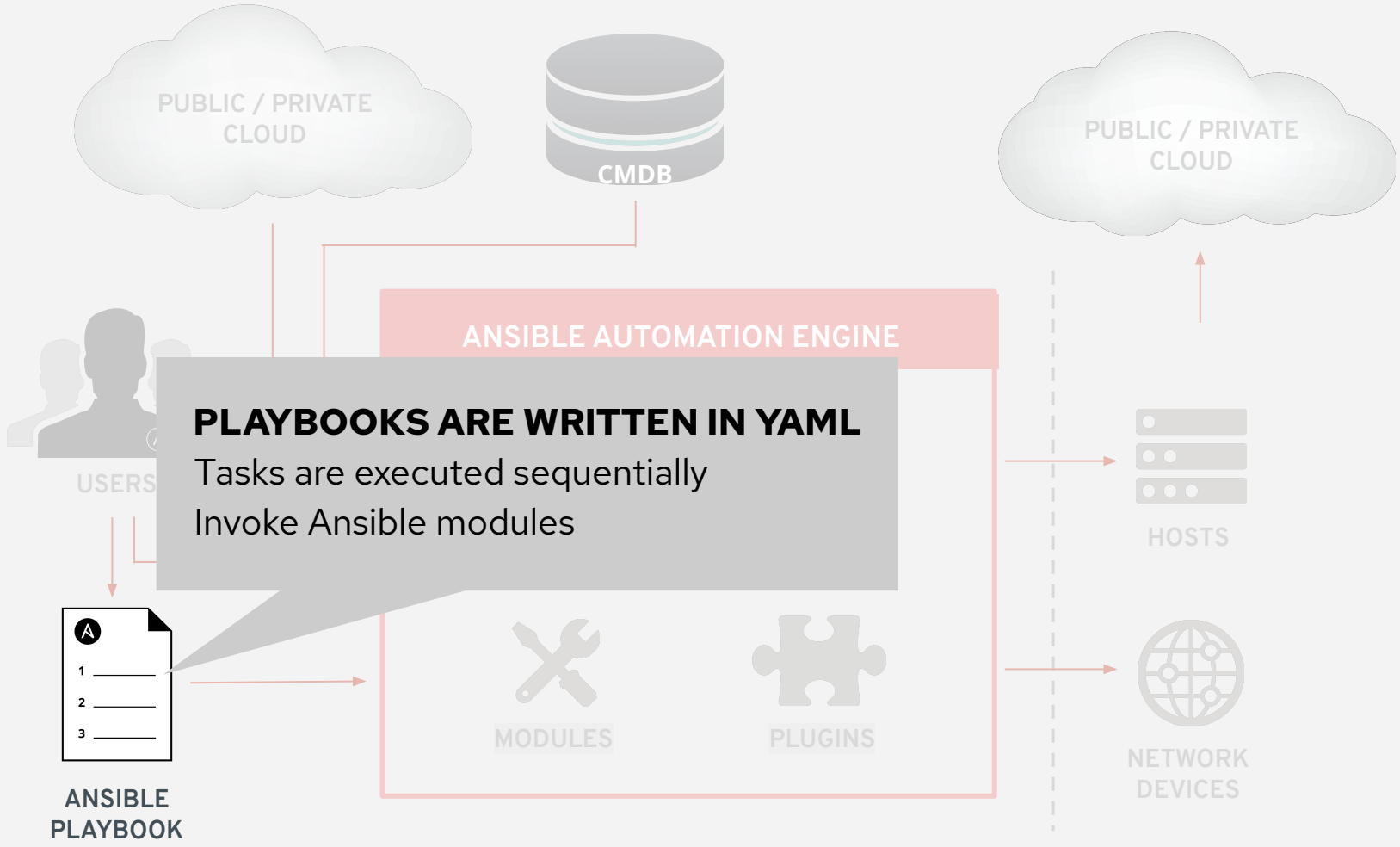
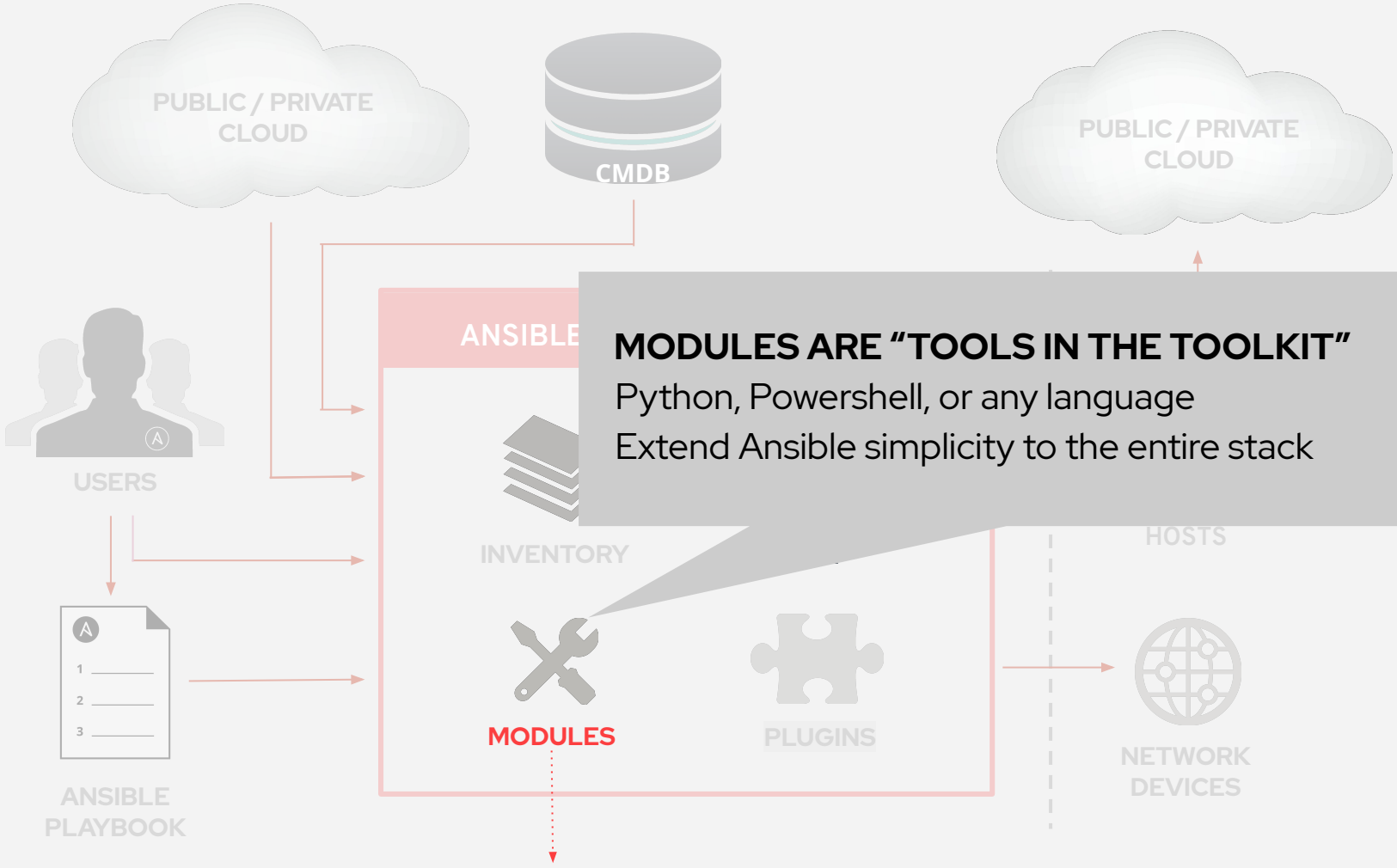

PUBLIC / PRIVATE CLOUD
CMDB
PUBLIC / PRIVATE CLOUD
ANSIBLE AUTOMATION ENGINE
USERS
INVENTORY
CLI
HOSTS
MODULES
PLUGINS
NETWORK DEVICES
ANSIBLE PLAYBOOK

Red Hat


PUBLIC / PRIVATE CLOUD
CMDB
PUBLIC / PRIVATE CLOUD
ANSIBLE AUTOMATION ENGINE
USERS
PLAYBOOKS ARE WRITTEN IN YAML
Tasks are executed sequentially
Invoke Ansible modules
HOSTS
1
2
3
MODULES
PLUGINS
NETWORK DEVICES
ANSIBLE PLAYBOOK

Red Hat



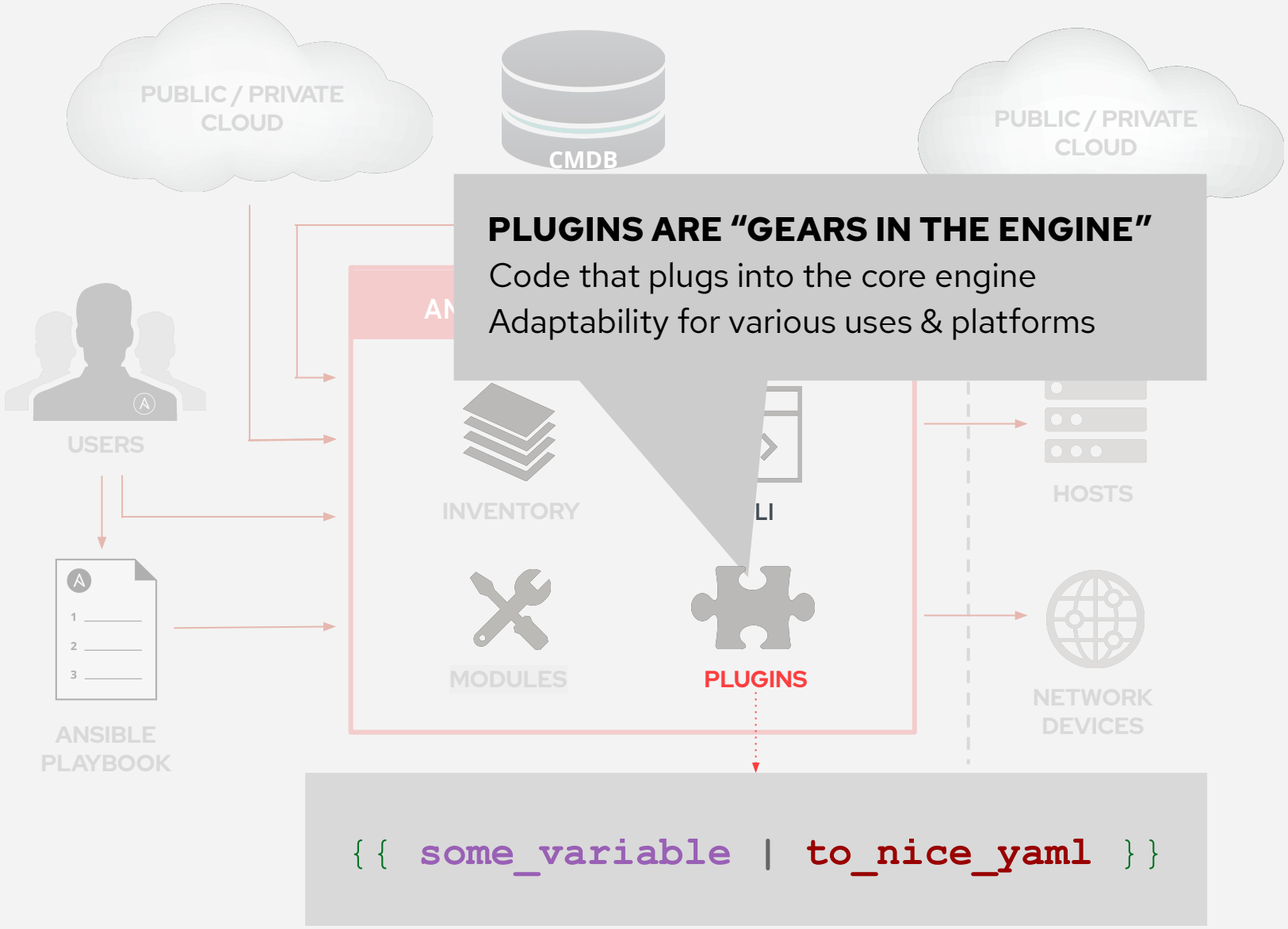
MODULES ARE "TOOLS IN THE TOOLKIT"

Python, Powershell, or any language

Extend Ansible simplicity to the entire stack

```
- name: latest index.html file is present
  template:
    src: files/index.html
    dest: /var/www/html/
```

Red Hat


PUBLIC / PRIVATE CLOUD
CMDB
PUBLIC / PRIVATE CLOUD
PLUGINS ARE "GEARS IN THE ENGINE"
Code that plugs into the core engine
Adaptability for various uses & platforms
USERS
INVENTORY
HOSTS
MODULES
PLUGINS
NETWORK DEVICES
ANSIBLE PLAYBOOK
{{ some_variable | to_nice_yaml }}

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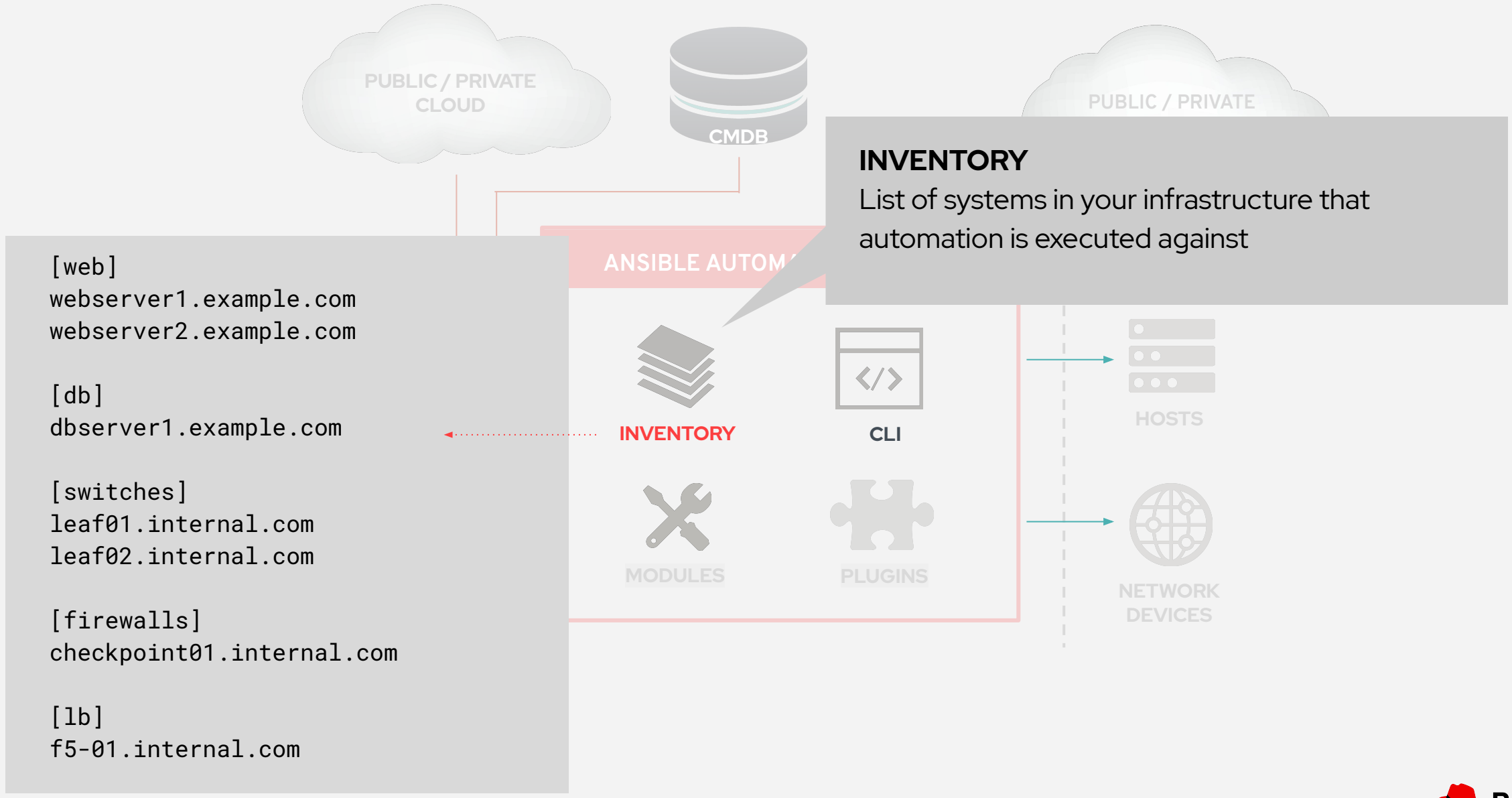
PUBLIC / PRIVATE CLOUD
CMDB
PUBLIC / PRIVATE
INVENTORY
List of systems in your infrastructure that automation is executed against
[web]
webserver1.example.com
webserver2.example.com
[db]
dbserver1.example.com
[switches]
leaf01.internal.com
leaf02.internal.com
[firewalls]
checkpoint01.internal.com
[lb]
f5-01.internal.com
ANSIBLE AUTOM
INVENTORY
CLI
HOSTS
MODULES
PLUGINS
NETWORK DEVICES

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Understanding Inventory

```
rtr1 ansible_host=18.220.156.59
rtr2 ansible_host=18.221.53.11
rtr3 ansible_host=13.59.242.237
rtr4 ansible_host=3.16.82.231
rtr5
rtr6
```

Understanding Inventory - Groups

There is always a group called **"all"** by default

```
[cisco]
rtr1 ansible_host=18.220.156.59 private_ip=172.16.184.164
[arista]
rtr2 ansible_host=18.221.53.11 private_ip=172.17.229.213
rtr4 ansible_host=3.16.82.231 private_ip=172.17.209.186
[juniper]
rtr3 ansible_host=13.59.242.237 private_ip=172.16.39.75
```

Groups can be nested

```
[routers:children]
cisco
juniper
arista
```

Understanding Inventory - Variables

Host variables apply to the host and override group vars

```
[cisco]
rtr1 ansible_host=52.14.208.176 private_ip=172.16.59.243

[arista]
rtr2 ansible_host=18.221.195.152 private_ip=172.17.235.51
rtr4 ansible_host=18.188.124.127 private_ip=172.17.43.134

[juniper]
rtr3 ansible_host=3.15.11.56 private_ip=172.16.94.233

[cisco:vars]
ansible_user=ec2-user
ansible_network_os=ios
ansible_connection=network_cli
```

Group variables apply for all devices in that group

A Sample Ansible Playbook

```
---
- name: deploy vlans
  hosts: cisco
  gather_facts: no

  tasks:
    - name: ensure vlans exist
      nxos_vlan:
        vlan_id: 100
        admin_state: up
        name: WEB
```

- Playbook is a list of plays.
- Each play is a list of tasks.
- Tasks invoke modules.
- A playbook can contain more than one play.

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Platform

Exercise 1 - Exploring the lab environment

In this lab you will explore the lab environment and build familiarity with the lab inventory.

Approximate time: 10 mins

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Exercise 2

Topics Covered:

- An Ansible Play
- Ansible Modules
- Running an Ansible Playbook

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An Ansible Playbook Example

```
---
- name: snmp ro/rw string configuration
  hosts: cisco
  gather_facts: no

  tasks:
    - name: ensure snmp strings are present
      ios_config:
        lines:
          - snmp-server community ansible-public RO
          - snmp-server community ansible-private RW
```

Ansible Playbook - Play definition

- The **name** parameter describes the Ansible Play
- Target devices using the **hosts** parameter
- Optionally disable **gather_facts**

```
---
- name: snmp ro/rw string configuration
  hosts: cisco
  gather_facts: no
```

Modules

Modules do the actual work in Ansible, they are what gets executed in each playbook task.

- Typically written in Python (but not limited to it)
- Modules can be idempotent
- Modules take user input in the form of parameters

```
tasks:
  - name: ensure snmp strings are present
    ios_config:
      commands:
        - snmp-server community ansible-public RO
        - snmp-server community ansible-private RW
```

Network modules

Ansible modules for network automation typically references the vendor OS followed by the module name.

- *_facts
- *_command
- *_config

More modules depending on platform

Arista EOS = eos_*

Cisco IOS/IOS-XE = ios_*

Cisco NX-OS = nxos_*

Cisco IOS-XR = iosxr_*

F5 BIG-IP = bigip_*

F5 BIG-IQ = bigiq_*

Juniper Junos = junos_*

VyOS = vyos_*

Running a playbook

```
---
- name: snmp ro/rw string configuration
   hosts: cisco
   gather_facts: no

  tasks:
    - name: ensure snmp strings are present
       ios_config:
         commands:
           - snmp-server community ansible-public RO
           - snmp-server community ansible-private RW
```

```
[student1@ansible networking-workshop]$ ansible-playbook playbook.yml

PLAY [snmp ro/rw string configuration] ***************************************************

TASK [ensure that the desired snmp strings are present] **********************************
changed: [rtr1]

PLAY RECAP *******************************************************************************
rtr1                       : ok=1    changed=1    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
```

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Displaying output

```
[student1@ansible networking-workshop]$ ansible-playbook playbook.yml -v
Using /home/student1/.ansible.cfg as config file

PLAY [snmp ro/rw string configuration] *****************************************

TASK [ensure that the desired snmp strings are present] ************************
changed: [rtr1] => changed=true
  ansible_facts:
    discovered_interpreter_python: /usr/bin/python
  banners: {}
  commands:
  - snmp-server community ansible-public RO
  - snmp-server community ansible-private RW
  updates:
  - snmp-server community ansible-public RO
  - snmp-server community ansible-private RW

PLAY RECAP *********************************************************************
rtr1           : ok=1    changed=1    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
```

Increase the level of verbosity by adding more "v's" -vvvv

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Exercise 2 - Execute your first network automation playbook

In this lab you will use Ansible to update the configuration of routers. This exercise will not have you create an Ansible Playbook; you will use an existing one.

Approximate time: 15 mins

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Exercise 3

Topics Covered:

- Ansible Documentation and *ansible-doc*
- Facts for Network Devices
- The debug module

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Ansible Automation
Platform

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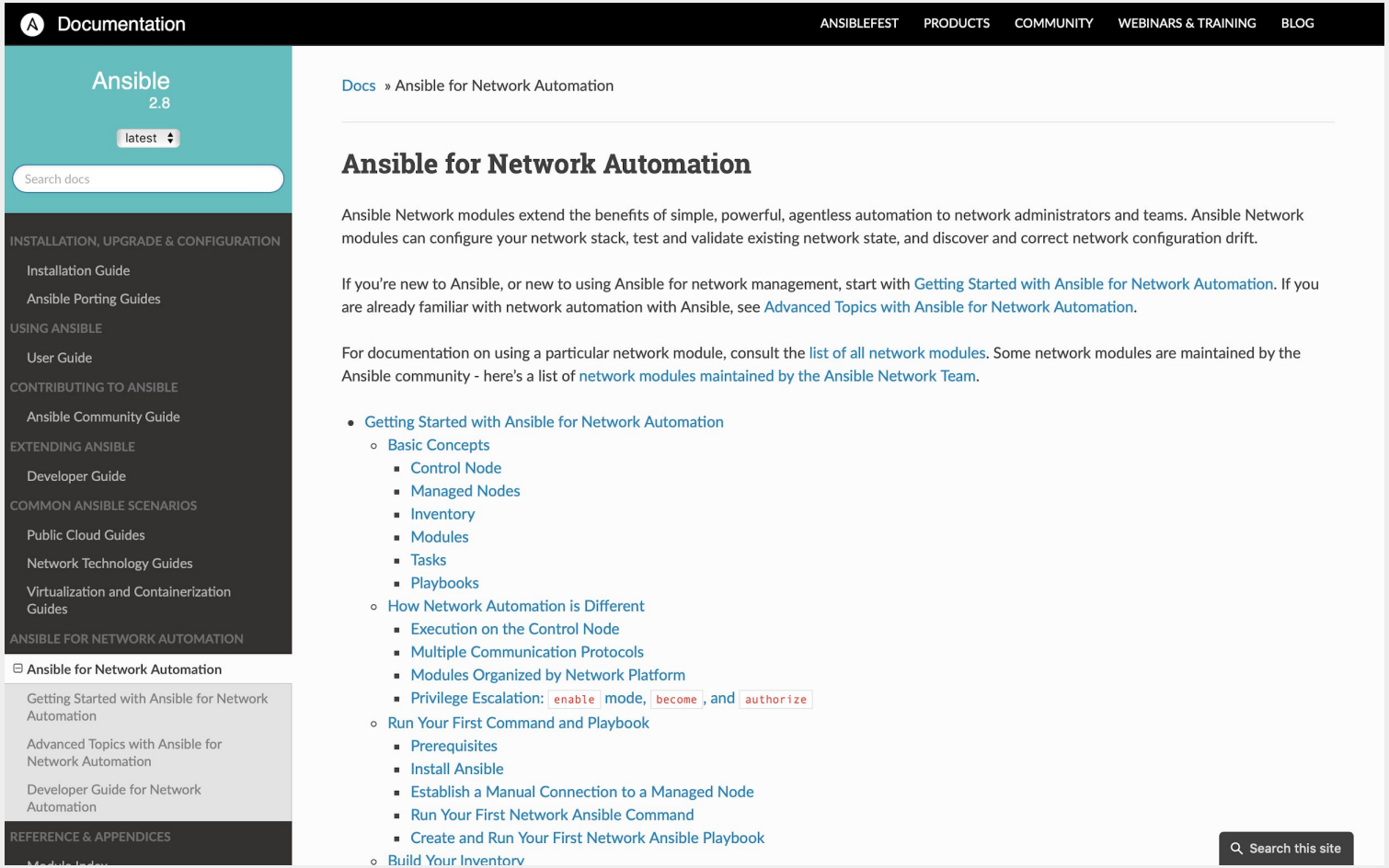
“Ansible for Network Automation” Documentation



http://bit.ly/AnsibleNetwork

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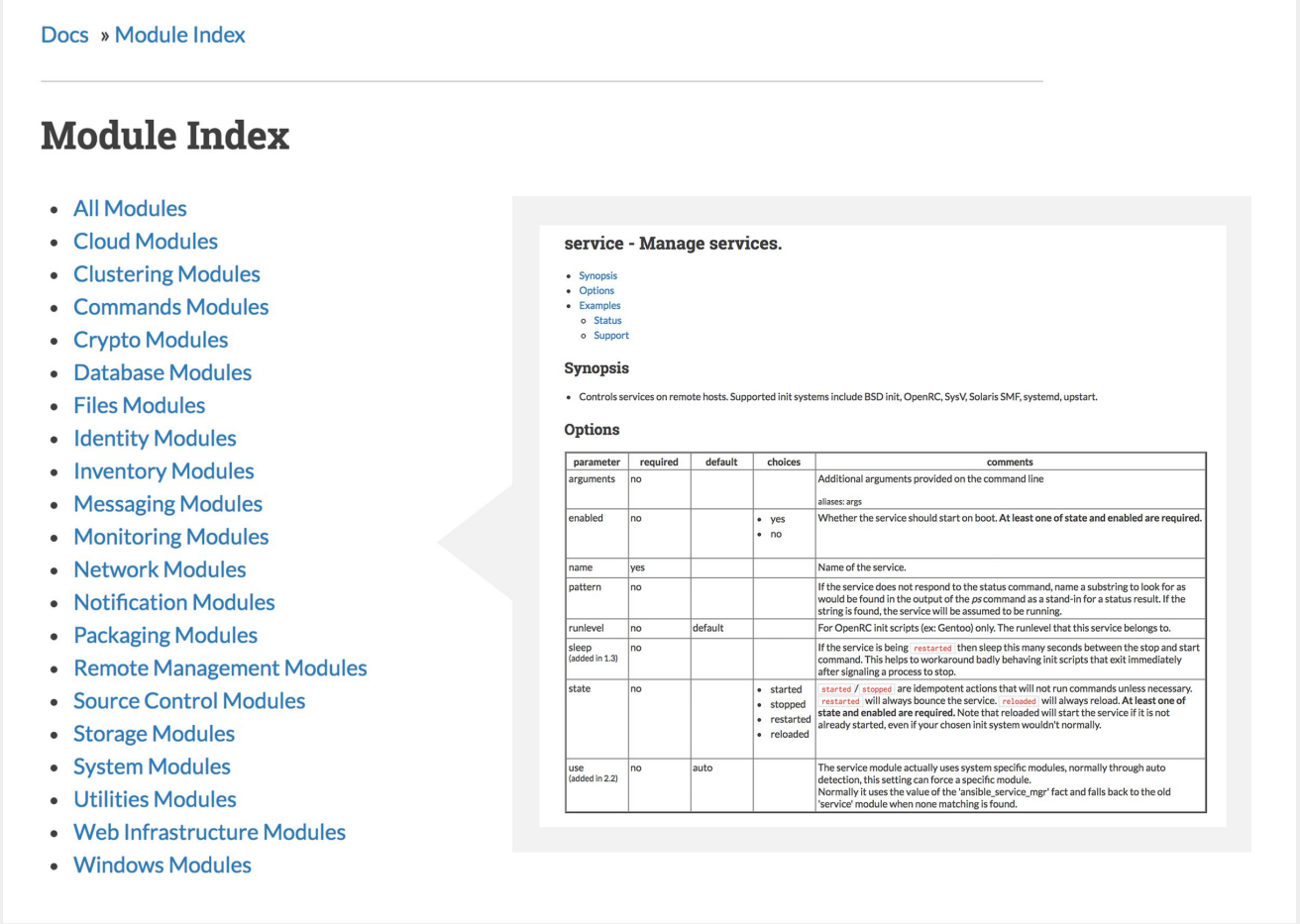
Module Documentation

- Documentation is required as part of module submission
- Multiple Examples for every module
- Broken into relevant sections



https://docs.ansible.com/

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Module Documentation

Documentation right on the command line

```
# List out all modules installed
$ ansible-doc -l
...
ios_banner                                 Manage multiline banners on Cisco IOS devices
ios_command                                Run commands on remote devices running Cisco IOS
ios_config                                 Manage Cisco IOS configuration sections
...

# Read documentation for installed module
$ ansible-doc ios_command
> IOS_COMMAND

     Sends arbitrary commands to an ios node and returns the results read from the
     device. This module includes an argument that will cause the module to wait for a
     specific condition before returning or timing out if the condition is not met. This
     module does not support running commands in configuration mode. Please use
     [ios_config] to configure IOS devices.

Options (= is mandatory):
...
```

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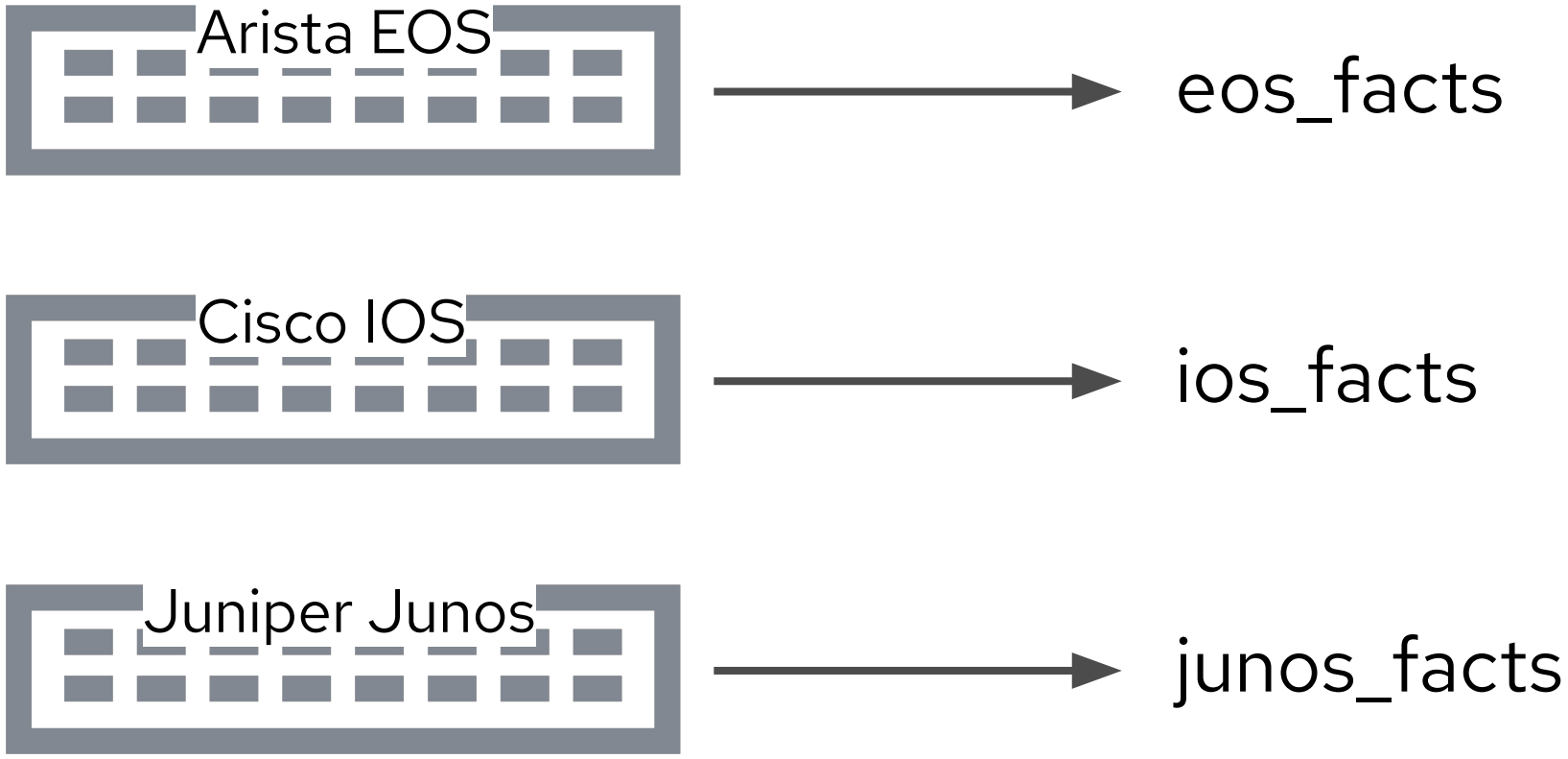
Fact modules



Fact modules return structured data

```
rtr1#show version
Cisco IOS XE Software, Version 16.09.02
Cisco IOS Software [Fuji], Virtual XE Software (X86_64_LINUX_IOSD-UNIVERSALK9-M), Version 16.9.2, RELEASE SOFTWARE (fc4)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1986-2018 by Cisco Systems, Inc.
Compiled Mon 05-Nov-18 19:26 by mcpre
..
.
<rest of output removed for brevity>
```

```
[student1@ansible ~]$ ansible -m ios_facts rtr1
.<<abbreviated output>>
.
        "ansible_net_iostype": "IOS-XE",
        "ansible_net_memfree_mb": 1853921,
        "ansible_net_memtotal_mb": 2180495,
        "ansible_net_model": "CSR1000V",
        "ansible_net_neighbors": {},
        "ansible_net_python_version": "2.7.5",
        "ansible_net_serialnum": "964A1H0D1RM",
        "ansible_net_system": "ios",
        "ansible_net_version": "16.09.02",
.
.
```

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Ansible Fact Playbook Example

```
---
- name: gather information from routers
  hosts: cisco
  gather_facts: no

   tasks:
     - name: gather router facts
       ios_facts:
```

Running the Ansible Playbook

```
[student1@ansible networking-workshop]$ ansible-playbook facts.yml

PLAY [gather information from routers] *****************************************

TASK [gather router facts] *****************************************************
ok: [rtr1]

PLAY RECAP *********************************************************************
rtr1       : ok=1    changed=0    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
```

- What did this Ansible Playbook do?
- Where are the facts?
- How do I use the facts?

Running the Ansible Playbook with verbosity

```
[student1@ansible networking-workshop]$ ansible-playbook facts.yml -v

PLAY [gather information from routers] ****************************************
Using /home/student1/.ansible.cfg as config file

TASK [gather router facts] ****************************************************
ok: [rtr1] => changed=false
    ansible_net_iostype: IOS-XE
    ansible_net_memtotal_mb: 2180495
    ansible_net_model: CSR1000V
    ansible_net_python_version: 2.7.5
    ansible_net_serialnum: 964A1H0D1RM
    ansible_net_system: ios
    ansible_net_version: 16.09.02
    <<abbreviated output>>

PLAY RECAP ********************************************************************
rtr1       : ok=1    changed=0    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
```

Red Hat

Displaying output - The “debug” module

The **debug** module is used like a "print" statement in most programming languages. Variables are accessed using "{{ }}" - quoted curly braces

```
- name: display version
  debug:
    msg: "The IOS version is: {{ ansible_net_version }}"

- name: display serial number
  debug:
    msg: "The serial number is:{{ ansible_net_serialnum }}"
```

Running the Ansible Playbook with verbosity

```
[student1@ansible networking-workshop]$ ansible-playbook facts.yml

PLAY [gather information from routers] *****************************************

TASK [gather router facts] *****************************************************
ok: [rtr1]

TASK [display version] *********************************************************
ok: [rtr1] =>
  msg: 'The IOS version is: 16.09.02'

TASK [display serial number] ***************************************************
ok: [rtr1] =>
  msg: The serial number is:964A1H0D1RM

PLAY RECAP *********************************************************************
rtr1        : ok=3    changed=0    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
```

Red Hat

Build reports with Ansible Facts

Hostname	Model Type	Mgmt0 IP Address	Code Version
n9k	Nexus9000 9000v Chassis	192.168.2.3	7.0(3)I7(1)
n9k2	Nexus9000 9000v Chassis	192.168.2.4	7.0(3)I7(1)
n9k3	Nexus9000 9000v Chassis	192.168.2.5	7.0(3)I7(1)
n9k4	Nexus9000 9000v Chassis	192.168.2.6	7.0(2)I7(1)
n9k5	Nexus9000 9000v Chassis	192.168.2.7	7.0(3)I7(1)
n9k6	Nexus9000 9000v Chassis	192.168.2.8	7.0(3)I7(1)

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Exercise 3 - Ansible Facts

Demonstration use of Ansible facts on network infrastructure.

Approximate time: 15 mins

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Exercise 4

Topics Covered:

- Understand group variables
- Understand Jinja2
- cli_config module

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Group variables

Group variables are variables that are common between two or more devices. Group variables can be associated with an individual group (e.g. “cisco”) or a nested group (e.g. routers).

Examples include

- NTP servers
- DNS servers
- SNMP information

Basically network information that is common for that group

Inventory versus group_vars directory

Group variables can be stored in a directory called **group_vars** in YAML syntax. In exercise one we covered **host_vars** and **group_vars** with relationship to inventory. What is the difference?

inventory

Can be used to set variables to connect and authenticate **to the device**.

Examples include:

- Connection plugins (e.g. network_cli)
- Usernames
- Platform types (**ansible_network_os**)

group_vars

Can be used to set variables to configure **on the device**.

Examples include:

- VLANs
- Routing configuration
- System services (NTP, DNS, etc)

Examining a group_vars file

At the same directory level as the Ansible Playbook create a folder named **group_vars.**
Group variable files can simply be named the group name (in this case **all.yml**)

```
[student1@ansible networking-workshop]$ cat group_vars/all.yml

nodes:
  rtr1:
    Loopback100: "192.168.100.1"
  rtr2:
    Loopback100: "192.168.100.2"
  rtr3:
    Loopback100: "192.168.100.3"
  rtr4:
    Loopback100: "192.168.100.4"
```

Jinja2

- Ansible has native integration with the Jinja2 templating engine
- Render data models into device configurations
- Render device output into dynamic documentation

Jinja2 enables the user to manipulate variables, apply conditional logic and extend programmability for network automation.

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Network Automation config modules

cli_config (agnostic)

ios_config:

nxos_config:

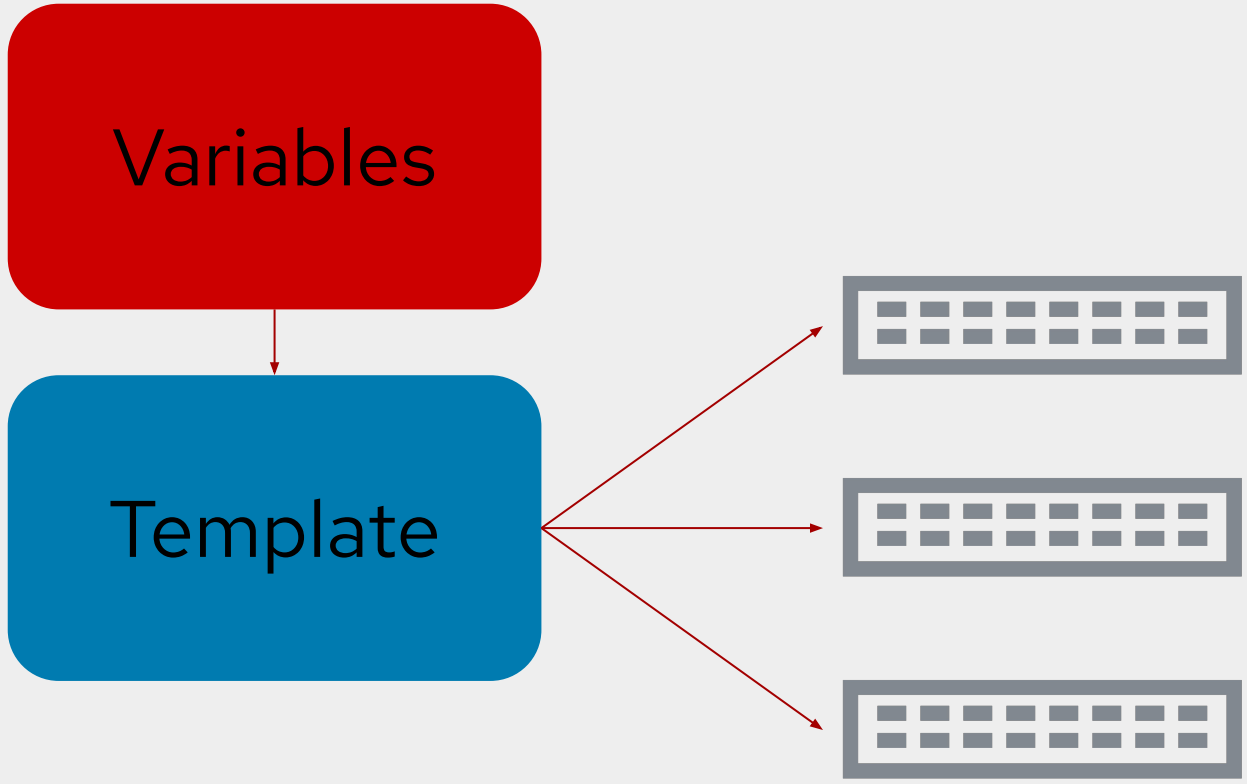
iosxr_config:

eos_config

.

.

*os_config:



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Jinja2 Templating Example (1/2)

Variables

```
ntp_server: 192.168.0.250
name_server: 192.168.0.251
```

Jinja2 Template

```
!
ntp server {{ntp_server}}
!
ip name-server {{name_server}}
!
```

Generated Network Configuration

rtr1

```
!
ip name-server 192.168.0.251
!
ntp server 192.168.0.250
!
```

rtrX

```
!
ip name-server 192.168.0.251
!
ntp server 192.168.0.250
!
```

Jinja2 Templating Example (2/2)

Variables

```
nodes:
  rtr1:
    Loopback100: "192.168.100.1"
  rtr2:
    Loopback100: "192.168.100.2"
  rtr3:
    Loopback100: "192.168.100.3"
  rtr4:
    Loopback100: "192.168.100.4"
```

Jinja2 Template

```
{% for interface,ip in nodes[inventory_hostname].items()
%}
interface {{interface}}
  ip address {{ip}} 255.255.255.255
{% endfor %}
```

Generated Network Configuration

rtr1

```
interface Loopback100
  ip address 192.168.100.1
!
```

rtr2

```
interface Loopback100
  ip address 192.168.100.2
!
```

rtrX

```
interface Loopback100
  ip address X
!
```

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The cli_config module

Agnostic module for network devices that uses the network_cli connection plugin.

```
---
- name: configure network devices
  hosts: rtr1,rtr2
  gather_facts: false
  tasks:
    - name: configure device with config
       cli_config:
         config: "{{ lookup('template', 'template.j2') }}"
```

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Exercise 4 - Network Configuration with Jinja Templates

Demonstration templating a network configuration and pushing it a device

Approximate time: 15 mins

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Tower Introduction

Topics Covered:

- What is Ansible Tower?
- Job Templates
  - Inventory
  - Credentials
  - Projects

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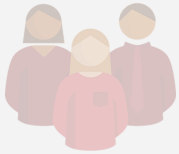
Red Hat Ansible Automation Platform

Network | Lines of business | Security | Operations | Infrastructure | Developers



Engage

Ansible SaaS: Engage users with an automation focused experience

Scale

Control
Web UI and API

Delegation
Role Based Access Controls

Scale
Scalable Execution Capacity

Create

Ansible Engine: Universal language of automation

Fueled by an open source community

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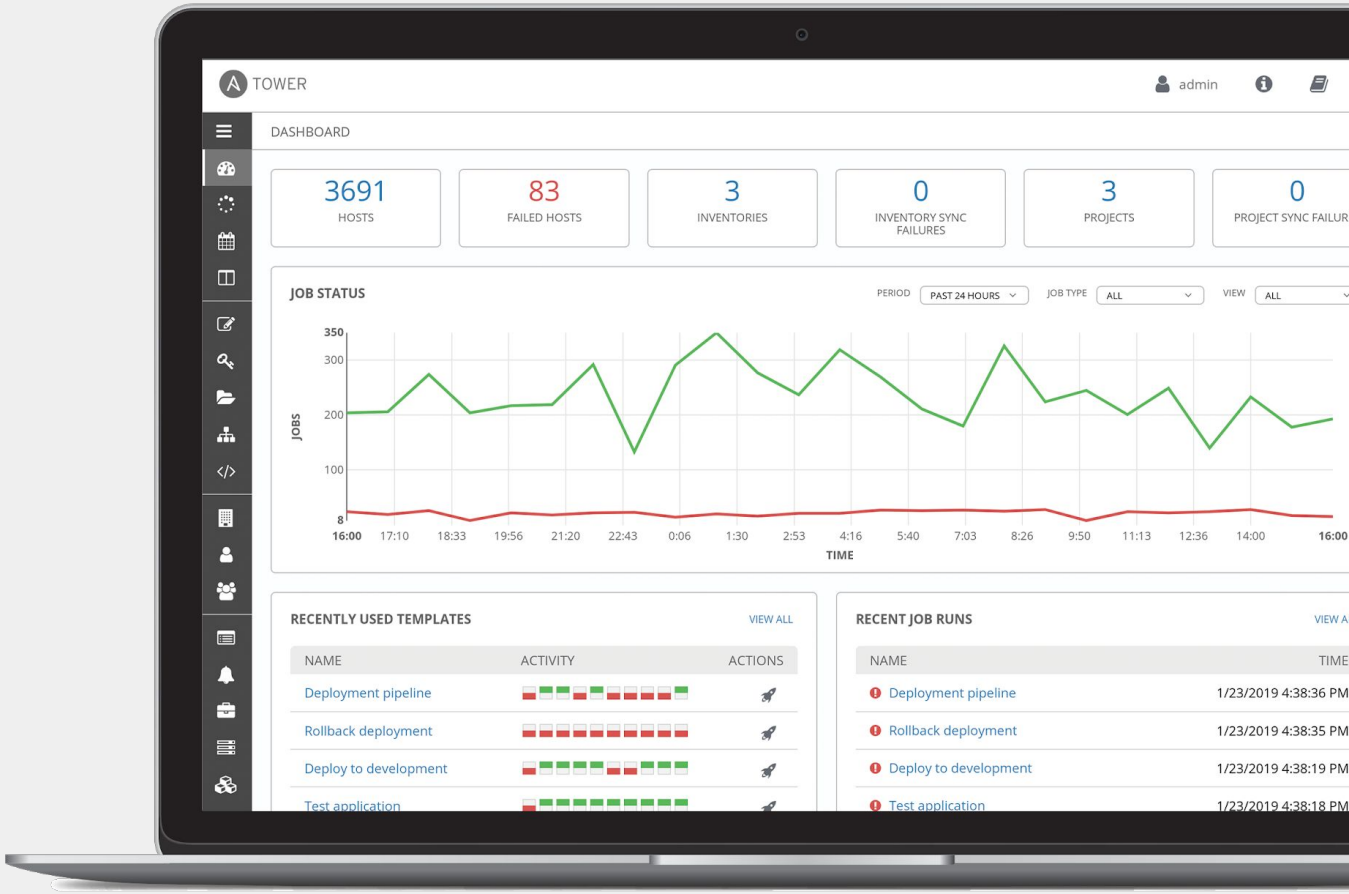
What is Ansible Tower?

Ansible Tower is a UI and RESTful API allowing you to scale IT automation, manage complex deployments and speed productivity.

- Role-based access control
- Deploy entire applications with push-button deployment access
- All automations are centrally logged
- Powerful workflows match your IT processes



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Red Hat Ansible Tower

Push button

An intuitive user interface experience makes it easy for novice users to execute playbooks you allow them access to.

RESTful API

With an API first mentality every feature and function of Tower can be API driven. Allow seamless integration with other tools like ServiceNow and Infoblox.

RBAC

Allow restricting playbook access to authorized users. One team can use playbooks in check mode (read-only) while others have full administrative abilities.

Enterprise integrations

Integrate with enterprise authentication like TACACS+, RADIUS, Azure AD. Setup token authentication with OAuth 2. Setup notifications with PagerDuty, Slack and Twilio.

Centralized logging

All automation activity is securely logged. Who ran it, how they customized it, what it did, where it happened - all securely stored and viewable later, or exported through Ansible Tower's API.

Workflows

Ansible Tower's multi-playbook workflows chain any number of playbooks, regardless of whether they use different inventories, run as different users, run at once or utilize different credentials.

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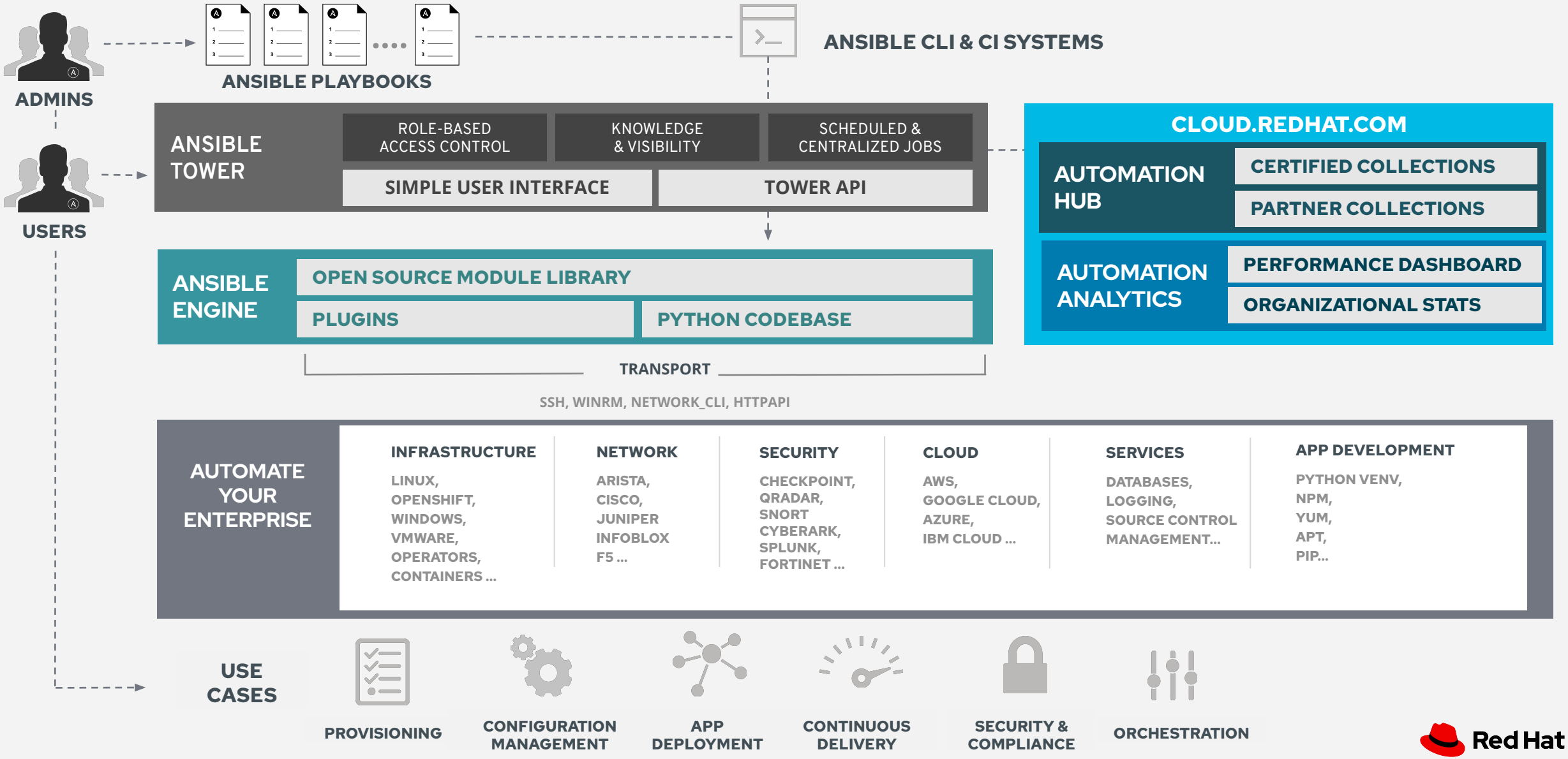

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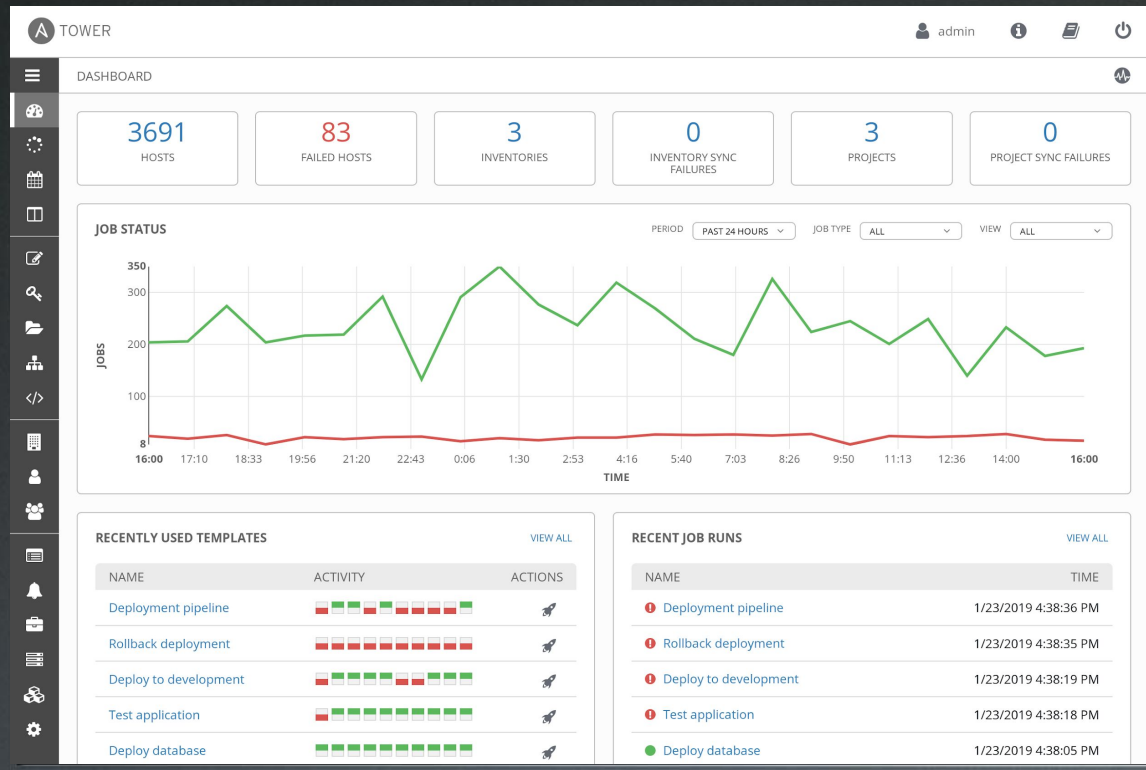
Red Hat Ansible Tower

FEATURE OVERVIEW:

Job Template



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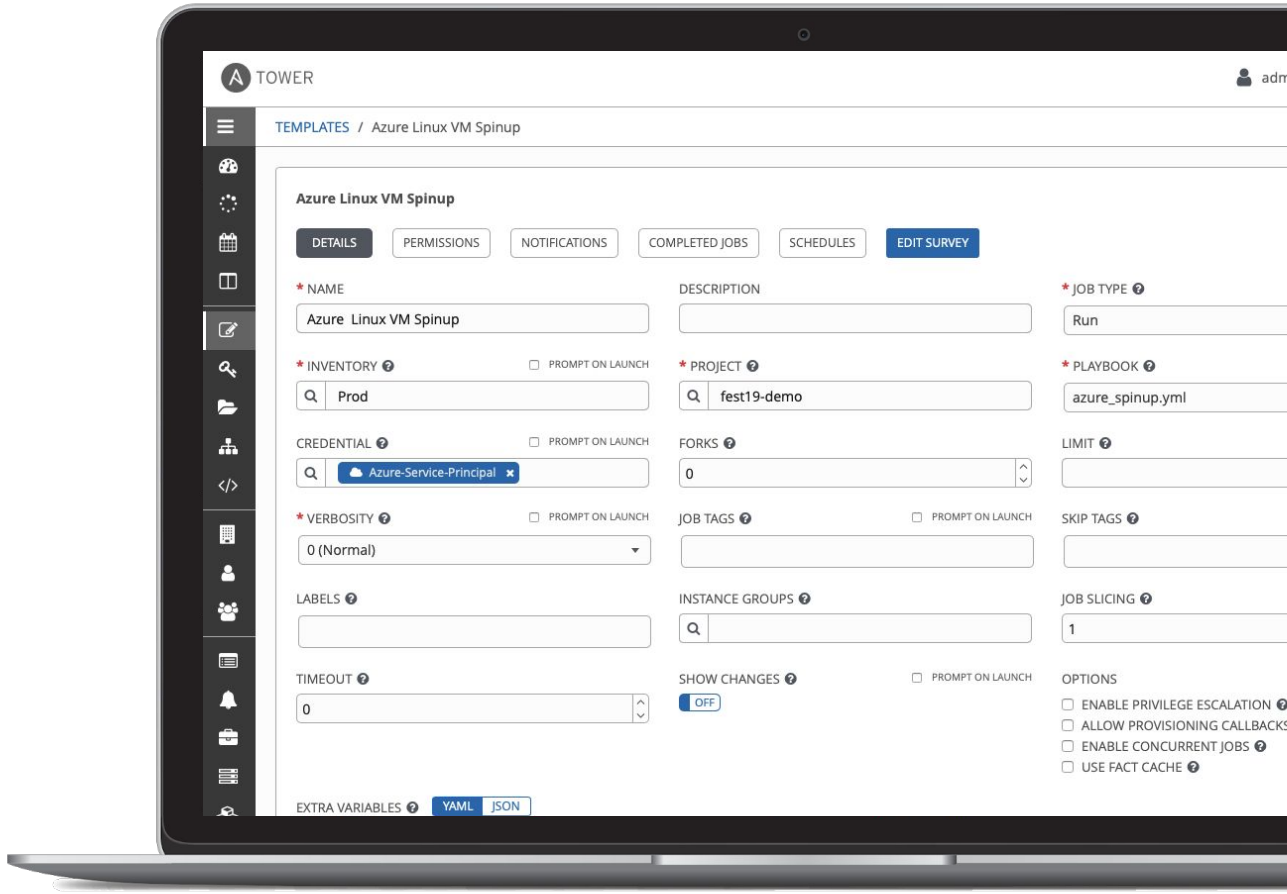
Job Templates

Everything in Ansible Tower revolves around the concept of a **Job Template**. Job Templates allow Ansible Playbooks to be controlled, delegated and scaled for an organization.

Job templates also encourage the reuse of Ansible Playbook content and collaboration between teams.

A **Job Template** requires:

- An **Inventory** to run the job against
- A **Credential** to login to devices.
- A **Project** which contains Ansible Playbooks



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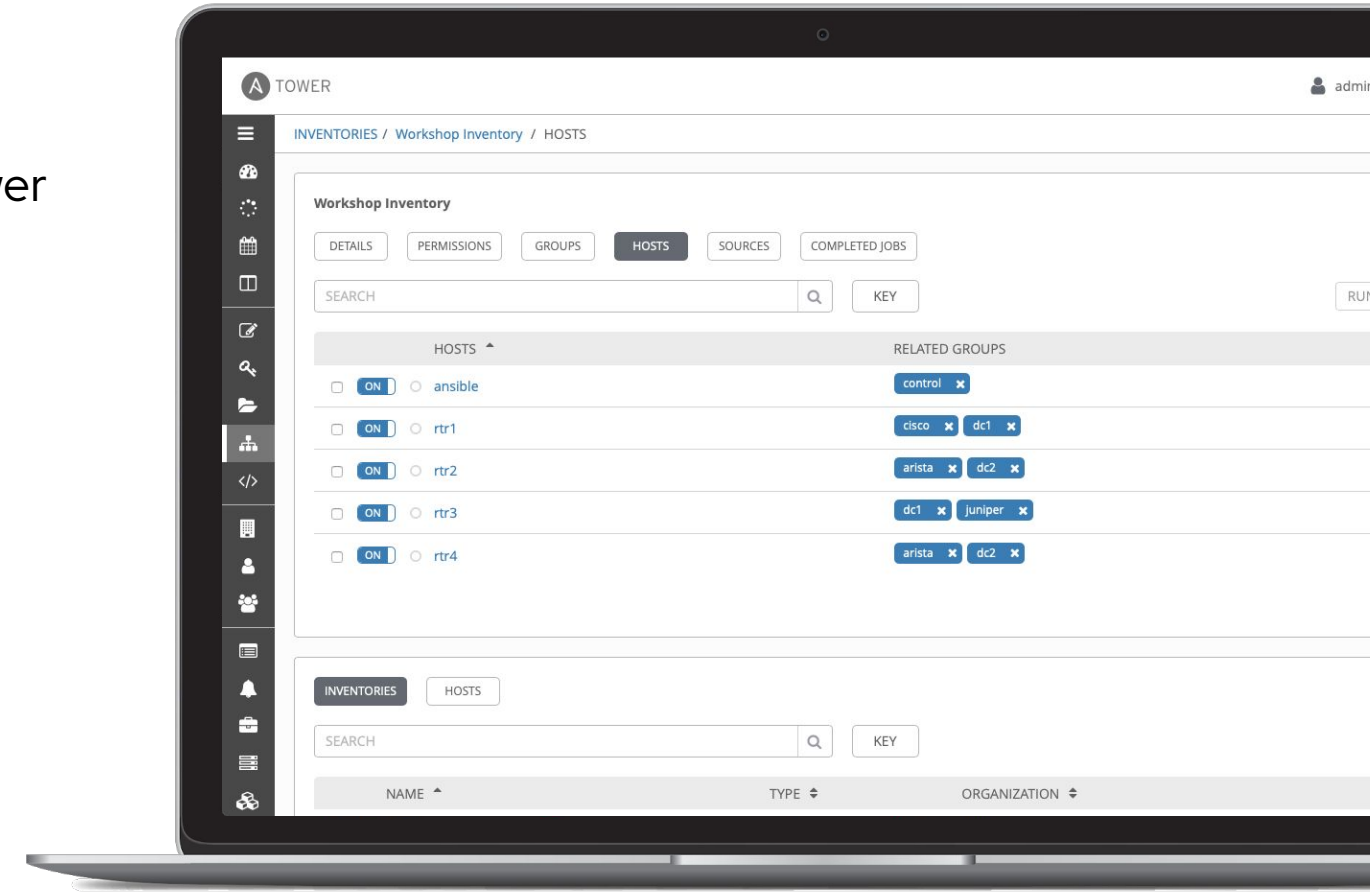
Inventory

Inventory is a collection of hosts (nodes) with associated data and groupings that Ansible Tower can connect to and manage.

- Hosts (nodes)
- Groups
- Inventory-specific data (variables)
- Static or dynamic sources



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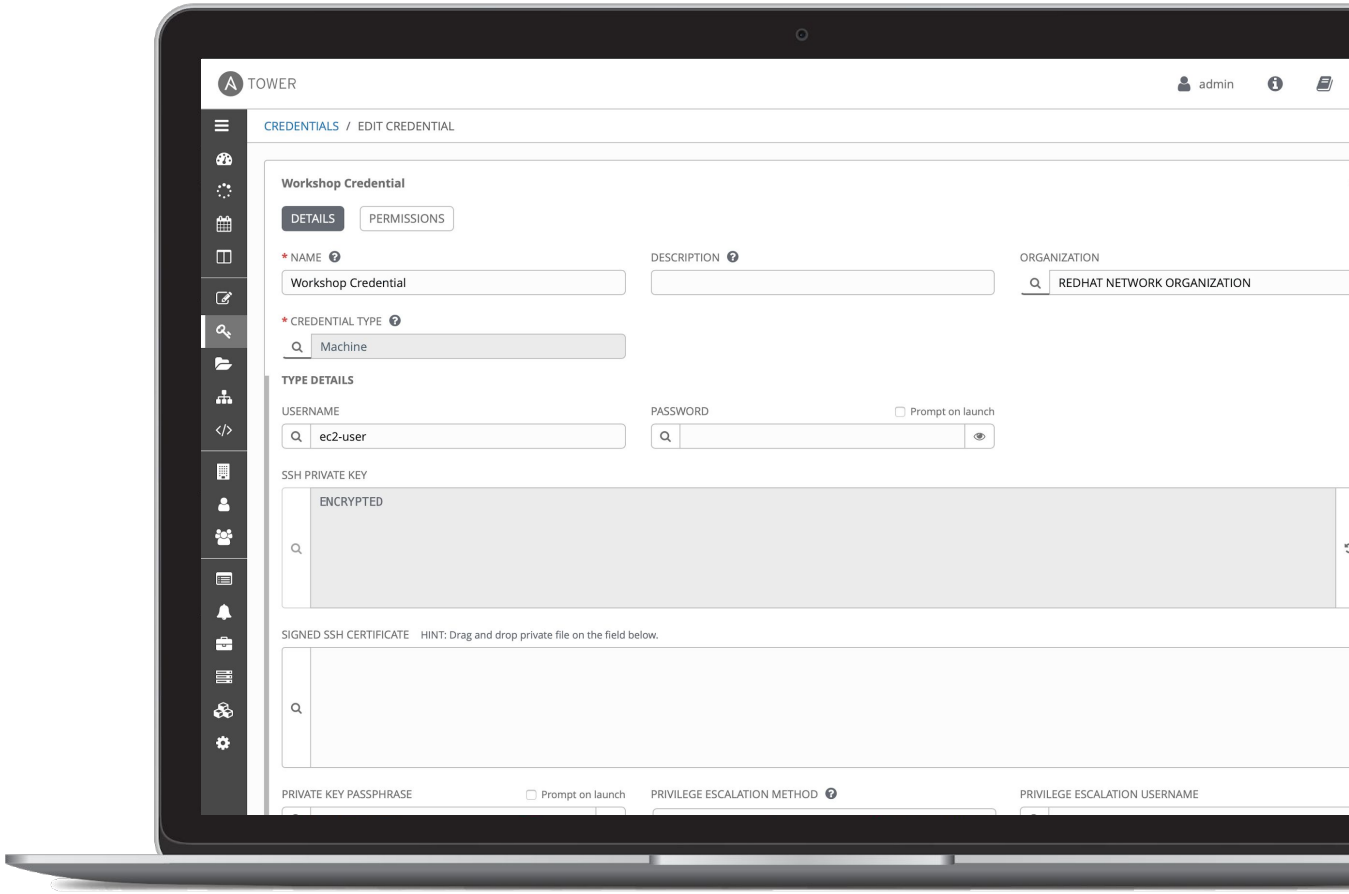
Credentials

Credentials are utilized by Ansible Tower for authentication with various external resources:

- Connecting to remote machines to run jobs
- Syncing with inventory sources
- Importing project content from version control systems
- Connecting to and managing network devices

Centralized management of various credentials allows end users to leverage a secret without ever exposing that secret to them.



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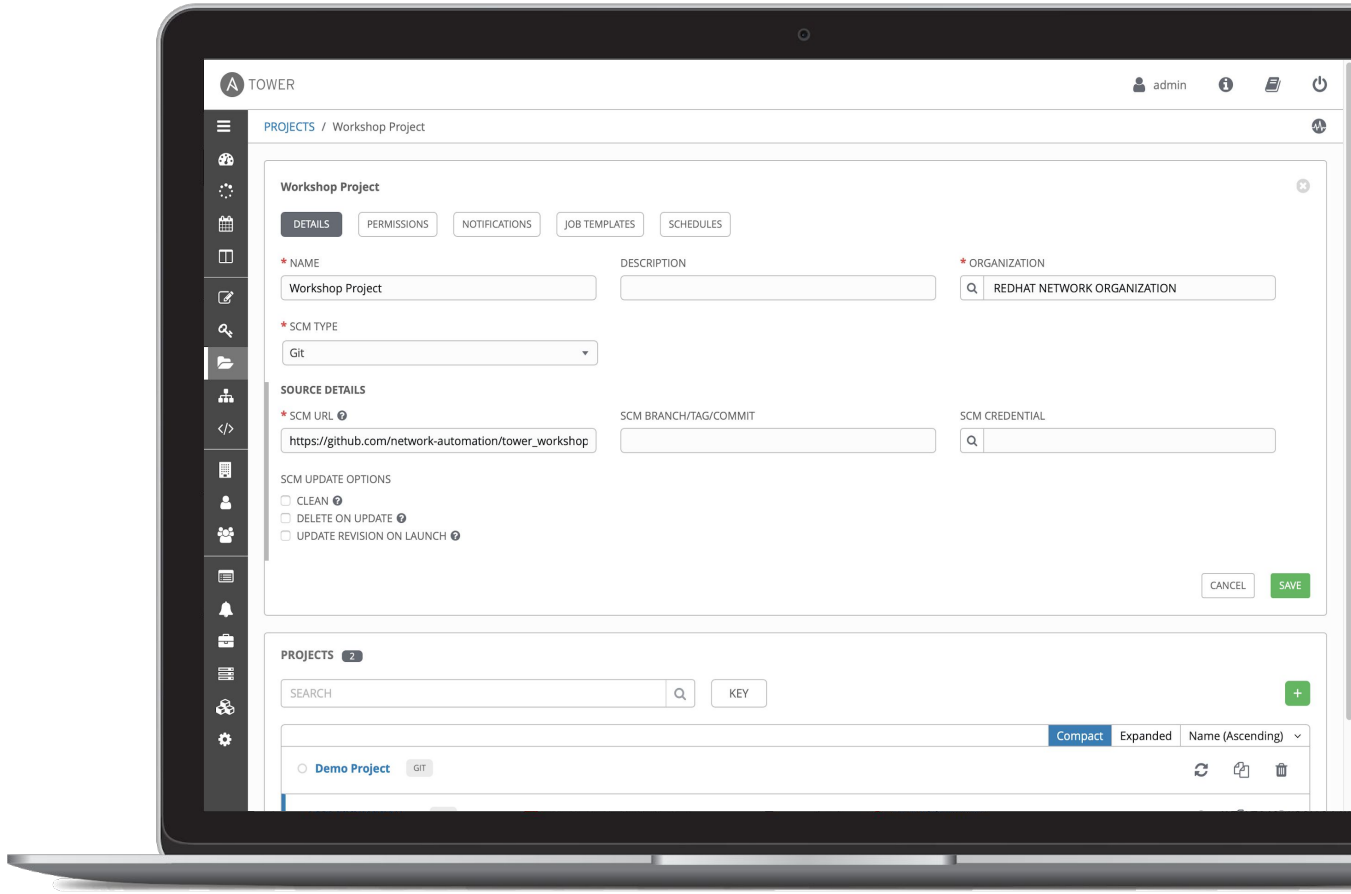
Project

A project is a logical collection of Ansible Playbooks, represented in Ansible Tower.

You can manage Ansible Playbooks and playbook directories by placing them in a source code management system supported by Ansible Tower, including Git, Subversion, and Mercurial.



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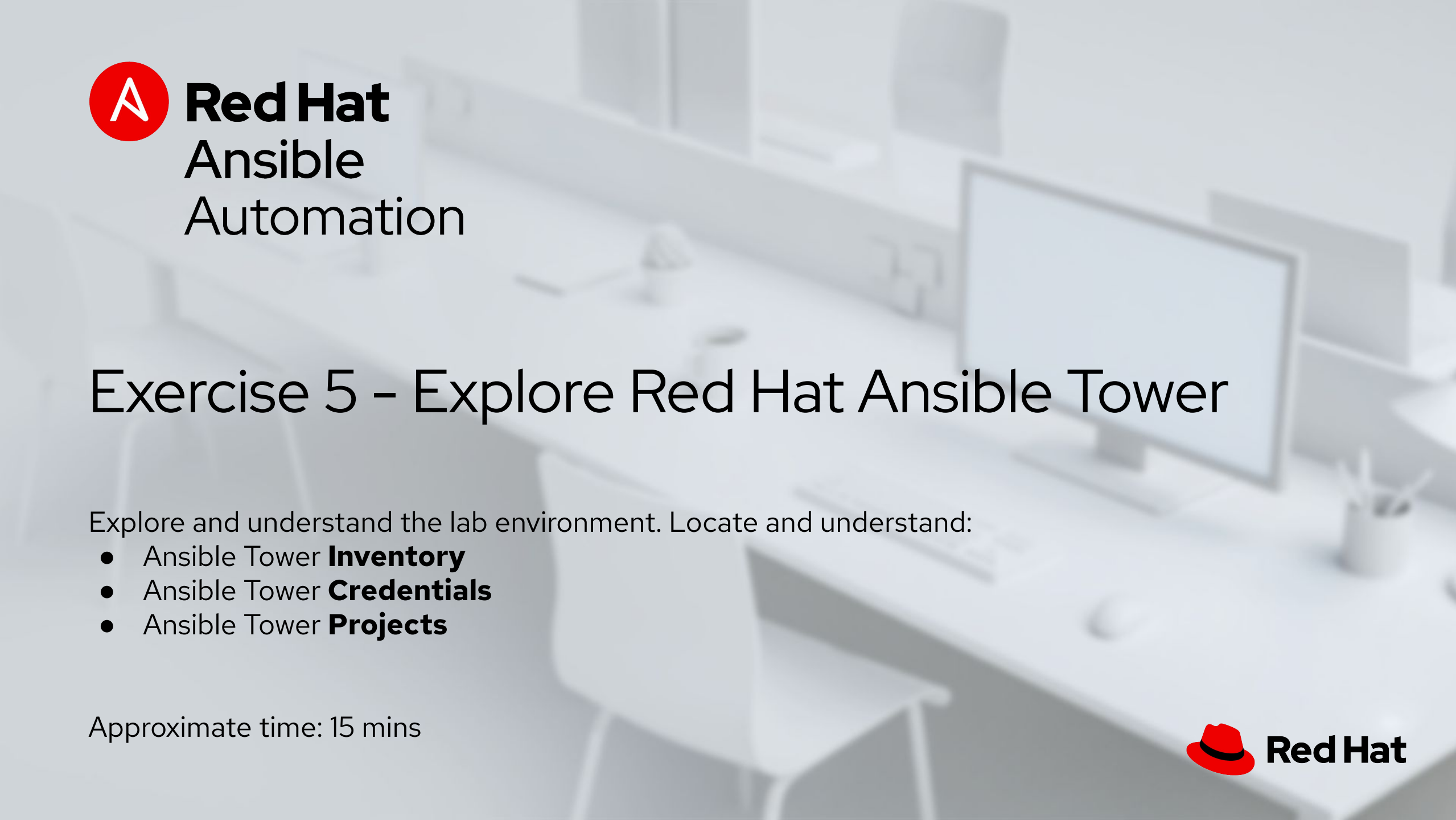

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Exercise 5 - Explore Red Hat Ansible Tower

Explore and understand the lab environment. Locate and understand:

- Ansible Tower **Inventory**
- Ansible Tower **Credentials**
- Ansible Tower **Projects**

Approximate time: 15 mins

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Exercise 6

Topics Covered:

- Building a Job Template
- Executing a Job Template

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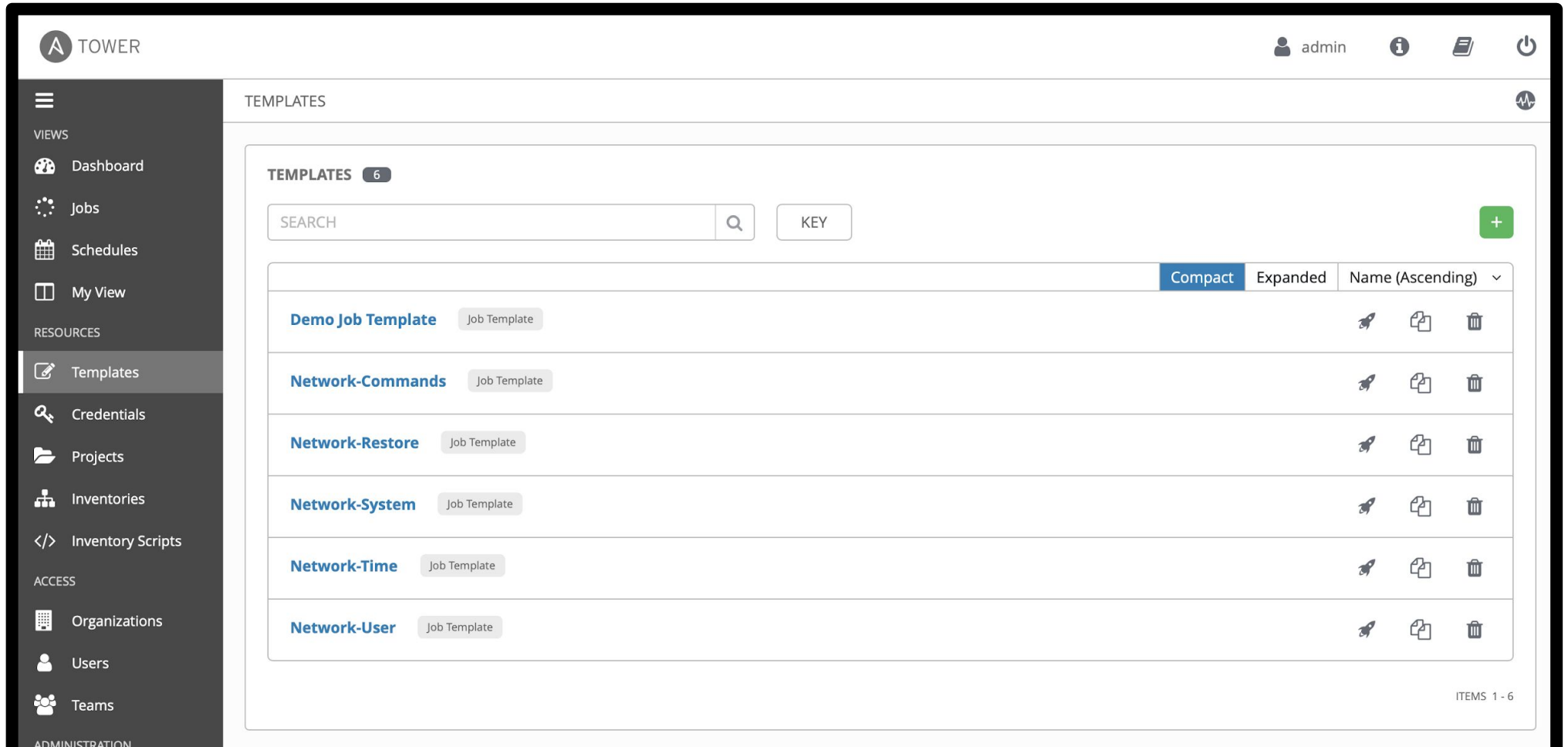
Expanding on Job Templates

Job Templates can be found and created by clicking the **Templates** button under the *RESOURCES* section on the left menu.



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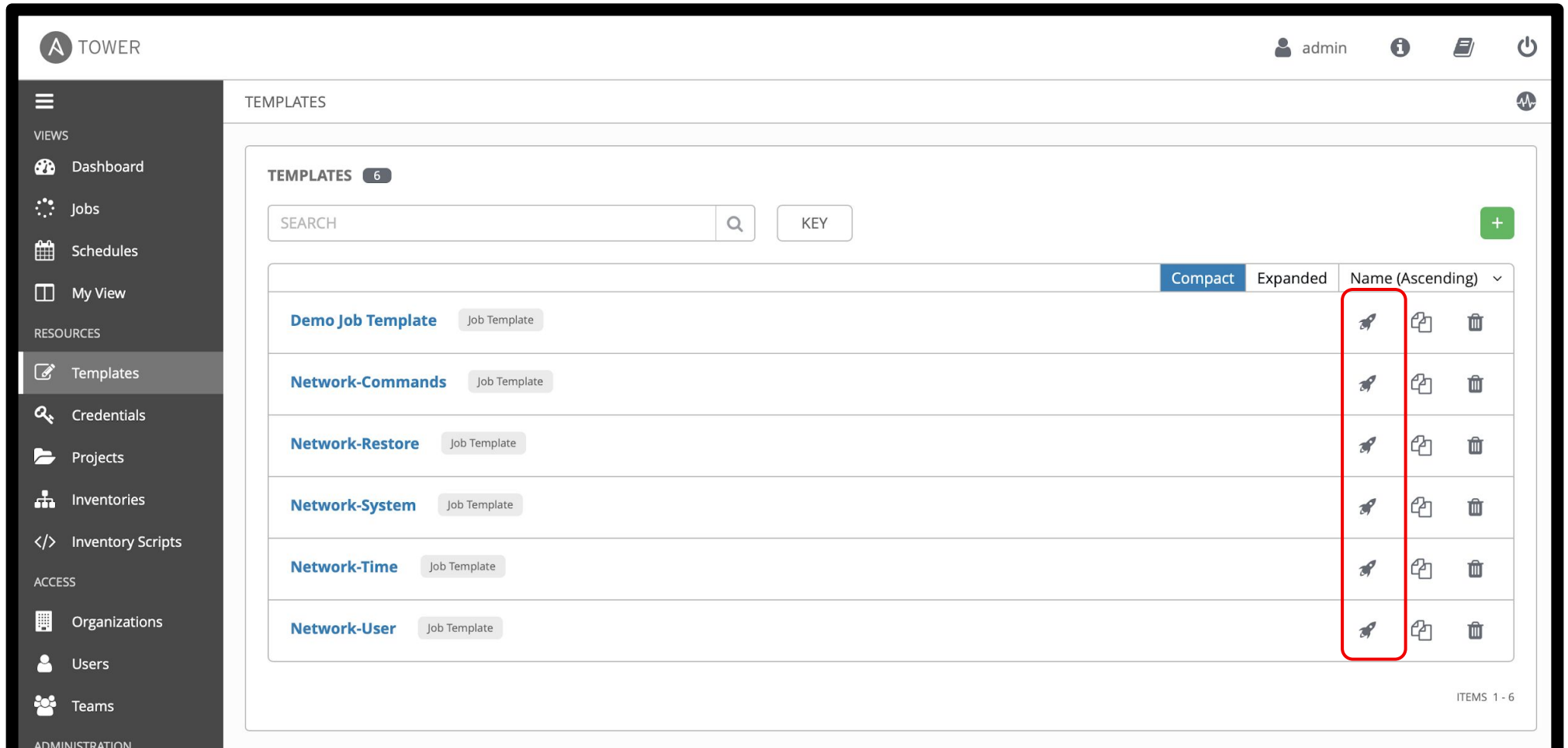
Executing an existing Job Template

Job Templates can be launched by clicking the **rocketship button** for the corresponding Job Template



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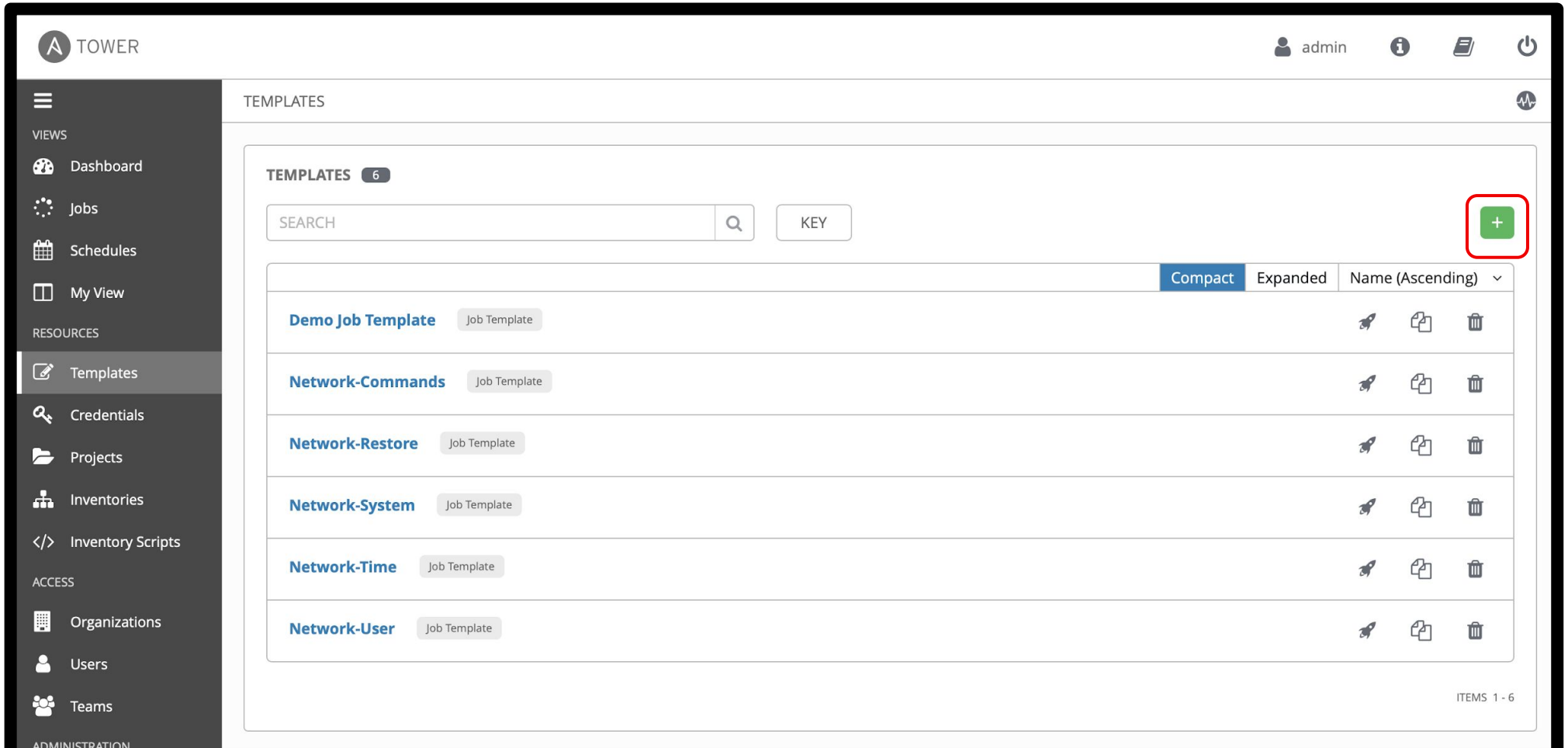
Creating a new Job Template (1/2)

New Job Templates can be created by clicking the **plus button** 



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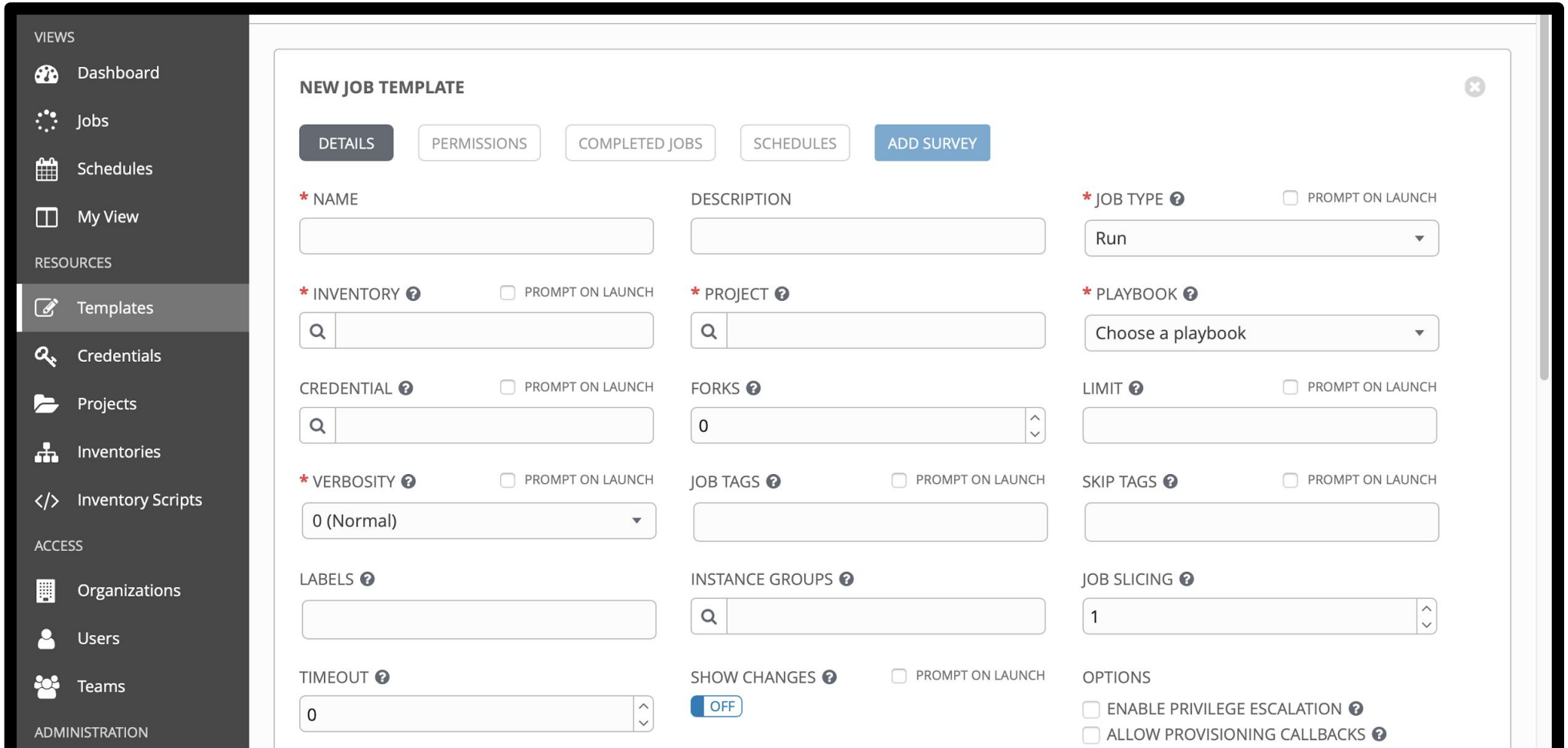
Creating a new Job Template (2/2)

This **New Job Template** window is where the inventory, project and credential are assigned. The red asterisk * means the field is required .



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Exercise 6 - Creating a Tower Job Template

Demonstrate a network backup configuration job template for Red Hat Ansible Tower.

Approximate time: 15 mins

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Exercise 7

Topics Covered:

- Understanding Extra Vars
- Building a Tower Survey
- Self-service IT with Tower Surveys

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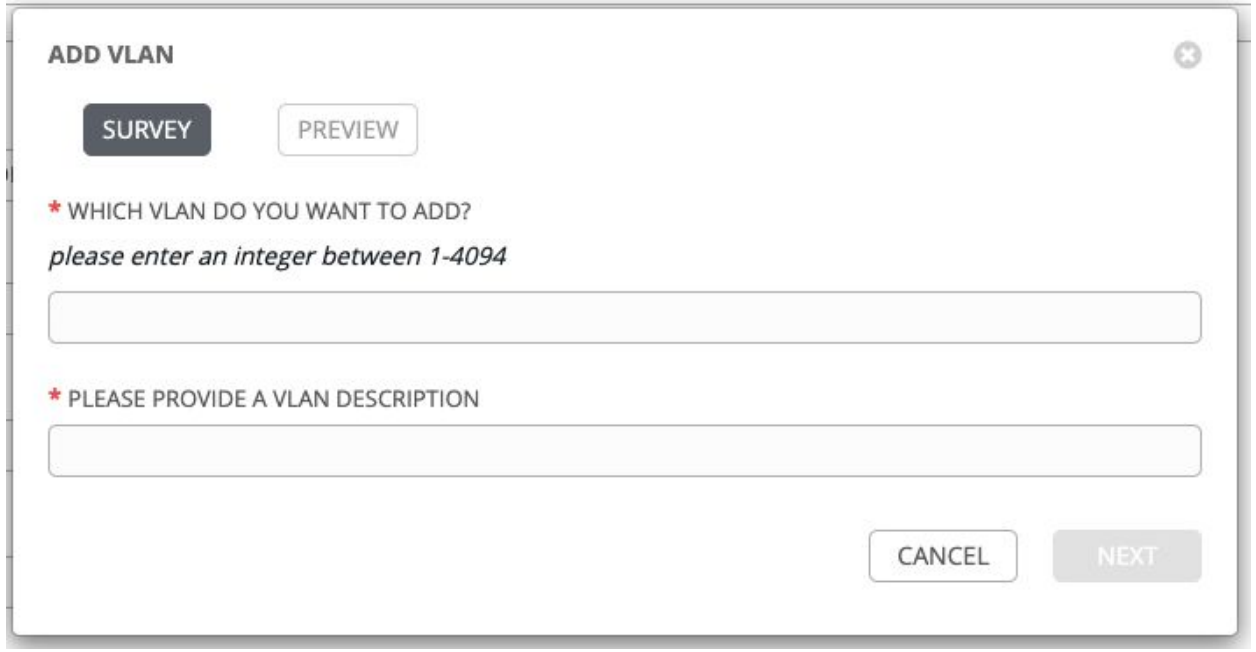
Surveys

Tower surveys allow you to configure how a job runs via a series of questions, making it simple to customize your jobs in a user-friendly way.

An Ansible Tower survey is a simple question-and-answer form that allows users to customize their job runs. Combine that with Tower's role-based access control, and you can build simple, easy self-service for your users.



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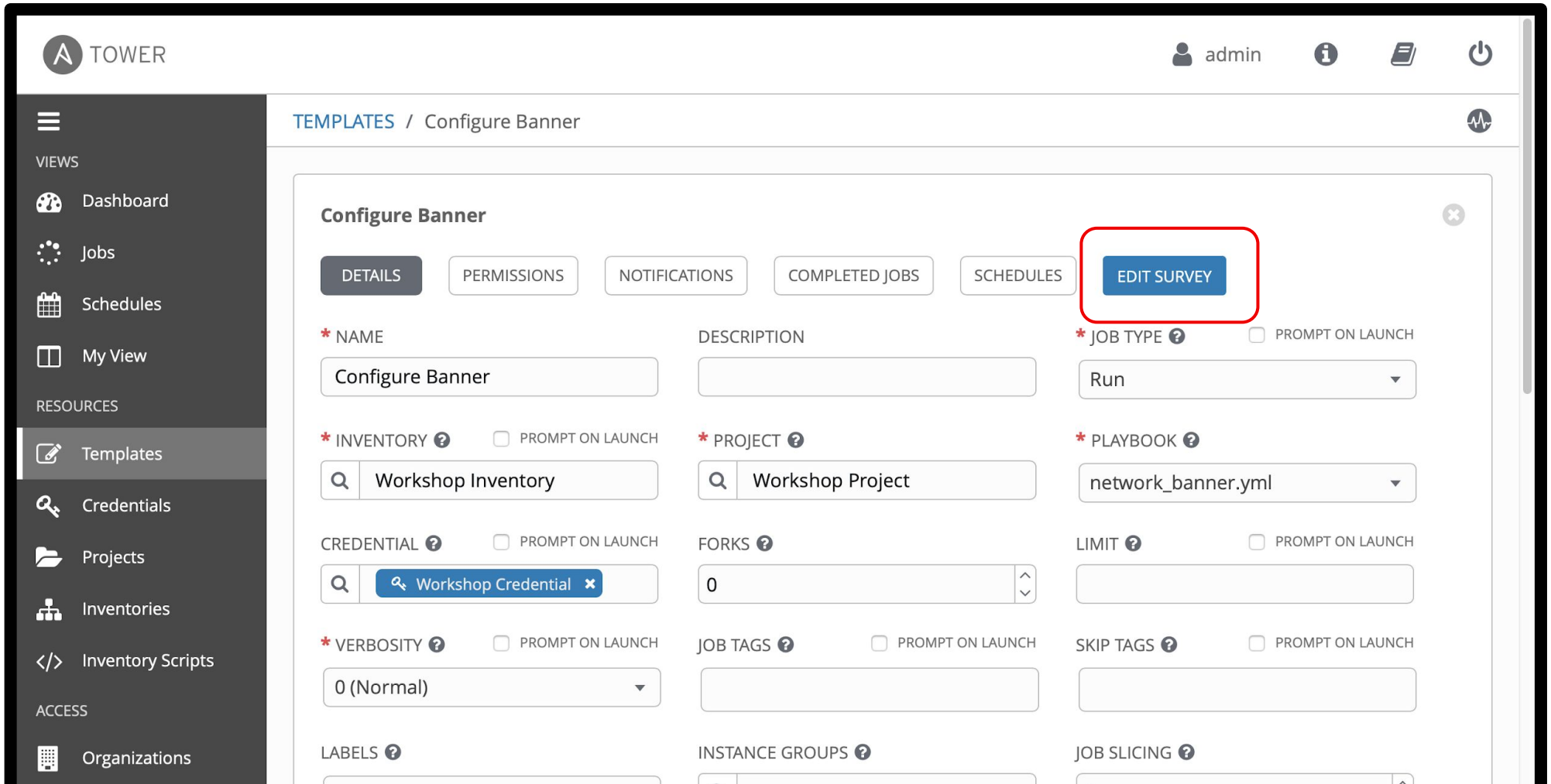
Creating a Survey (1/2)

Once a Job Template is saved, the **Add Survey Button** will appear

Click the button to open the Add Survey window.



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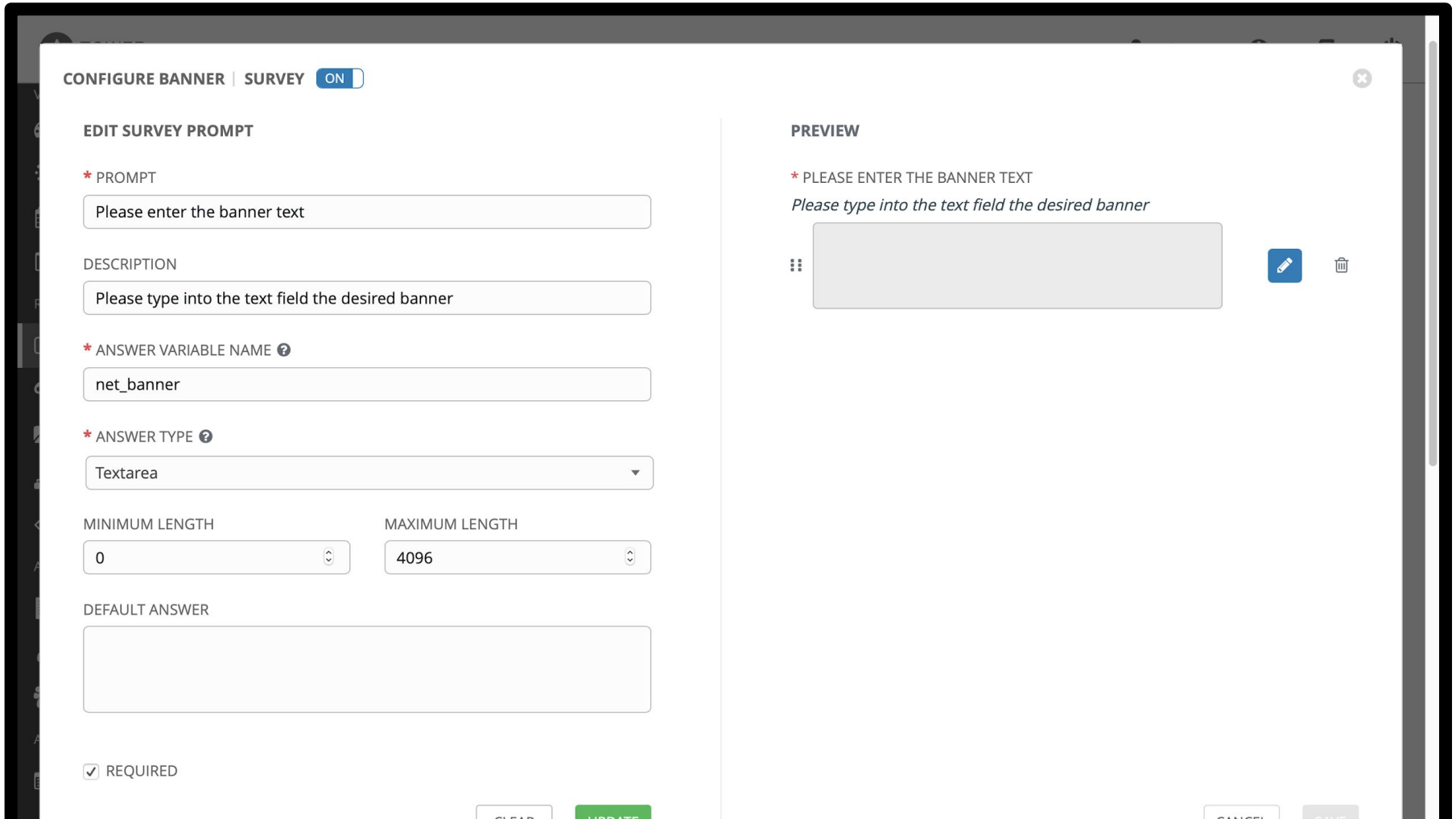
Creating a Survey (2/2)

The Add Survey window allows the Job Template to prompt users for one or more questions. The answers provided become variables for use in the Ansible Playbook.



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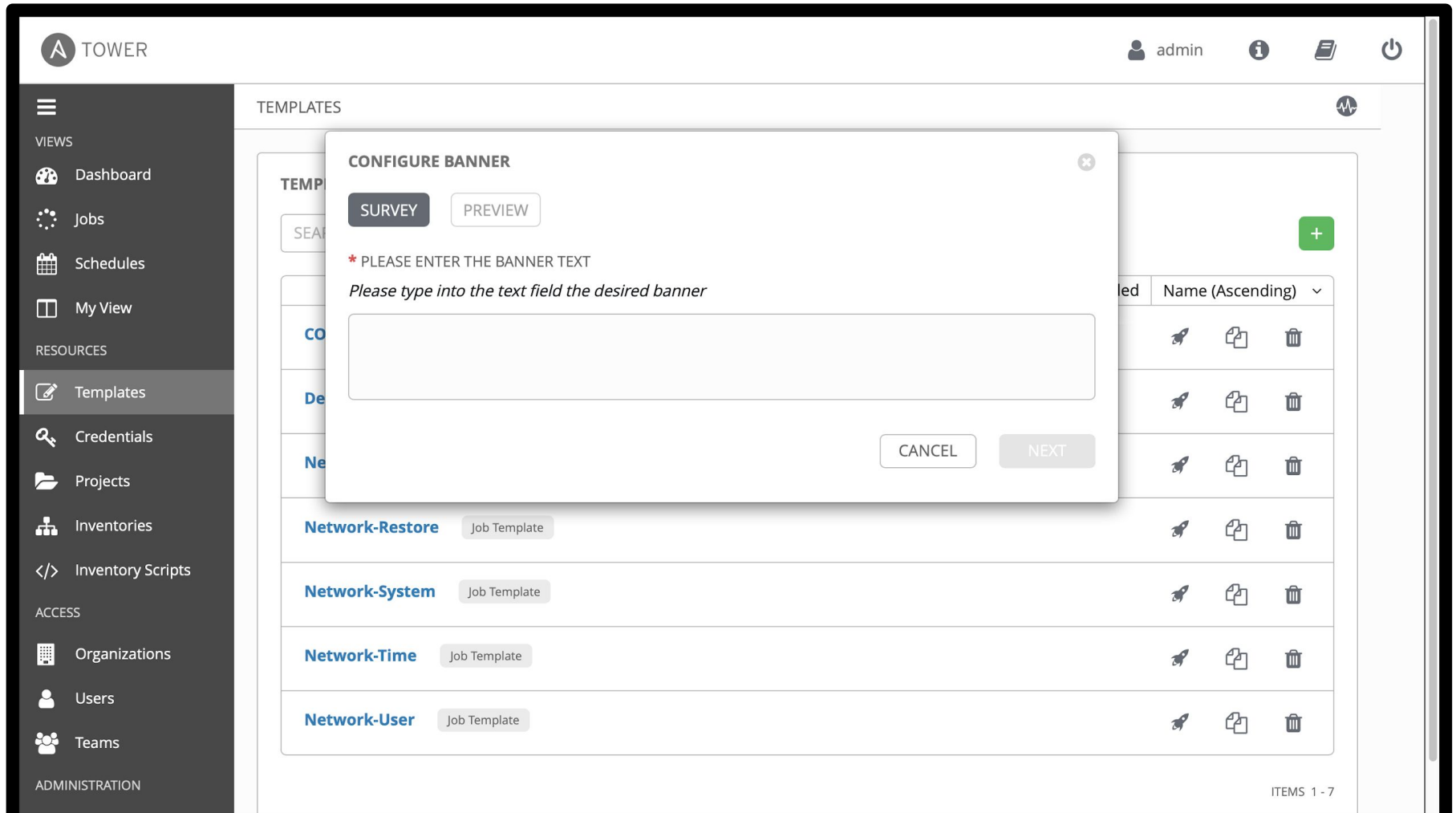
Using a Survey

When launching a job, the user will now be prompted with the Survey. The user can be required to fill out the Survey before the Job Template will execute.



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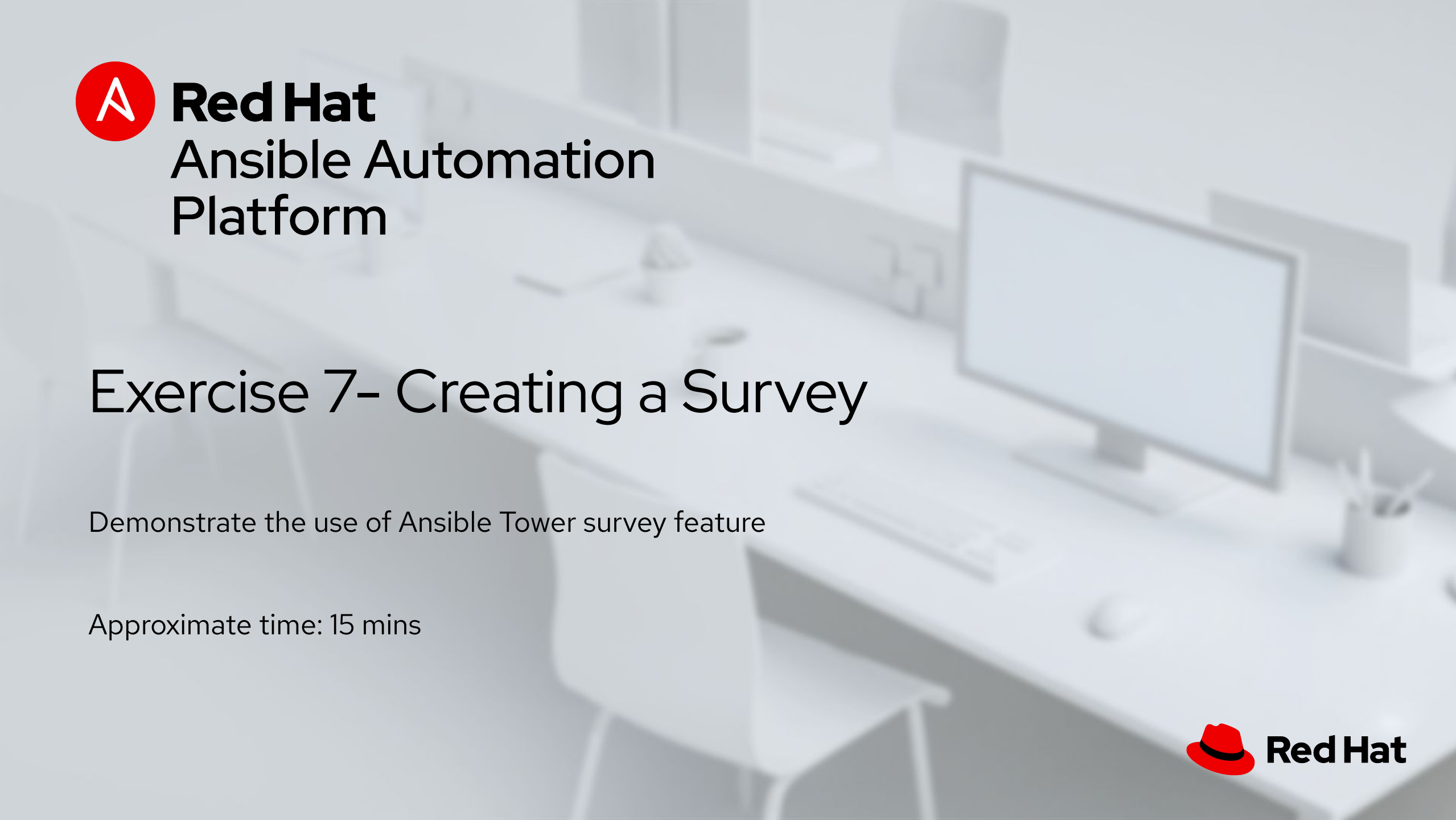

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Exercise 7- Creating a Survey

Demonstrate the use of Ansible Tower survey feature

Approximate time: 15 mins

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Exercise 8

Topics Covered:

- Understanding Organizations
- Understanding Teams
- Understanding Users

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Role Based Access Control (RBAC)

Role-Based Access Controls (RBAC) are built into Ansible Tower and allow administrators to delegate access to inventories, organizations, and more. These controls allow Ansible Tower to help you increase security and streamline management of your Ansible automation.

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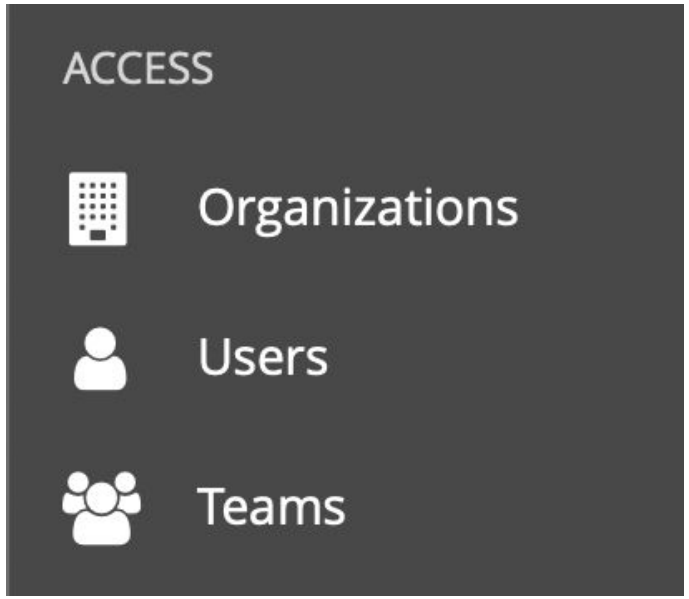
User Management

- An **organization** is a logical collection of users, teams, projects, inventories and more. All entities belong to an organization with the exception of users.

- A **user** is an account to access Ansible Tower and its services given the permissions granted to it.

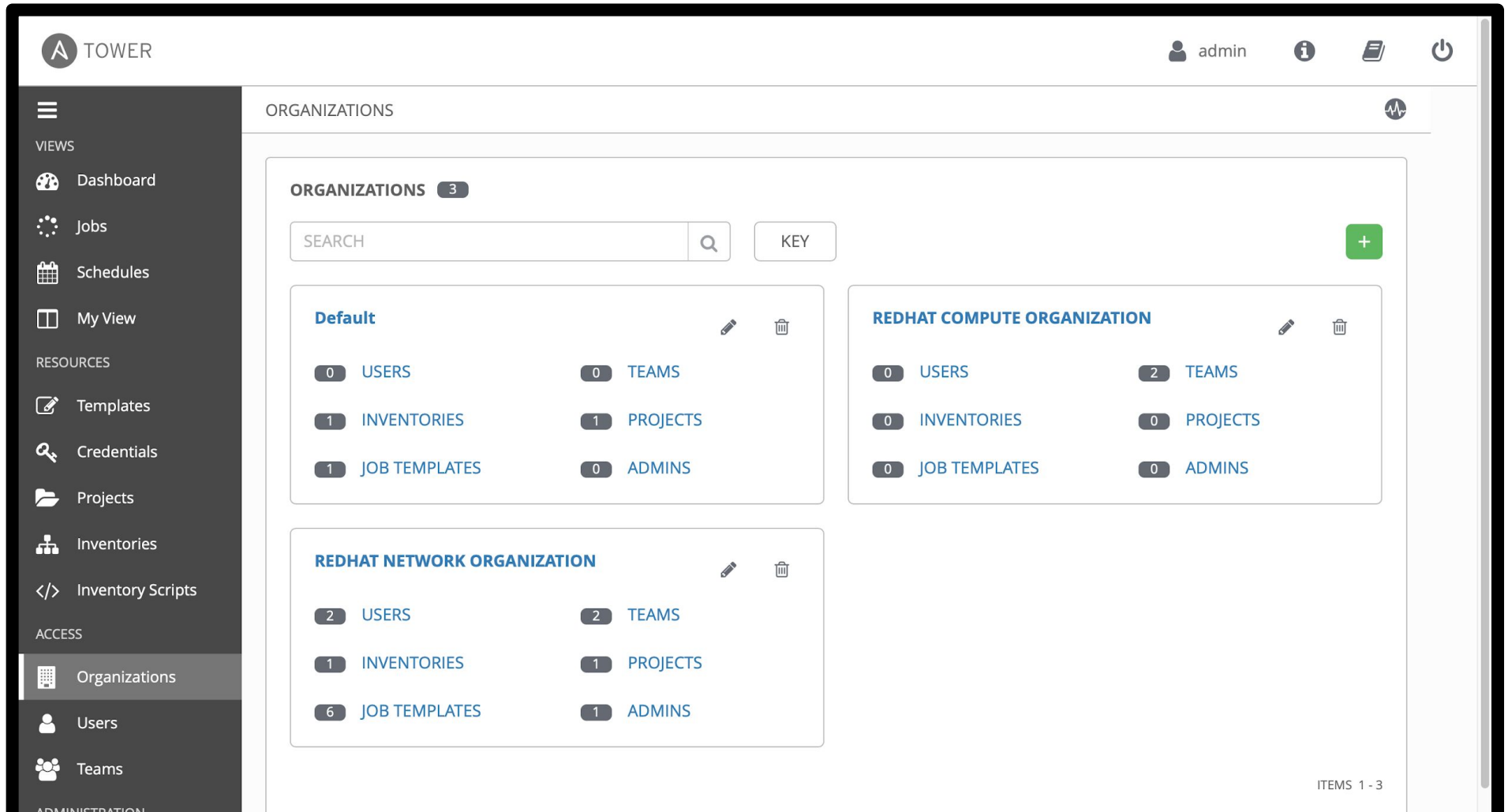
- **Teams** provide a means to implement role-based access control schemes and delegate responsibilities across organizations.



Viewing Organizations

Clicking on the **Organizations** button will open up the Organizations window

in the left menu



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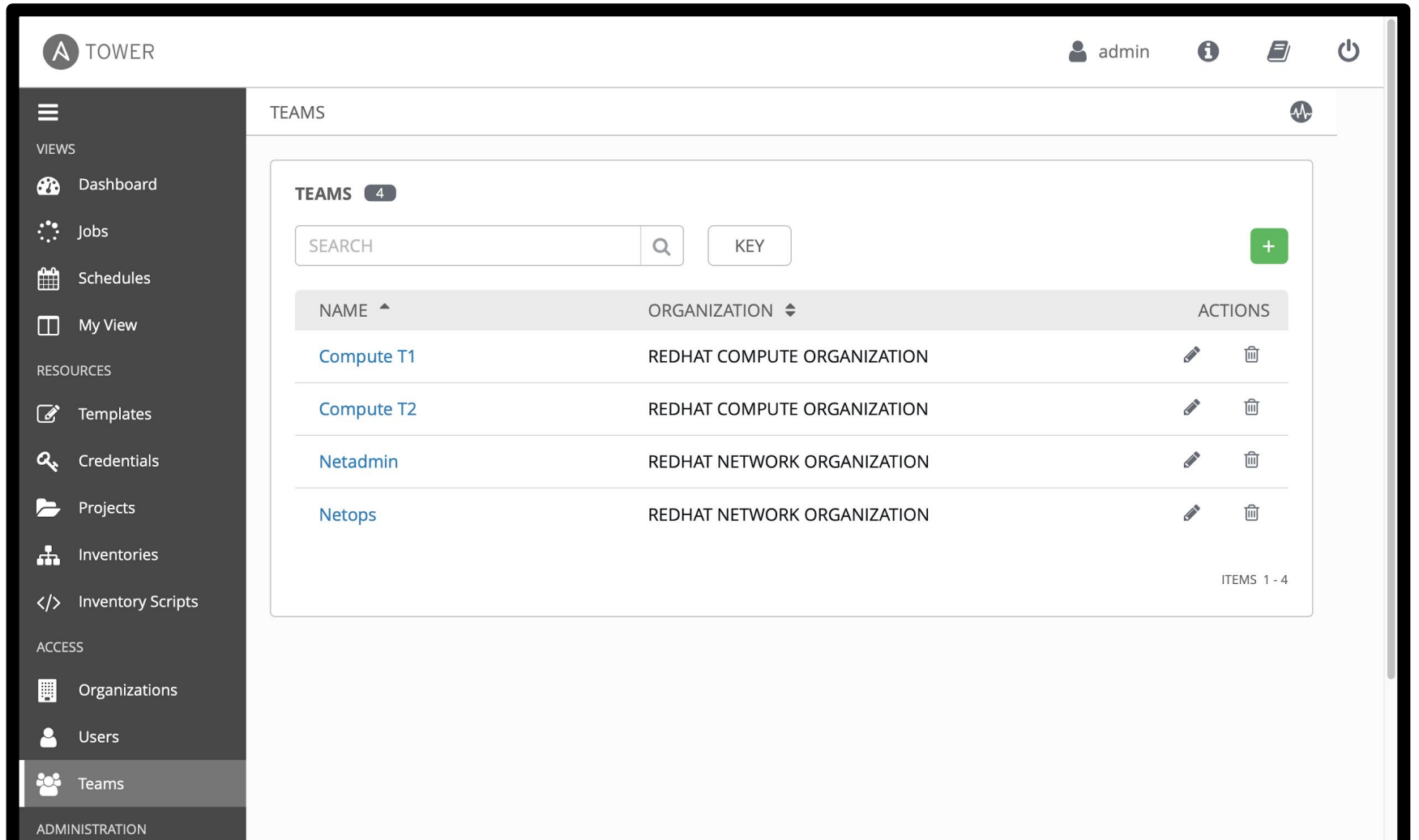
Viewing Teams

Clicking on the **Teams** button will open up the Teams window

in the left menu



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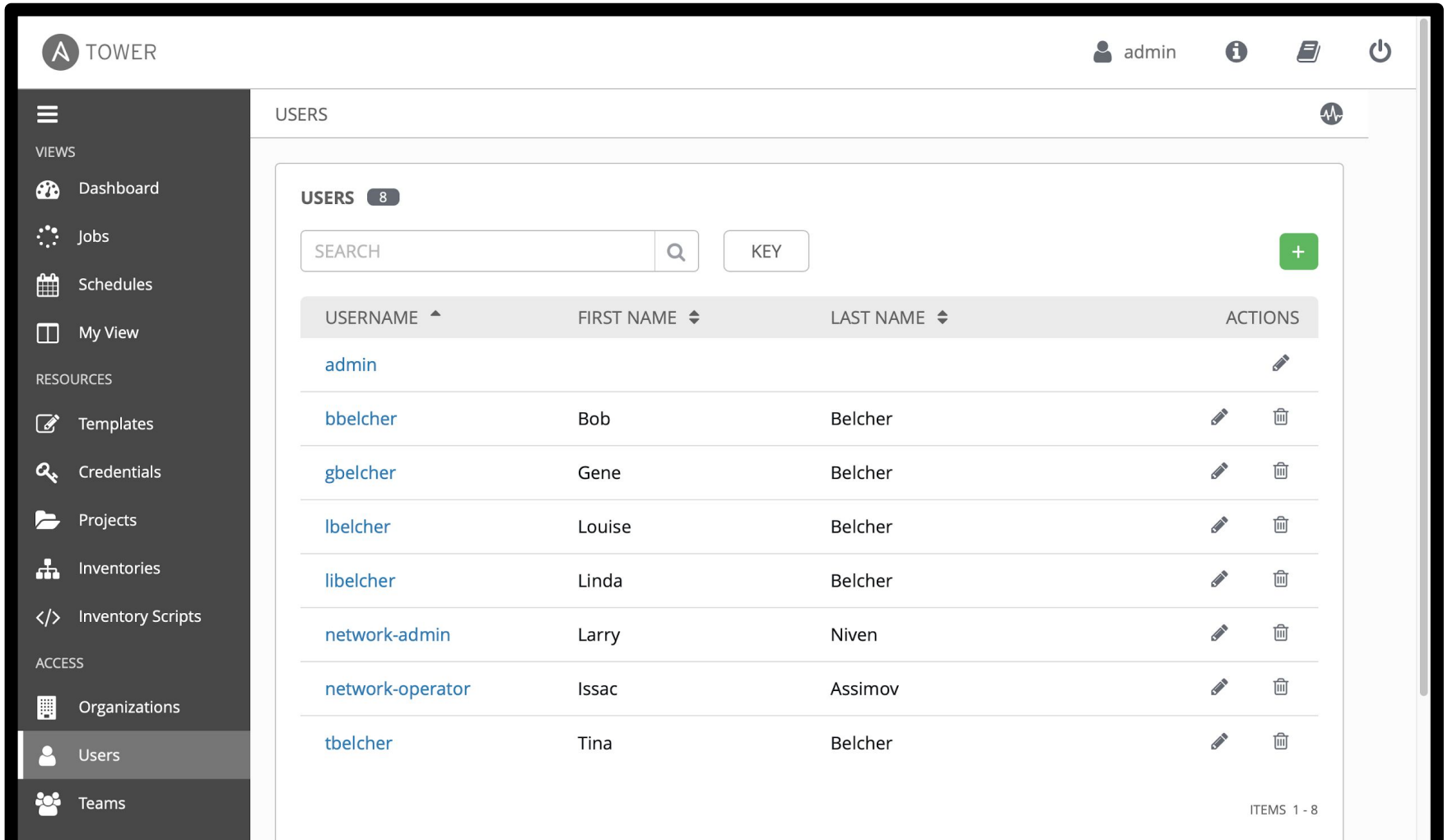
Viewing Users

Clicking on the **Users** button will open up the Users window

in the left menu



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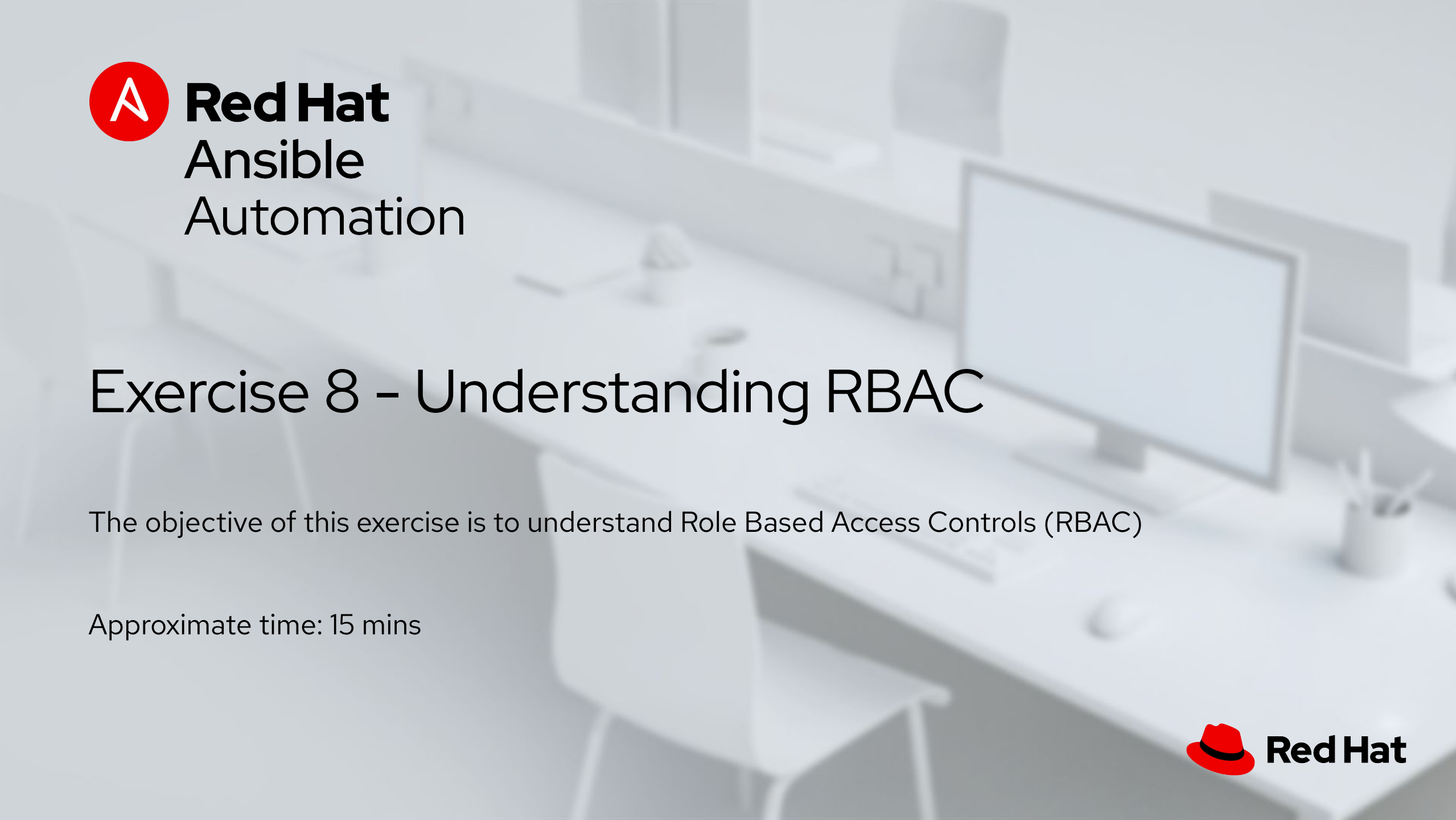

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Exercise 8 - Understanding RBAC

The objective of this exercise is to understand Role Based Access Controls (RBAC)

Approximate time: 15 mins

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Exercise 9

Topics Covered:

- Understanding Workflows
  - Branching
  - Convergence / Joins
  - Conditional Logic

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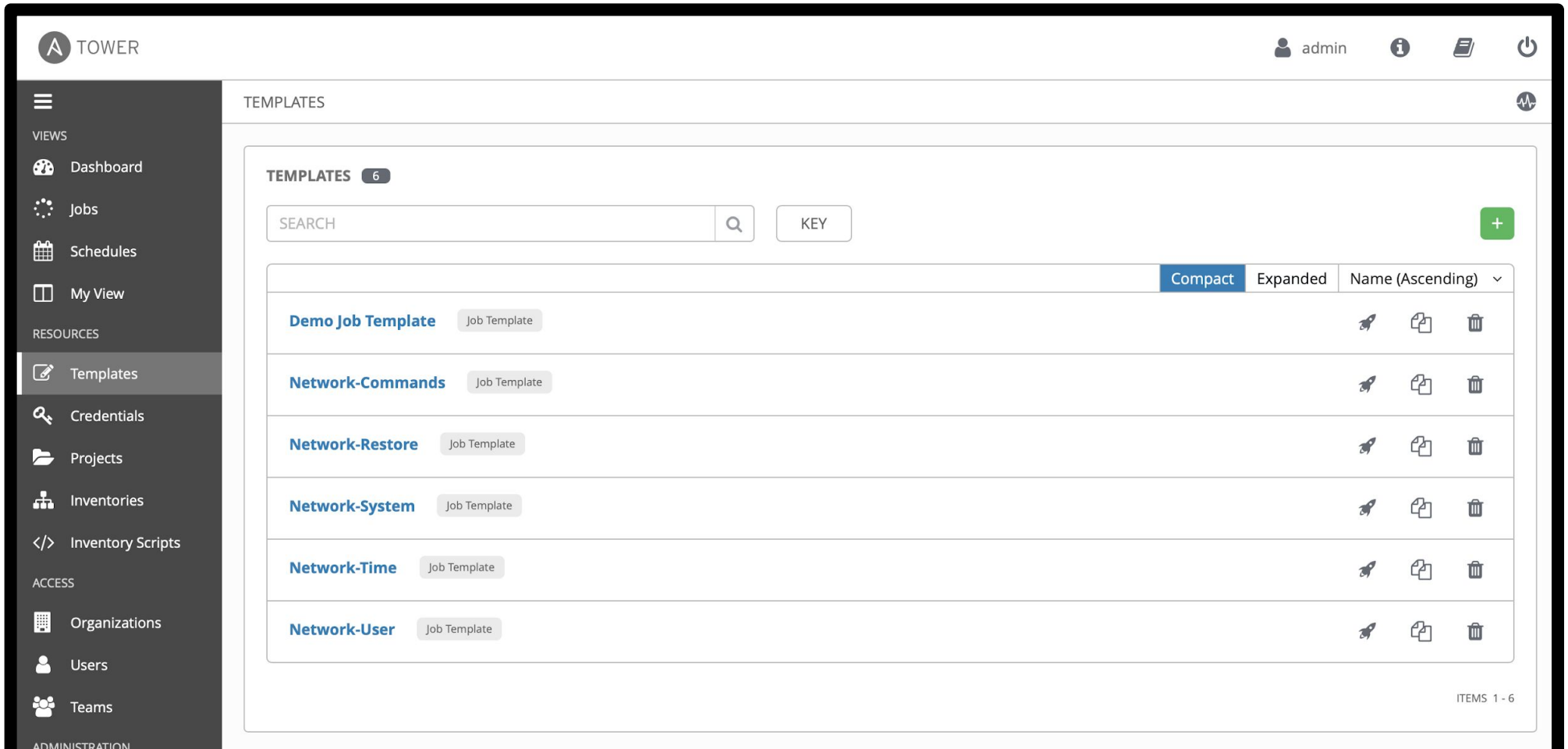
Workflows

Workflows can be found alongside Job Templates by clicking the **Templates** button under the *RESOURCES* section on the left menu.



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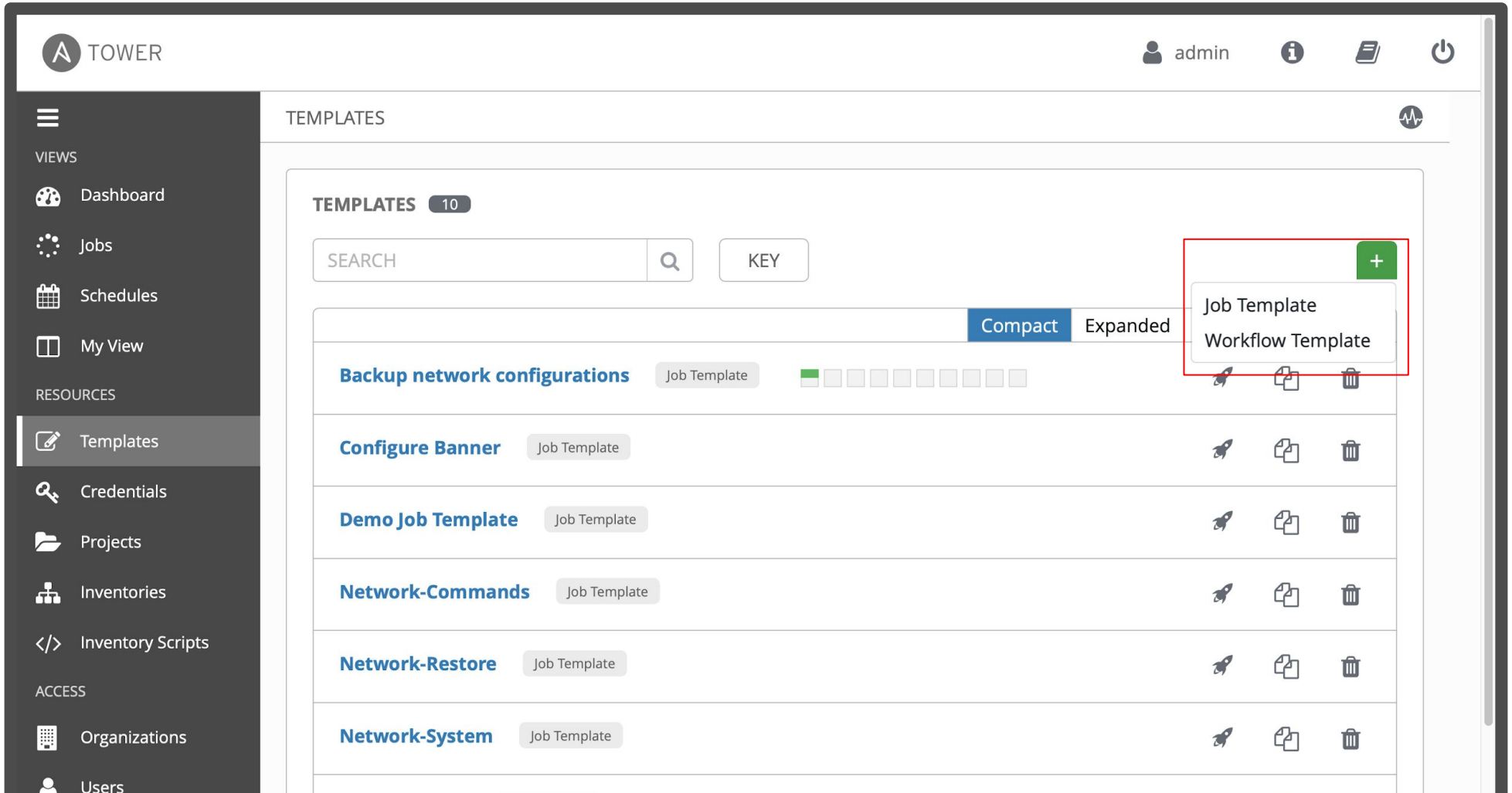
Adding a new Workflow Template

To add a new **Workflow** click on the green + button 

This time select the **Workflow Template**



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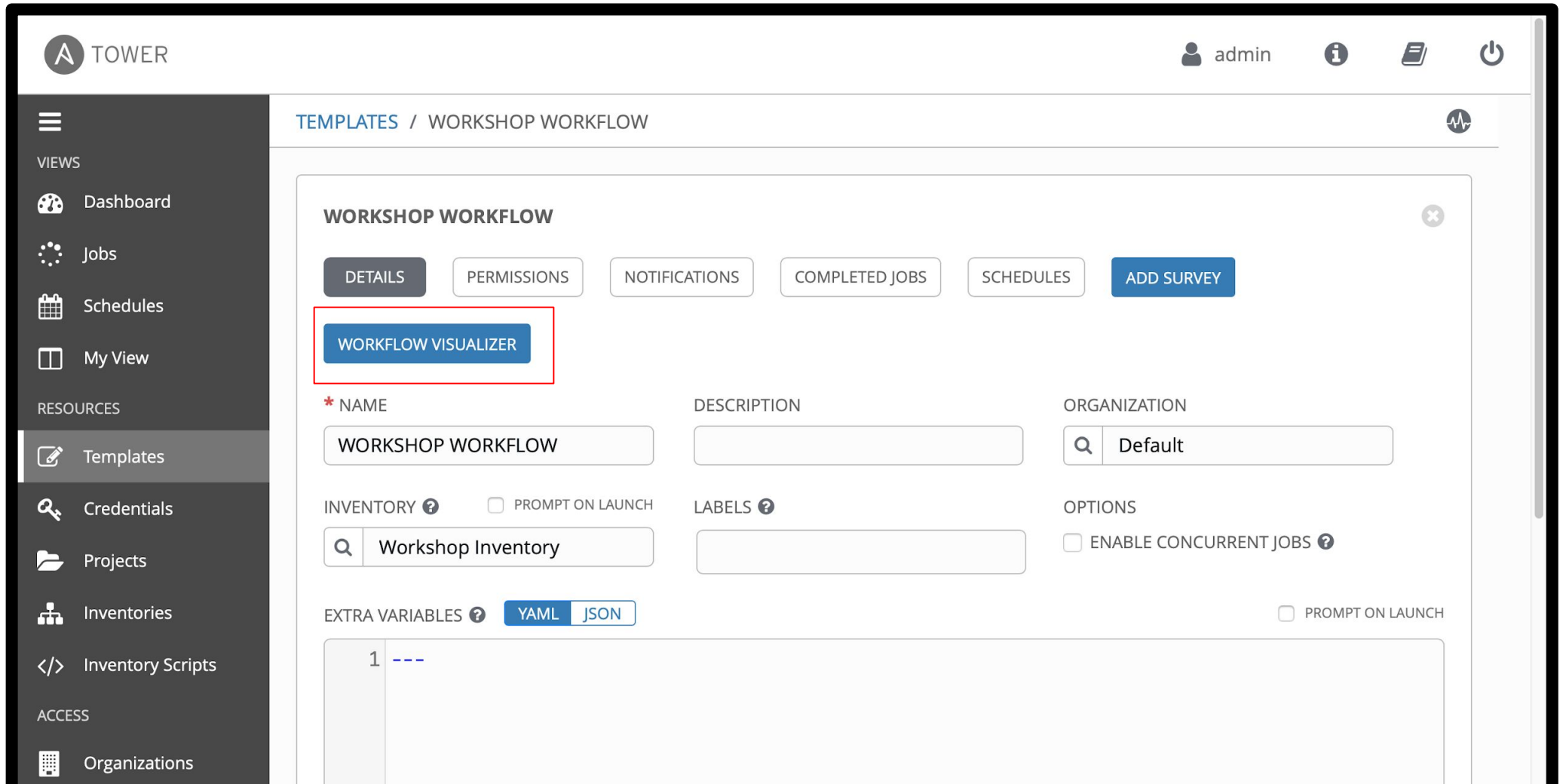
Creating the Workflow

Fill out the required parameters and click **SAVE.** As soon as the Workflow Template is saved the WORKFLOW VISUALIZER will open.



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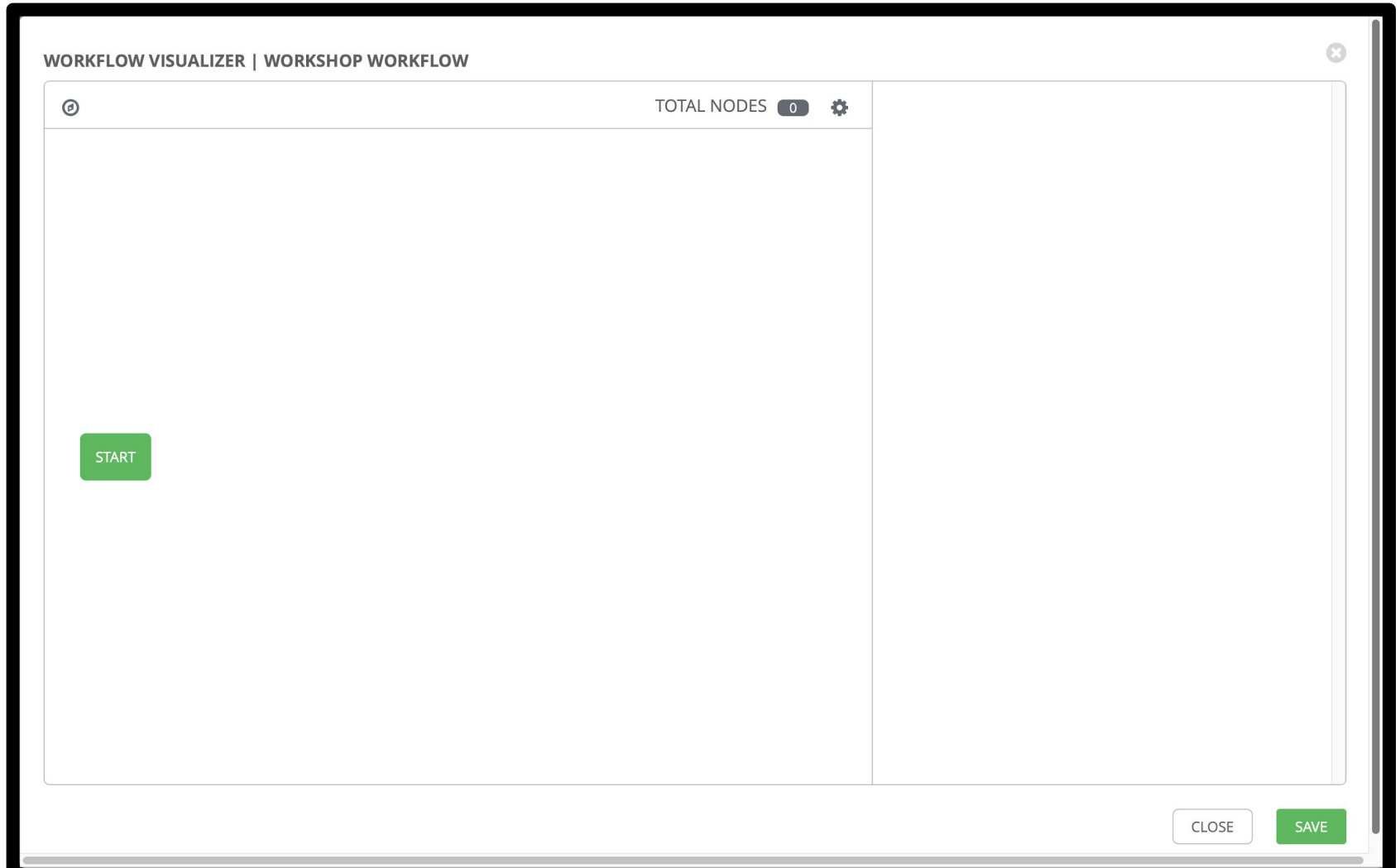
Workflow Visualizer

The workflow visualizer will start as a blank canvas.



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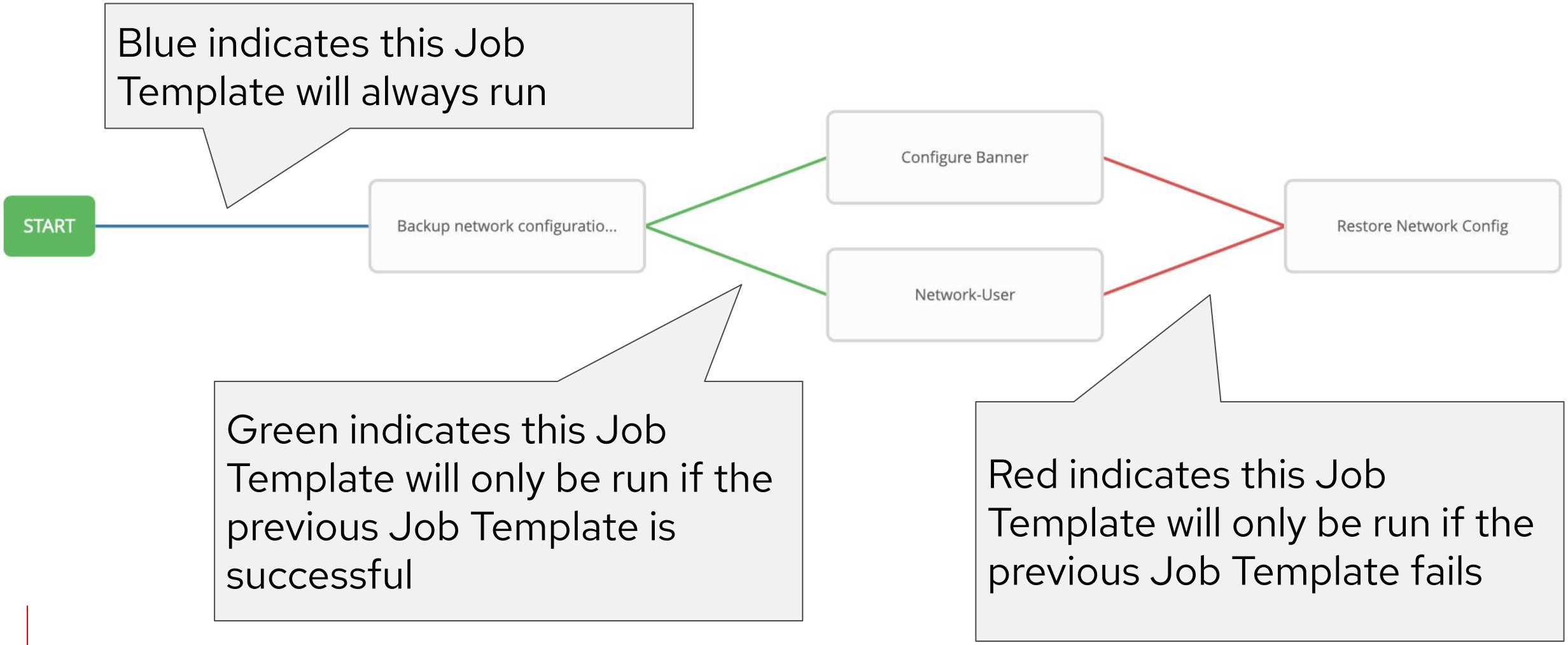
Visualizing a Workflow

Workflows can branch out, or converge in.



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Exercise 9 - Creating a Workflow

Demonstrate the use of Ansible Tower workflow

Approximate time: 15 mins

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Next Steps

GET STARTED

ansible.com/get-started

ansible.com/tower-trial

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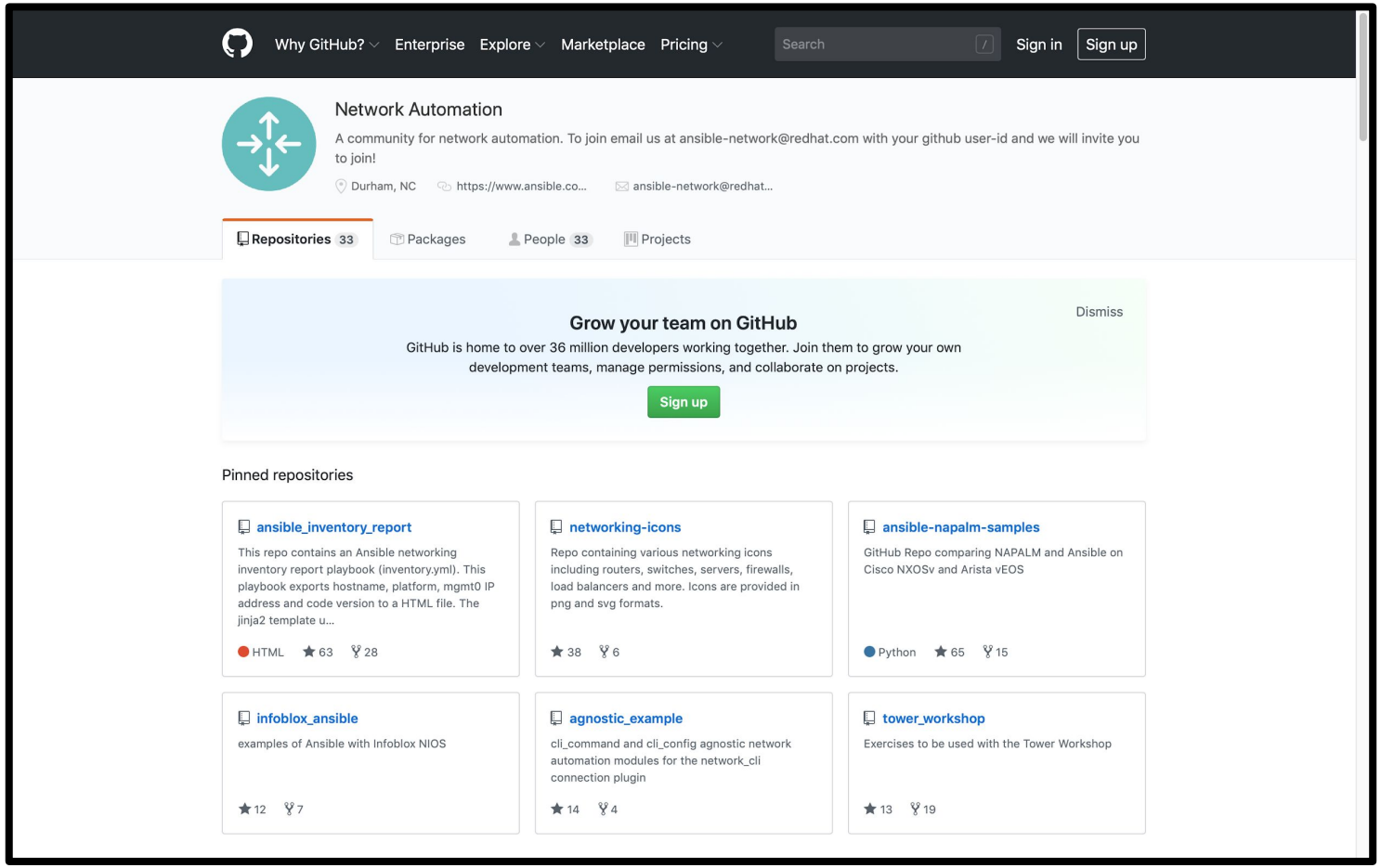
- **IRC**
  #ansible-network on freenode
  http://webchat.freenode.net/?channels=ansible-network

Bookmark the Github organization

- Examples, samples and demos
- Run network topologies right on your laptop



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Thank you


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