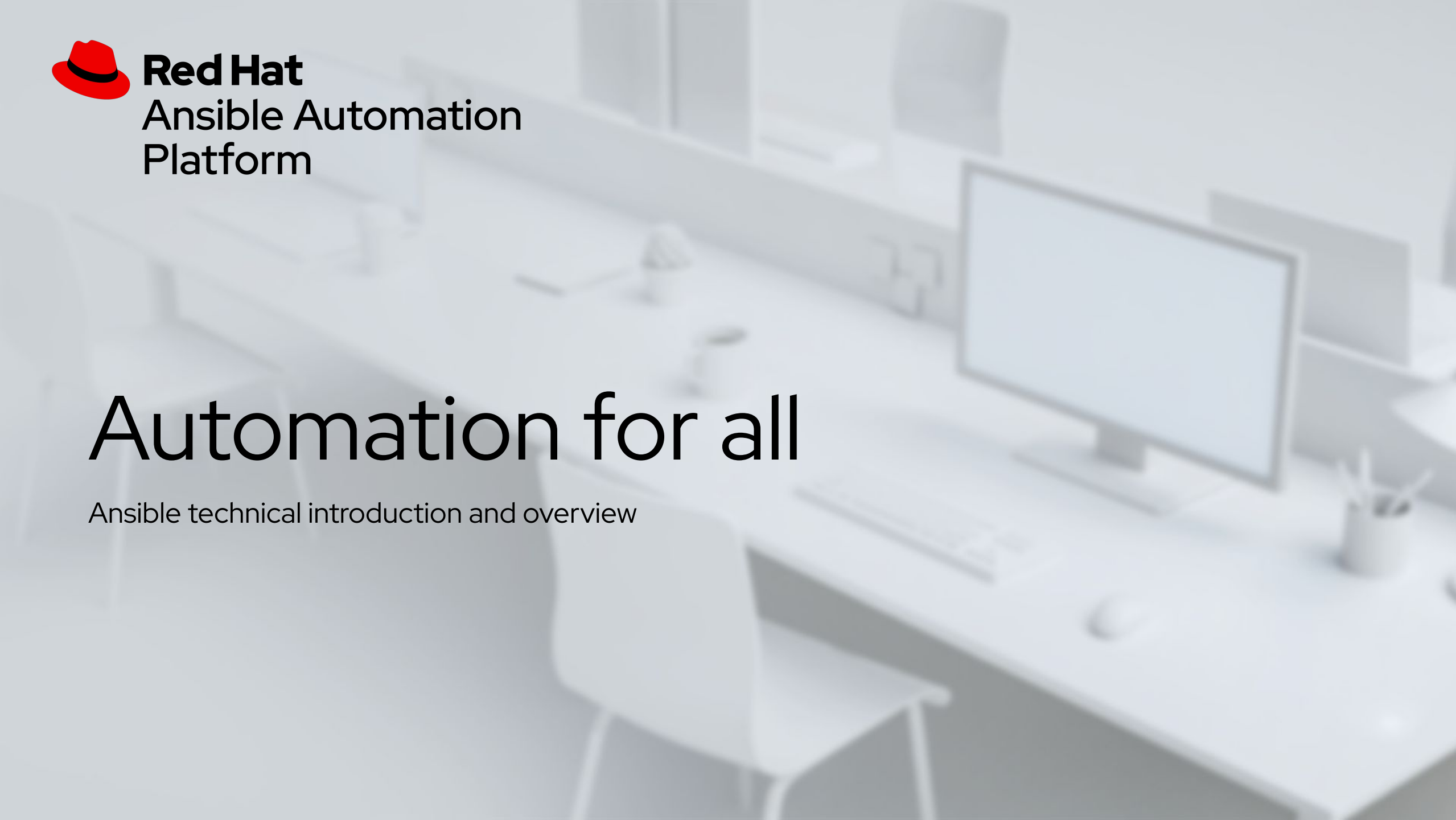
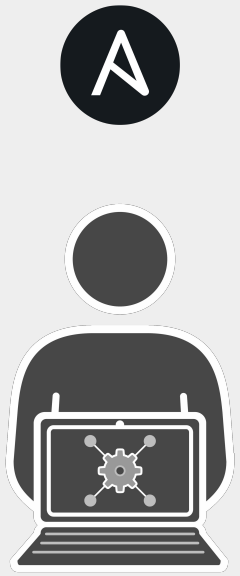


Red Hat
Ansible Automation
Platform

Automation for all

Ansible technical introduction and overview



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

Why Ansible?

Simple

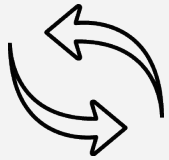
Human readable automation

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...

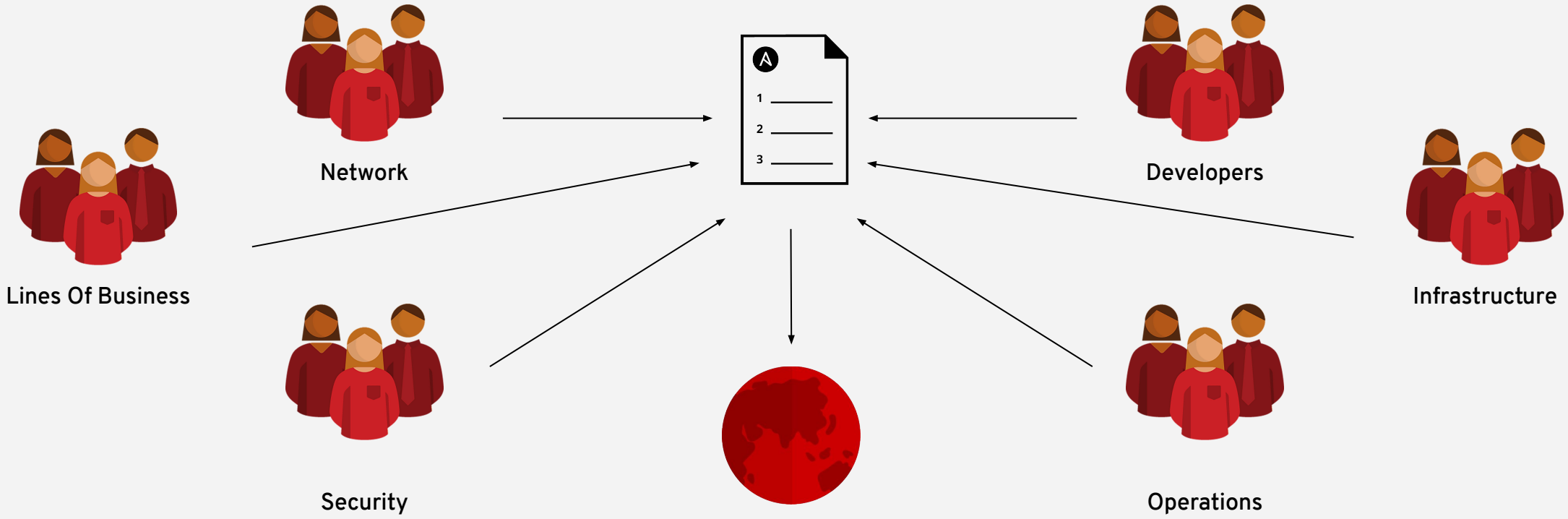
Orchestration	Configuration Management	Application Deployment	Provisioning	Continuous Delivery	Security and Compliance

On these...

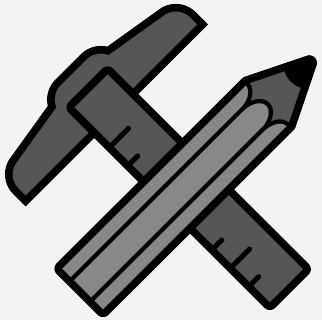
Firewalls	Load Balancers	Applications	Containers	Clouds
Servers	Infrastructure	Storage	Network Devices	**And more...**

Red Hat

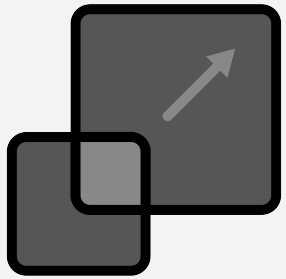
When automation crosses teams, you need an automation platform



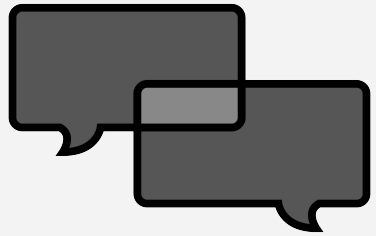
A platform can help you



Create



Scale



Engage

Red Hat Ansible Automation Platform

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

Engage	**Ansible Hosted Services:** 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, 50+ **certified** platforms

Cloud

AWS
Azure
Digital Ocean
Google
OpenStack
Rackspace
+more

Red Hat Products

RHEL
Satellite
Insights
+more

Virt & Container

Docker
Kubernetes
OpenStack
OpenShift
VMware
+more

Storage

Infinidat
Netapp
Pure Storage
+more

Windows

ACLs
Files
Packages
IIS
Registry
Shares
Services
Configs
Users
Domains
Updates
+more

Network

Arista
Aruba
Bigswitch
Cisco
Ericsson
F5
FRR
Juniper
Meraki
OpenvSwitch
Ruckus
VyOS
+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

Red Hat

Red Hat
Ansible Automation
Platform

Red Hat Ansible Engine:

Universal language of automation

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
Human readable automation

Powerful
Thousands of integrations

Agentless
No agents to exploit or update

Fueled by an open source community

Red Hat

Red Hat Ansible Engine

Cross platform

Agentless support for all major OS variants, physical, virtual, cloud and network devices.

Human readable

Perfectly describe and document every aspect of your application environment.

Perfect description of application

Every change can be made by Playbooks, ensuring everyone is on the same page.

Version controlled

Playbooks are plain-text. Treat them like code in your existing version control.

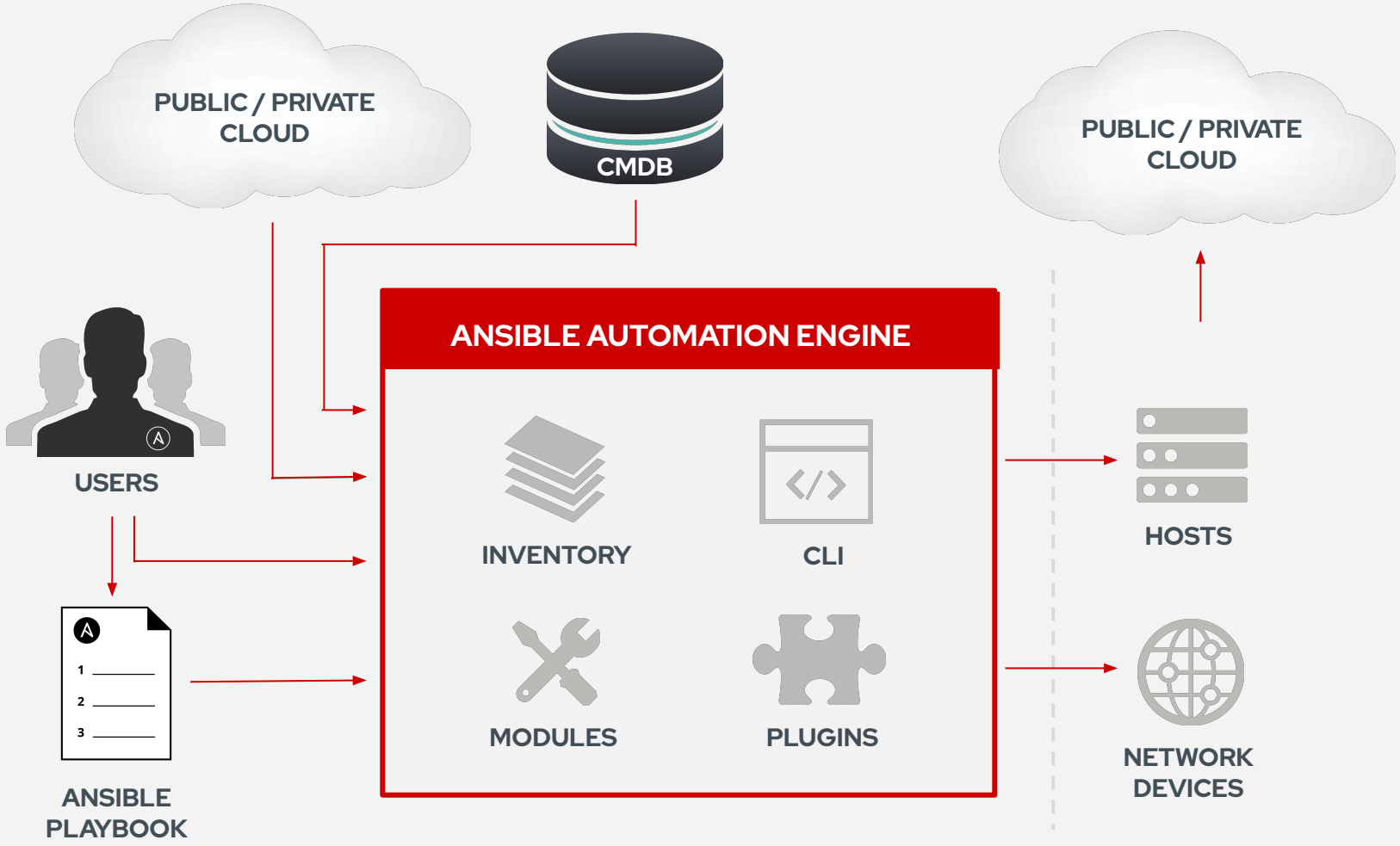
Dynamic inventories

Capture all the servers 100% of the time, regardless of infrastructure, location, etc.

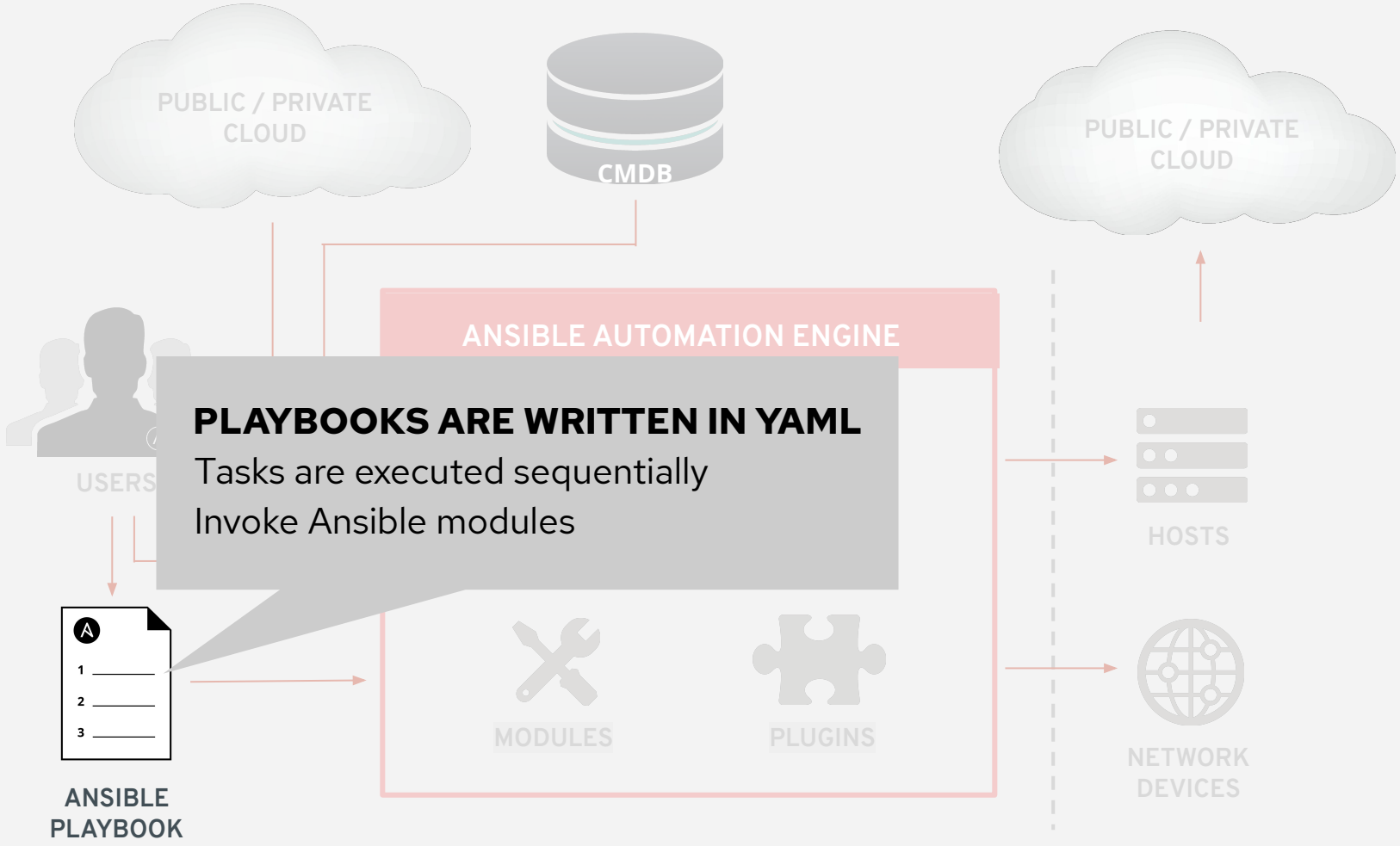
Orchestration plays well with others

Orchestration plays well with others: ServiceNow, Infoblox, AWS, Terraform, Cisco ACI and more

Red Hat


PUBLIC / PRIVATE CLOUD
CMDB
PUBLIC / PRIVATE CLOUD
ANSIBLE AUTOMATION ENGINE
USERS
INVENTORY
CLI
HOSTS
MODULES
PLUGINS
NETWORK DEVICES
1
2
3
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

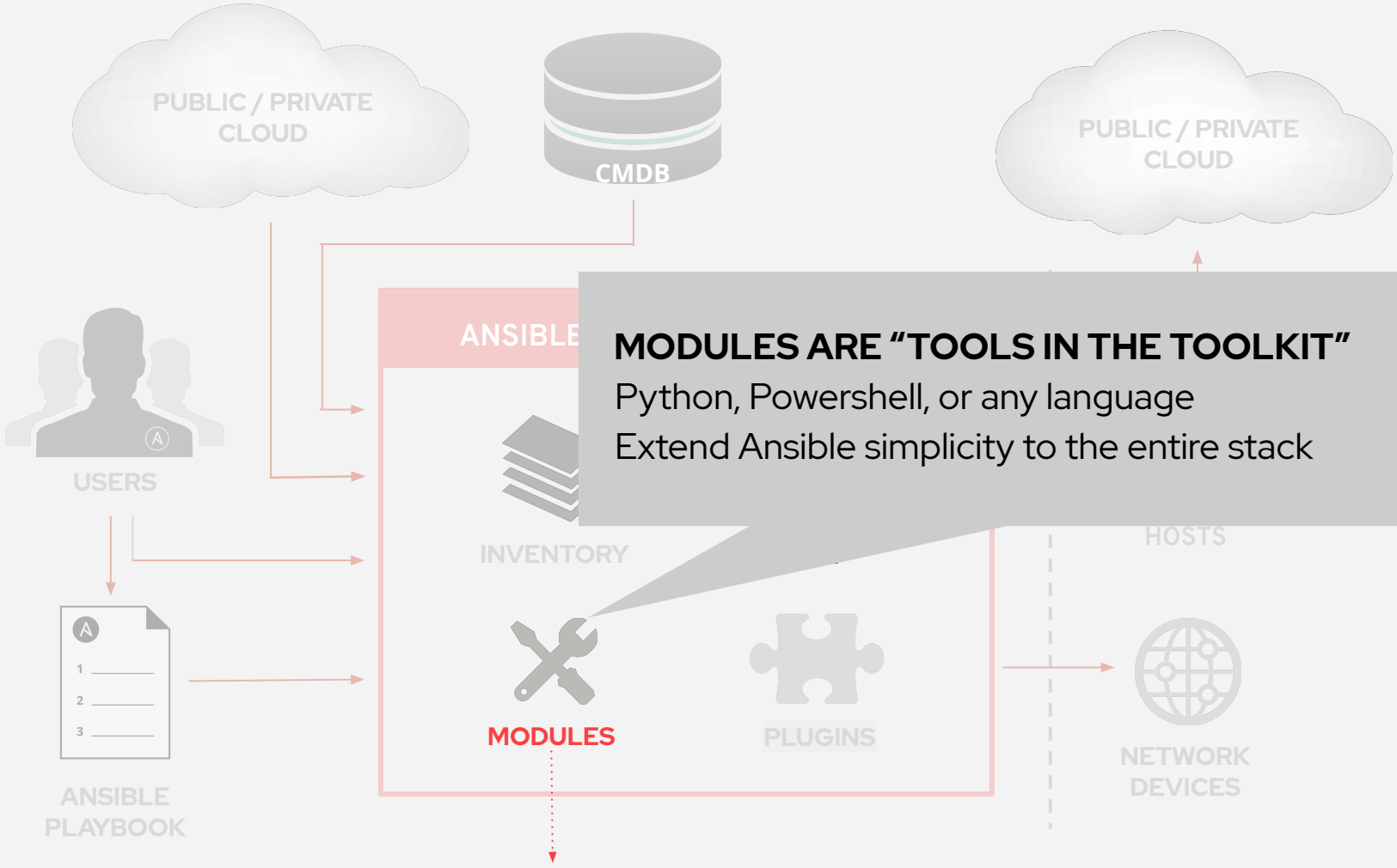
Red Hat

```
---
- name: install and start apache
  hosts: web
  become: yes

  tasks:
    - name: httpd package is present
      yum:
        name: httpd
        state: latest

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

    - name: httpd is started
      service:
        name: httpd
        state: started
```



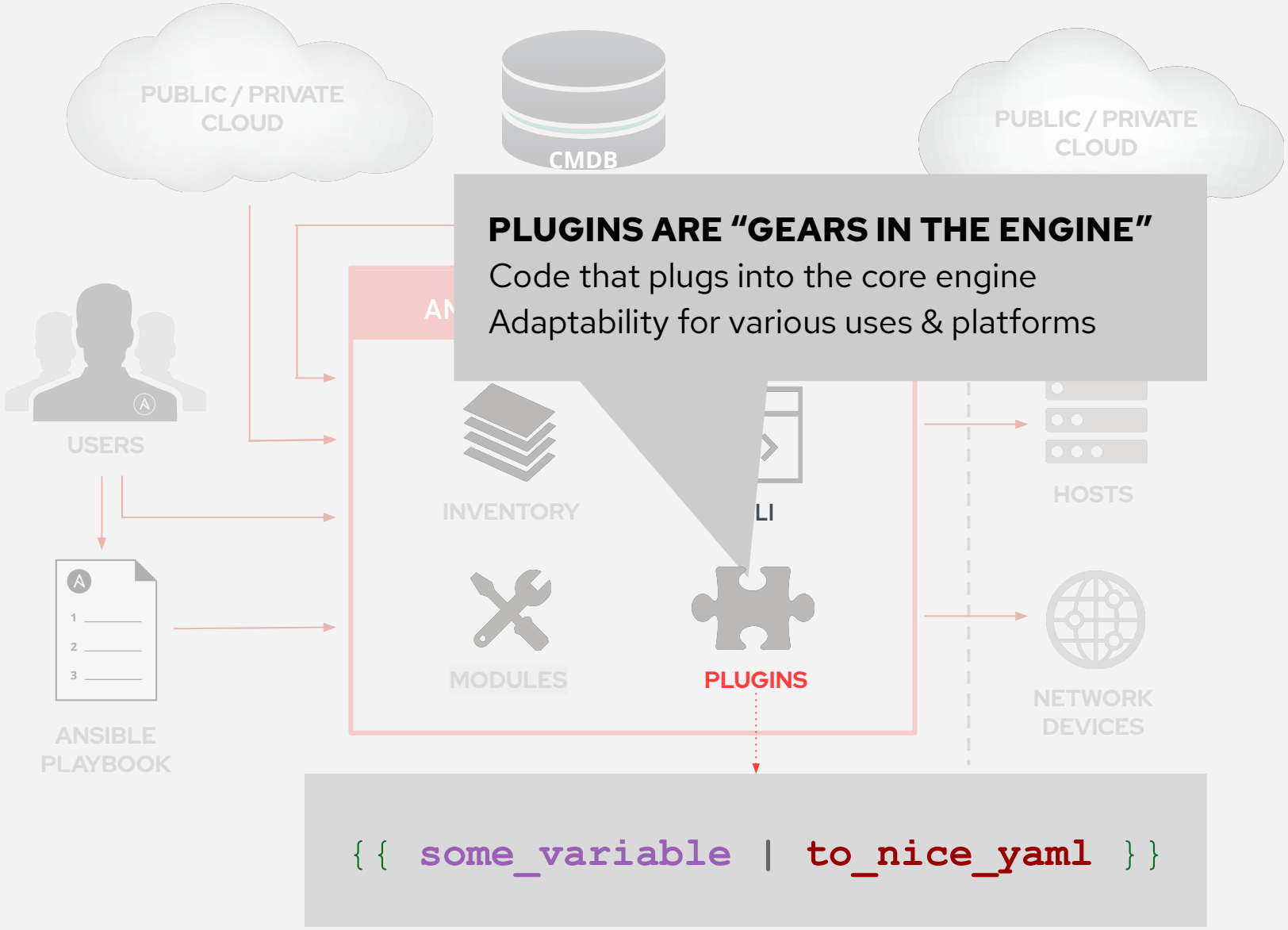
MODULES ARE "TOOLS IN THE TOOLKIT"

Python, Powershell, or any language

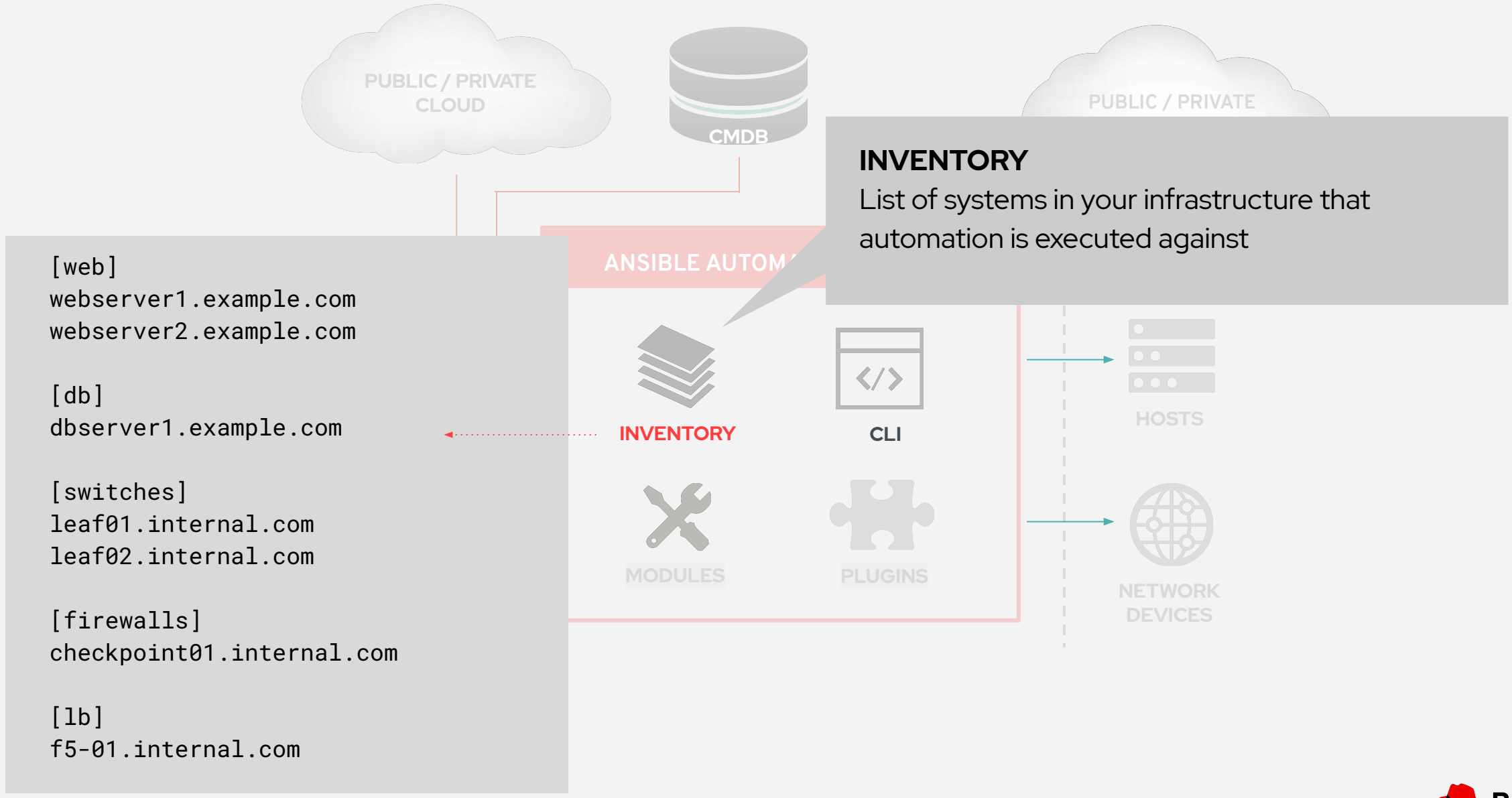
Extend Ansible simplicity to the entire stack

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

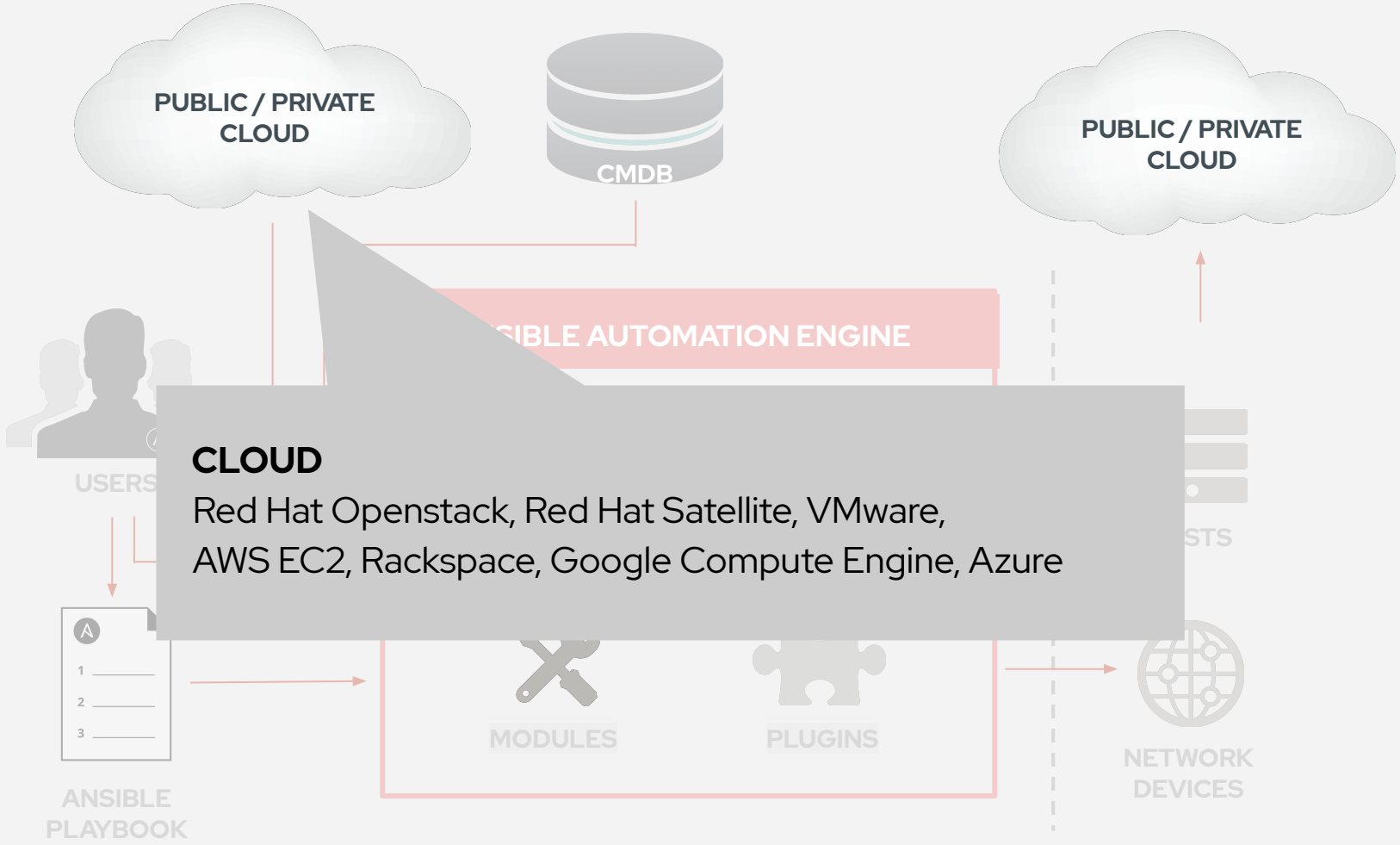
Red Hat


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 }}

Red Hat


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
MODULES
PLUGINS
HOSTS
NETWORK DEVICES

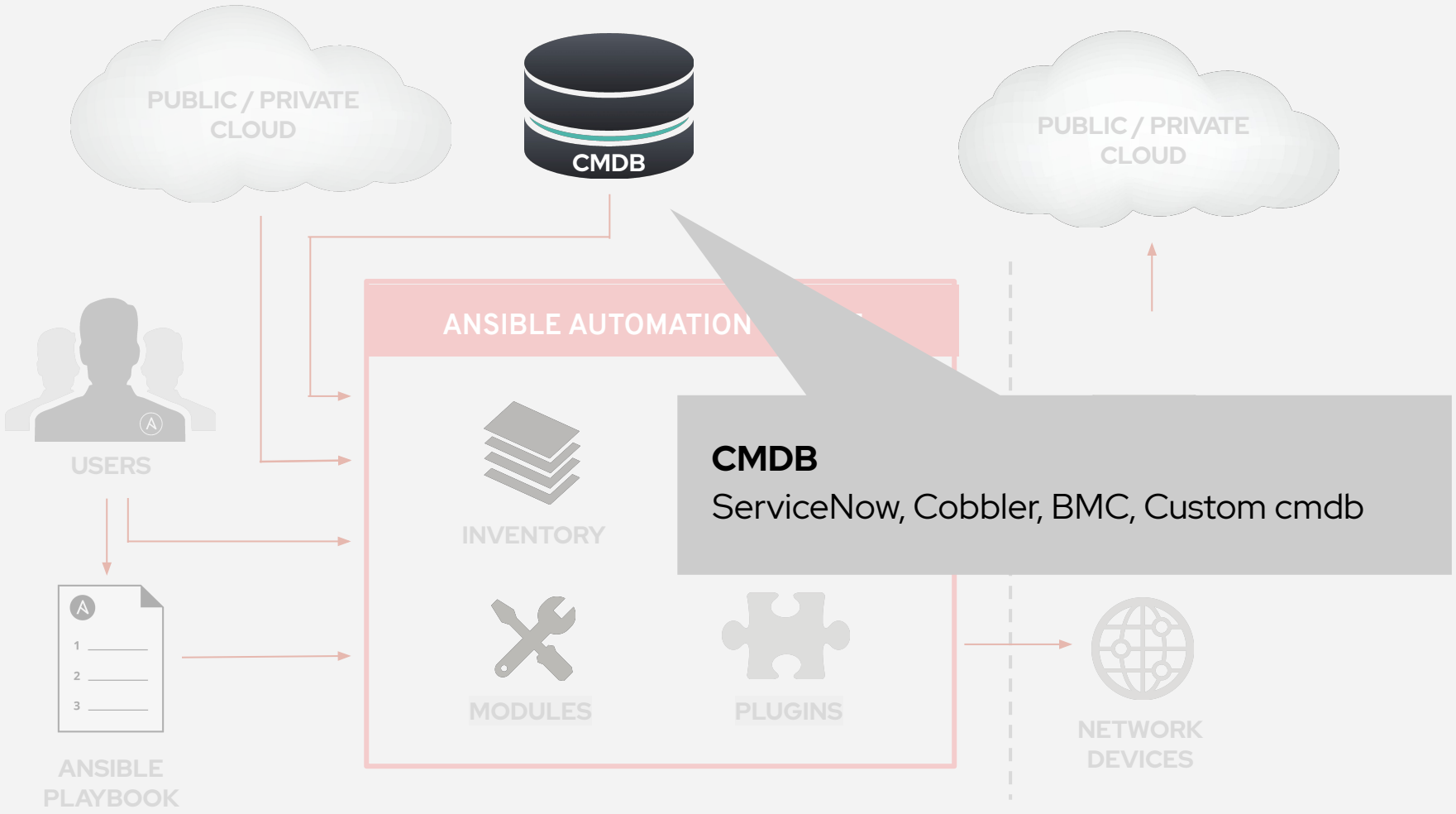
Red Hat



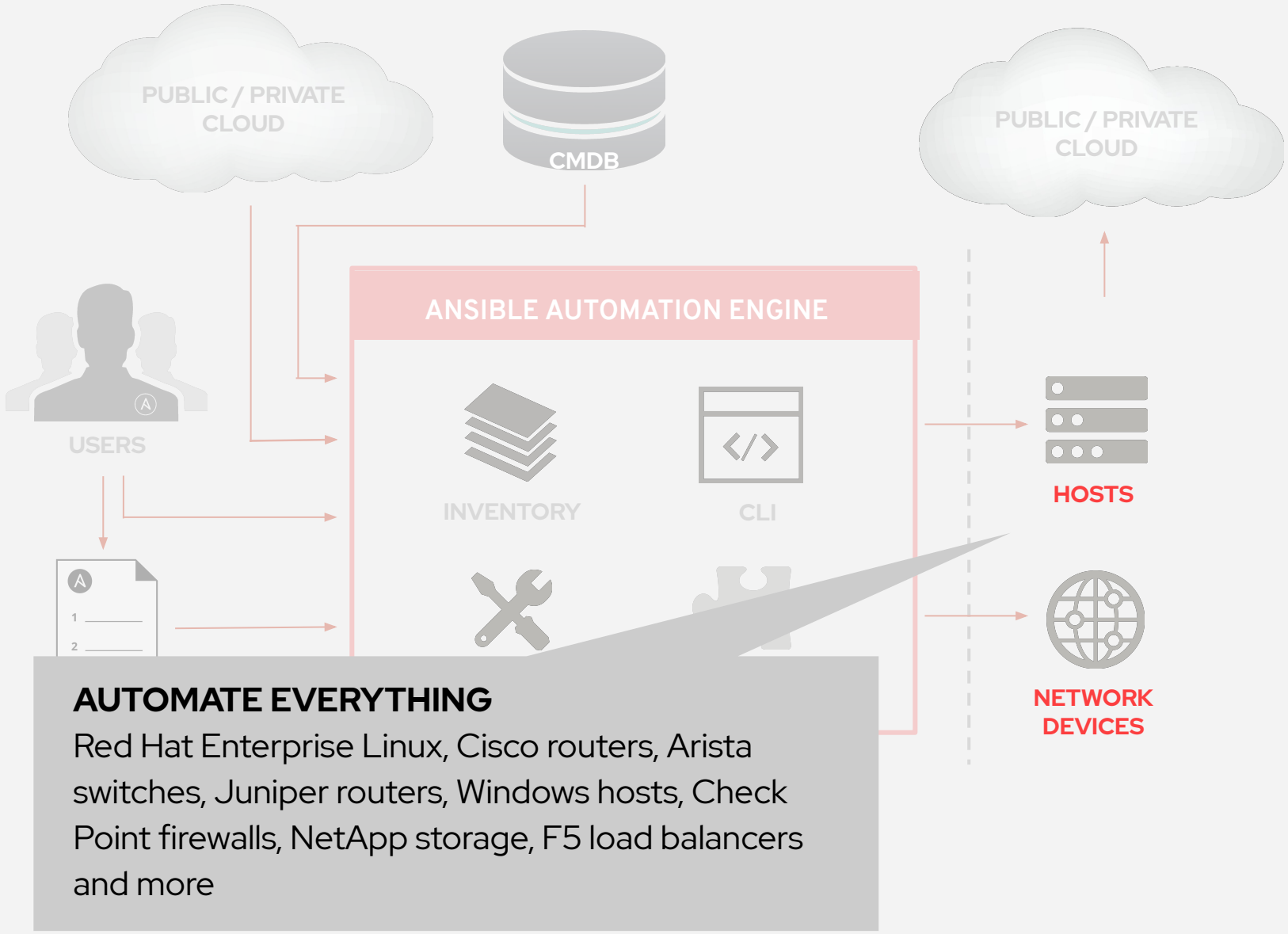
CLOUD

Red Hat Openstack, Red Hat Satellite, VMware,
AWS EC2, Rackspace, Google Compute Engine, Azure

Red Hat


PUBLIC / PRIVATE CLOUD
CMDB
PUBLIC / PRIVATE CLOUD
ANSIBLE AUTOMATION
USERS
INVENTORY
CMDB
ServiceNow, Cobbler, BMC, Custom cmdb
MODULES
PLUGINS
NETWORK DEVICES
ANSIBLE PLAYBOOK

Red Hat


PUBLIC / PRIVATE CLOUD
CMDB
PUBLIC / PRIVATE CLOUD
ANSIBLE AUTOMATION ENGINE
USERS
INVENTORY
CLI
HOSTS
NETWORK DEVICES
AUTOMATE EVERYTHING
Red Hat Enterprise Linux, Cisco routers, Arista switches, Juniper routers, Windows hosts, Check Point firewalls, NetApp storage, F5 load balancers and more

Red Hat

Red Hat
Ansible Automation
Platform

Red Hat Ansible Tower:

Operate and control at scale

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

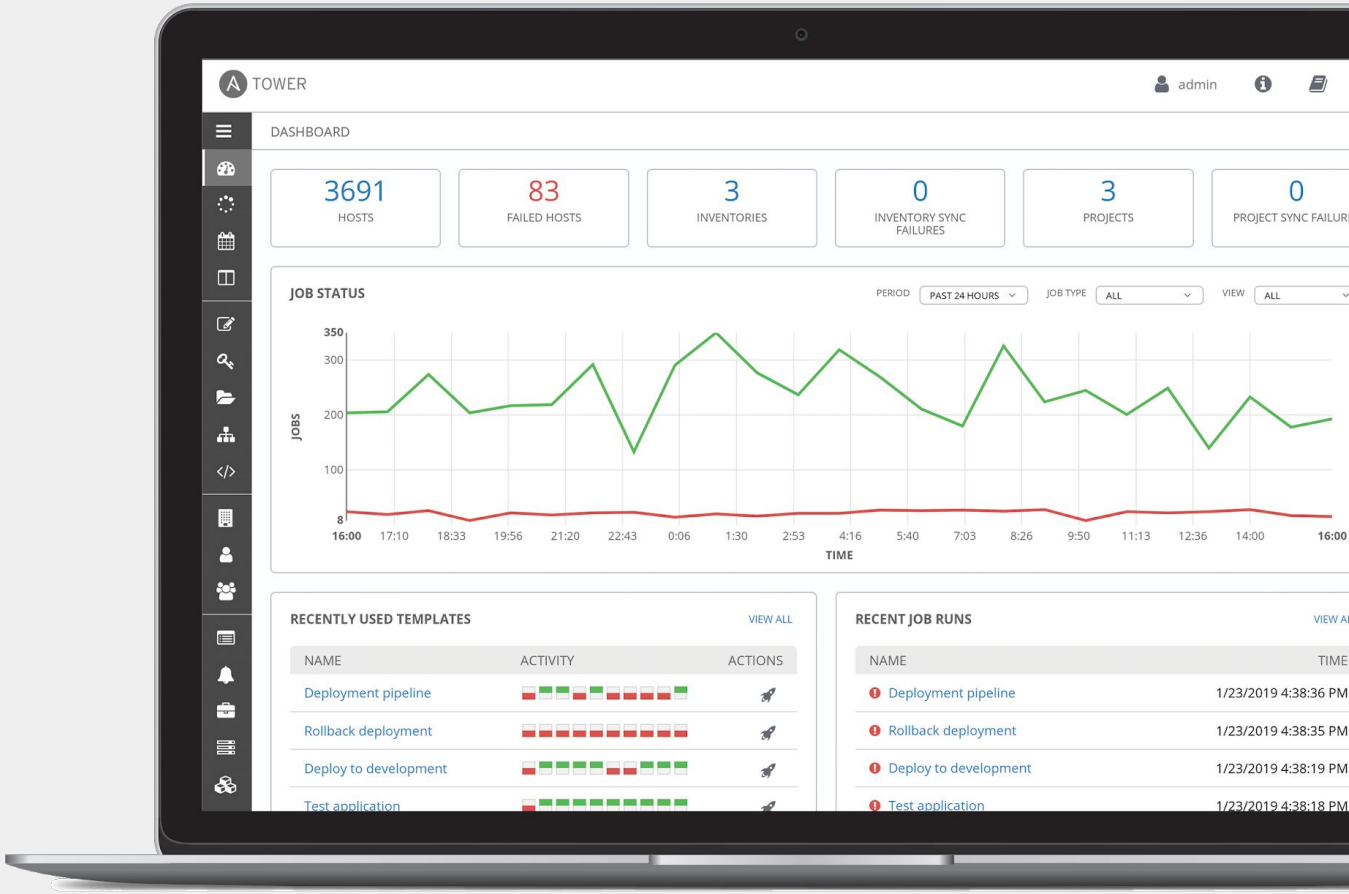
Fueled by an open source community

Red Hat

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



Red Hat

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

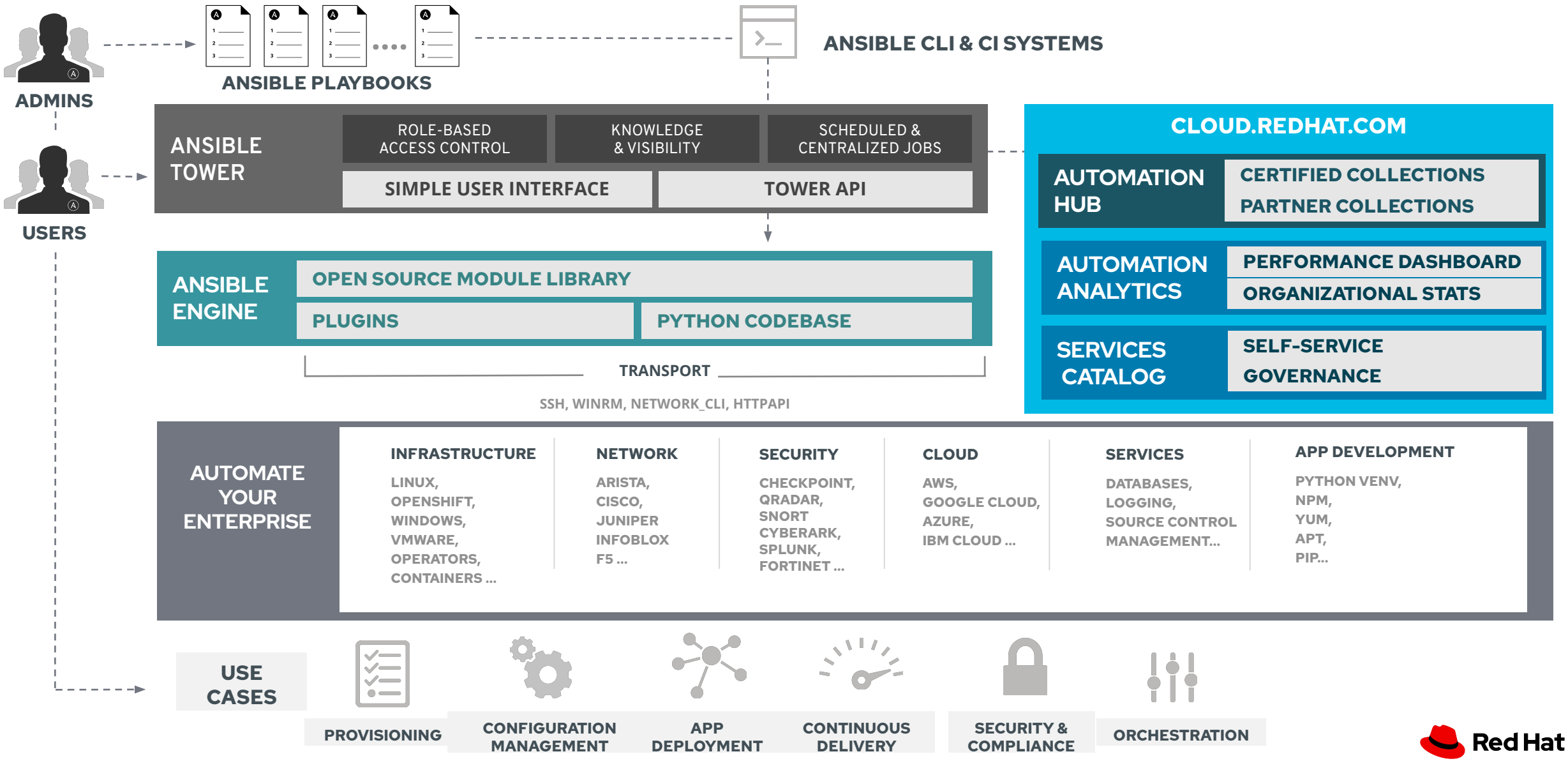
All automation activity is securely logged. Who ran it, how they customized it, what it did, where it happened - all securely stored and viewable later, or exported through Ansible Tower's API.

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.

Red Hat

Red Hat Ansible Automation Platform



Red Hat

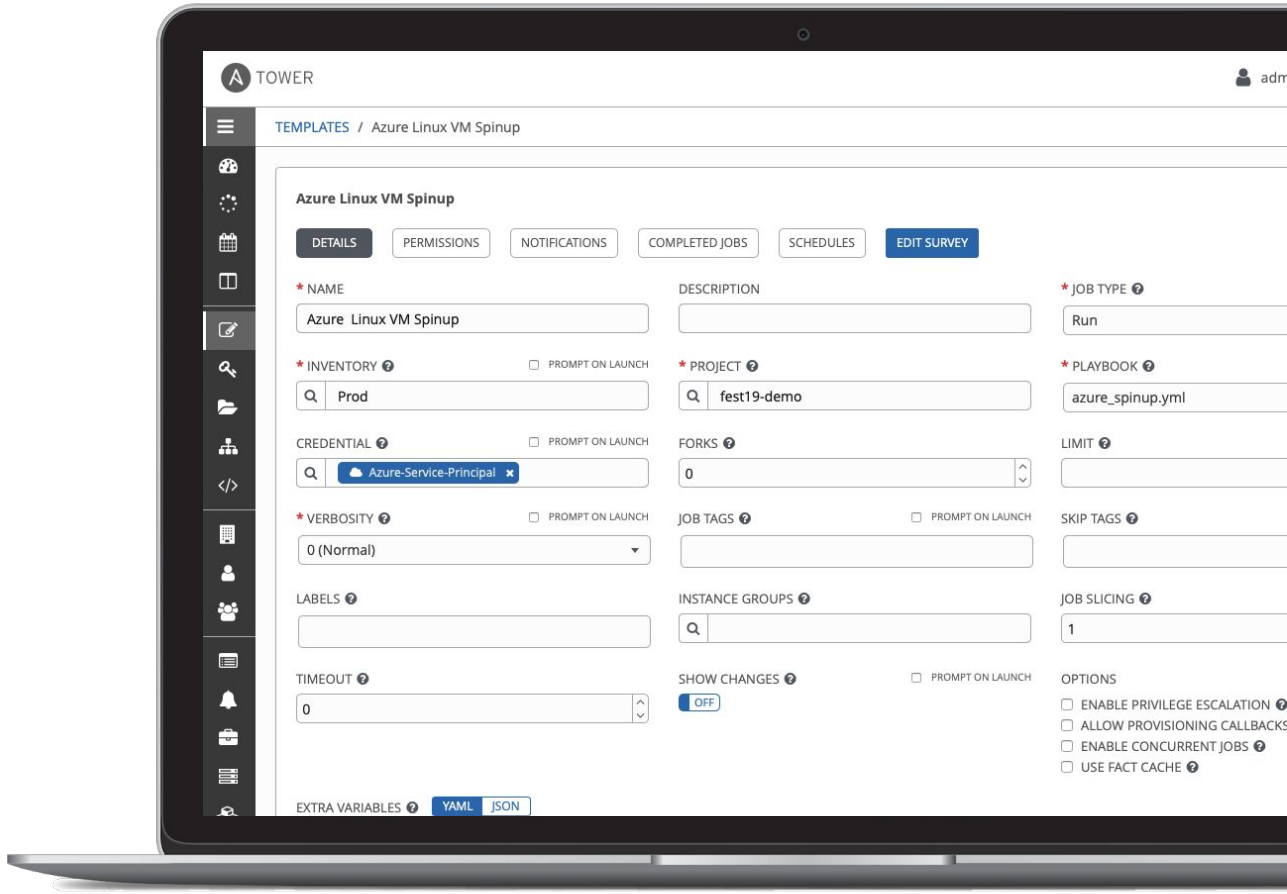
Job Templates

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

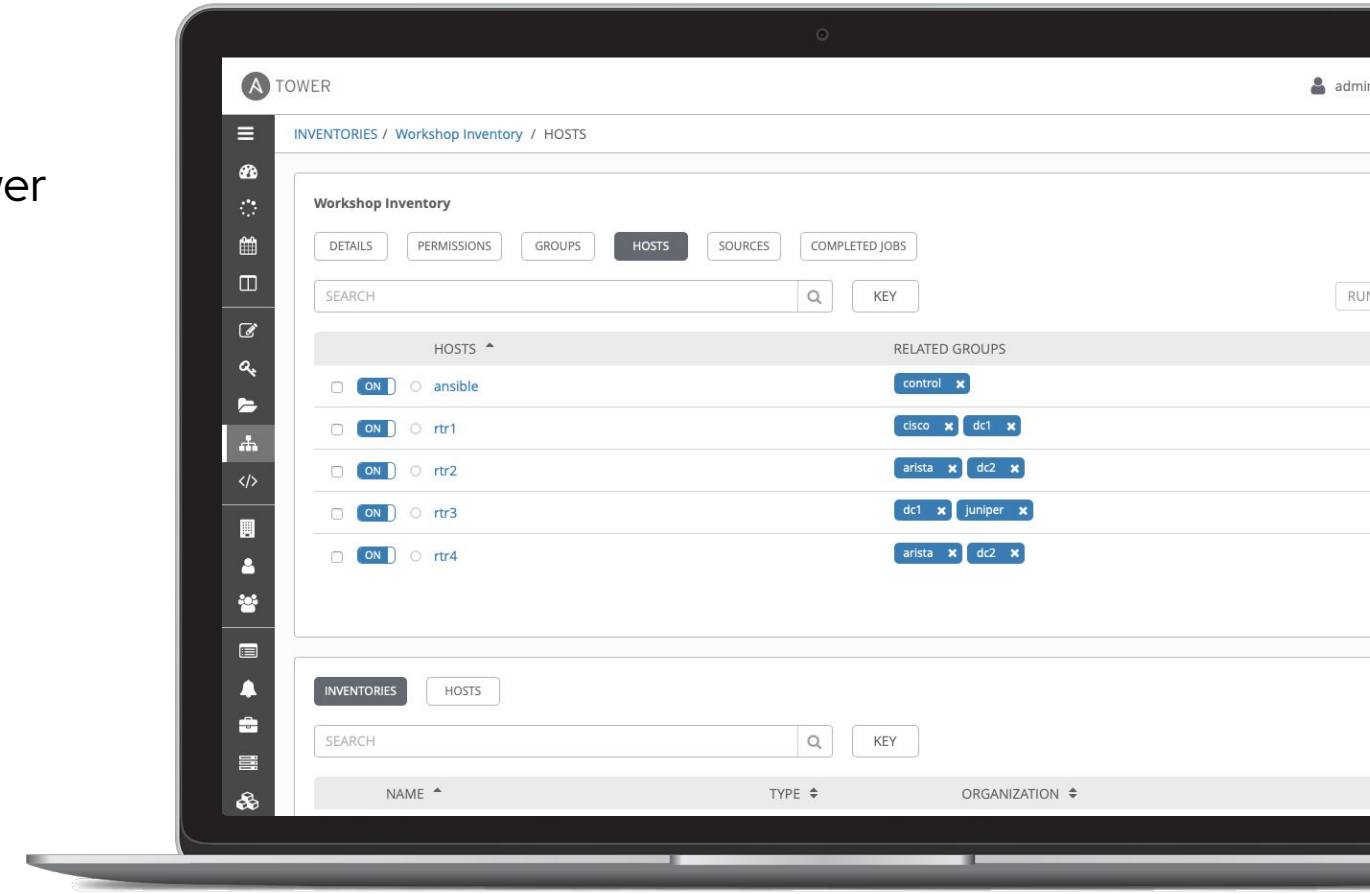


Red Hat

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



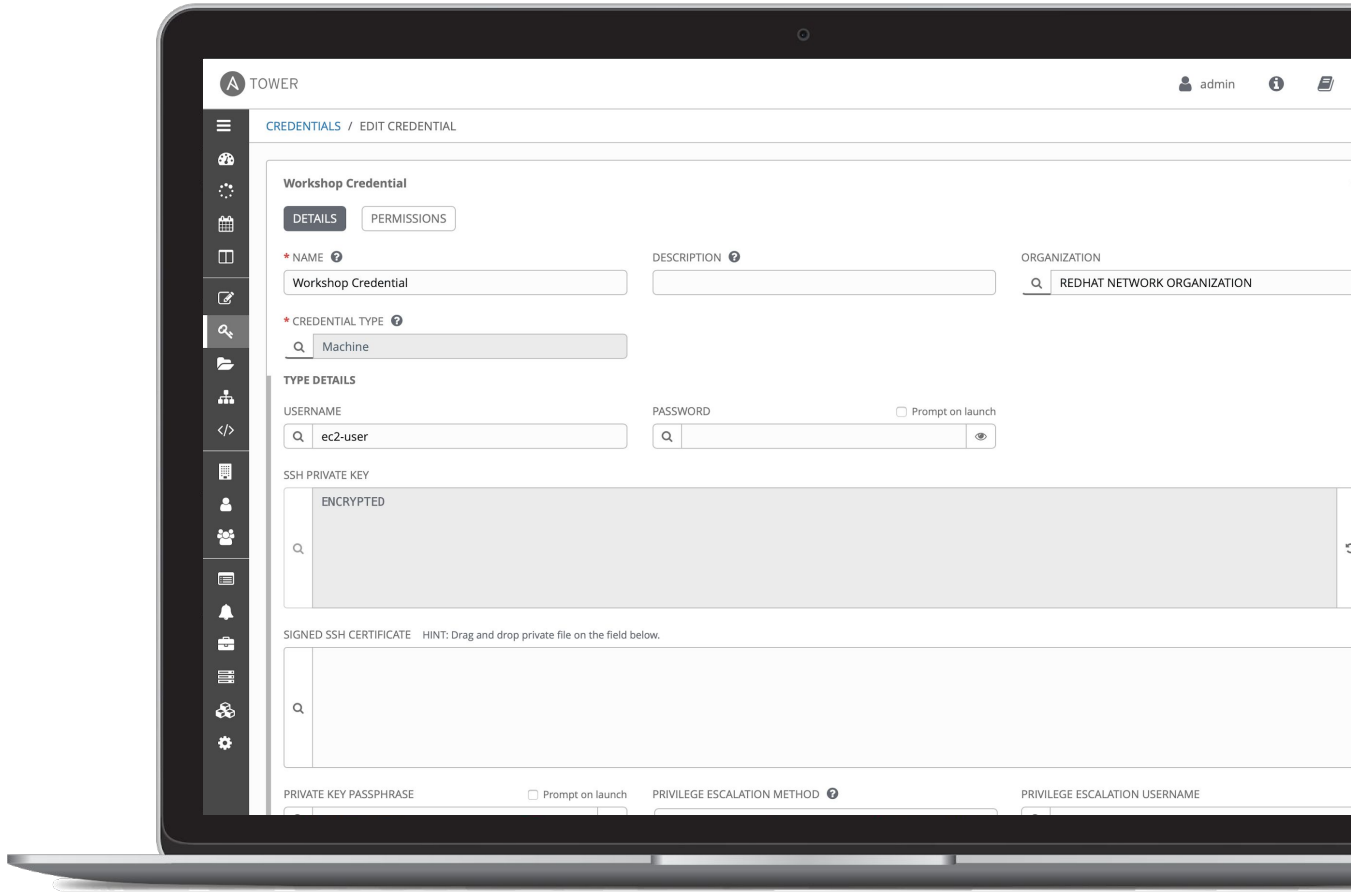
Red Hat

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.

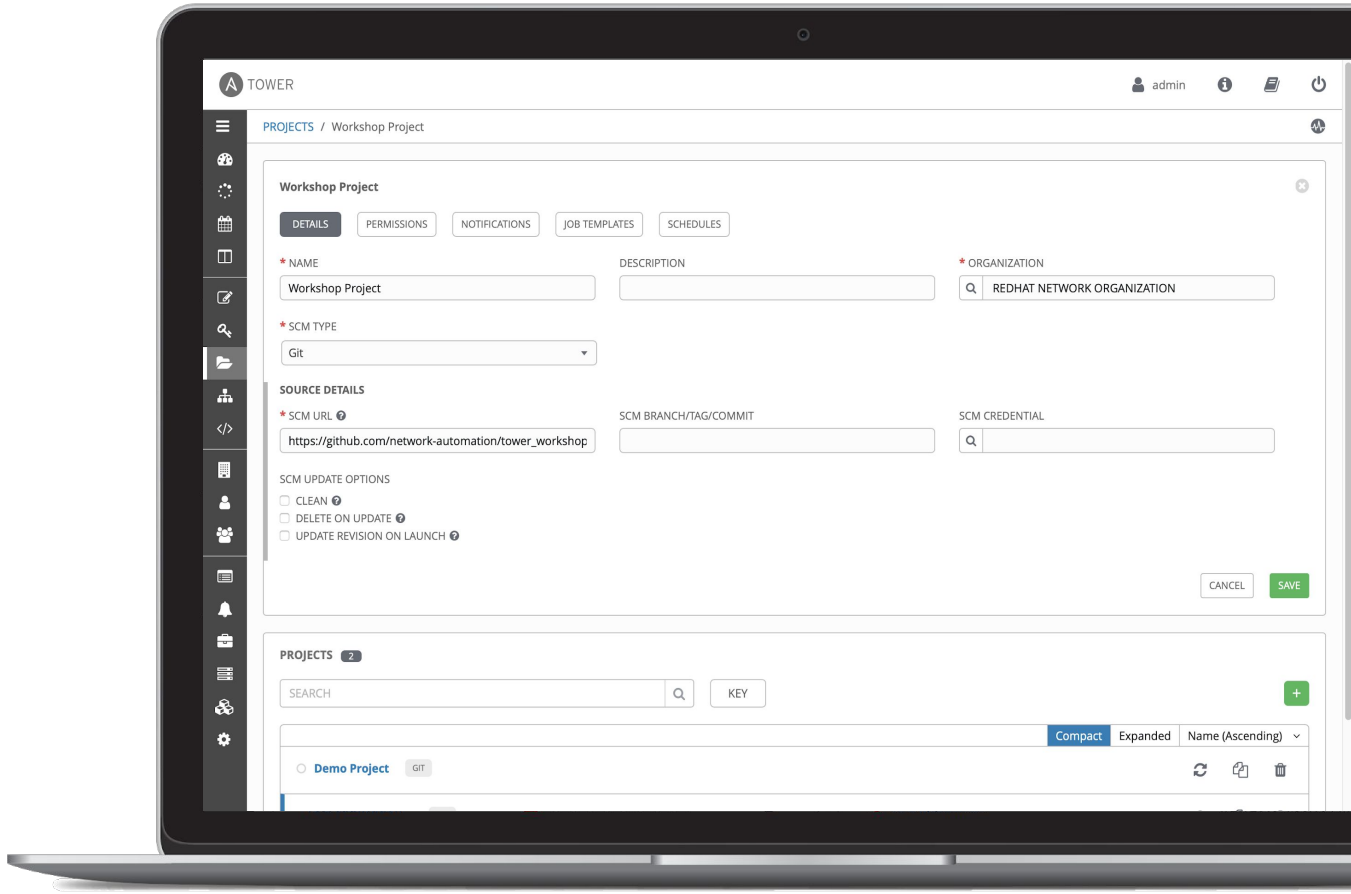


Red Hat

Project

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

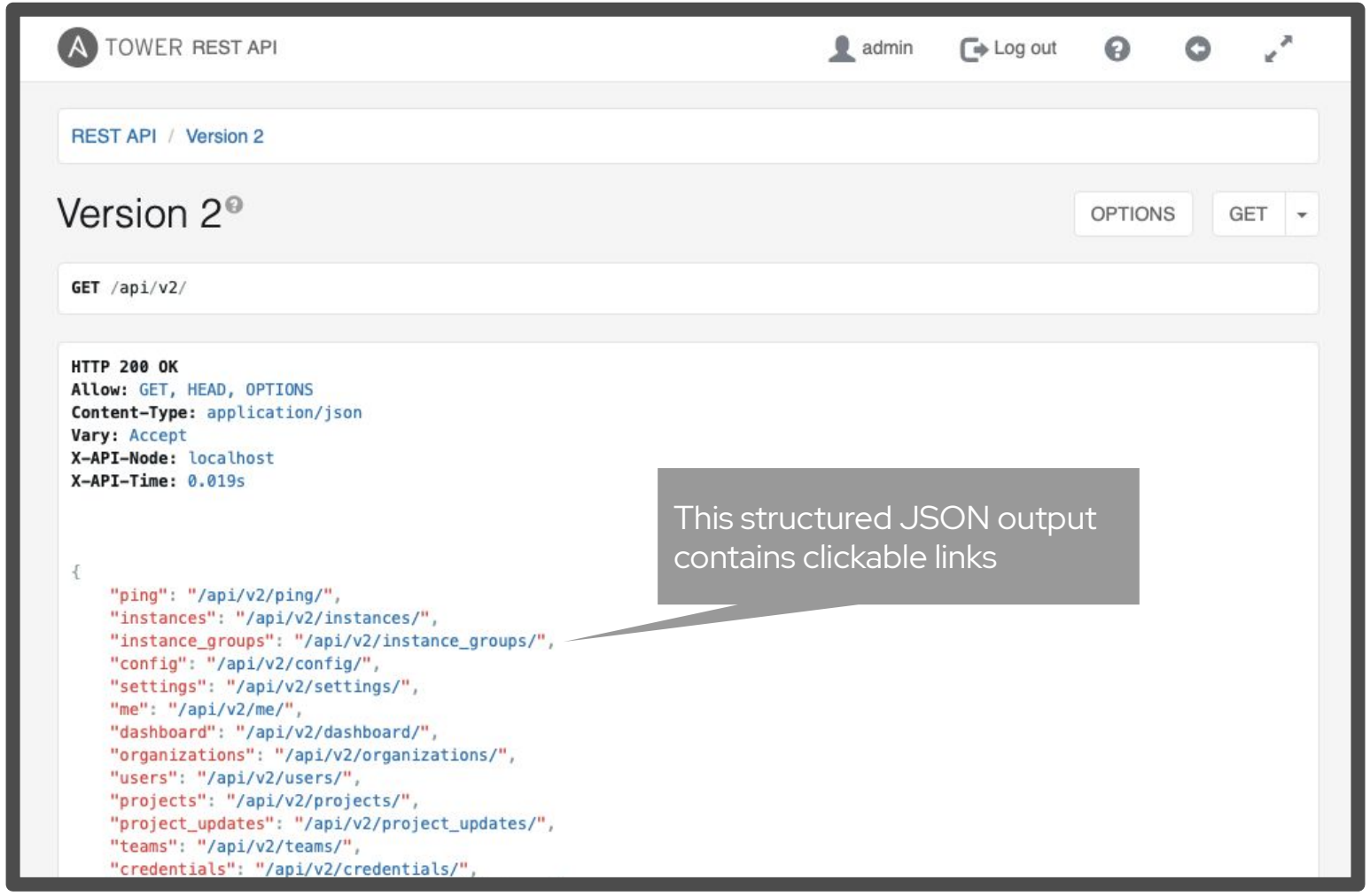
You can manage Ansible Playbooks and playbook directories by placing them in a source code management system supported by Ansible Tower, including Git, Subversion, and Mercurial.



Red Hat

RESTful API

Fully browsable API, everything within the Web UI can be accessed via the API for programmatic access

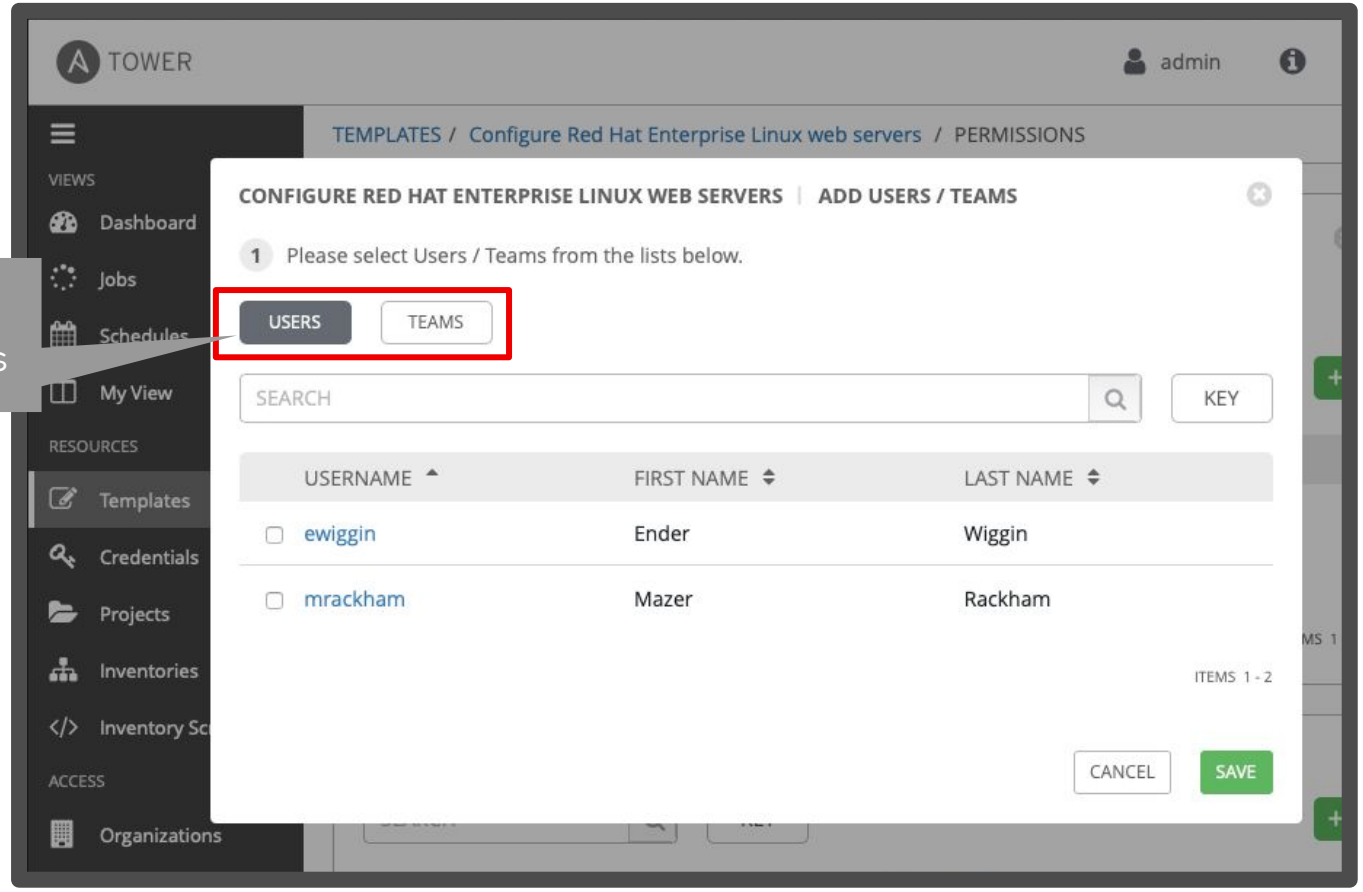


Red Hat

Role Based Access Control (RBAC)

Job Templates, Inventory, Credentials and Projects can be assigned to specific Users and Teams.

Clicking the USERS or TEAMS buttons shows available options

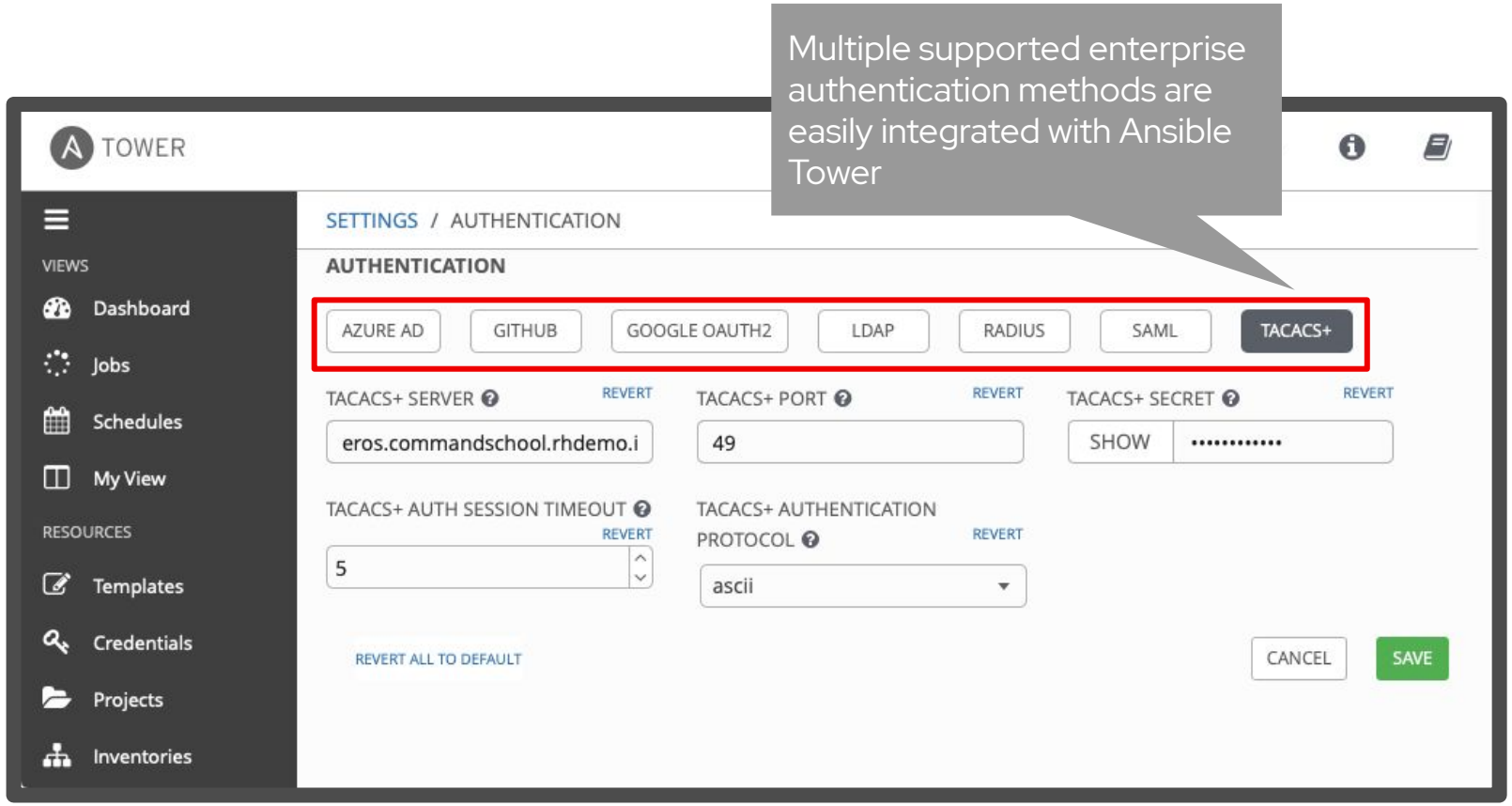


Red Hat

Enterprise Authentication

Use your existing enterprise authentication including:

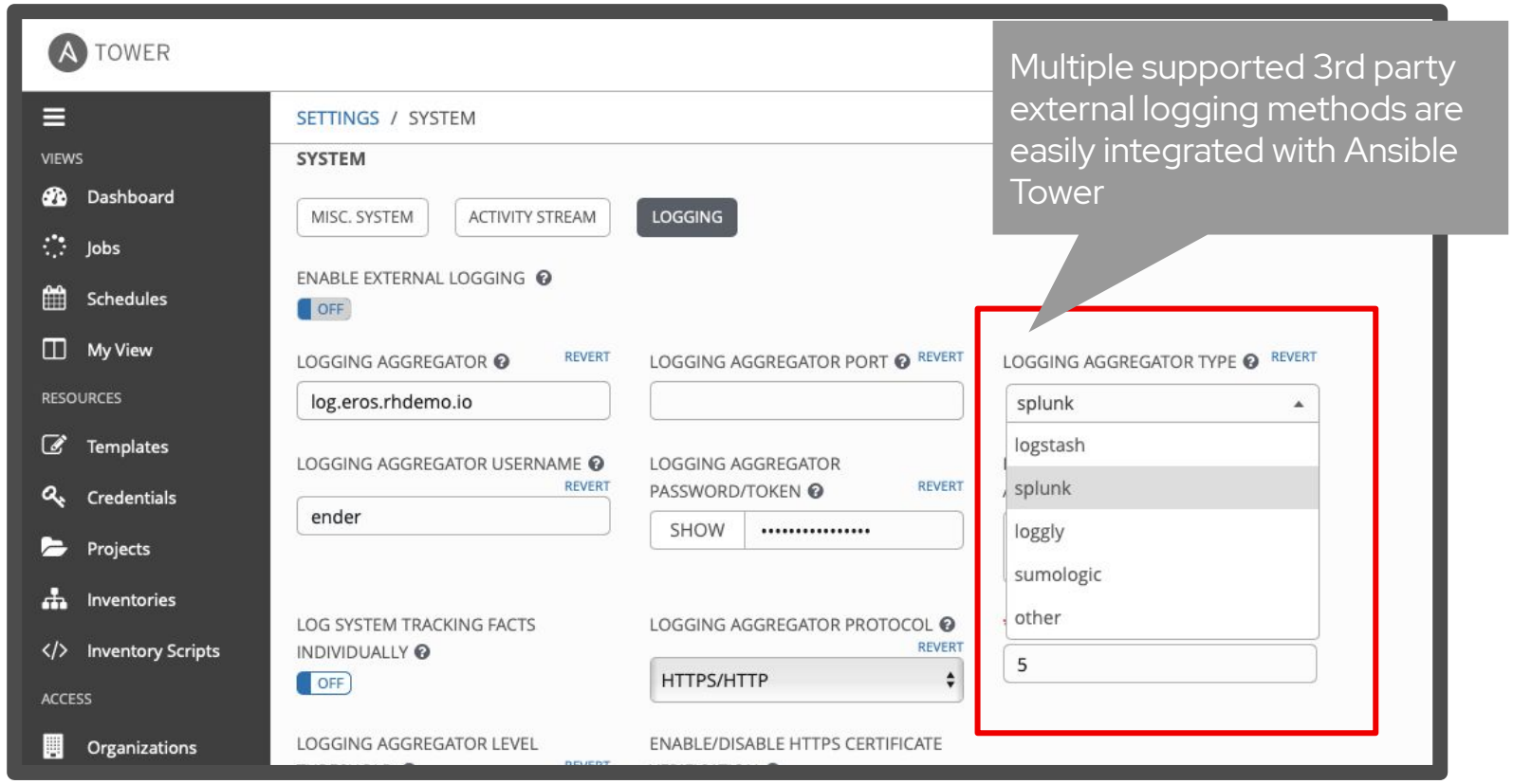
- Azure AD
- Github
- Google OAuth2
- LDAP
- Radius
- SAML
- TACACS+



Red Hat

Centralized Logging

Ansible Tower creates a centralized control point for Ansible Automation. If desired Ansible Tower can integrated with existing log aggregation services.



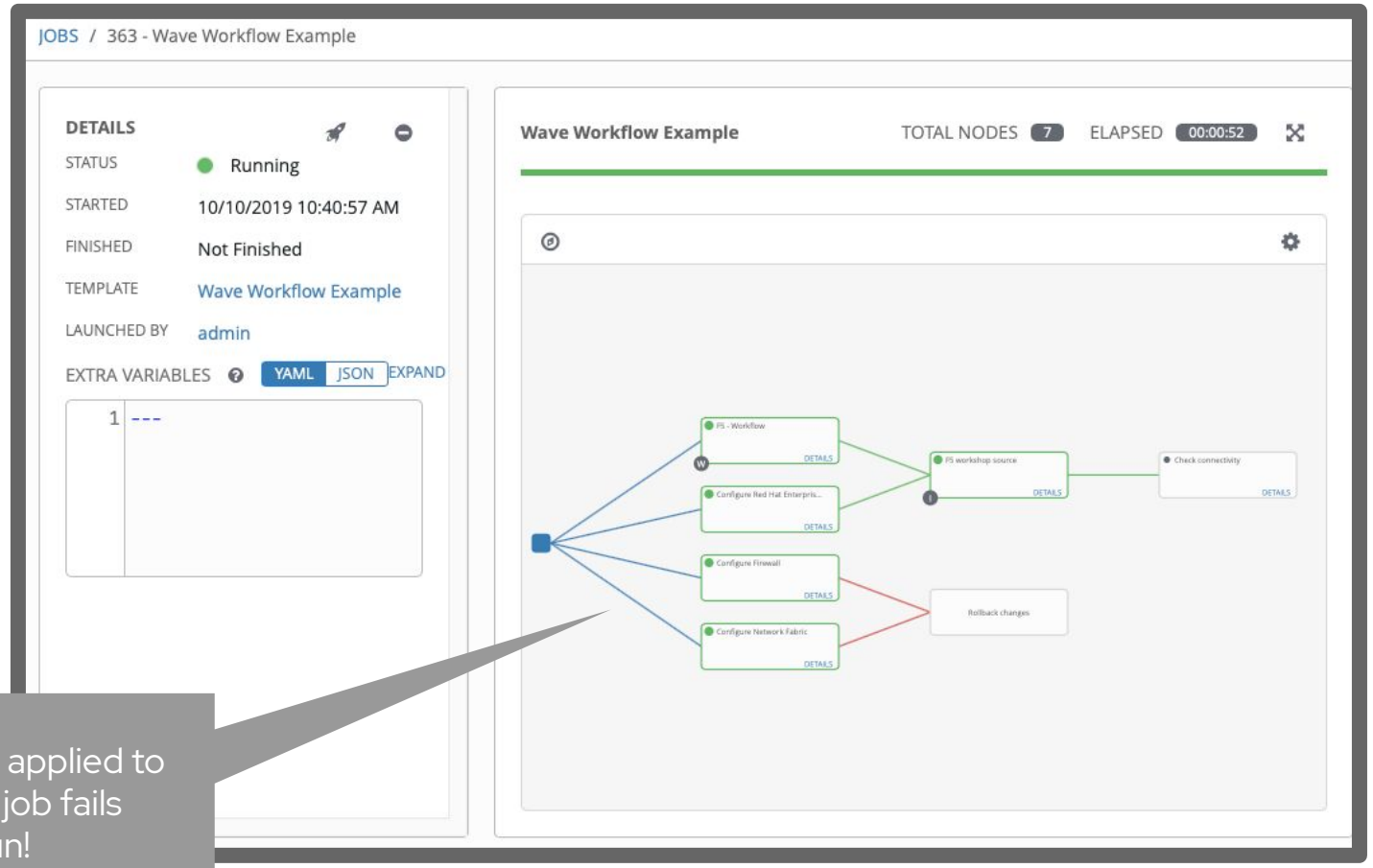
Red Hat

Workflows

Create powerful holistic automation using Ansible Workflows.

Orchestration can easily be configured by linking Job Templates.

Workflow approvals allow Workflows to pause and wait for human interaction



Flow logic can be applied to workflows. If this job fails this next Job is run!

Red Hat

Webhooks - Enabling GitOps

Trigger Job Templates or Workflows straight via configurable webhooks

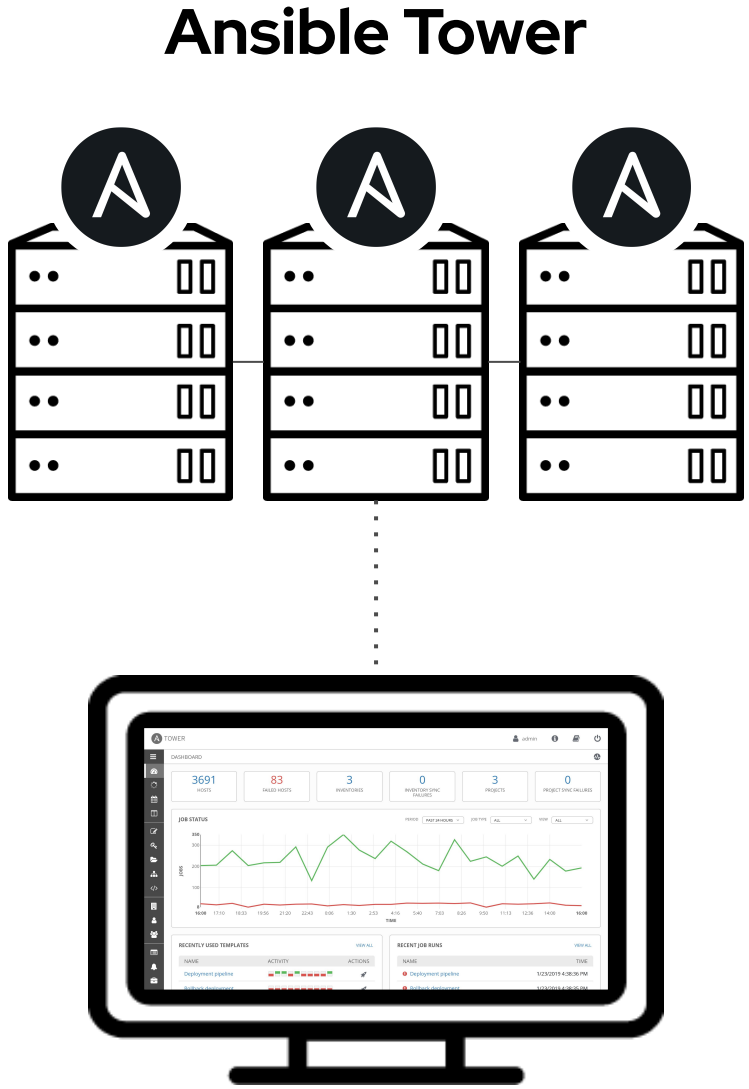
Automatically provision, update, configure, and apply based on pushes to your source control.

Red Hat

Scale

Ansible Tower clusters add redundancy and capacity, allowing you to scale Ansible automation across your enterprise.

- Unifying task execution across execution nodes
- Leverage Kubernetes and OpenShift to spin up execution capacity at runtime
- Expand execution to be able to pull jobs from a central Ansible Tower infrastructure



Red Hat

Red Hat
Ansible Automation
Platform

CLOUD.REDHAT.COM

Engage users with an automation focused experience

Red Hat Ansible Automation Platform

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

Engage

Knowledge
Automation Analytics

Collaborate
Automation Hub

Governance
Automation Services Catalog

Trusted
Certified content

Accelerate
Collections

Scale

Ansible Tower: Operate & control at scale

Create

Ansible Engine: Universal language of automation

Fueled by an open source community

Red Hat

Automation Analytics: What is it?

SaaS (Software as a Service) on cloud.redhat.com

Analytics for all Ansible Tower clusters for an organization

Includes:

- visual dashboard
- health notifications
- organization statistics

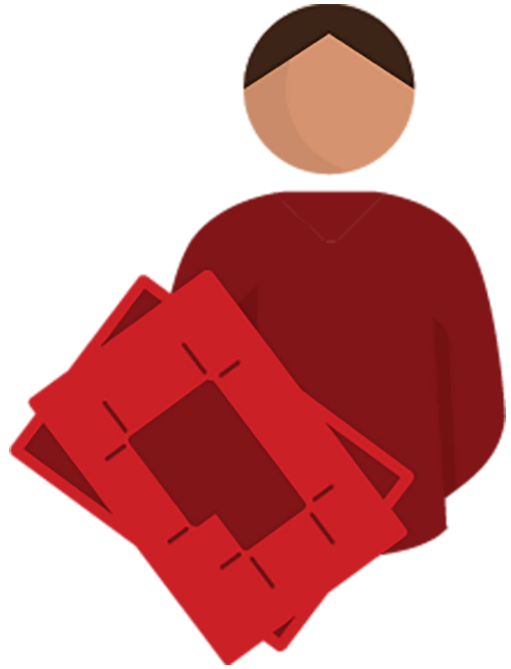
Red Hat

Automation Analytics: What does it provide?

Enables an Automation Center of Excellence

- View information about automation health, usage and performance across your enterprise.

- Gain information about automation in your enterprise:
  - Which organizations are using the most automation?
  - Utilization rates
  - Enterprise-wide success and failure rates for automation

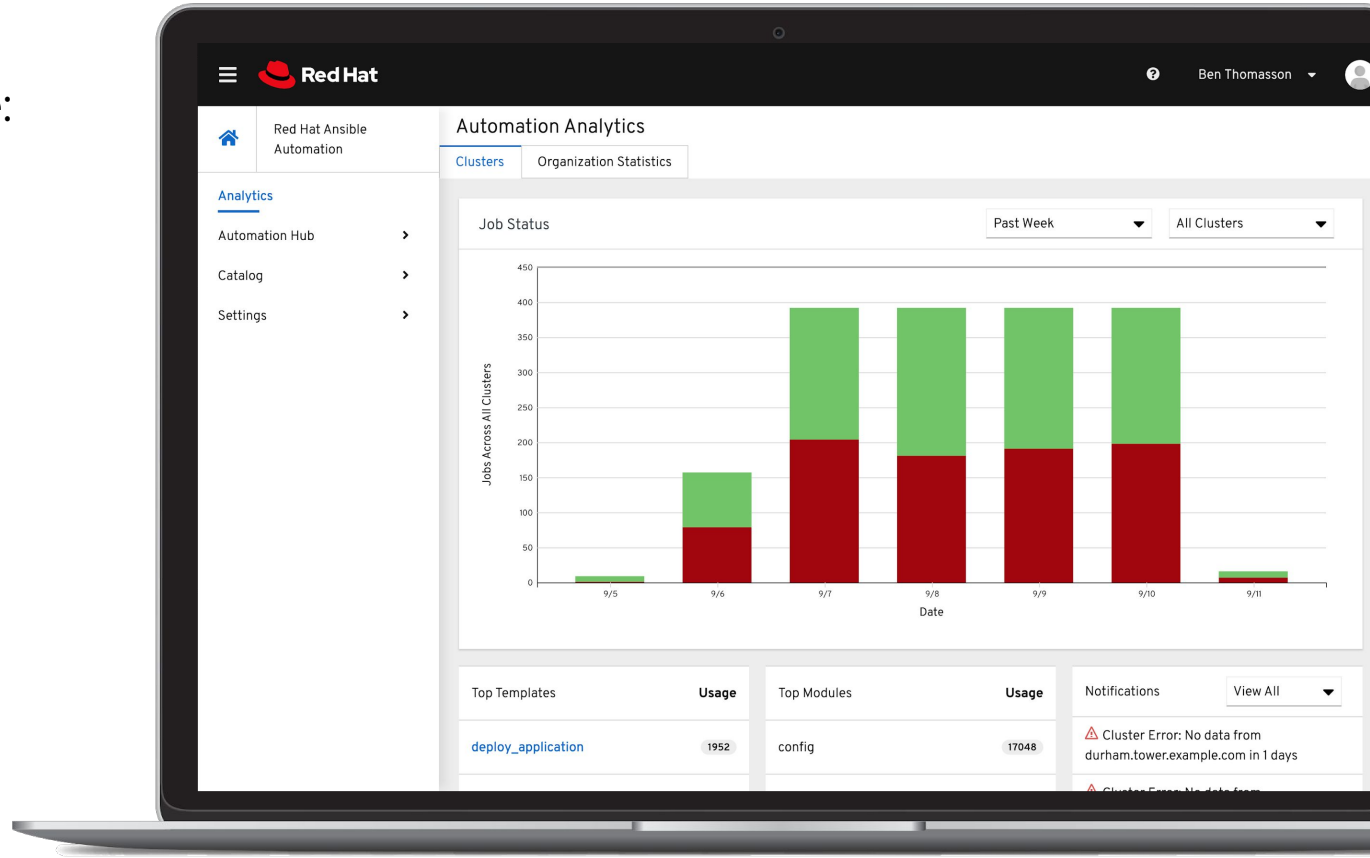


Red Hat

Analytics dashboard

Information across all clusters for an enterprise:

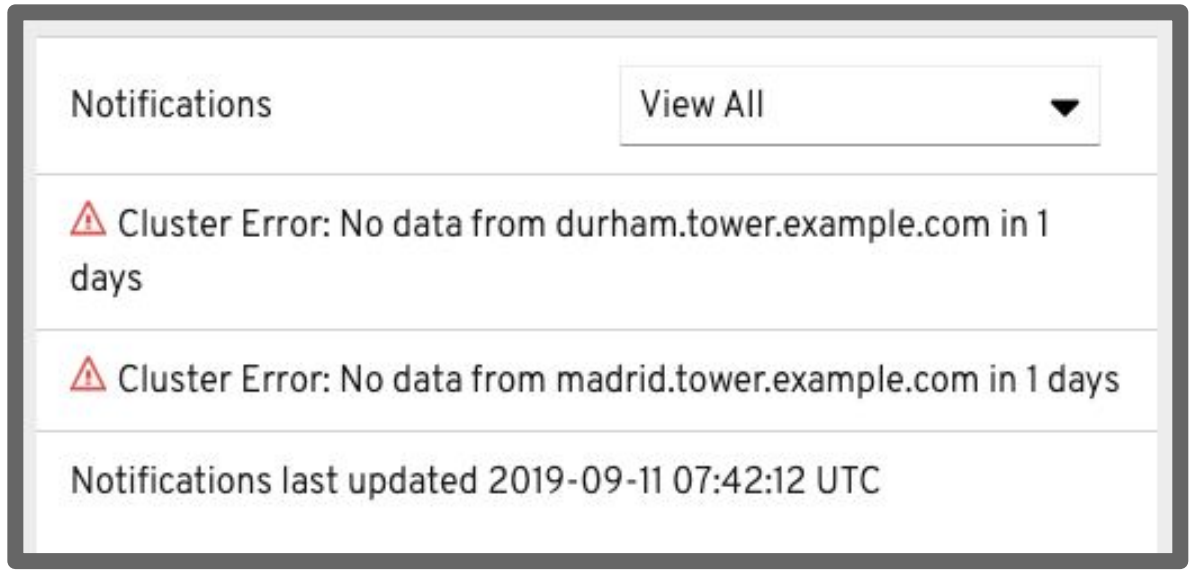
- Job Status graph
- Top Job Templates
- Top Modules



Red Hat

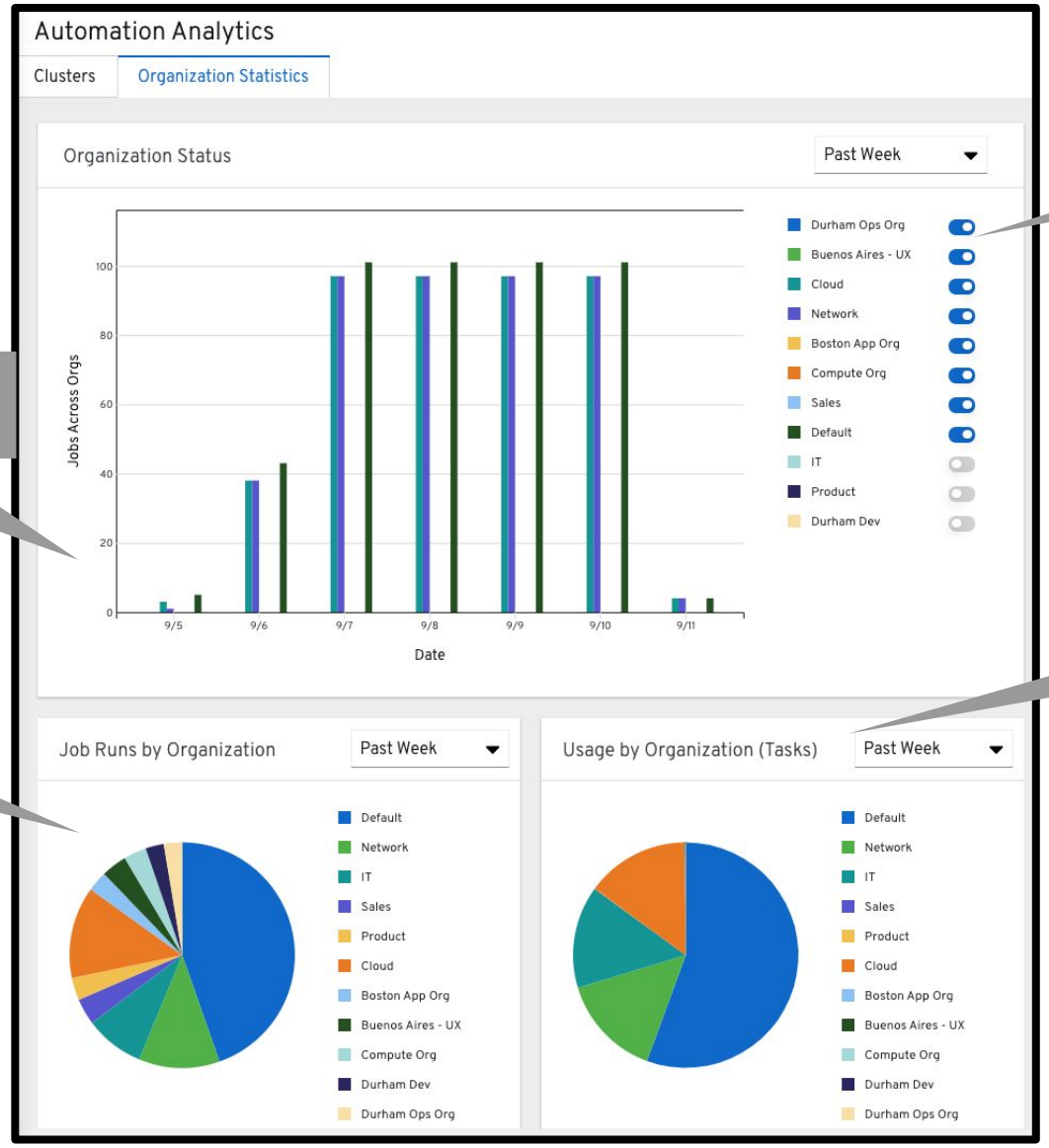
Health notifications

- Ansible Tower Cluster is down
- Node (within a cluster) is down
- Last time data was updated
- Near license count



Red Hat

Organizational statistics



Filter by Organization

Job Status by Organization

Usage by Organization

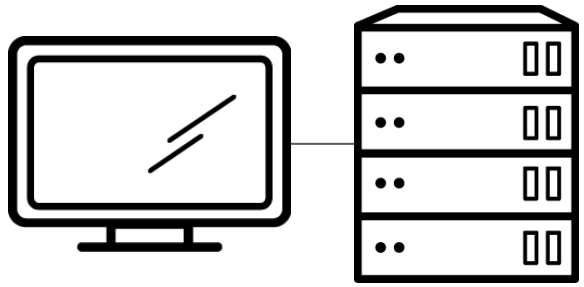
Job Runs by Organization

Red Hat

Dashboard comparison

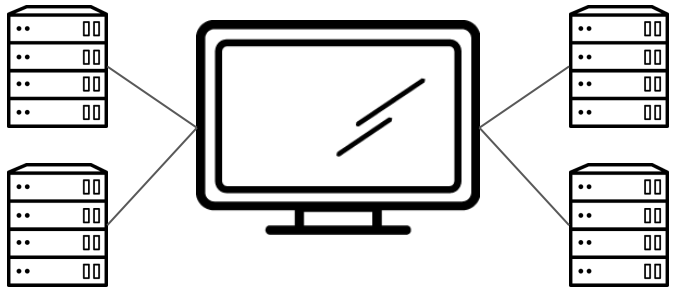
Ansible Tower

- Recent job templates
- No module data
- One cluster



Automation Analytics

- Top job templates
- Top modules
- All clusters
- Filter by cluster



Red Hat

Ansible Content Collections

Simplified and consistent content delivery

Provides quick benefit by lowering barriers to automation

Streamlines tech partners providing direct-to-user automation

Simplifies internal collaboration, distribution, versioning

Ability to distribute, share and consume content at your own pace

Red Hat

Ansible Content Collection example

Directory Layout

```
.
├── galaxy.yml
├── plugins
│   ├── action
│   │   └── ping.py
│   ├── module_utils
│   │   └── pingutils.py
│   └── modules
│       └── ping.py
└── roles
    ├── ping_bootstrap
    │   ├── defaults
    │   ├── filters
    │   ├── meta
    │   ├── tasks
    │   └── vars
    └── ping_deploy
        ├── defaults
        ├── meta
        └── tasks
```

In a playbook

```yaml
hosts: somehosts
collections:
  - custom.pinger
  - redhat.open_ping

tasks:
  - custom.pinger.ping:

  - ansible.builtin.ping: # use only the ping packaged in core

  - ansible.legacy.ping: # use core or library(etc)/ping.py
    when: thing | custom.pinger.filter == 42

  - ping: # searches collections “path” otherwise…
          # still works, == ansible.legacy.ping:
```

Red Hat

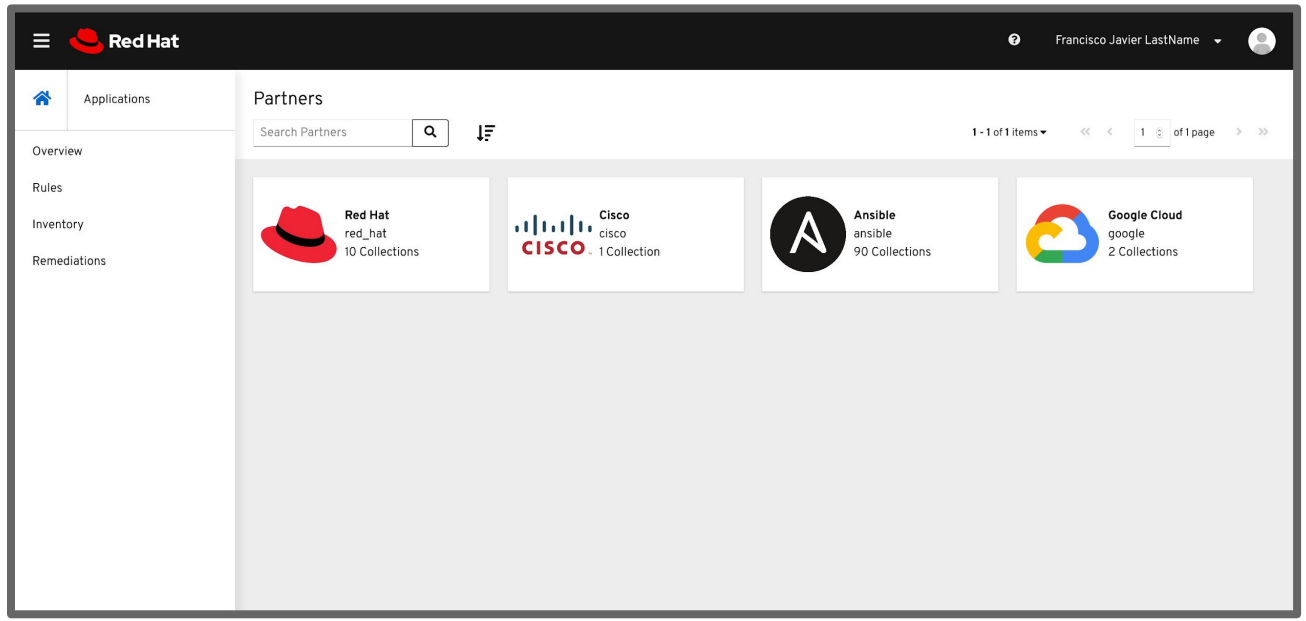
Automation Hub

Discover, publish, and manage Collections

Quickly discover available Red Hat and certified content through Collections.

Manage your organization's view of available content.

Publish your locally available automation via on-premise.



Red Hat

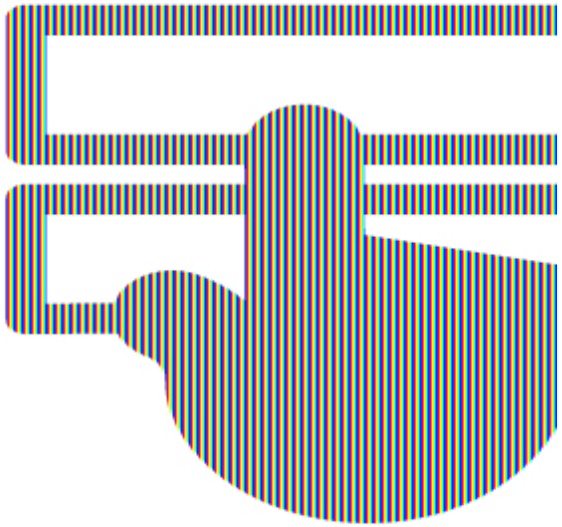
Automation Services Catalog

Manage, provision, and retire automation resources

Deliver customers' pre built automation to the developer and the business user.

Deliver governance of automation services for the enterprise user.

Supply the necessary controls required by the business to track how this automation is being used.



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Interaction with the services catalog

Platforms

Ansible Tower is a Platform to the Catalog, it presents Job Templates and Workflows and executes them as jobs. Business governance can be applied to Platforms.

Products

Users order Products are high level abstracts of the service offerings. An Administrator can override the detail of a Product as well as govern the individual product with Business Logic.

Portfolios

Allows for an Administrator to group service offerings as products into logical collections. Portfolios can be shared to groups of users as well as support Business Governance.

Organizations

An Organization is a collection of Platforms, Portfolios, Products, Users, Groups and Approval policies. An entire organization can be governed for Business Logic.

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Next steps:

Get started

ansible.com/get-started

ansible.com/tower-trial

Join the community

ansible.com/community

Workshops, training & services

ansible.com/workshops

Red Hat Training

Red Hat Services: Automation Adoption Journey

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