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Ansible Automation
Platform

Automating the Enterprise with Ansible Automation Platform

An overview of Automation Controller and Ansible Private Automation Hub

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Principal Instructor

Red Hat
Training

Agenda

- Introduction to Ansible
- Ansible Automation Platform 2.x Overview
- Ansible Automation Hub and Private Automation Hub
- Ansible Automation Controller
  - Ansible Automation Controller Components
- CI/CD Workflow Demonstration Leveraging Webhooks with Gitlab and Ansible Automation Controller
- More Information

Introduction

Topics Covered:

- What is the Ansible Automation Platform (AAP)?
- What can it do?
- What's new with AAP 2?

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Ansible Automation
Platform

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Why Ansible?

Simple

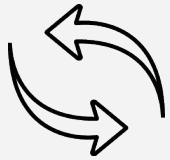
Human readable automation

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

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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...**

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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

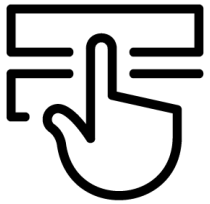
Dynatrace
Datadog
LogicMonitor
New Relic
Sensu
+more

Devops

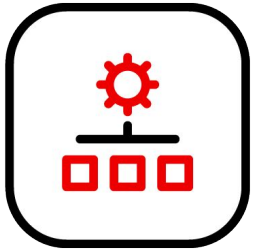
Jira
GitHub
Vagrant
Jenkins
Slack
+more

New in Ansible Automation Platform (AAP) 2.X

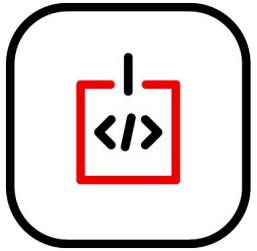
What changes?



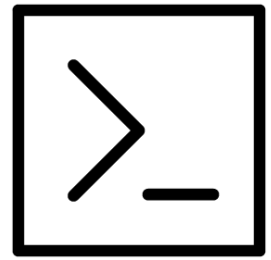
Updated Private Automation Hub
Hosting of private content, container registry



Automation controller
Replaced *Ansible Tower*



Automation execution environments
Replaces *Ansible Engine*



`ansible-builder` and **`ansible-navigator`**
New tools for enterprise automation developers

Ansible Automation Platform 2.x

Topics Covered:

- Ansible Platform Overview
- Ansible Content Collections
- Ansible Execution Environments
- Ansible Content Navigator
- Ansible Builder

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Ansible Automation Platform

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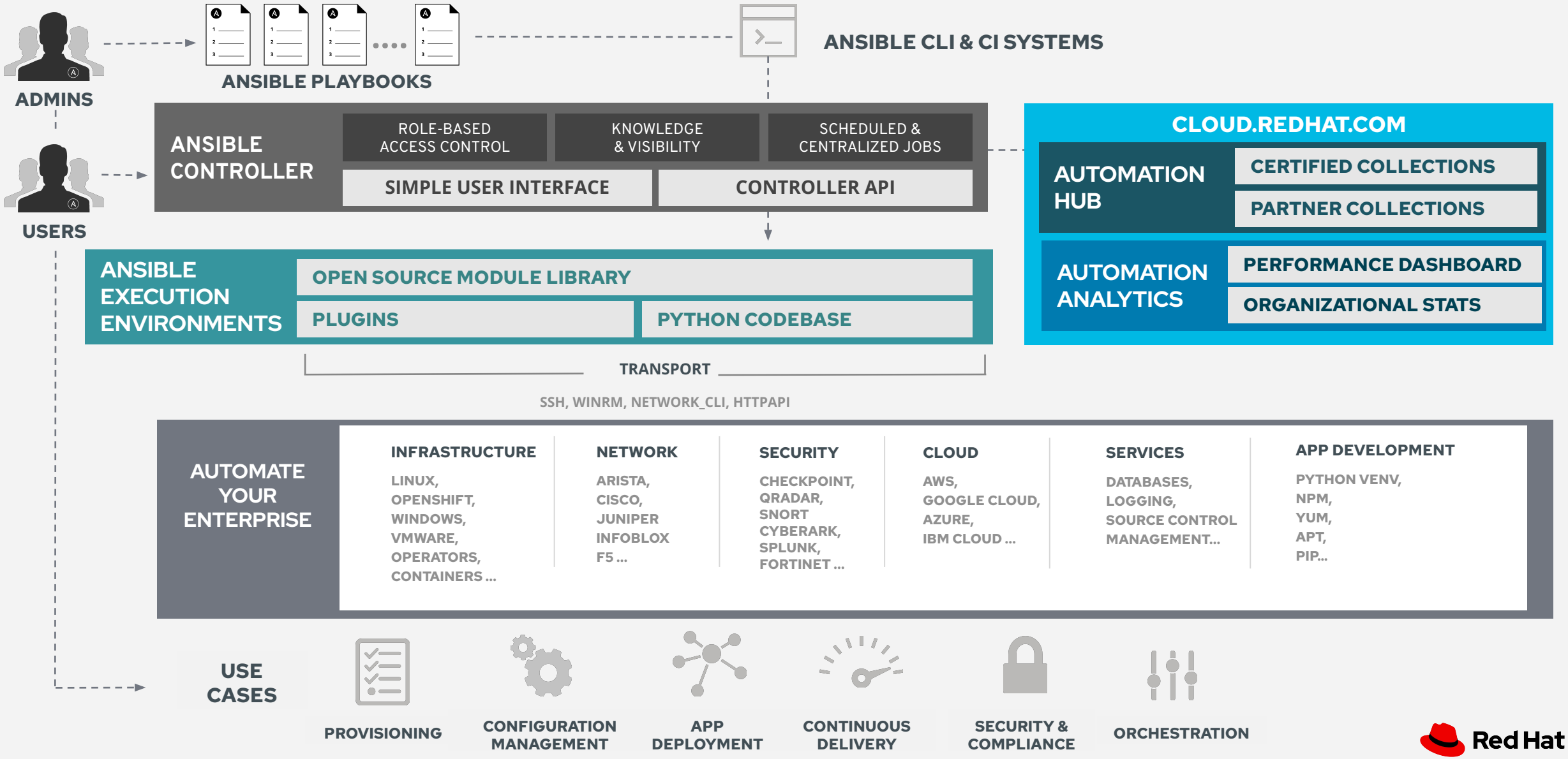
Ansible Automation Platform



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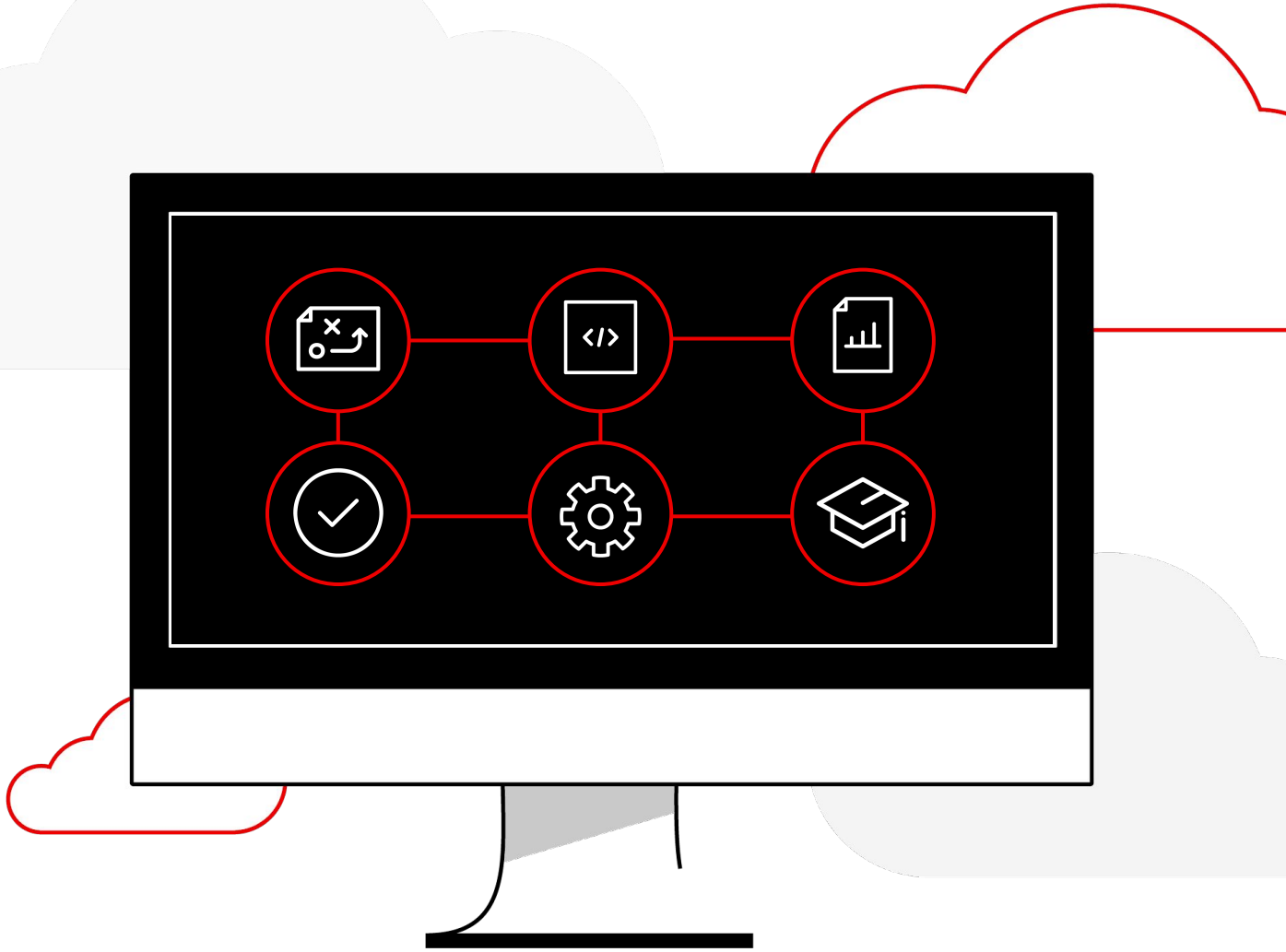
Collections

Simplified and consistent content delivery

What are they?

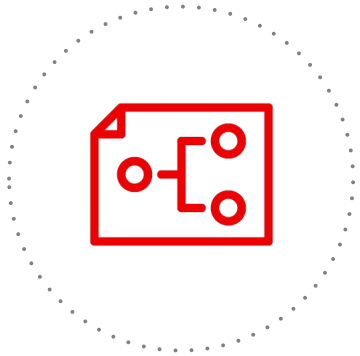
Collections are a data structure containing automation content:

- Modules
- Playbooks
- Roles
- Plugins
- Docs
- Tests



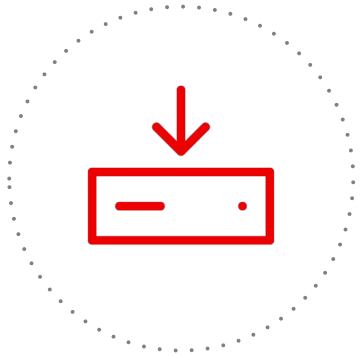
Accessing collections

How to get them



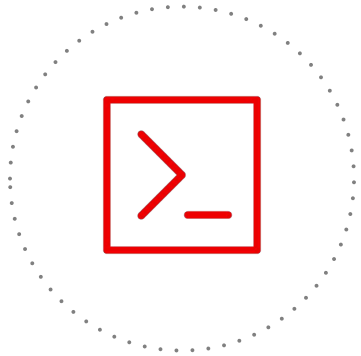
Requirements file

Requirements file defines the required collections for a playbook



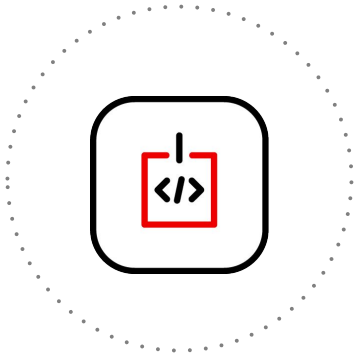
Pull via controller

Automation controller pulls the collections from Automation Hub automatically



Command line

CLI access is also possible via ansible-galaxy command

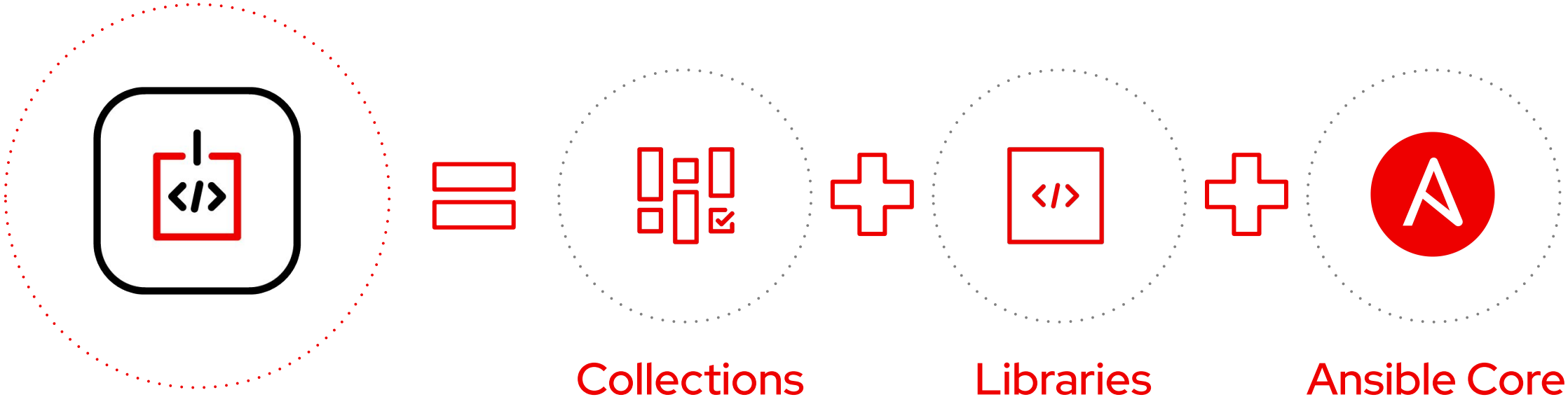


Execution Environments

Collections can be preinstalled and part of an Execution Environment Image (EEI)

Automation Execution Environments

Components needed for automation, packaged in a cloud-native way



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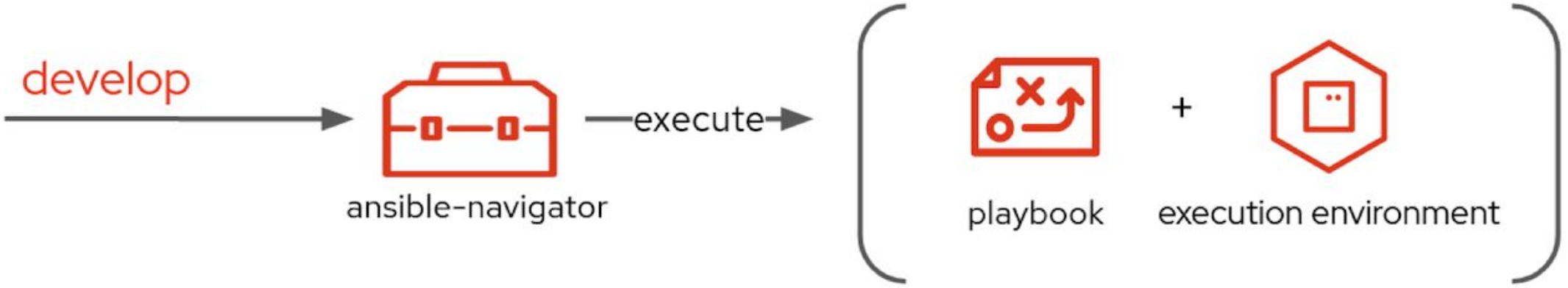
Ansible Content Navigator



- ✓ Supported tooling
- ✓ Portable
- ✓ Scalable

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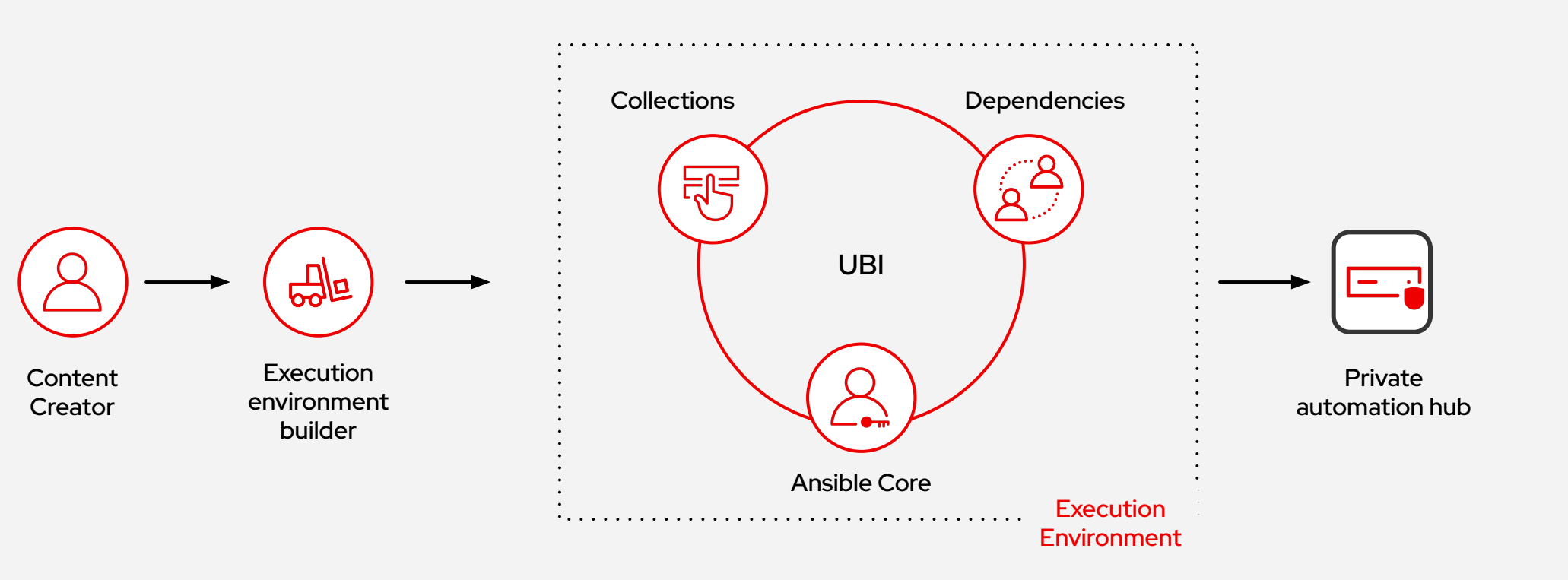
Ansible Builder

Build, create, publish

Development cycle of an automation execution environment



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Ansible Automation Hub

Topics Covered:

- Ansible Automation Hub
- Ansible Private Automation Hub

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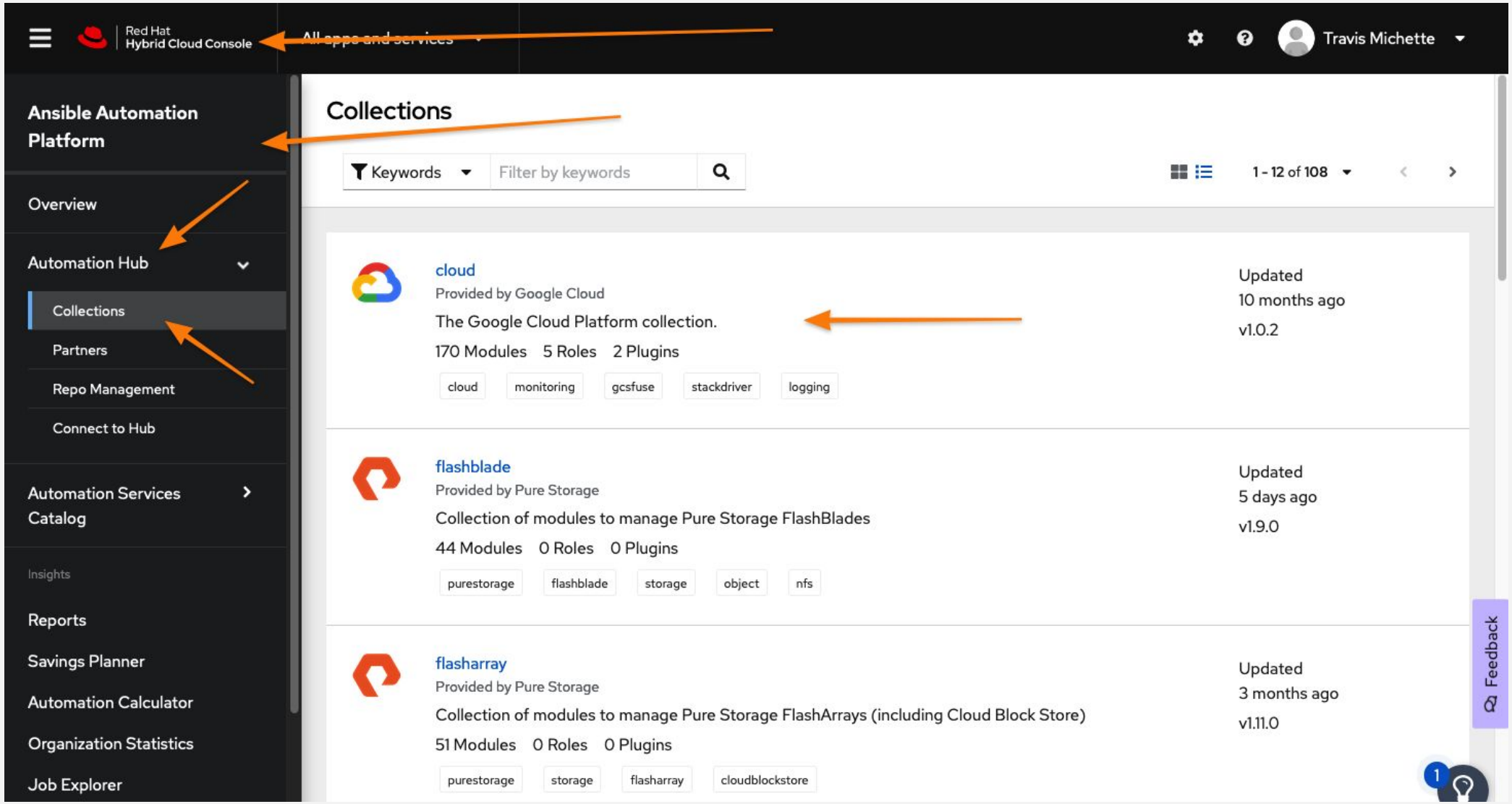
Ansible Automation Hub



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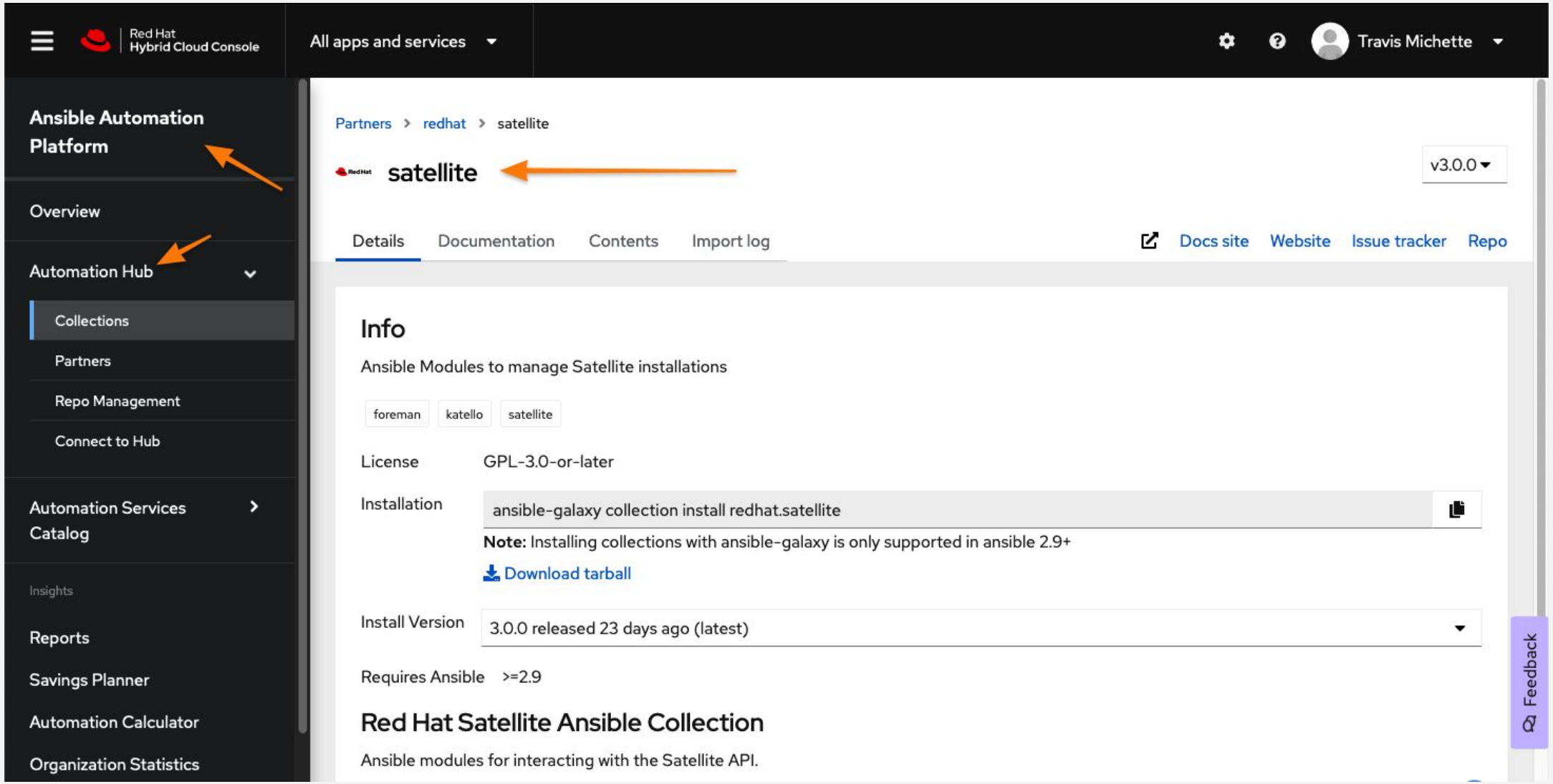
Ansible Automation Hub Collections



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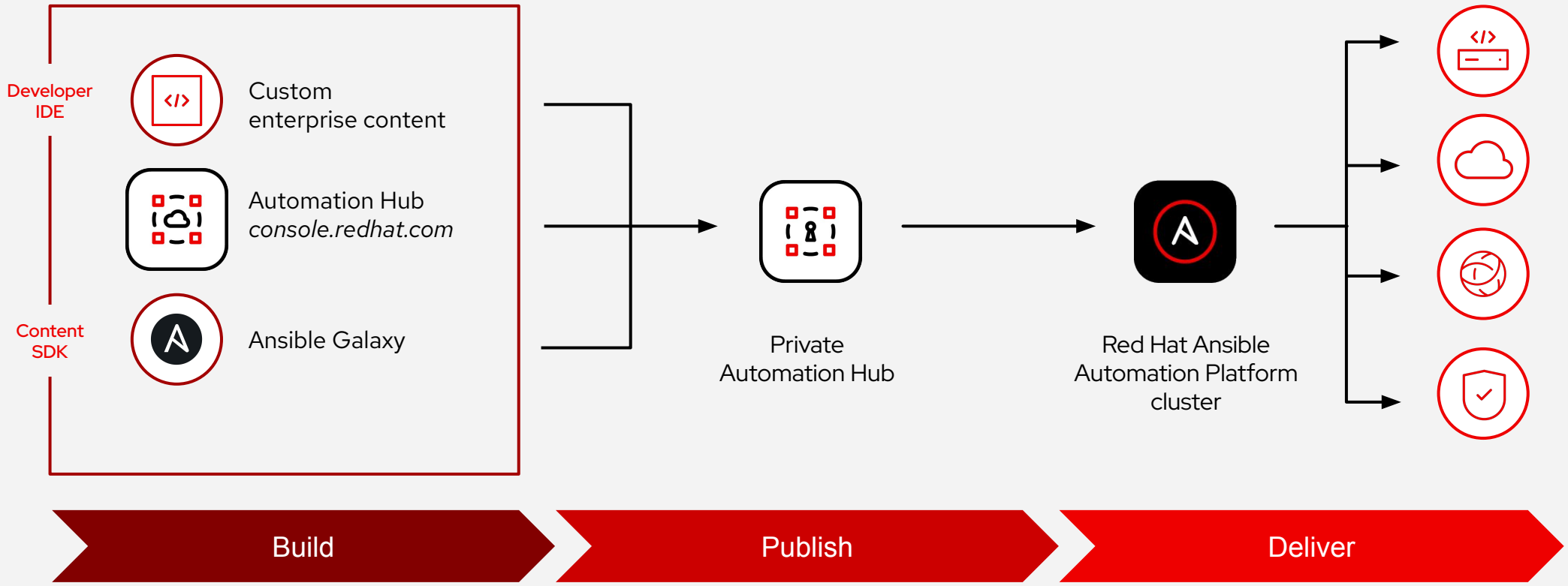
Private Automation Hub

Value of Private Automation Hub



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Ansible Private Automation Hub

Trusted source

Customer controlled

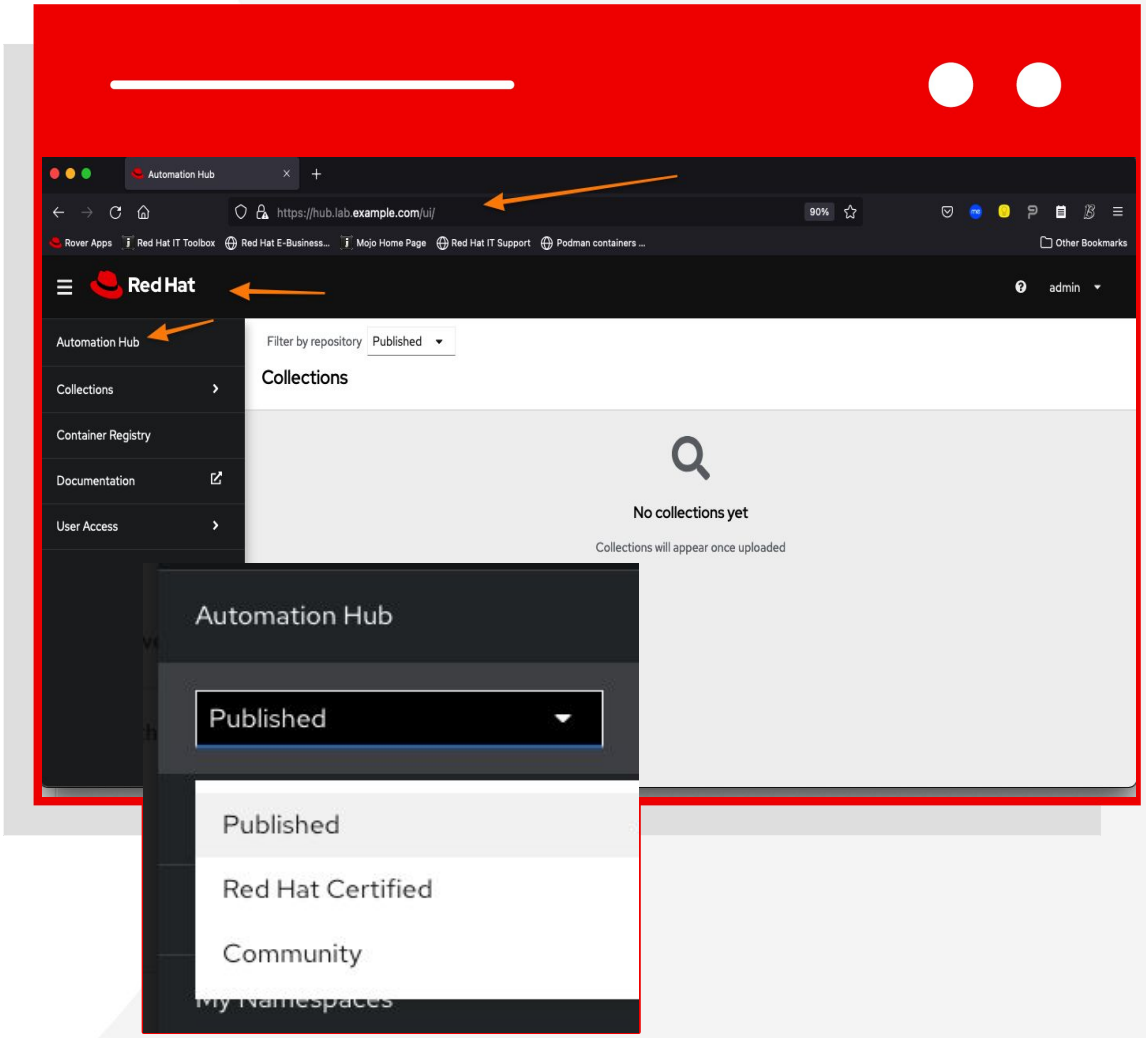
Deploying either on-prem or to a cloud, customers can run their own private instances of Automation Hub integrated into Red Hat Ansible Automation Platform.

Private content

Manage the lifecycle and internal distribution of in-house Ansible content within. Allows storing both Ansible Content Collections and Ansible Execution Environment Images (EEIs) in a single location.

Customizable Content Catalog

Via sync from community (Galaxy) and supported (Automation Hub) sources, customers can supply internal users with approved content in one controlled location.



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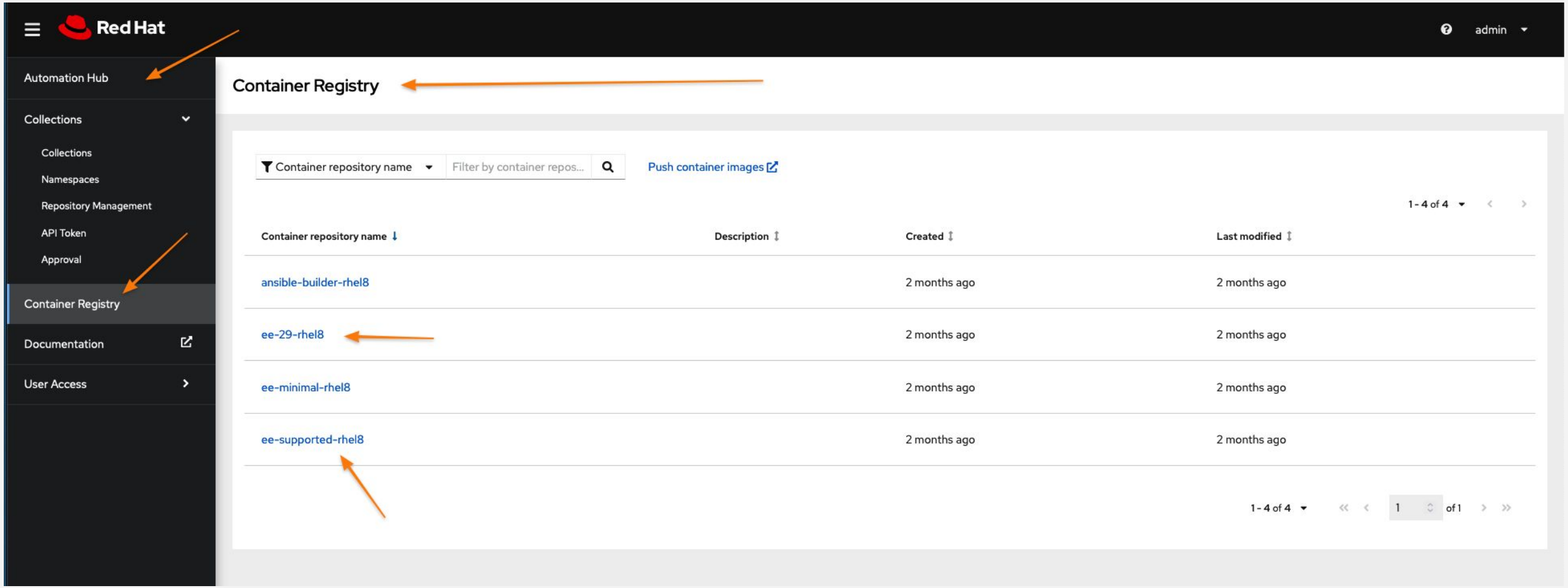
Automation Hub - Execution Environments



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Ansible Automation Controller

Topics Covered:

- Introduction to Ansible Automation Controller Components
  - Organization, Team, and User Management
  - Inventory
  - Credentials
  - Project
  - Job Templates
  - Job Workflows

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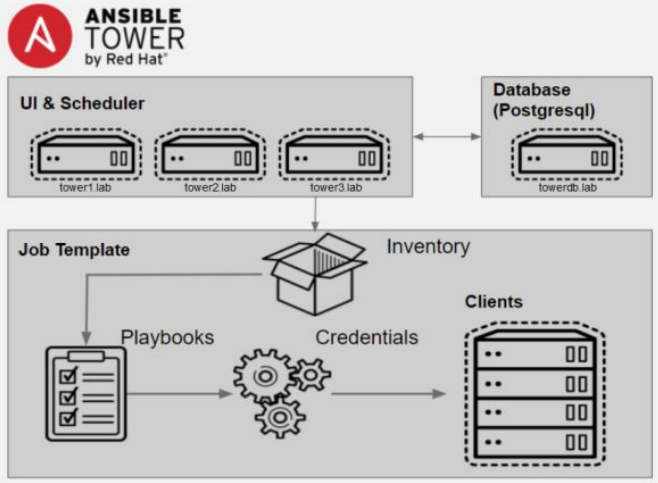
Ansible Automation Controller



Integrated

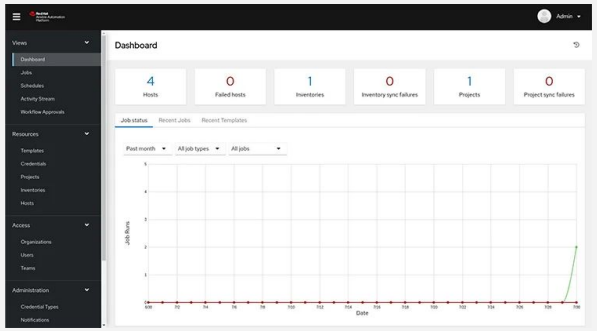
Manage Projects and Jobs

No CLI Administration skills needed

Automated

Ability to use Execution Environments

Single Management Point



Simple

Environment Overview

Configuration management

Workflow orchestration

Logging and System Management

Manage Access & Files

Streamlined

Web Interface / WebUI

Rest API

Plugins

User Management

Users / Roles / Credentials

More Efficient & More Secure

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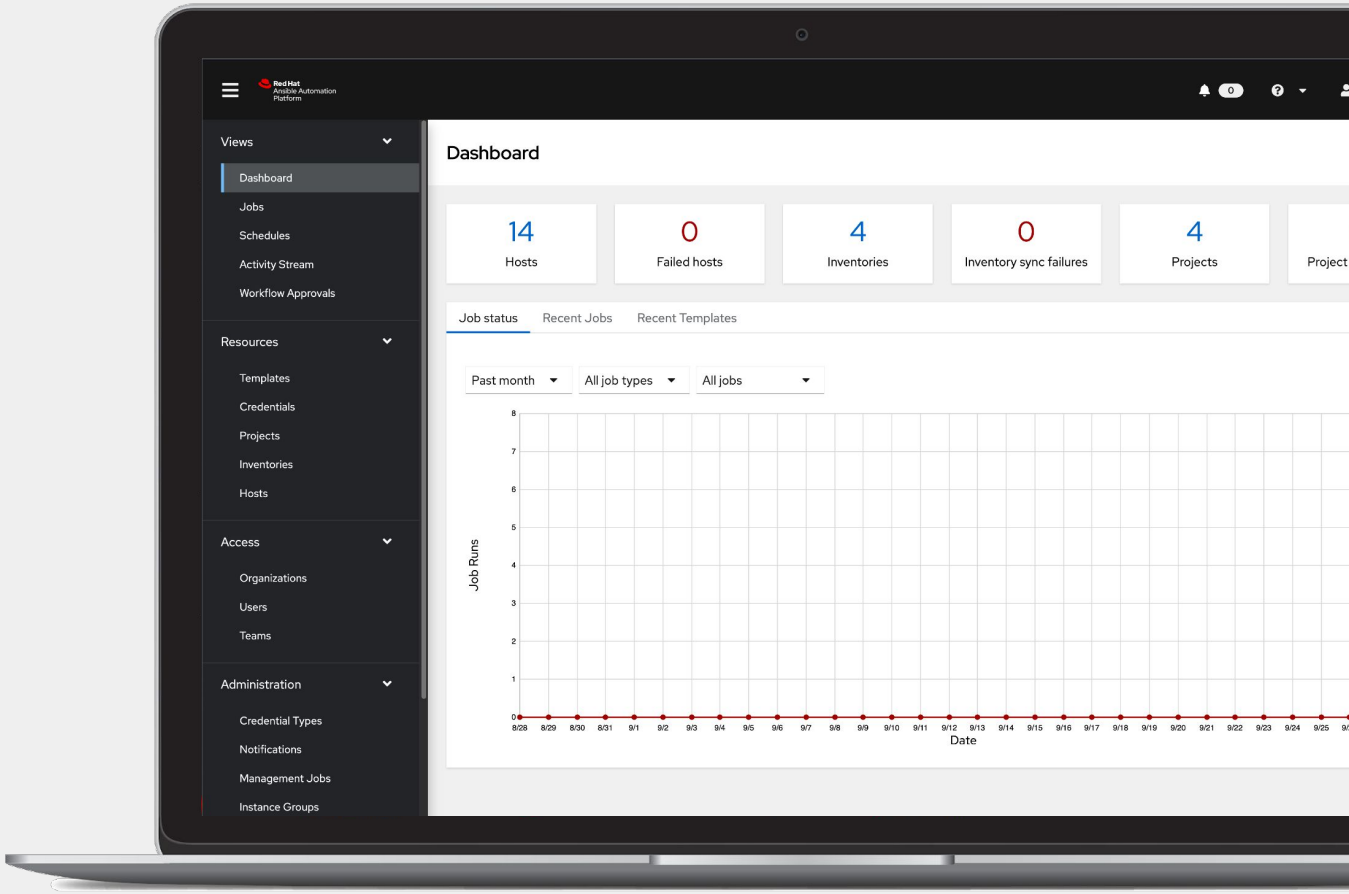
What is Ansible Automation Controller?

Ansible Automation Controller has a Web 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 Automation Controller

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 Controller 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 Controller's API.

Workflows

Ansible Controller'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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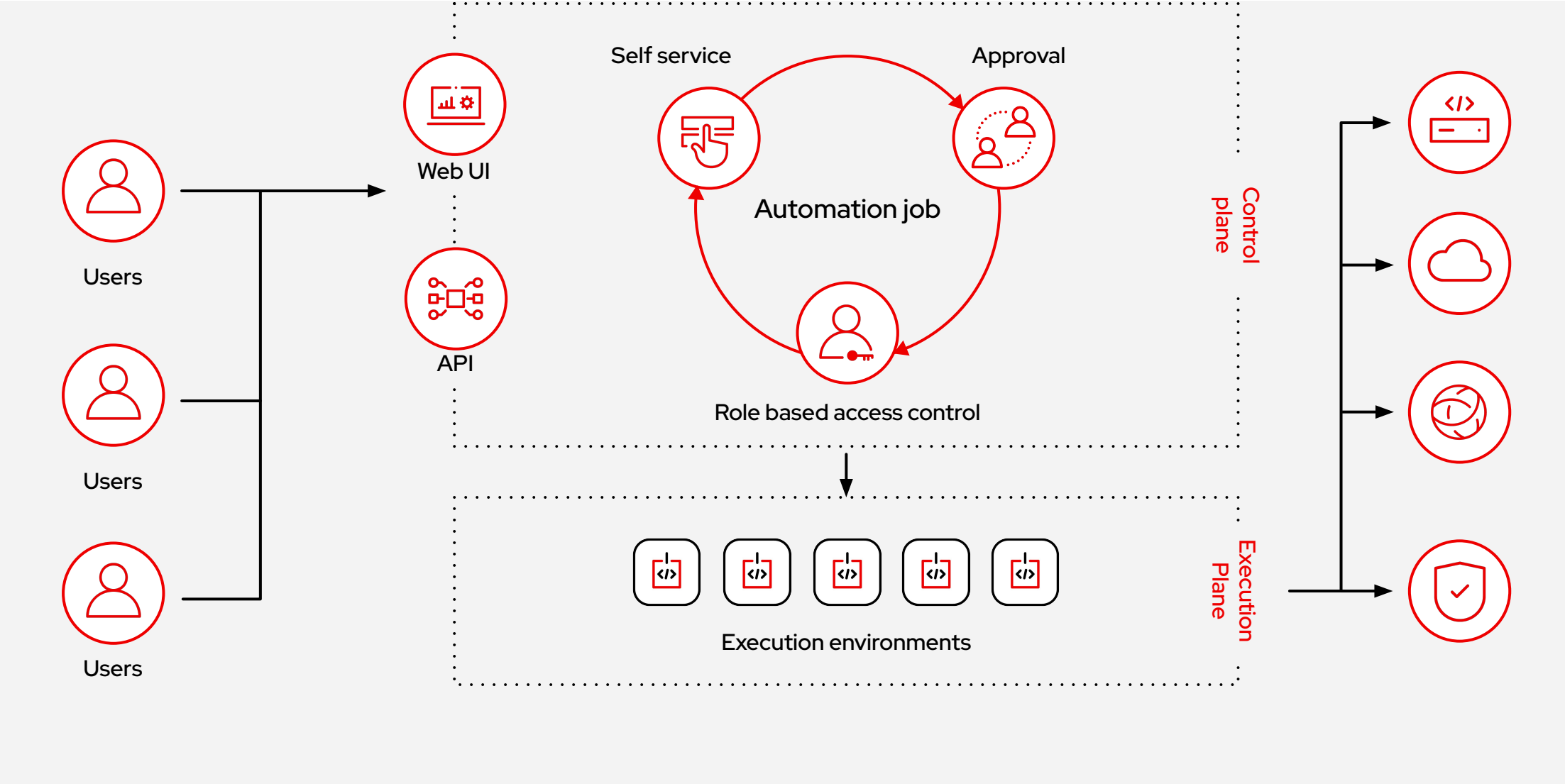
Ansible Controller



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Role Based Access Control (RBAC)

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

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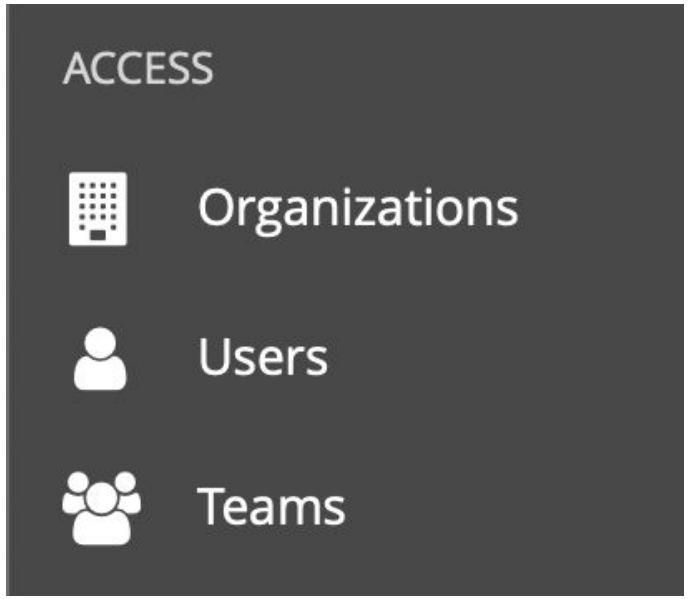
User Management

- An **Organization** is a logical collection of users, teams, projects, inventories and more. All entities belong to an organization.
- A **User** is an account to access Ansible Automation Controller 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.



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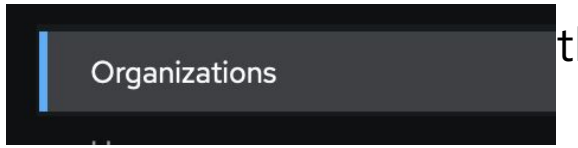
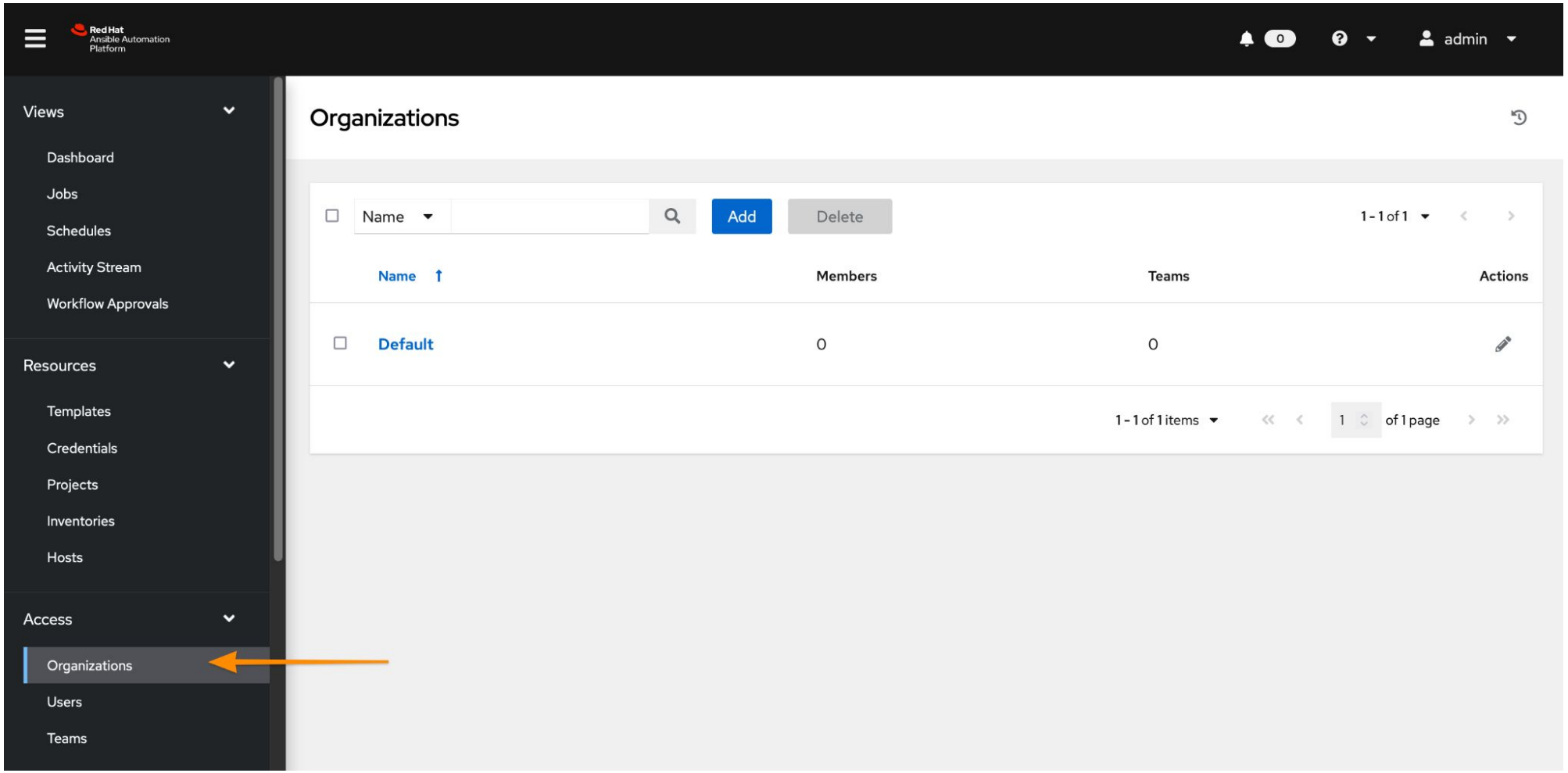
Viewing Organizations

Clicking on the **Organizations** button



the left menu will open up the Organizations window



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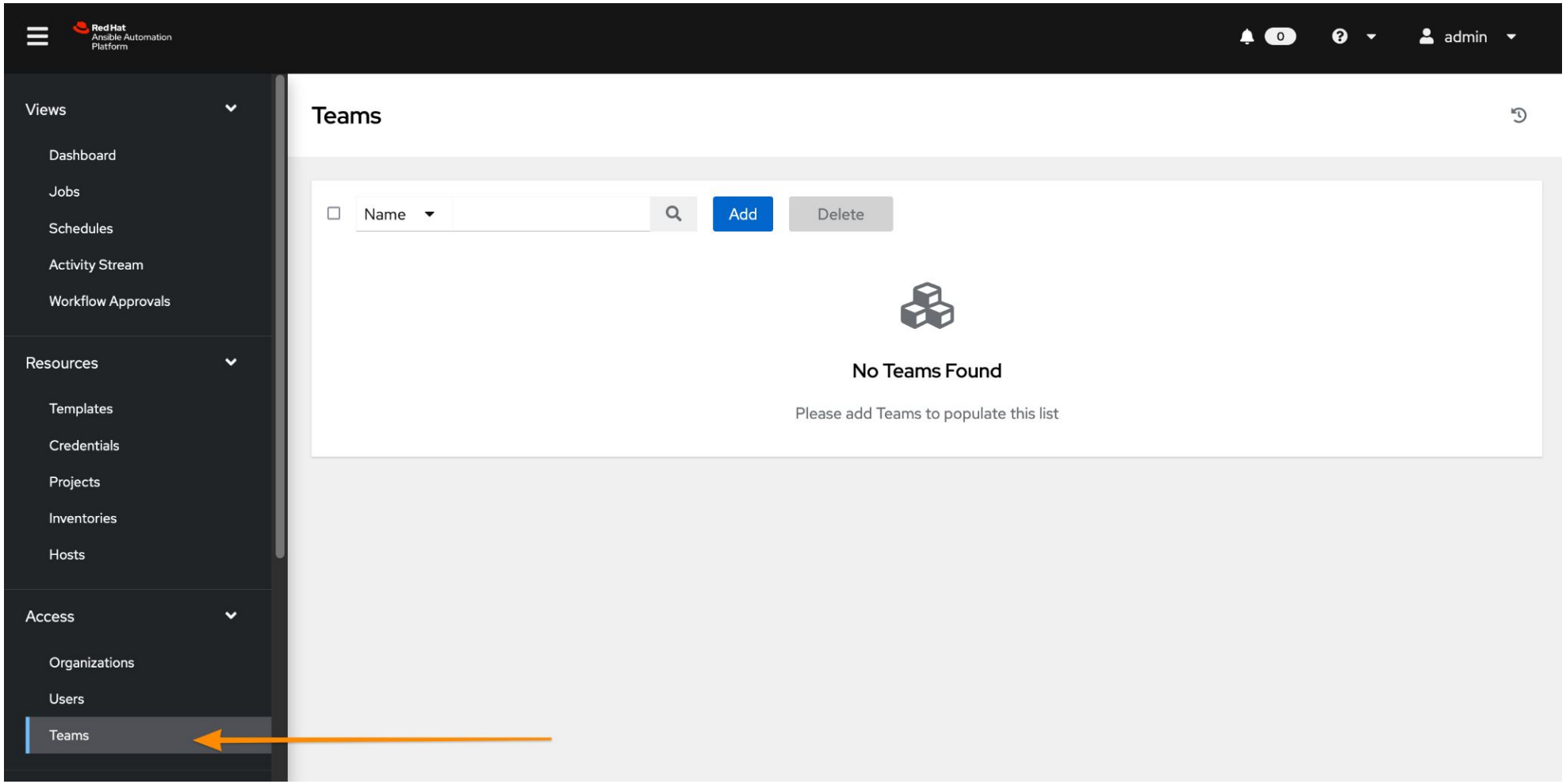
Viewing Teams

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

in the left menu



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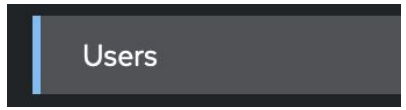
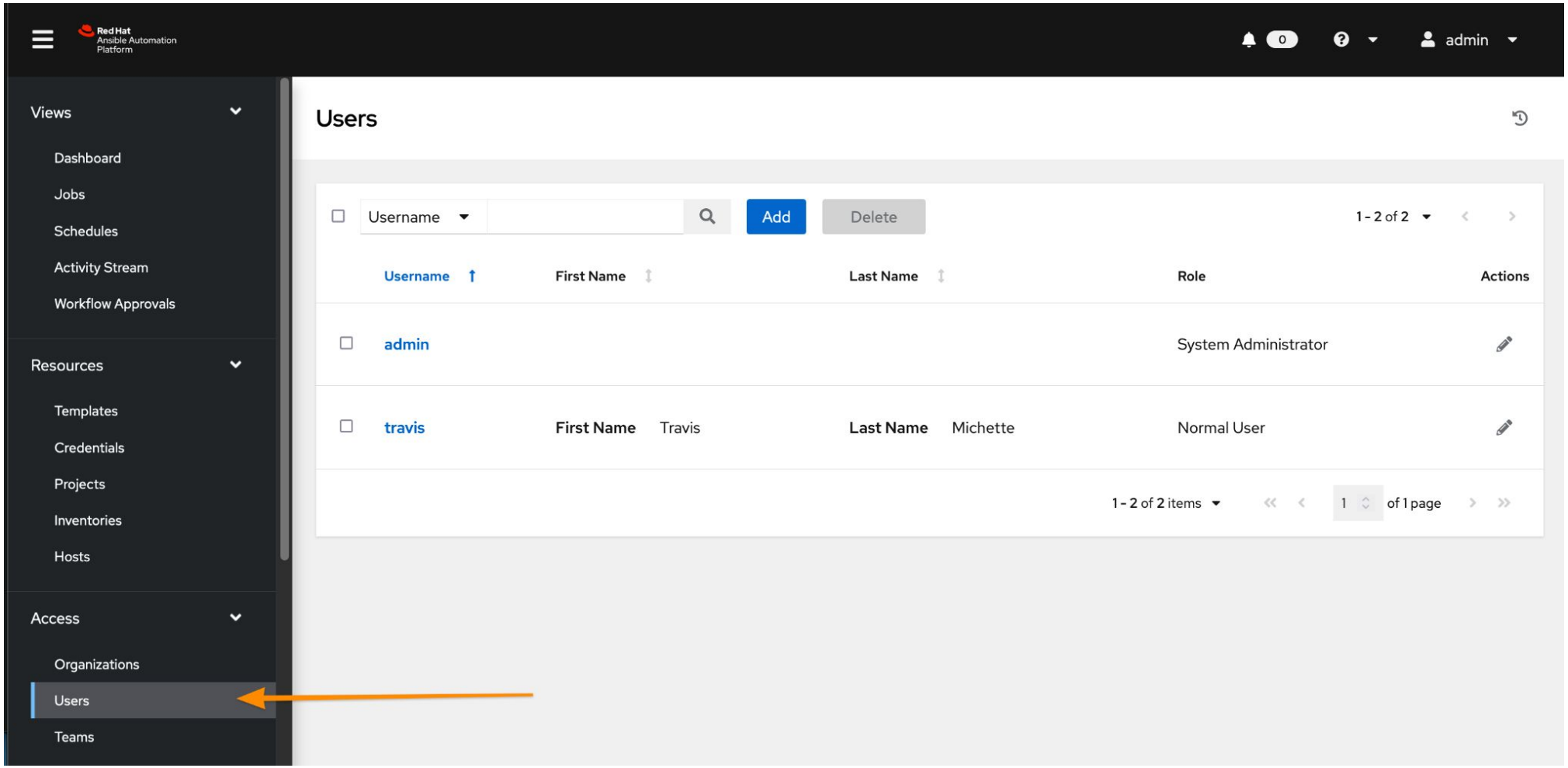
Viewing Users

Clicking on the **Users** button 

in the left menu will open up the Users window



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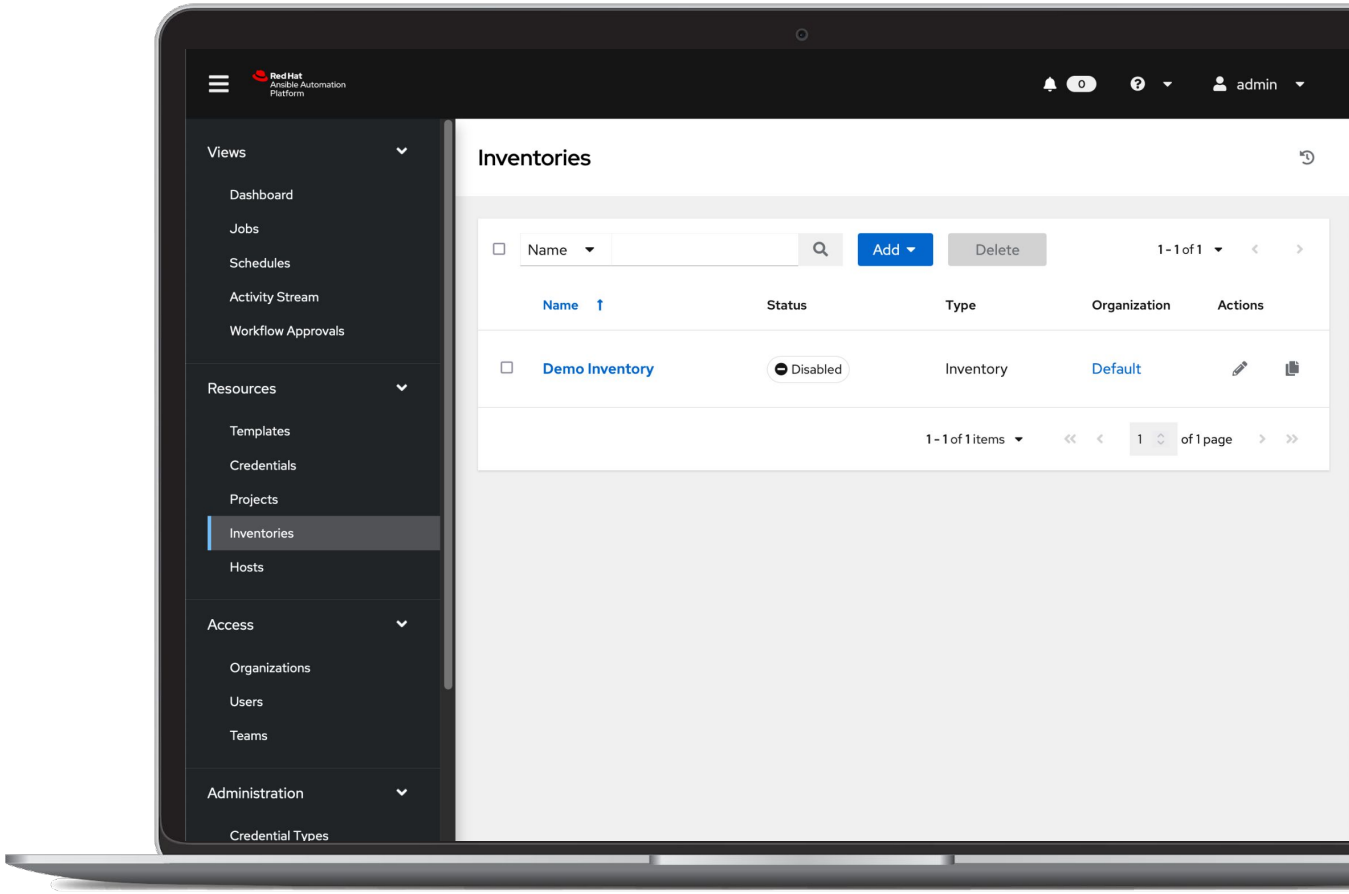
Inventory

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

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

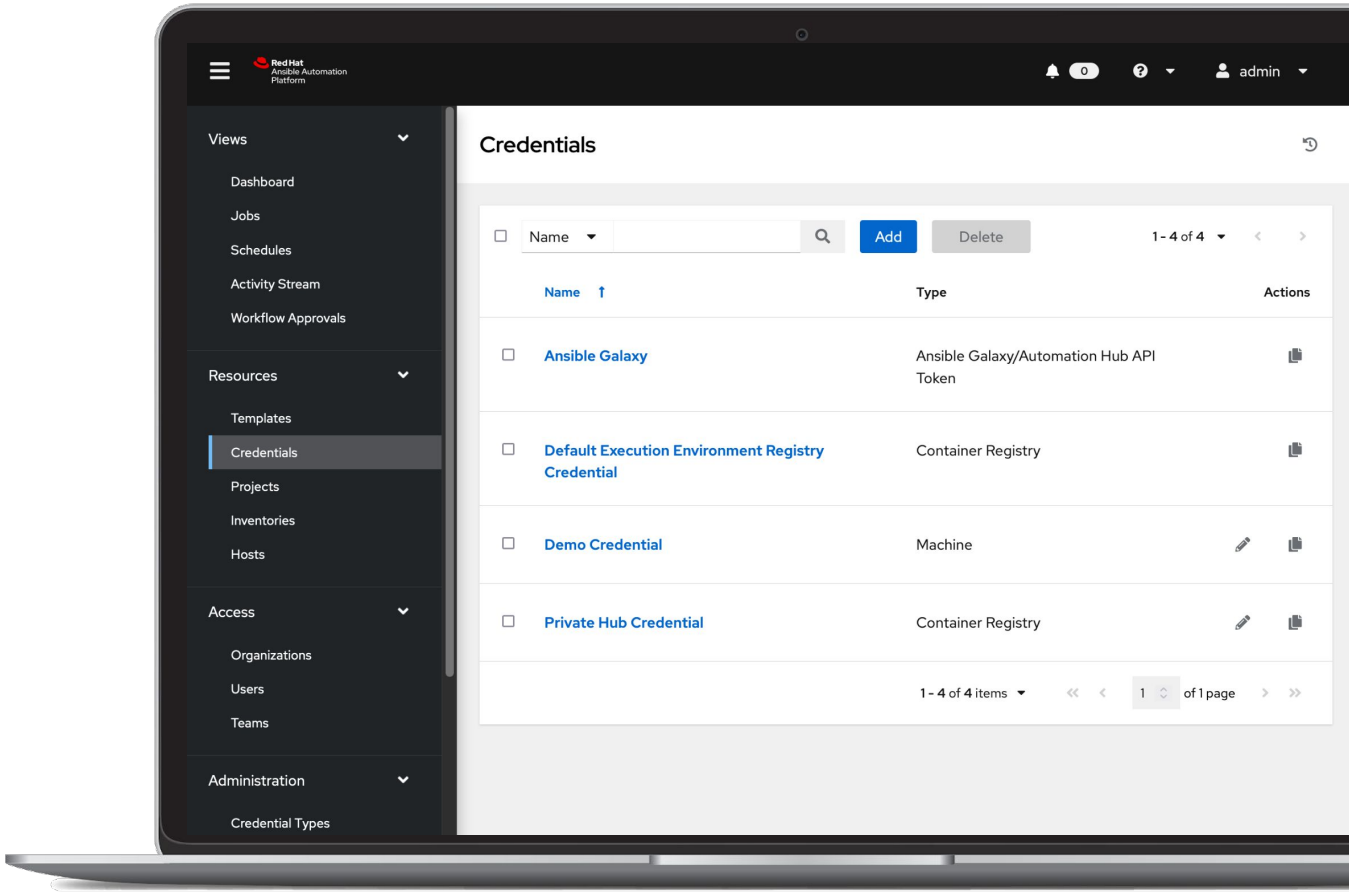


Credentials

Credentials are utilized by Ansible Automation Controller 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

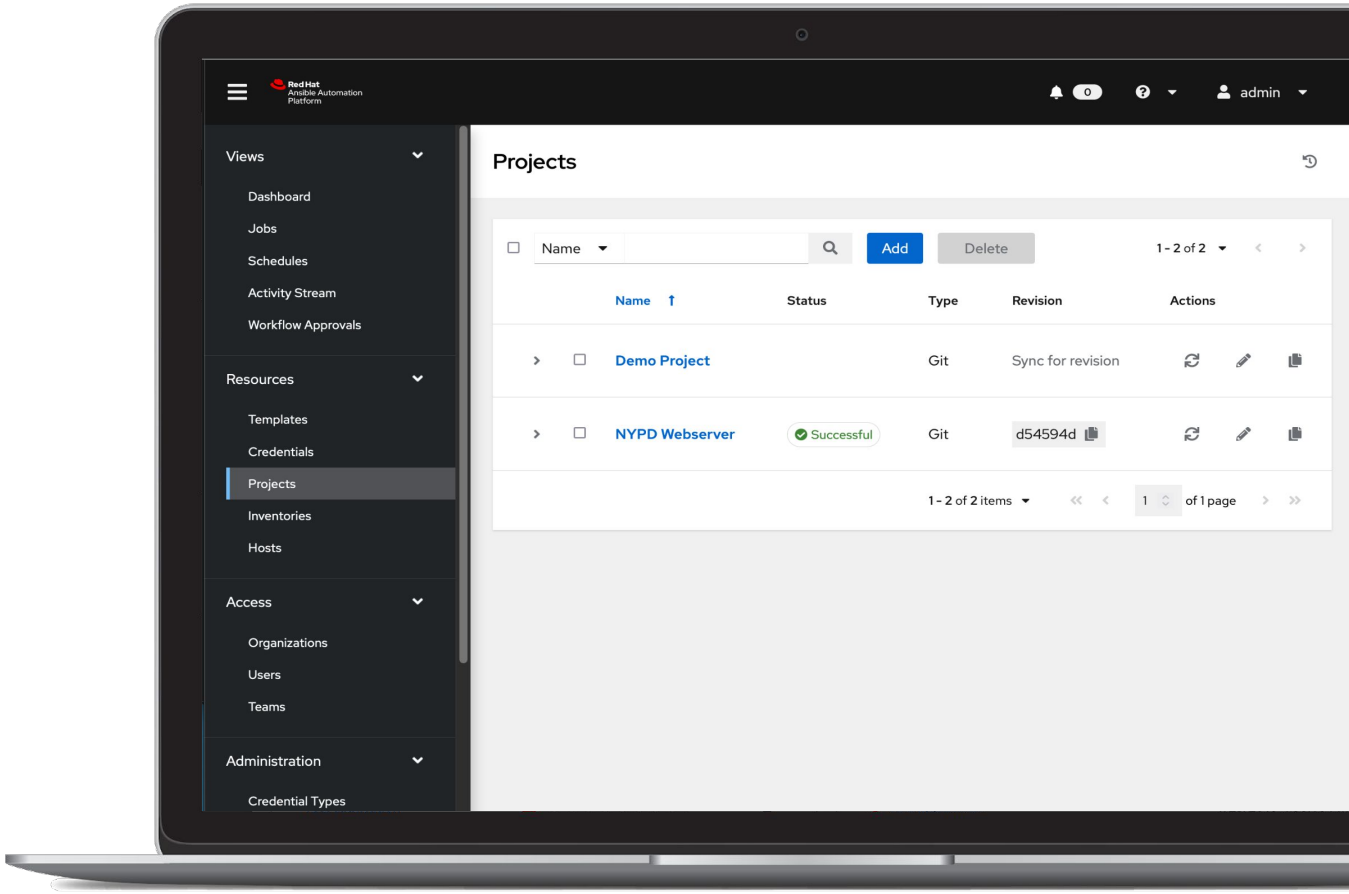
Centralized management of various credentials allows end users to leverage a secret without ever exposing that secret to them.



Project

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

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



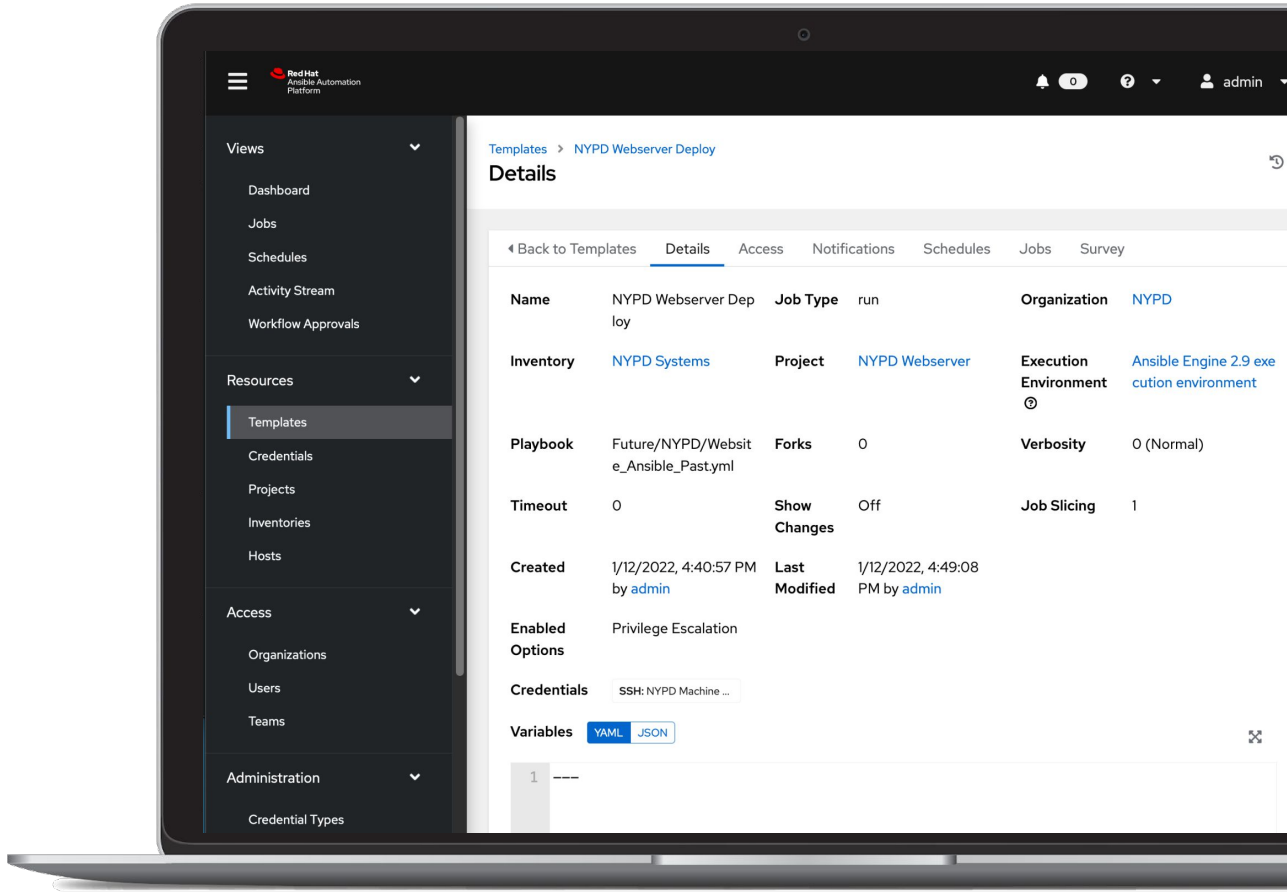
Job Templates

Everything in Ansible Automation Controller 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



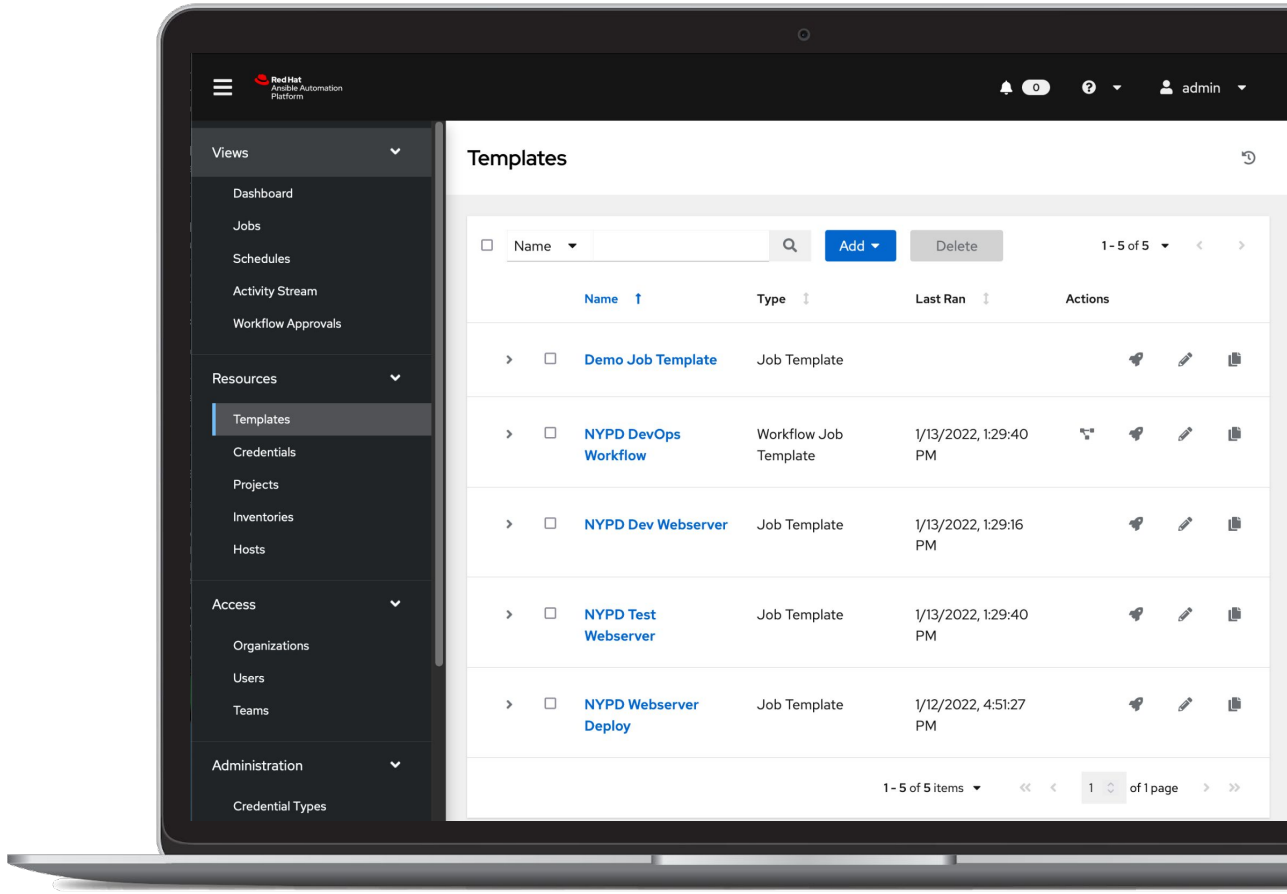
Workflows

Recall that everything in Ansible Automation Controller revolves around the concept of a Job Template. J**ob Workflows** allow multiple Job Templates to be controlled, delegated and scaled for an organization.

Job workflows allow building Ansible pipelines to execute multiple job templates and other functions depending on if the running Job Template succeeds or fails.

A **Job Workflow** requires:

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



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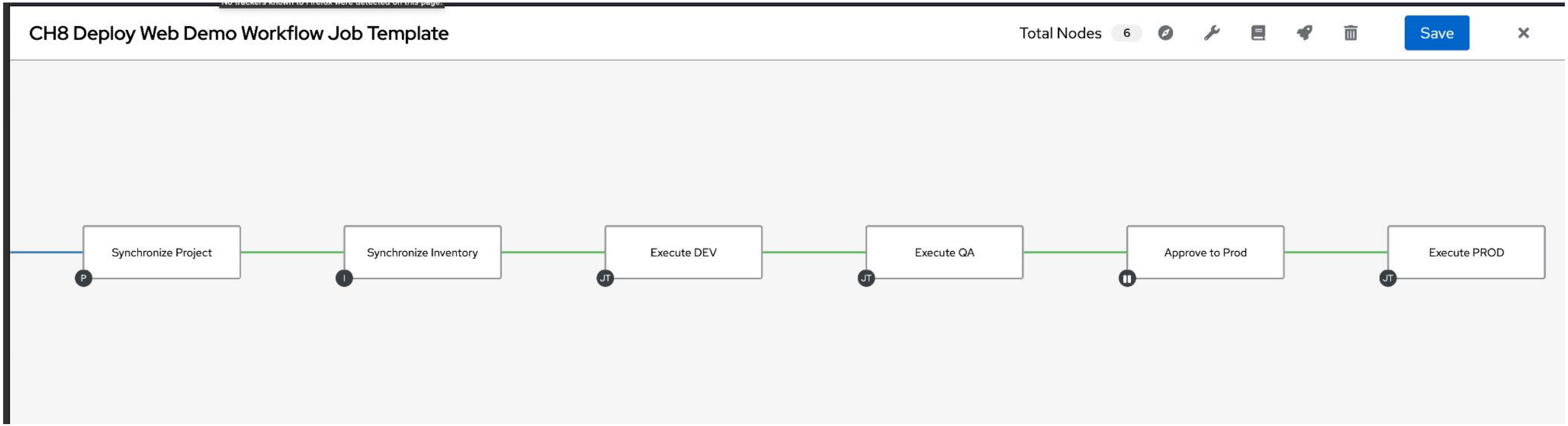
Workflow Visualizer

The workflow visualizer will start as a blank canvas but will show all nows and paths once the workflow design has been completed..



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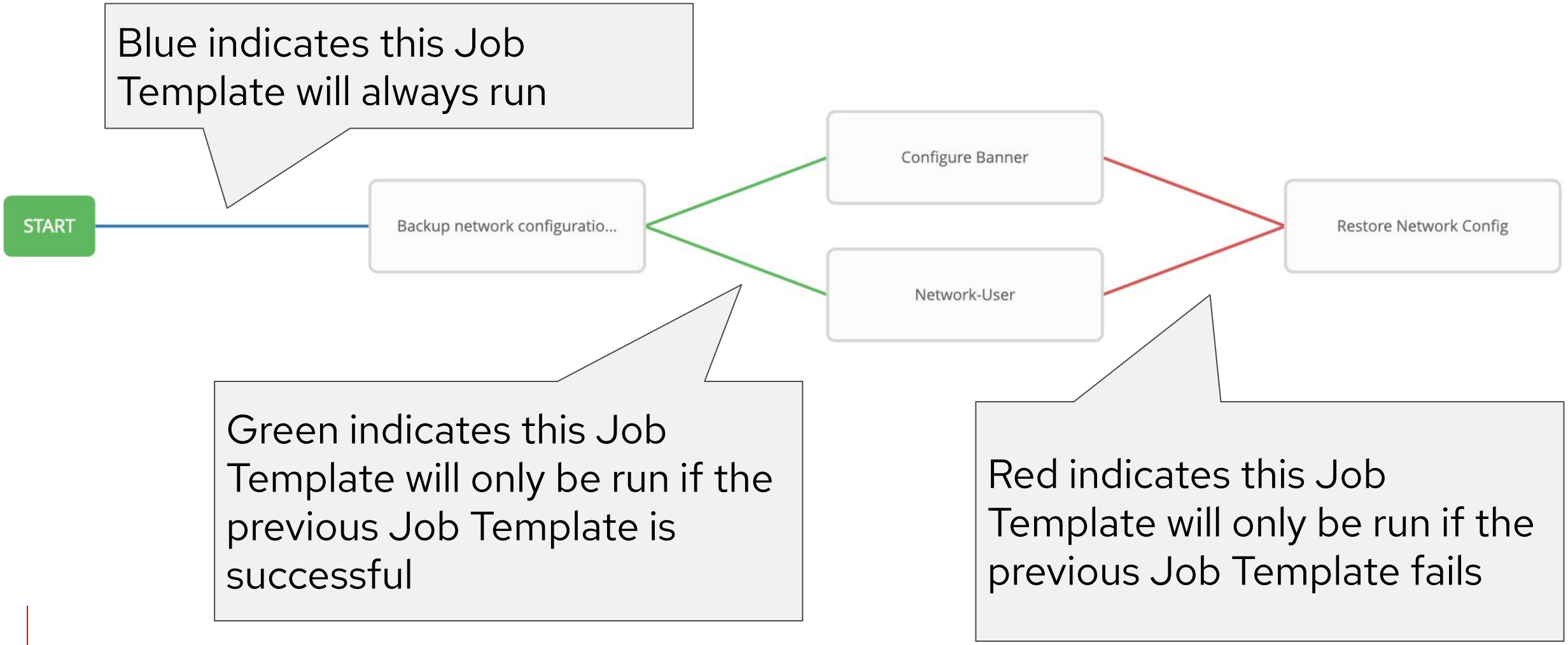
Visualizing a Workflow

Workflows can branch out, or converge in.

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Demo Time
Using Webhooks, Gitlab, and Automation Controller in a CI/CD Pipeline
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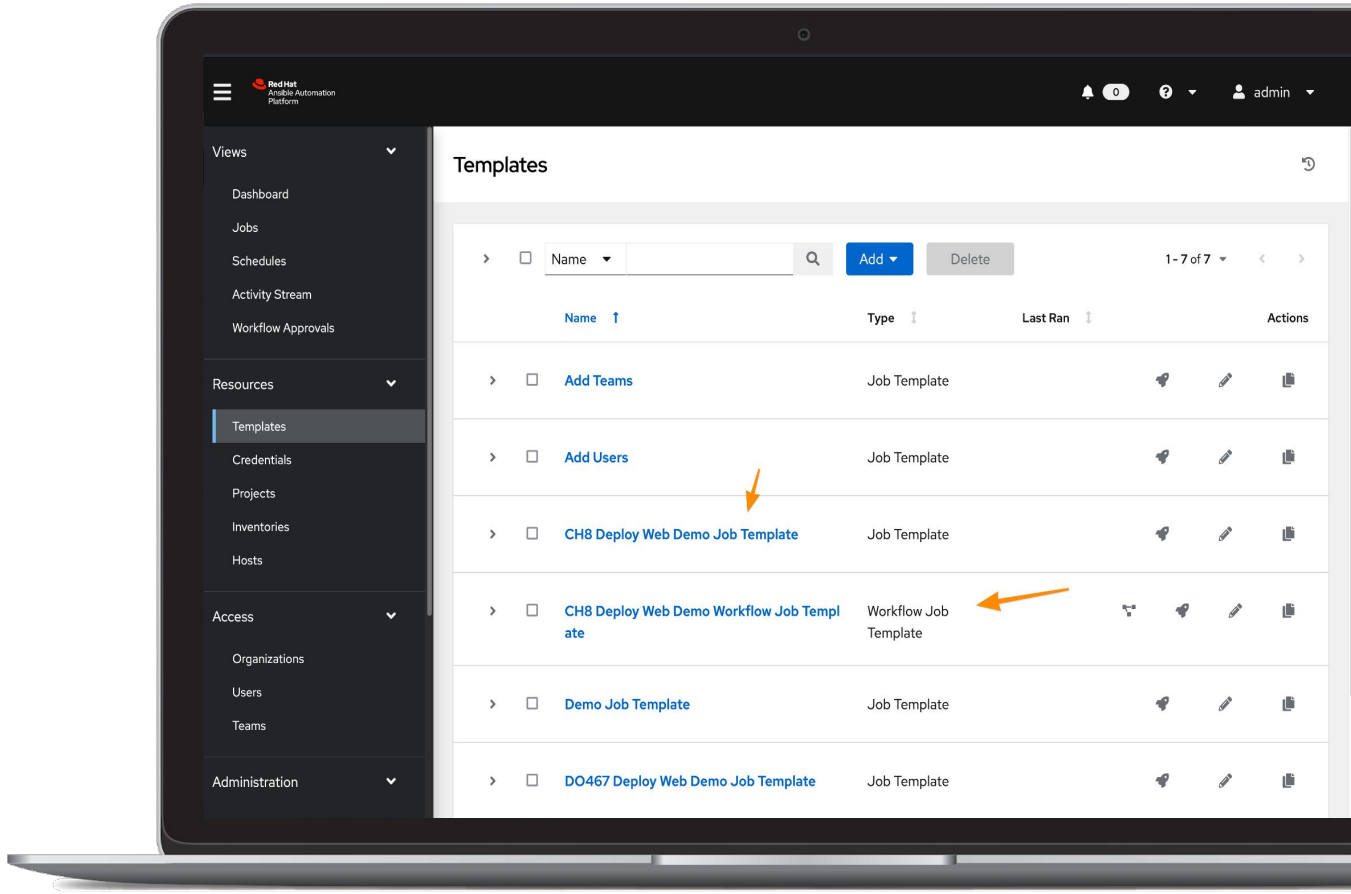
Demo Overview

The demo leverages a playbook to do the following:

- Install latest **httpd** and **firewalld** packages
- Configure **firewalld** and **httpd**
- Deploy website content
  - Graphical Image Files
  - **index.html** based on a JINJA2 template
- Deploy to **DEV/TEST** environments and wait for approval before deploying to **PROD**

Uses a Workflow Job Template and other resources which have been already setup and deployed as part of preparation.



Demo Content

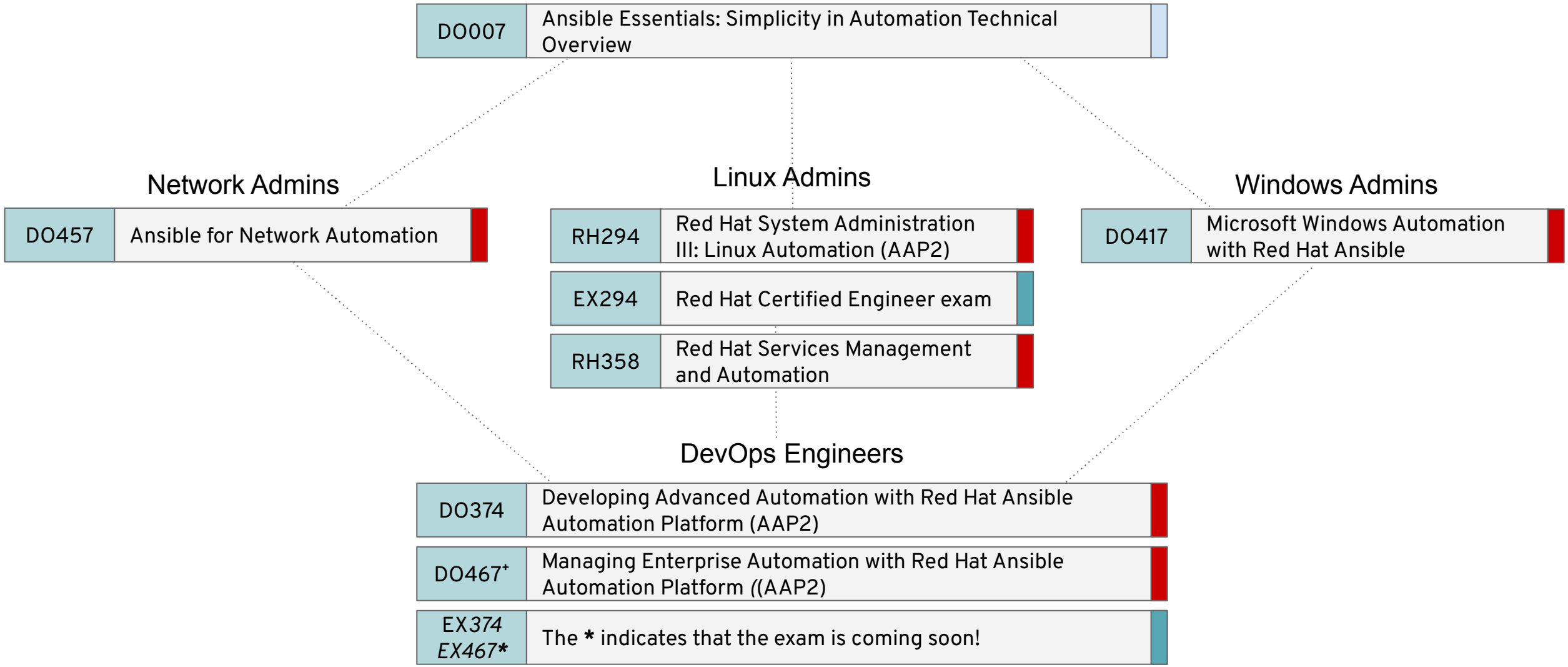
https://github.com/tmichett/do467_tot

Additional Information and Training Courses

Additional Resources

- AnsibleFest: https://www.ansible.com/ansiblefest (October 18-19, 2022)
  - Previous recorded sessions available
- Red Hat AAP Workshops: https://aap2.demoredhat.com/
- The Inside Playbook (Ansible Blog): https://www.ansible.com/blog
- Red Hat Learning Community (RHLC): https://learn.redhat.com/
- Ansible Documentation: https://docs.ansible.com/
- Ansible Webinars and Training: https://www.ansible.com/resources/webinars-training

Ansible Training Curriculum (Q3/Q4Y22)



+Release windows and course details subject to change

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Q & A

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