



Red Hat

Ansible Automation Platform

Automating the Enterprise with Ansible Automation Platform

An overview of Automation Controller and Ansible Private Automation Hub

Travis Michette
Principal Instructor



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



Red Hat
Ansible Automation
Platform

Introduction

Topics Covered:

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

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

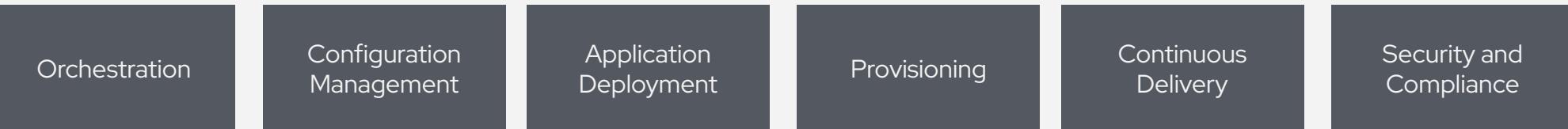
Get started immediately

More efficient & more secure

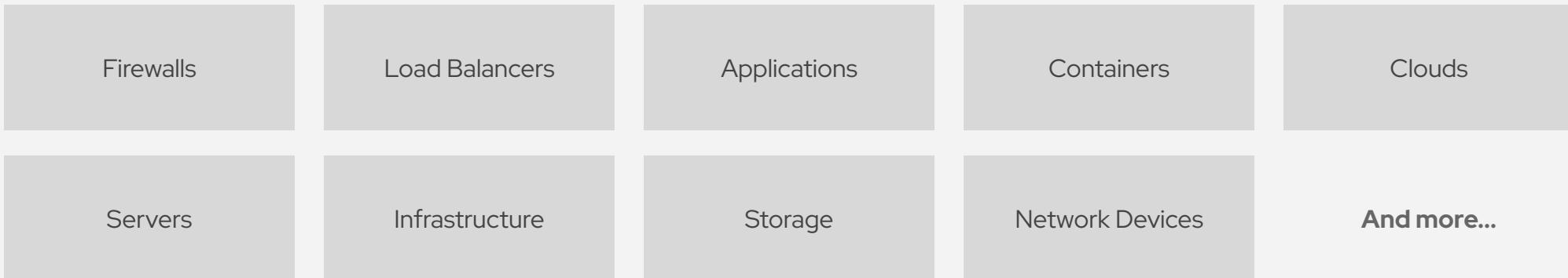
What can I do using Ansible?

Automate the deployment and management of your entire IT footprint.

Do this...



On these...



Ansible automates technologies you use

Time to automate is measured in minutes

Cloud	Virt & Container	Windows	Network	Security	Monitoring
AWS	Docker	ACLs	A10	Checkpoint	Dynatrace
Azure	VMware	Files	Arista	Cisco	Datadog
Digital Ocean	RHV	Packages	Aruba	CyberArk	LogicMonitor
Google	OpenStack	IIS	Cumulus	F5	New Relic
OpenStack	OpenShift	Regedits	Bigswitch	Fortinet	Sensu
Rackspace	+more	Shares	Cisco	Juniper	+more
+more		Services	Dell	IBM	
Operating Systems	Storage	Configs	Extreme	Palo Alto	Devops
RHEL	Netapp	Users	F5	Snort	Jira
Linux	Red Hat Storage	Domains	Lenovo	+more	GitHub
Windows	Infinidat	+more	MikroTik		Vagrant
+more	+more		Juniper		Jenkins
			OpenSwitch		Slack
			+more		+more

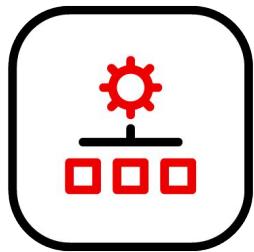
New in Ansible Automation Platform (AAP) 2.X

What changes?



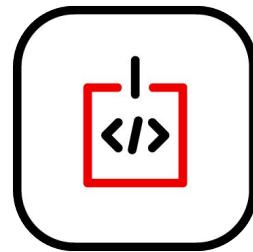
Updated Private Automation Hub

Hosting of private content,
container registry



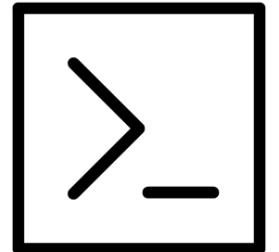
Automation controller

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

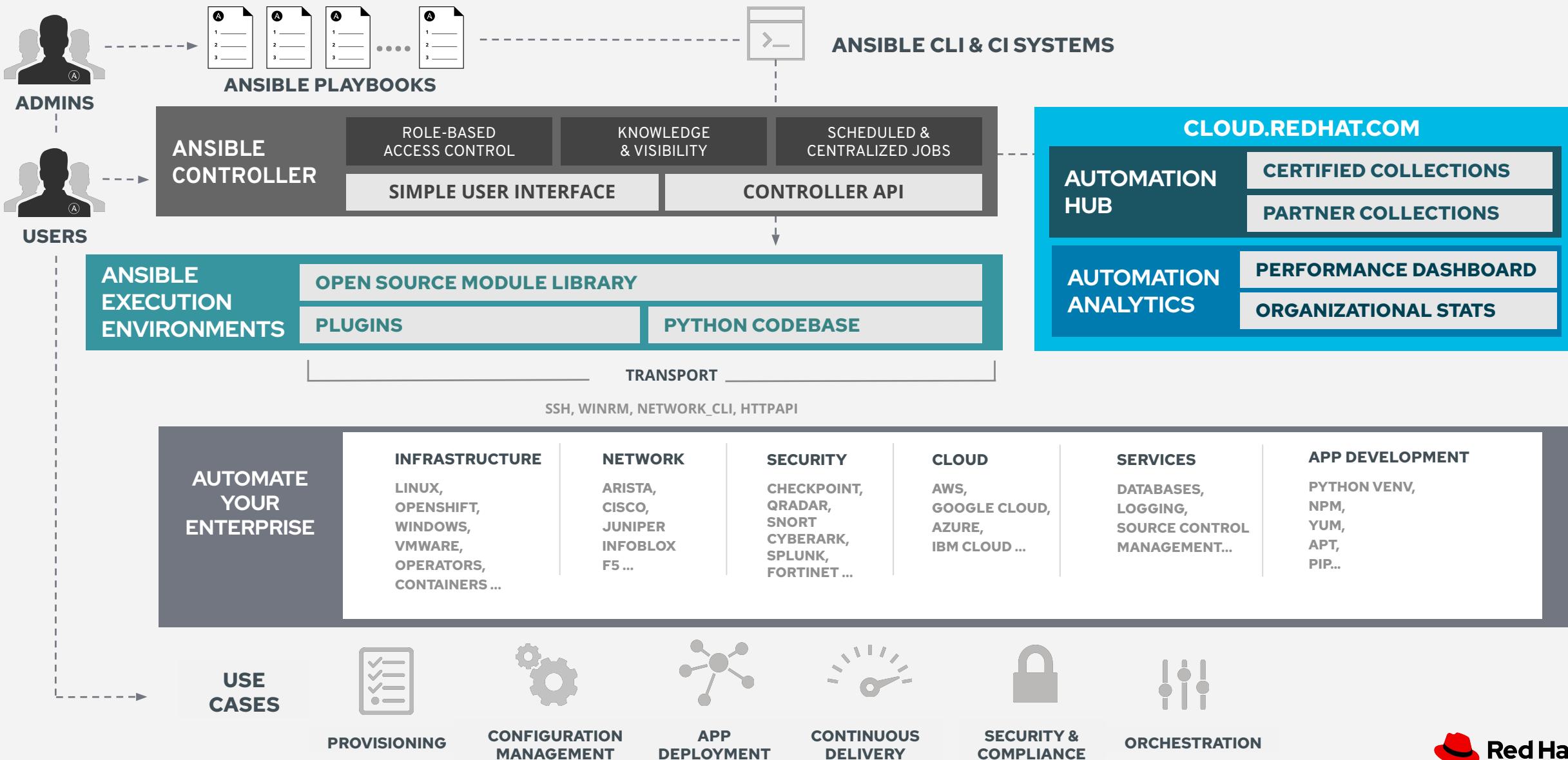
Topics Covered:

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



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Ansible Automation Platform



Collections

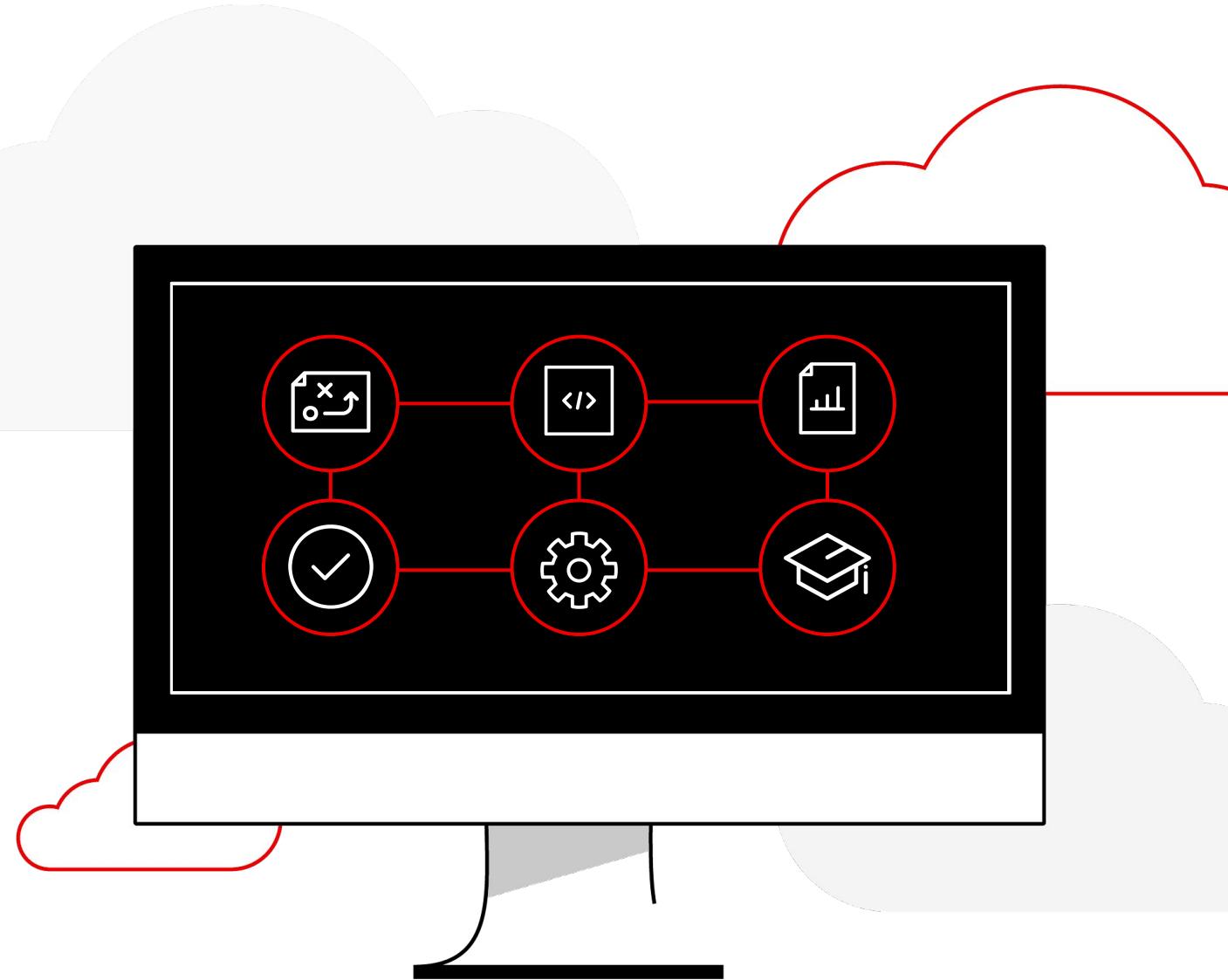
Simplified and consistent content delivery



What are they?

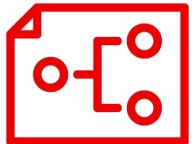
Collections are a data structure containing automation content:

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



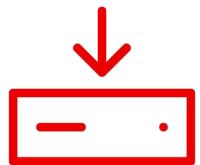
Accessing collections

How to get them



Requirements file

Requirements file defines the required collections for a playbook



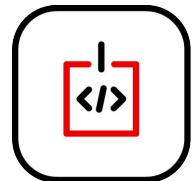
Pull via controller

Automation controller pulls the collections from Automation Hub automatically



Command line

CLI access is also possible via ansible-galaxy command

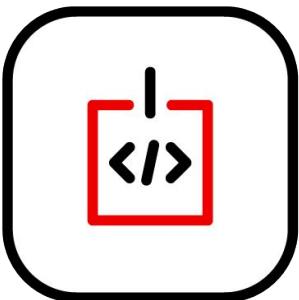


Execution Environments

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

Automation Execution Environments

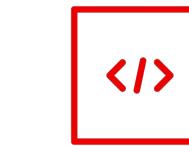
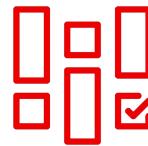
Components needed for automation, packaged in a cloud-native way



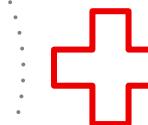
Execution
Environments



Collections



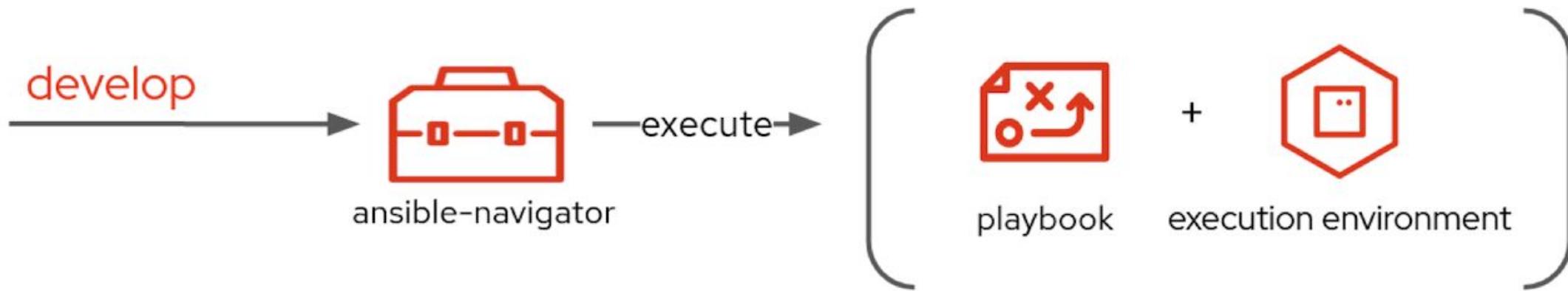
Libraries



Ansible Core

Universal Base Image

Ansible Content Navigator

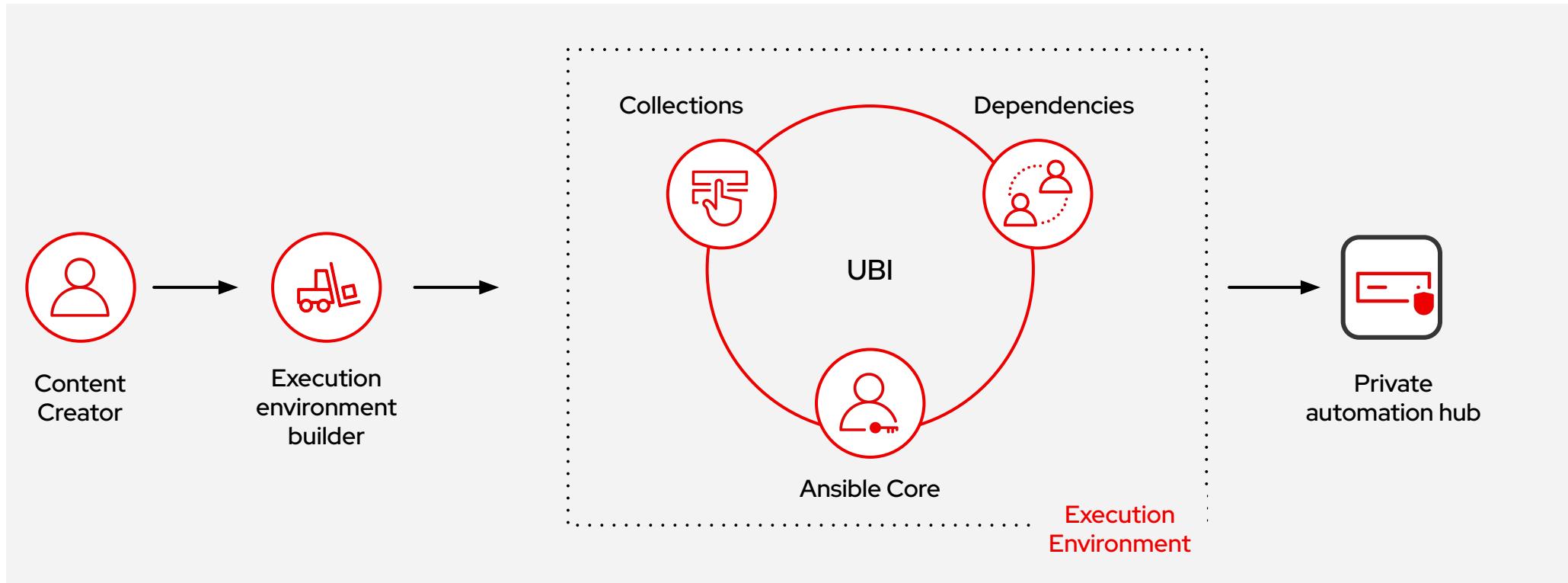


- ✓ Supported tooling
- ✓ Portable
- ✓ Scalable

Ansible Builder

Build, create, publish

Development cycle of an automation execution environment





Red Hat
Ansible Automation
Platform

Ansible Automation Hub

Topics Covered:

- Ansible Automation Hub
- Ansible Private Automation Hub

Ansible Automation Hub

The screenshot shows the Ansible Automation Platform interface. At the top left is the Red Hat Hybrid Cloud Console logo. A navigation bar at the top has a dropdown labeled "All apps and services". On the right, there's a user profile for "Travis Michette". The main sidebar on the left is titled "Ansible Automation Platform" and includes links for Overview, Automation Hub (which is expanded to show Collections, Partners, and Repo Management), Automation Services (Catalog), Insights, Reports, Savings Planner, Automation Calculator, Organization Statistics, and Job Explorer. The "Collections" link in the Automation Hub section is highlighted with an orange arrow. The main content area is titled "Collections" and features a search bar with "Keywords" and "Filter by keywords" options. It displays three collections:

- cloud**
Provided by Google Cloud
The Google Cloud Platform collection.
170 Modules 5 Roles 2 Plugins
Tags: cloud, monitoring, gcsfuse, stackdriver, logging
- flashblade**
Provided by Pure Storage
Collection of modules to manage Pure Storage FlashBlades
44 Modules 0 Roles 0 Plugins
Tags: purestorage, flashblade, storage, object, nfs
- flasharray**
Provided by Pure Storage
Collection of modules to manage Pure Storage FlashArrays (including Cloud Block Store)
51 Modules 0 Roles 0 Plugins
Tags: purestorage, storage, flasharray, cloudblockstore

On the far right of the content area, there's a purple "Feedback" button. At the bottom right, there's a circular icon with a blue outline and a number "1" inside, next to a keyhole icon.

Ansible Automation Hub Collections

The screenshot shows the Red Hat Hybrid Cloud Console interface. On the left, the Ansible Automation Platform sidebar is visible with the 'Automation Hub' section highlighted. Two orange arrows point from the top of the sidebar towards the 'satellite' collection name on the main page. The main content area displays the 'satellite' collection details for version v3.0.0. The 'Info' tab is selected, showing Ansible Modules to manage Satellite installations, including foreman, katello, and satellite. The License is listed as GPL-3.0-or-later. The Installation section provides the command to install the collection: `ansible-galaxy collection install redhat.satellite`. A note states: "Note: Installing collections with ansible-galaxy is only supported in ansible 2.9+". A 'Download tarball' link is available. The Install Version is shown as 3.0.0 released 23 days ago (latest). Requirements indicate it needs Ansible >=2.9. The Red Hat Satellite Ansible Collection is described as Ansible modules for interacting with the Satellite API.

Red Hat Hybrid Cloud Console

All apps and services

Travis Michette

Ansible Automation Platform

Overview

Automation Hub

Collections

Partners

Repo Management

Connect to Hub

Automation Services Catalog

Insights

Reports

Savings Planner

Automation Calculator

Organization Statistics

Partners > redhat > satellite

satellite

v3.0.0

Details Documentation Contents Import log

Docs site Website Issue tracker Repo

Info

Ansible Modules to manage Satellite installations

foreman katello satellite

License GPL-3.0-or-later

Installation `ansible-galaxy collection install redhat.satellite`

Note: Installing collections with ansible-galaxy is only supported in ansible 2.9+

[Download tarball](#)

Install Version 3.0.0 released 23 days ago (latest)

Requires Ansible >=2.9

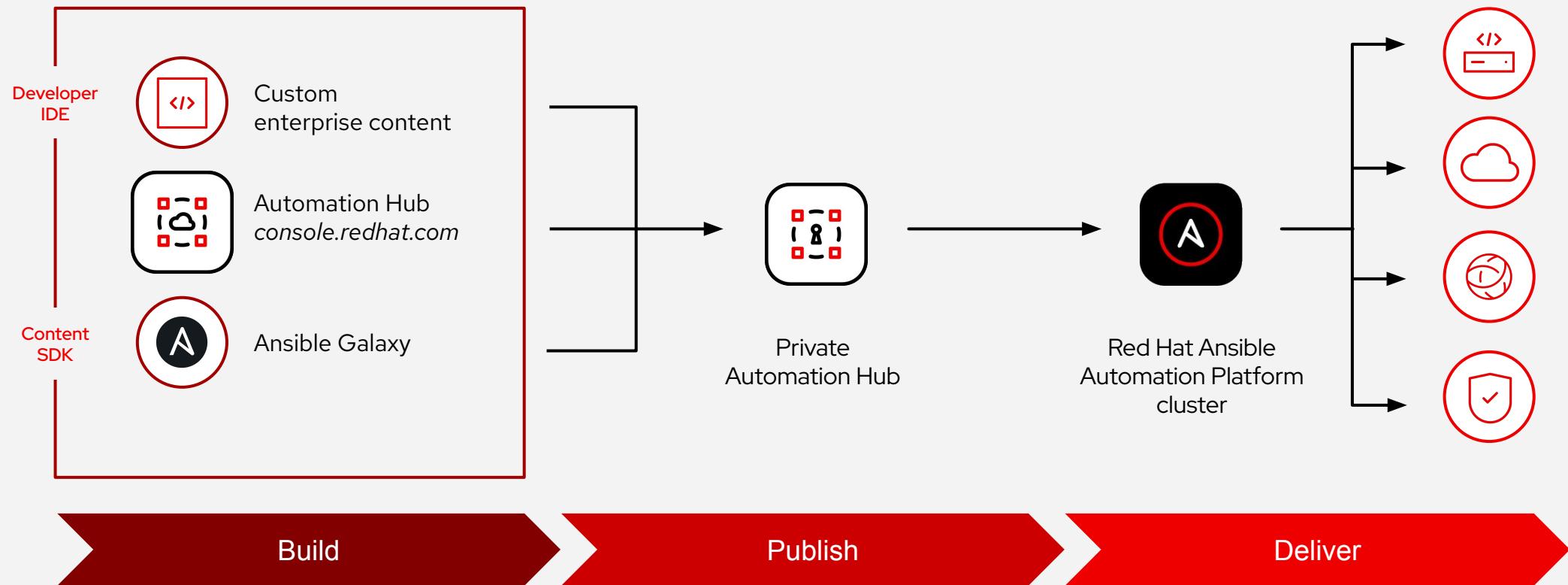
Red Hat Satellite Ansible Collection

Ansible modules for interacting with the Satellite API.

Feedback

Private Automation Hub

Value of Private Automation Hub



Ansible Private Automation Hub

Trusted source

Customer controlled

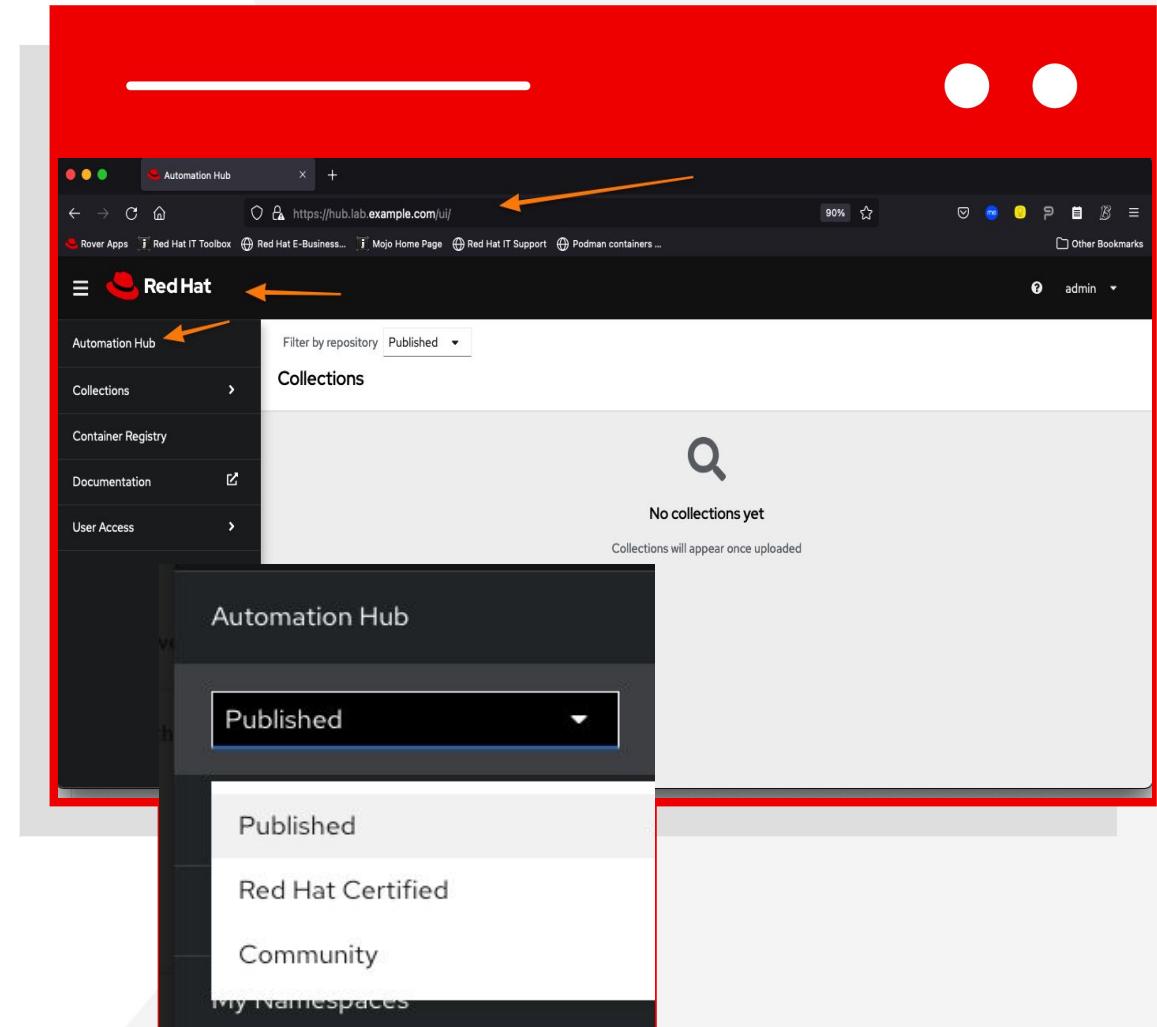
Deploying either on-prem or to a cloud, customers can run their own private instances of Automation Hub integrated into Red Hat Ansible Automation Platform.

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.



Automation Hub - Execution Environments

Red Hat

Automation Hub

Collections

Repository Management

API Token

Approval

Container Registry

Documentation

User Access

Container Registry

Container Registry

Container repository name

Filter by container repos...

Push container images

1 - 4 of 4

Container repository name	Description	Created	Last modified
ansible-builder-rhel8		2 months ago	2 months ago
ee-29-rhel8		2 months ago	2 months ago
ee-minimal-rhel8		2 months ago	2 months ago
ee-supported-rhel8		2 months ago	2 months ago

1 - 4 of 4

Ansible Automation Controller

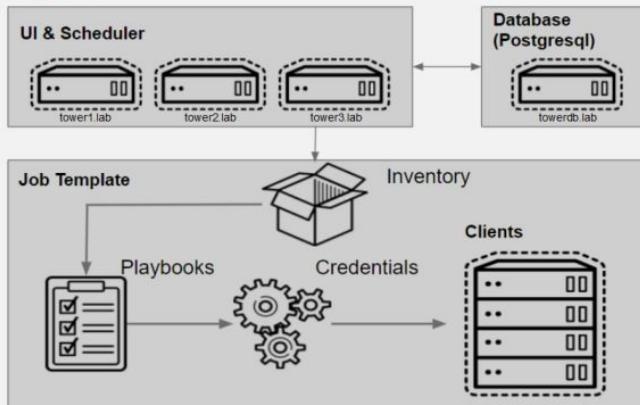
Topics Covered:

- 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

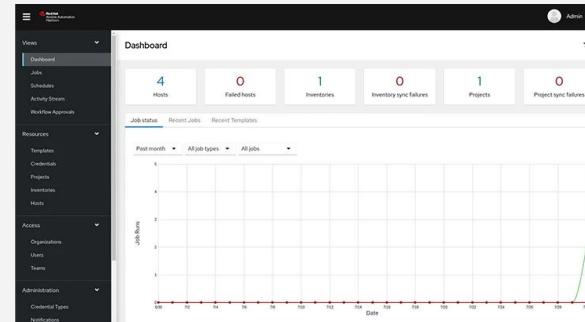
Manage Projects and Jobs

No CLI Administration skills needed

Automated

Ability to use Execution Environments

Single Management Point



Simple

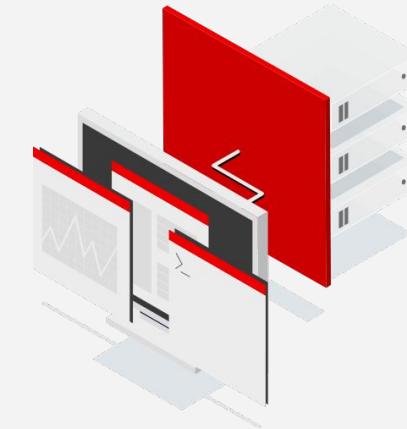
Environment Overview

Configuration management

Workflow orchestration

Logging and System Management

Manage Access & Files



Streamlined

Web Interface / WebUI

Rest API

Plugins

User Management

Users / Roles / Credentials

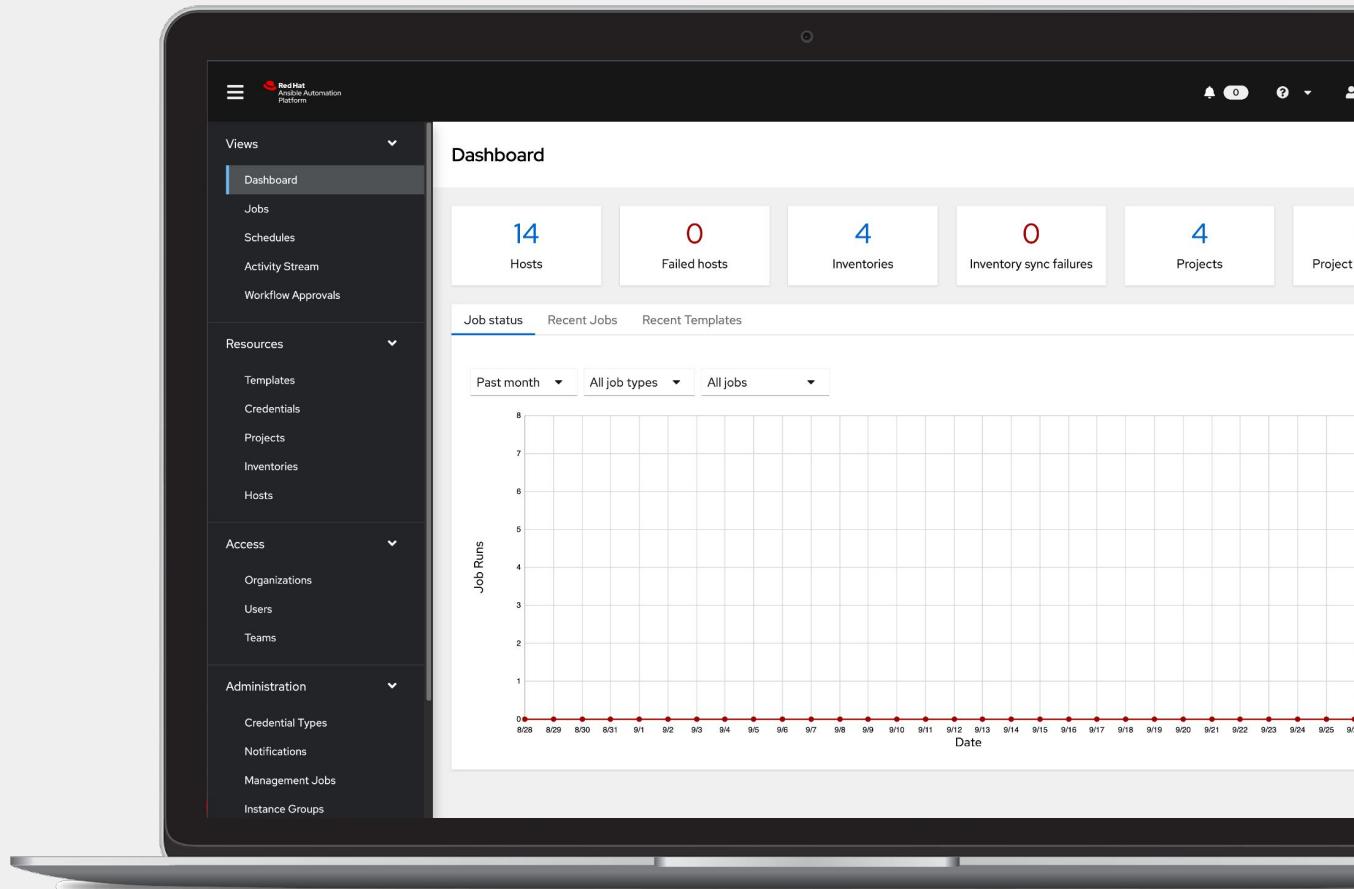
More Efficient & More Secure



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



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.

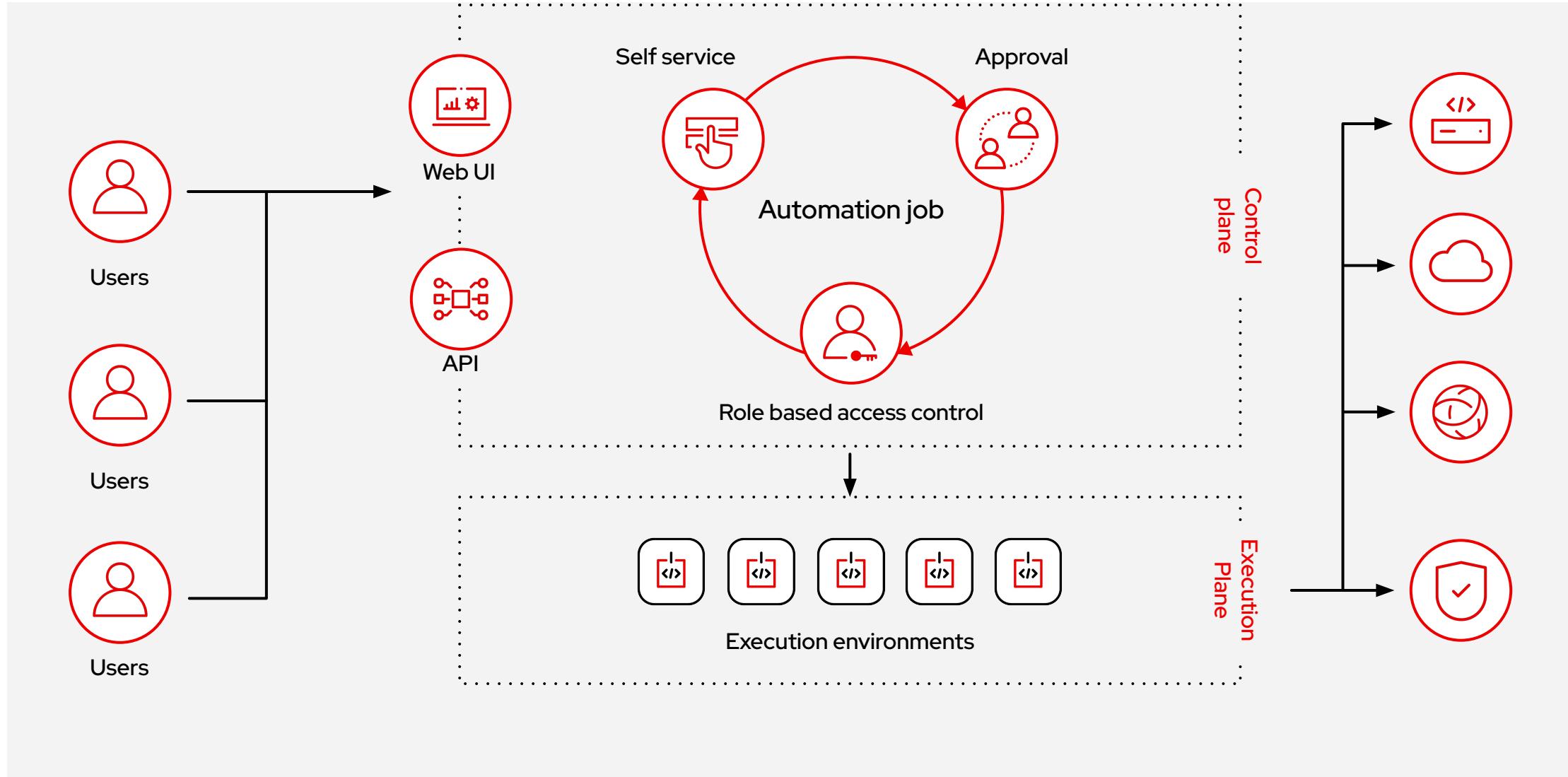
Centralized logging

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.

Ansible Controller



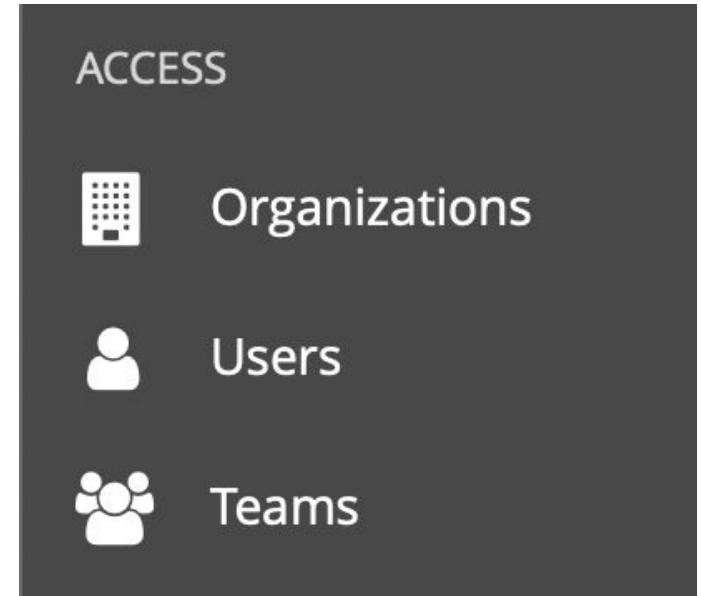
Role Based Access Control (RBAC)

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.



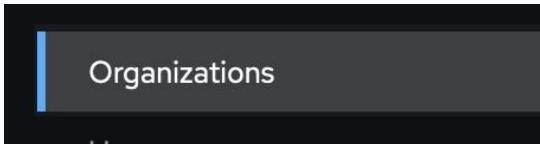
User Management

- 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.



Viewing Organizations

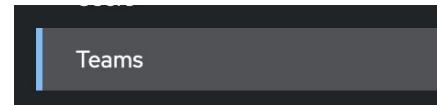
Clicking on the **Organizations** button will open up the Organizations window



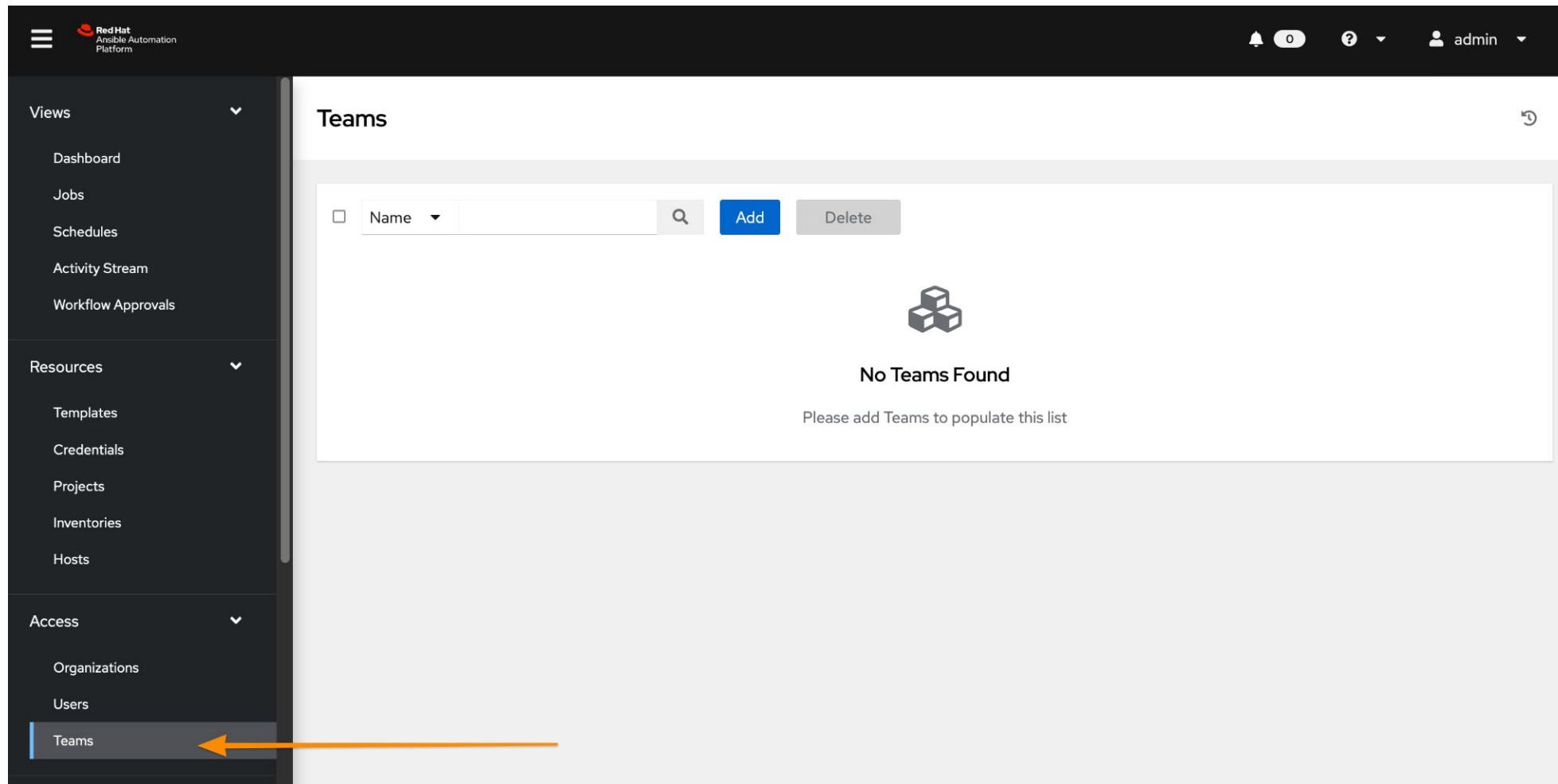
A screenshot of the "Organizations" window. The window has a dark header bar with the Red Hat logo and the text "Red Hat Ansible Automation Platform". Below the header is a navigation menu with sections: Views, Resources, and Access. The "Access" section is expanded, showing "Organizations" as the selected item, which is highlighted with a blue background and has an orange arrow pointing to it from the bottom left. The main content area is titled "Organizations" and shows a table with one row. The table has columns: Name, Members, Teams, and Actions. The row contains the entry "Default", with "0" under both the Members and Teams columns, and a pencil icon in the Actions column. At the bottom of the table are pagination controls: "1-1 of 1 items", "1 of 1 page", and arrows for navigating through multiple pages.

Viewing Teams

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



in the left menu

A screenshot of the 'Teams' window. The title bar says 'Teams'. Below it is a search bar with a dropdown menu set to 'Name', a magnifying glass icon, and an 'Add' button. To the right of the search bar is a 'Delete' button. In the center of the window is a small icon of three stacked cubes. Below the icon, the text 'No Teams Found' is displayed, followed by the instruction 'Please add Teams to populate this list'. The left sidebar of the platform is visible on the left side of the window.

Viewing Users

Clicking on the **Users** button in the left menu will open up the Users window

The screenshot shows the Red Hat Ansible Automation Platform web interface. The top navigation bar includes the Red Hat logo, a search bar, and user account information for 'admin'. The left sidebar has sections for 'Views' (Dashboard, Jobs, Schedules, Activity Stream, Workflow Approvals), 'Resources' (Templates, Credentials, Projects, Inventories, Hosts), and 'Access' (Organizations, **Users**, Teams). An orange arrow points to the 'Users' link in the Access section. The main content area is titled 'Users' and displays a table with two rows of user data. The columns are: Username, First Name, Last Name, Role, and Actions. The first user is 'admin' (System Administrator) and the second is 'travis' (Normal User).

Username	First Name	Last Name	Role	Actions
admin			System Administrator	
travis	Travis	Michette	Normal User	

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

The screenshot shows the Red Hat Ansible Automation Platform web interface. The left sidebar has a dark theme with white text and includes sections for Views (Dashboard, Jobs, Schedules, Activity Stream, Workflow Approvals), Resources (Templates, Credentials, Projects, Inventories, Hosts), Access (Organizations, Users, Teams), and Administration (Credential Types). The 'Inventories' section is currently selected and highlighted with a blue bar. The main content area is titled 'Inventories' and displays a table with one row. The table columns are Name, Status, Type, Organization, and Actions. The single row shows 'Demo Inventory' with a status of 'Disabled', a type of 'Inventory', and an organization of 'Default'. There are edit and delete icons in the Actions column. At the bottom of the table, it says '1-1 of 1 items' and '1 of 1 page'.

Name	Status	Type	Organization	Actions
Demo Inventory	Disabled	Inventory	Default	

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.

The screenshot shows the Red Hat Ansible Automation Platform web interface. The top navigation bar includes the Red Hat logo, 'Ansible Automation Platform', a search bar, and user account information ('admin'). Below the header is a dark sidebar with a navigation menu:

- Views: Dashboard, Jobs, Schedules, Activity Stream, Workflow Approvals.
- Resources: Templates (highlighted), Credentials, Projects, Inventories, Hosts.
- Access: Organizations, Users, Teams.
- Administration: Credential Types.

The main content area is titled 'Credentials' and displays a list of four entries:

Name	Type	Actions
Ansible Galaxy	Ansible Galaxy/Automation Hub API Token	
Default Execution Environment Registry Credential	Container Registry	
Demo Credential	Machine	
Private Hub Credential	Container Registry	

At the bottom of the page, there are pagination controls: '1 - 4 of 4 items', '1 of 1 page', and navigation arrows.

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.

The screenshot shows the Red Hat Ansible Automation Platform web interface. The left sidebar has a dark theme with white text. It includes sections for Views (Dashboard, Jobs, Schedules, Activity Stream, Workflow Approvals), Resources (Templates, Credentials, Projects, Inventories, Hosts), Access (Organizations, Users, Teams), and Administration (Credential Types). The 'Projects' section is currently selected. The main content area is titled 'Projects' and displays a table with two rows:

Name	Status	Type	Revision	Actions
Demo Project	Git	Sync for revision		
NYPD Webserver	Successful	Git	d54594d	

At the bottom of the table, it says '1 - 2 of 2 items' and '1 of 1 page'.

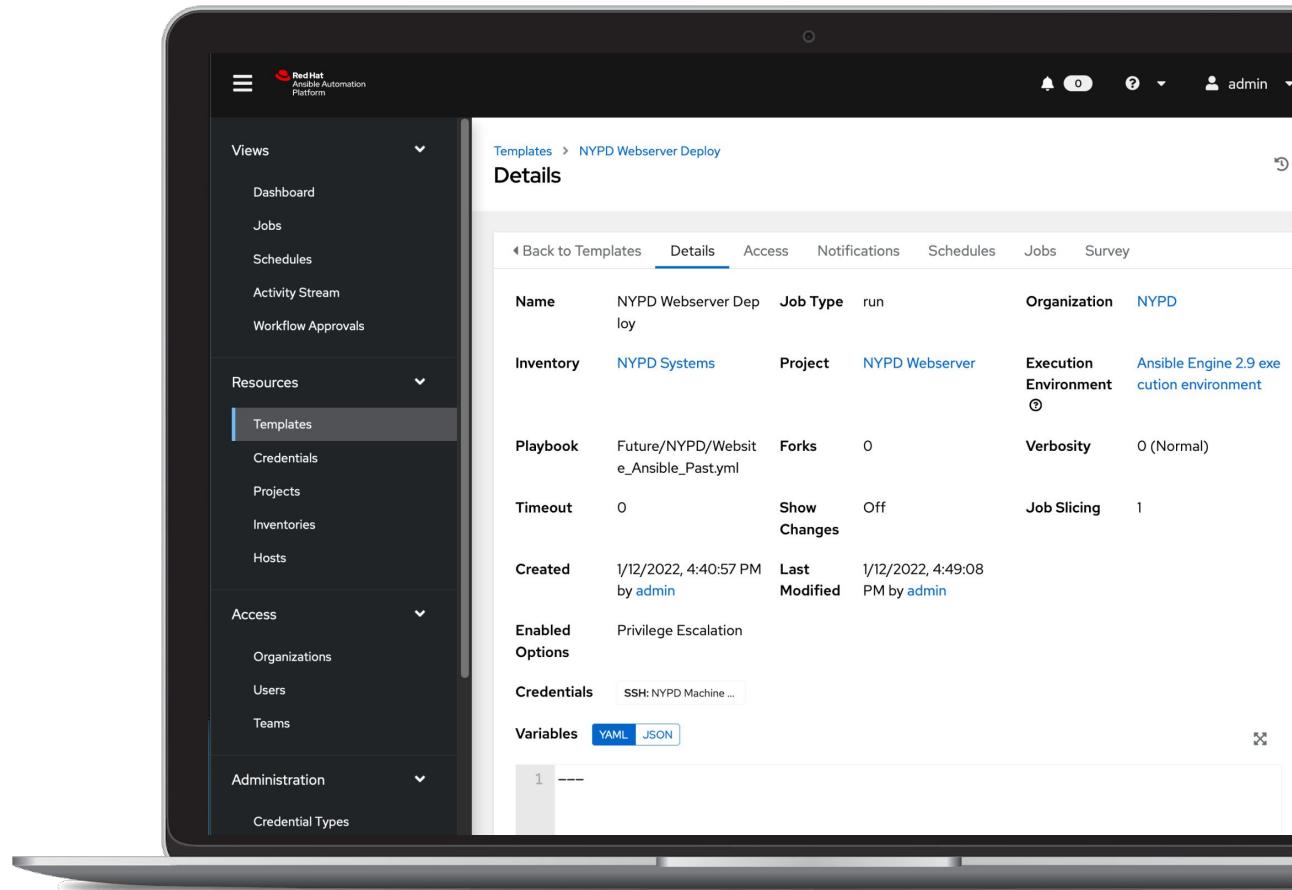
Job Templates

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. **Job 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

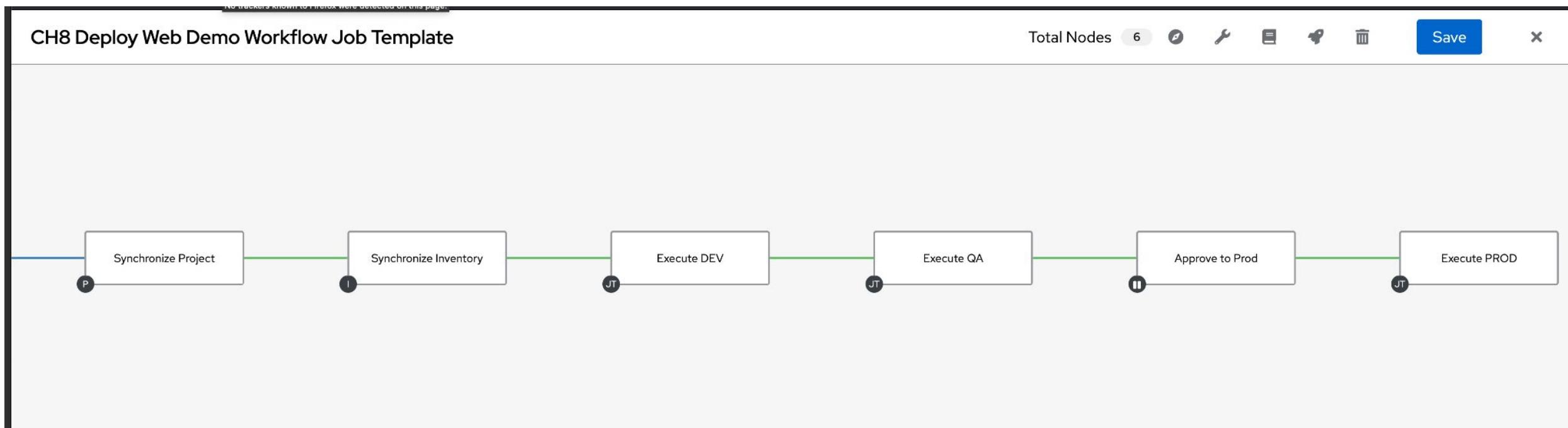
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Name	Type	Last Ran	Actions
Demo Job Template	Job Template		
NYPD DevOps Workflow	Workflow Job Template	1/13/2022, 1:29:40 PM	
NYPD Dev Webserver	Job Template	1/13/2022, 1:29:16 PM	
NYPD Test Webserver	Job Template	1/13/2022, 1:29:40 PM	
NYPD Webserver Deploy	Job Template	1/12/2022, 4:51:27 PM	

At the bottom right of the table, it says "1 - 5 of 5 items" and "1 of 1 page".

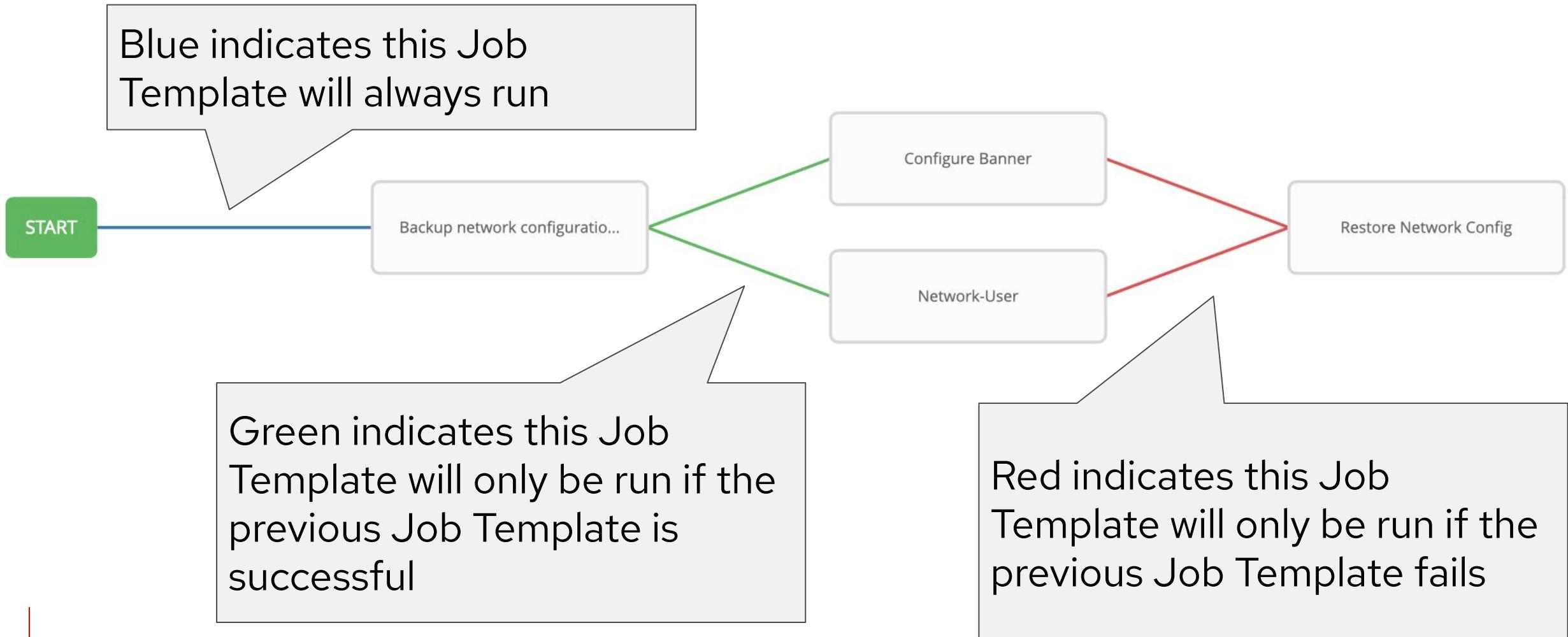
Workflow Visualizer

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



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



Red Hat

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.

The screenshot shows the Red Hat Automation Platform web interface. The left sidebar has sections for Views (Dashboard, Jobs, Schedules, Activity Stream, Workflow Approvals), Resources (Templates, Credentials, Projects, Inventories, Hosts), Access (Organizations, Users, Teams), and Administration. The main area is titled 'Templates' and lists seven entries:

Name	Type	Last Ran	Actions	
Add Teams	Job Template			
Add Users	Job Template			
CH8 Deploy Web Demo Job Template	Job Template			
CH8 Deploy Web Demo Workflow Job Template	Workflow Job Template			
Demo Job Template	Job Template			
DO467 Deploy Web Demo Job Template	Job Template			

Two orange arrows point to the 'CH8 Deploy Web Demo Job Template' and the 'CH8 Deploy Web Demo Workflow Job Template' entries in the list.



Demo Content

https://github.com/tmichett/do467_tot

Additional Information and Training Courses

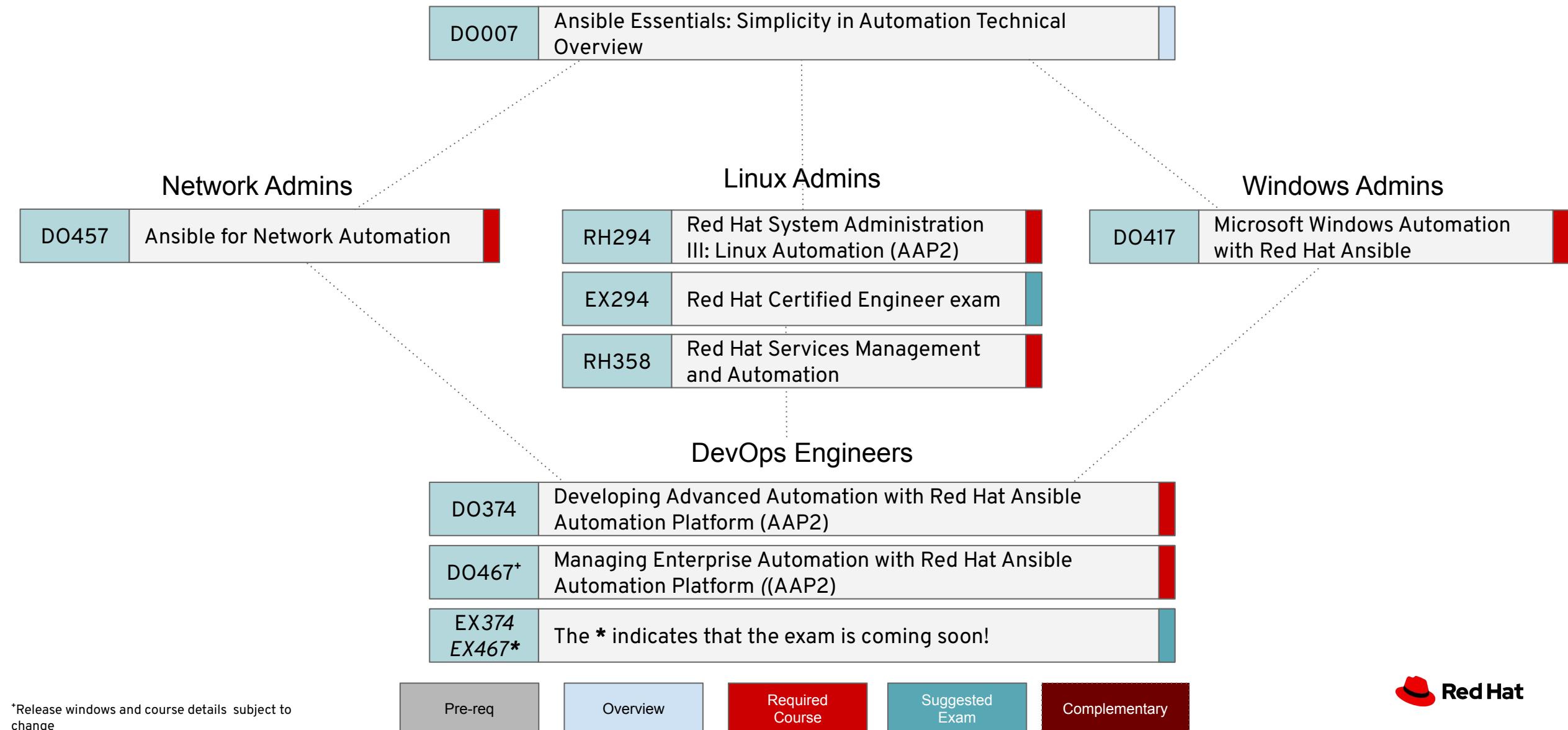


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Additional Resources

- 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)





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Q & A

Thank you



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