

ANSIBLE *meetup*

AUTOMATION FOR EVERYONE

Ansible technical introduction and news

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SENIOR SOLUTION ARCHITECT
RED HAT

NOV-2018



AUTOMATE ~~REPEAT~~ IT

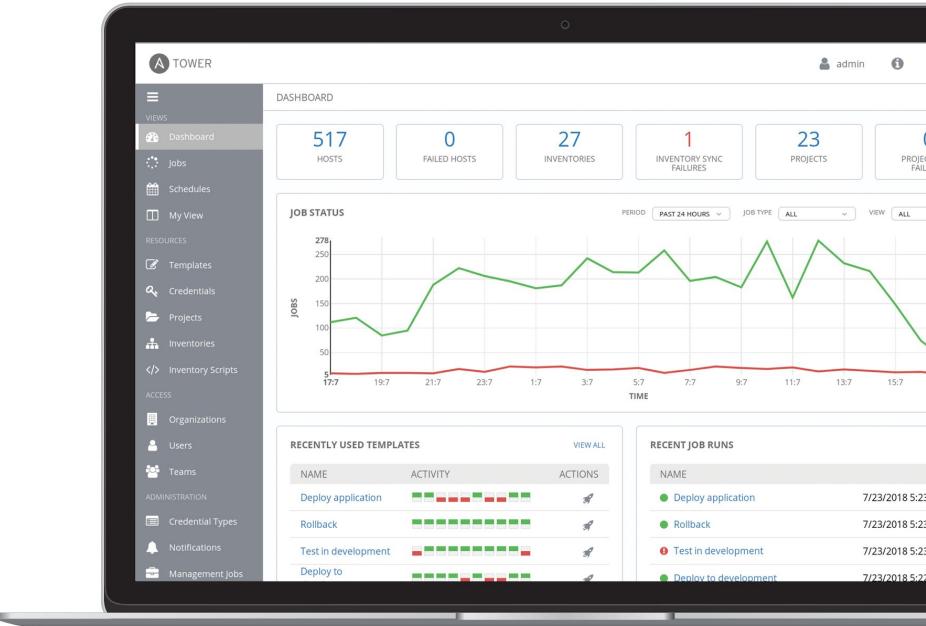
No routine should ever be done manually again...

WHAT IS ANSIBLE AUTOMATION?

ANSIBLE

Ansible is an open source community project sponsored by Red Hat. It's a **simple automation language** that can perfectly describe IT application environments in Ansible Playbooks.

Ansible Tower is an enterprise framework for controlling, securing and managing your Ansible automation with a UI and RESTful API.





31,000+

Stars on GitHub

1900+

Ansible modules

500,000+

Downloads a month

THE ANSIBLE WAY

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

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



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

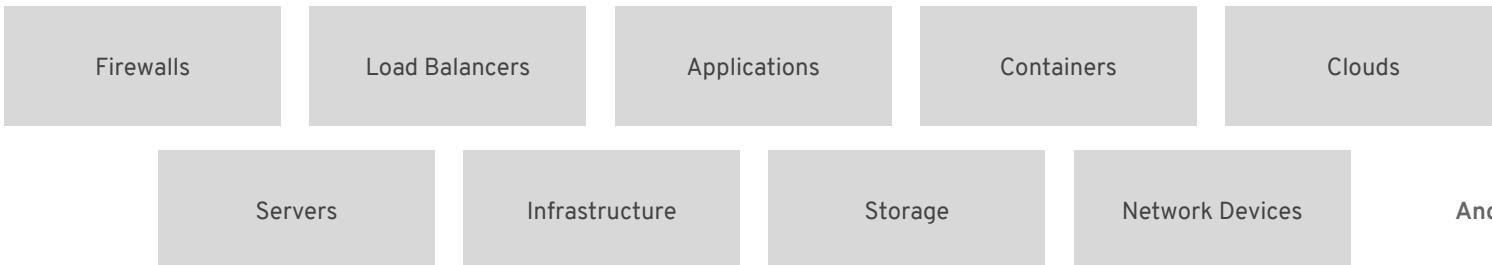
More efficient & more secure

Automate the deployment and management of your entire IT footprint.

Do this...



On these...



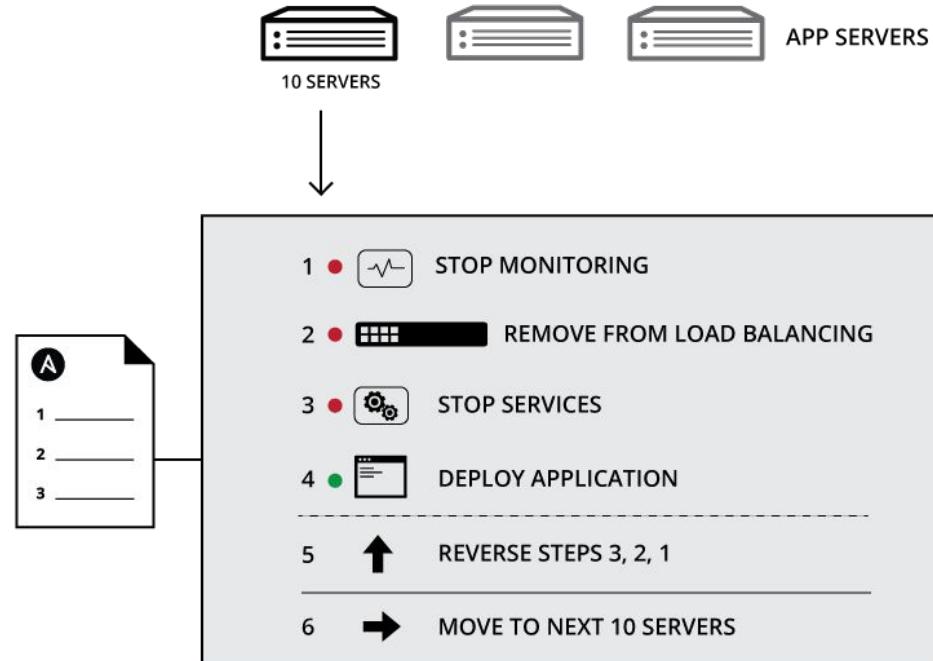
WHY IS AUTOMATION IMPORTANT?

ANSIBLE

Your applications and systems are more than just collections of configurations. They're a finely tuned and ordered list of tasks and processes that result in your working application.

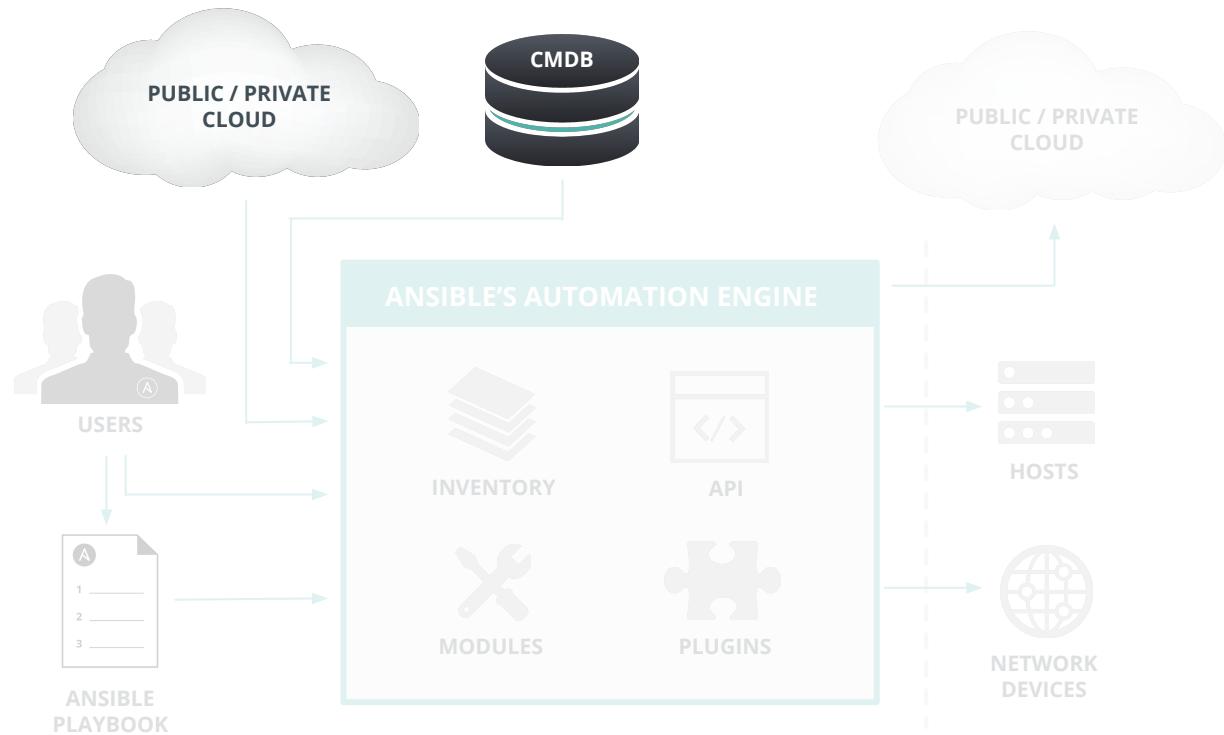
Ansible can do it all:

- Provisioning
- App Deployment
- Configuration Management
- Multi-tier Orchestration



HOW ANSIBLE WORKS

ANSIBLE



CLOUD

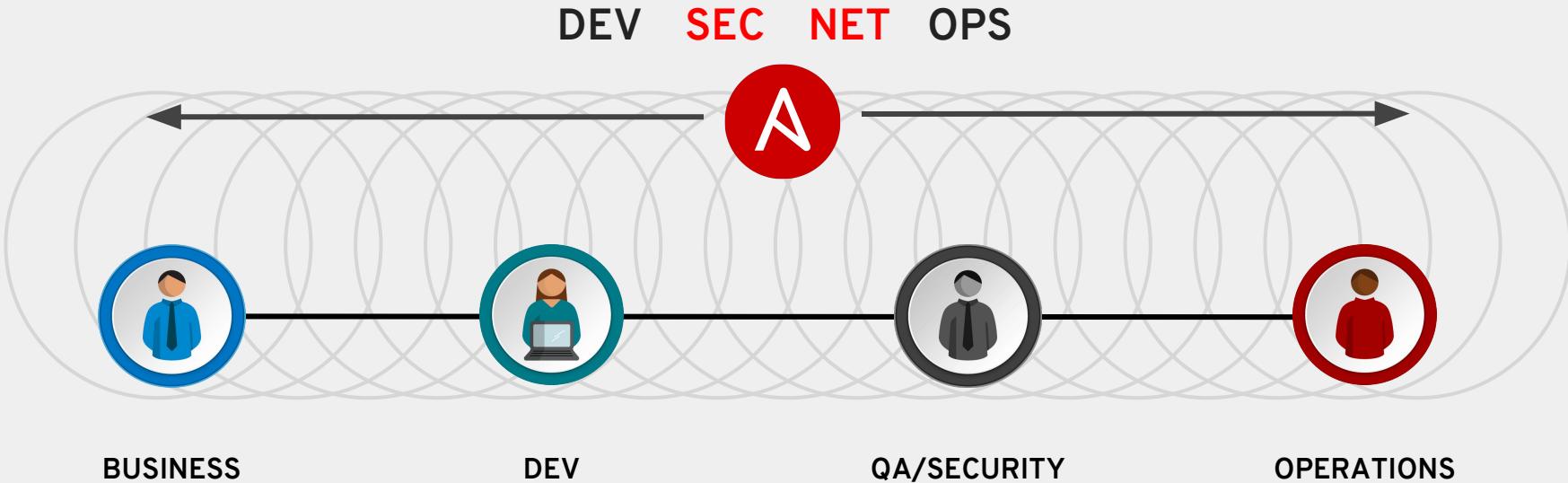
OpenStack, VMware, EC2,
Rackspace, GCE, Azure,
Spacewalk, Hanlon, Cobbler

CUSTOM CMDB

ANSIBLE

THE LANGUAGE OF DEVOPS

ANSIBLE IS THE UNIVERSAL LANGUAGE



Ansible is the first **automation language** that can be read and written across IT.

Ansible is the only **automation engine** that can automate the entire application lifecycle and continuous delivery pipeline.

PLAYBOOK EXAMPLE

ANSIBLE

```
---
```

```
- name: install and start apache
  hosts: web
  become: yes
  vars:
    http_port: 80

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

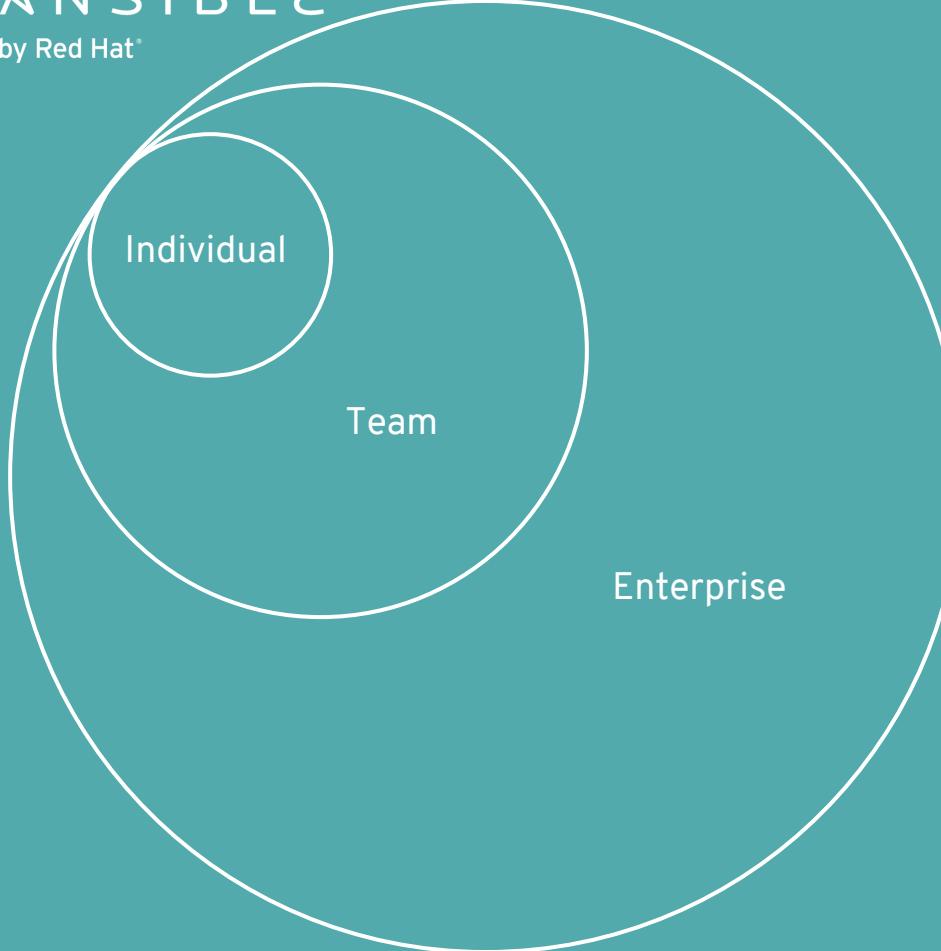
    - name: latest index.html file is present
      copy:
        src: files/index.html
        dest: /var/www/html/

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

ANSIBLE AUTOMATES TECHNOLOGIES YOU USE

Time to automate is measured in minutes

CLOUD	VIRT & CONTAINER	WINDOWS	NETWORK	DEVOPS	MONITORING
AWS	Docker	ACLs	Arista	Jira	Dynatrace
Azure	VMware	Files	A10	GitHub	Airbrake
Digital Ocean	RHV	Packages	Cumulus	Vagrant	BigPanda
Google	OpenStack	IIS	Bigswitch	Jenkins	Datadog
OpenStack	OpenShift	Regedits	Cisco	Bamboo	LogicMonitor
Rackspace	+more	Shares	Cumulus	Atlassian	Nagios
+more		Services	Dell	Subversion	New Relic
OPERATING SYSTEMS	STORAGE	Configs Users Domains +more	F5 Juniper Palo Alto OpenSwitch +more	Slack Hipchat +more	PagerDuty Sensu StackDriver Zabbix +more
RHEL and Linux	NetApp				
UNIX	Red Hat Storage				
Windows	Infinidat				
+more	+more				



An enterprise-wide
automation strategy must
benefit individuals first.



RED HAT®
ANSIBLE®
Tower

AUTOMATION FOR TEAMS

Ansible Tower (AWX) technical introduction and overview

WHAT IS ANSIBLE TOWER?

Ansible Tower is an **enterprise framework** for controlling, securing and managing your Ansible automation – with a **UI and RESTful API**.

- Role-based access control
- Deploy entire applications with **push-button deployment** access
- All automations are **centrally logged**





RED HAT®
ANSIBLE®
Automation

RED HAT ANSIBLE TOWER

Scale + operationalize your automation

CONTROL

KNOWLEDGE

DELEGATION

RED HAT ANSIBLE ENGINE

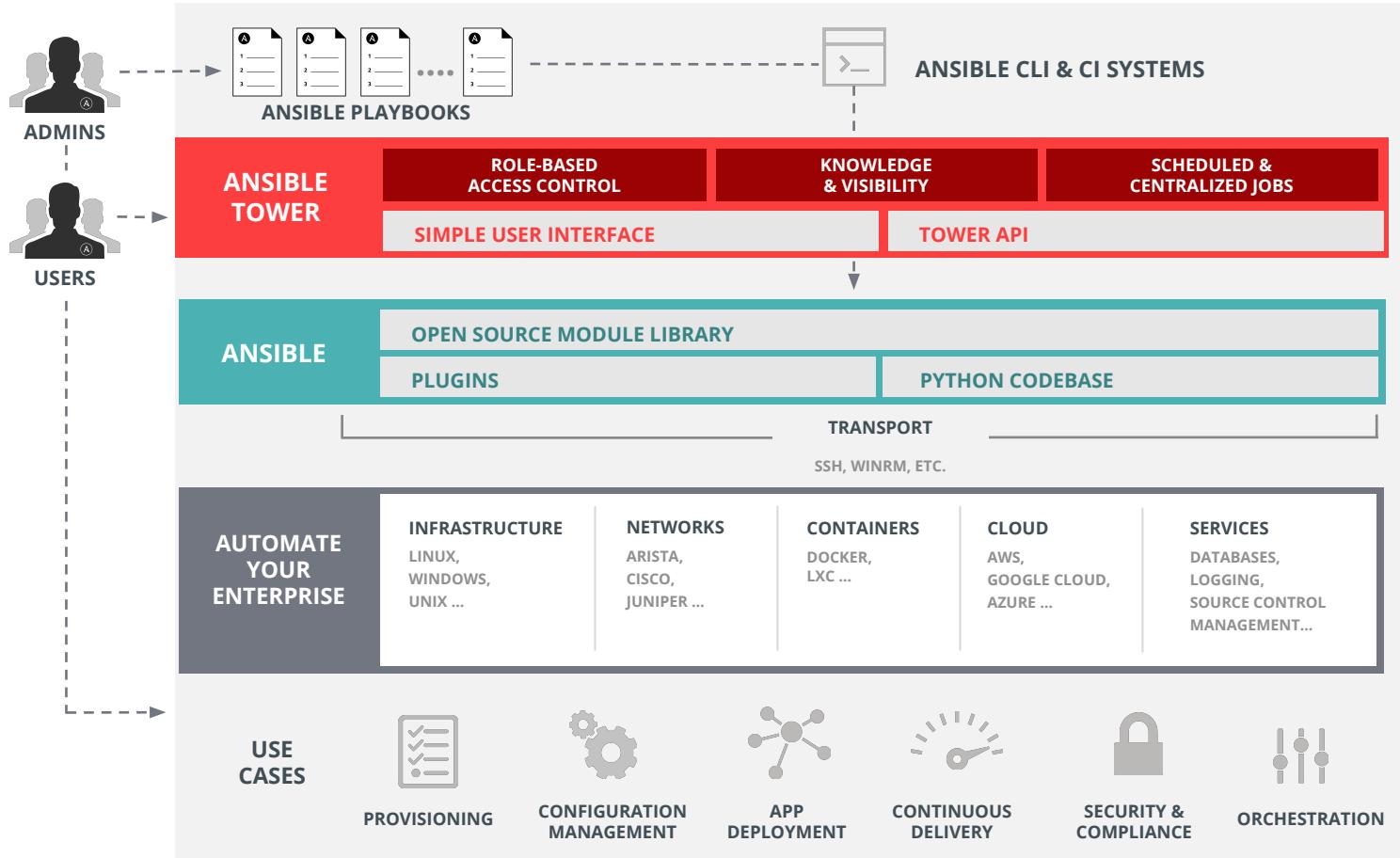
Support for your Ansible automation

SIMPLE

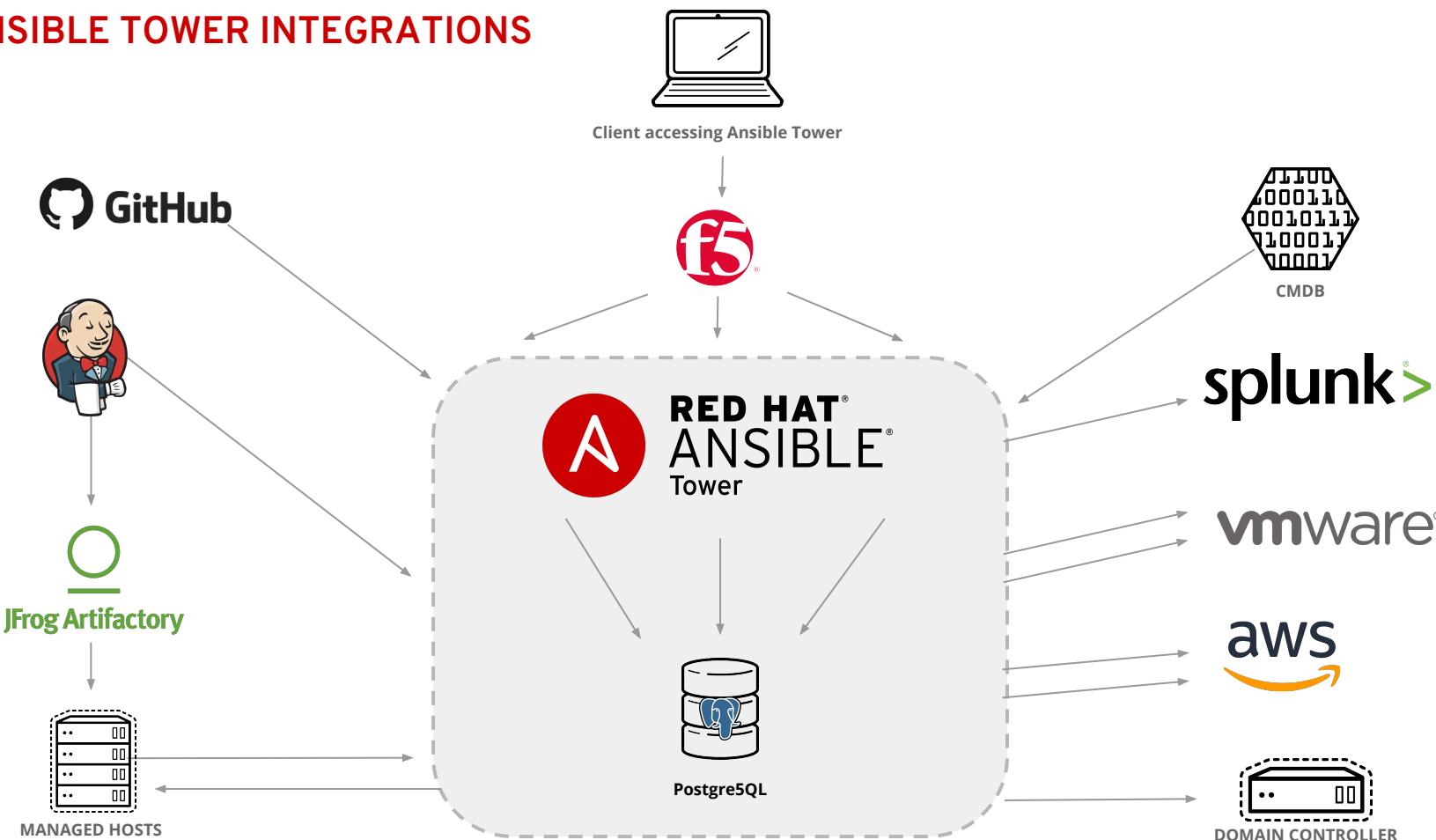
POWERFUL

AGENTLESS

FUELED BY AN INNOVATIVE OPEN SOURCE COMMUNITY



ANSIBLE TOWER INTEGRATIONS





RED HAT®
ANSIBLE®
Tower

FEATURE OVERVIEW

JOB STATUS UPDATE

Heads-up NOC-style automation dashboard displays everything going on in your Ansible environment.

The screenshot shows the Ansible Tower interface for a job named "60 - Deploy software". The left panel displays the job details, including:

- STATUS:** Successful
- STARTED:** 7/20/2018 6:17:31 PM
- FINISHED:** 7/20/2018 6:17:44 PM
- JOB TEMPLATE:** Deploy software
- JOB TYPE:** Run
- LAUNCHED BY:** admin
- INVENTORY:** Cloud dev environment
- PROJECT:** Deployment
- PLAYBOOK:** deployyml
- CREDENTIAL:** AWS devel keys, Dev environment ssh key
- INSTANCE GROUP:** tower
- EXTRA VARIABLES:** YAML, JSON (selected)

The right panel shows the detailed log output for the "Deploy software" task, which includes:

- PLAY [all] **** 18:17:33
- TASK [Check required permissions] **** 18:17:33
- ok: [18.218.6.107]
- ok: [18.191.217.178]
- skipping: [18.191.217.178]
- skipping: [18.218.6.107]
- TASK [Fix permissions if needed] **** 18:17:37
- skipping: [18.191.217.178]
- skipping: [18.218.6.107]
- TASK [Deploy updates] **** 18:17:37
- changed: [18.191.217.178]
- changed: [18.218.6.107]
- TASK [Restart service] **** 18:17:42
- changed: [18.191.217.178]
- changed: [18.218.6.107]
- PLAY RECAP **** 18:17:44
- 18.191.217.178 : ok=3 changed=2 unreachable=0 failed=0
- 18.218.6.107 : ok=3 changed=2 unreachable=0 failed=0

ROLE-BASED ACCESS CONTROL

Creates the necessary separation and isolation of users and resources. Users can safely use Ansible Tower to work only on the systems in the environments to which they have access.

NEW IN ANSIBLE TOWER 3.3

Mapping Ansible Tower organizations and teams from SAML attributes

Easier SAML configuration of two-factor authentication

Configure multiple LDAP servers in a single Ansible Tower instance

Ansible Tower 3.3 is now an OAuth2 provider

Users and administrators can create application tokens

The screenshot shows the Ansible Tower web interface. On the left is a vertical sidebar with icons for navigation. The main area is titled "ACTIVITY STREAM". At the top of the stream, there are search and filter controls: a "SEARCH" input field with a magnifying glass icon, a "KEY" button, and a dropdown menu set to "All Activity". Below these are four log entries:

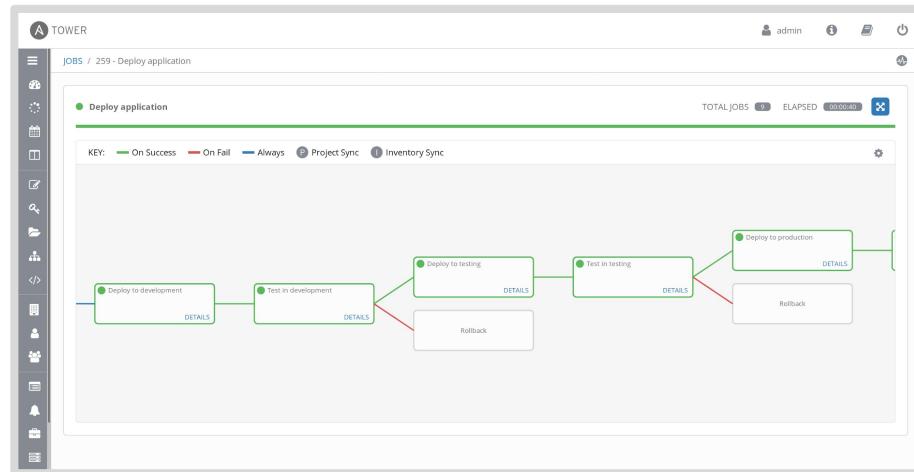
TIME	INITIATED BY	EVENT	ACTIONS
7/20/2018 4:11:52 PM	admin	updated inventory_source	🔗
7/20/2018 4:10:09 PM	admin	created schedule Daily remediation	🔗
7/19/2018 3:24:33 PM	admin	created project scm	🔗

ACTIVITY STREAM

Securely stores every Job that runs, and enables you to view them later, or export details through Tower's API.

MULTI-PLAYBOOK WORKFLOWS

Tower's multi-Playbook workflows chains any number of Playbooks together to create a single workflow. Different Jobs can be run depending on success or failure of the prior Playbook.



The screenshot shows the Ansible Tower interface for managing instance groups. At the top, there are buttons for 'SEARCH' and 'KEY', and a green '+' button for adding new groups. Below this, four instance groups are listed: 'dev', 'prod', 'test', and 'tower'. Each group card displays the number of instances, running jobs, total jobs, and the current used capacity as a percentage and a blue progress bar.

INSTANCE GROUP	INSTANCES	RUNNING JOBS	TOTAL JOBS	USED CAPACITY
dev	3	9	89	61.8%
prod	4	6	26	27.3%
test	3	6	44	55.8%
tower	8	0	33	43.6%

ITEMS 1 - 4

SCALE-OUT CLUSTERING

Connect multiple Tower nodes into a Tower cluster to add redundancy and capacity to your automation platform.

Add reserved capacity, capacity by organization, deploy remote execution nodes for additional local capacity.

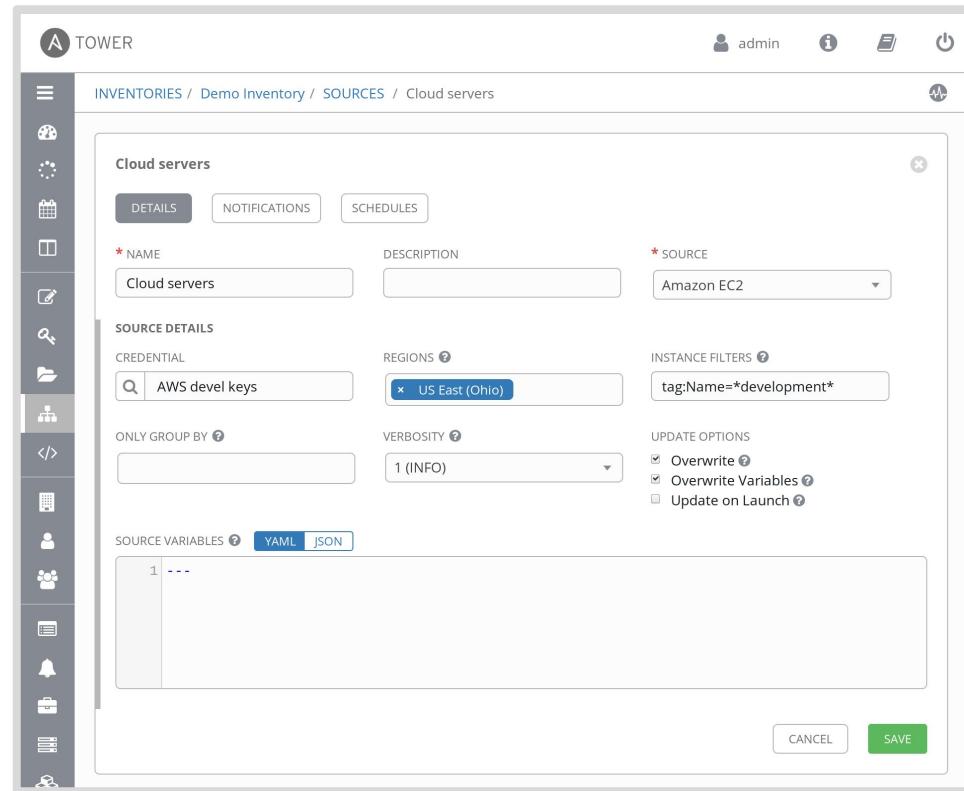
NEW! Push-button Ansible Tower deployment and dynamic scaling at runtime for Red Hat OpenShift Container Platform users

MANAGE AND TRACK YOUR INVENTORY

Tower's **inventory syncing and provisioning callbacks** allow nodes to request configuration on demand, enabling autoscaling.

NEW! Smart Inventories allow you to organize and automate hosts across all your providers based on a powerful host fact query engine.

NEW! See alerts from Red Hat Insights directly from Tower, and use Insights-provided Playbook Remediation to fix issues in your infrastructure.



The screenshot shows the 'CREATE SCHEDULE' page in Ansible Tower. The main title is 'Daily remediation'. The form fields include:

- NAME:** Daily remediation
- START DATE:** 7/20/2018
- START TIME (HH24:MM:SS):** 03:00:00
- LOCAL TIME ZONE:** America/New_York
- REPEAT FREQUENCY:** Day
- EVERY:** 1 DAYS
- END:** Never

SCHEDULE DESCRIPTION: every day

OCCURRENCES (Limited to first 10): 07-21-2018 03:00:00

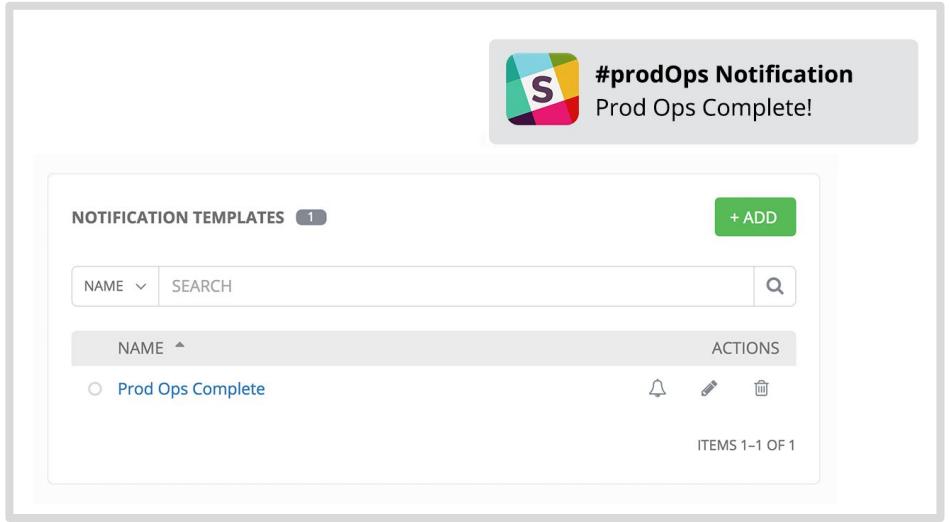
At the bottom, there are buttons for DATE FORMAT (radio button selected), LOCAL TIME ZONE (radio button selected), and UTC (radio button selected).

SCHEDULE JOBS

Enables you to schedule any Job now, later, or forever.

INTEGRATED NOTIFICATIONS

Stay informed of your automation status via **integrated notifications**. Connect Slack, Hipchat, SMS, email and more.



The screenshot shows the 'NOTIFICATION TEMPLATES' section of the Ansible Tower web interface. At the top right is a green '+ ADD' button. Below it is a search bar with 'NAME' and 'SEARCH' fields, and a magnifying glass icon. A table lists a single template: 'Prod Ops Complete'. The table has columns for 'NAME' (sorted by name) and 'ACTIONS'. The 'Prod Ops Complete' row includes a blue radio button, a bell icon, a pencil icon, and a trash bin icon. At the bottom right of the table area, it says 'ITEMS 1-1 OF 1'.

NAME	ACTIONS
Prod Ops Complete	

LAUNCH JOB | DEPLOY SOFTWARE

* ENTER NUMBER OF SERVICE INSTANCES.
2

* PLEASE SELECT THE SERVICE OWNER.
Alice

* ENTER PASSWORD FOR DEPLOYED CERTIFICATE.

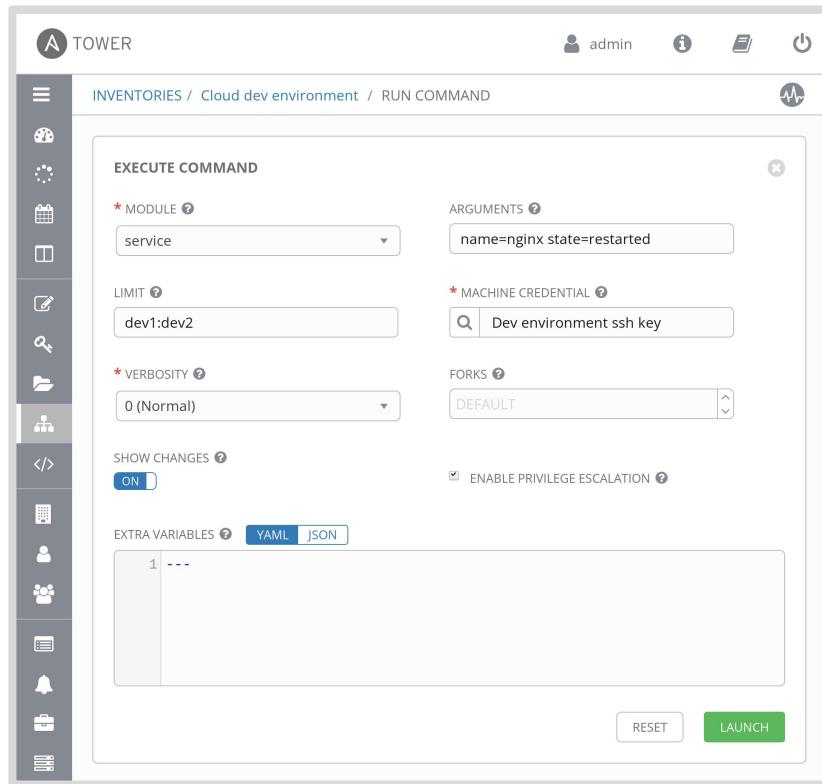
INVENTORY CREDENTIAL
Cloud staging servers Staging ssh key

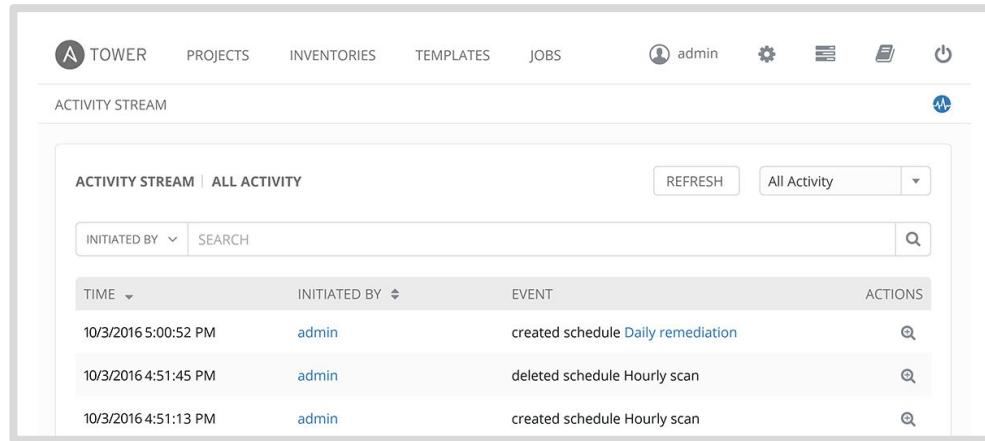
SELF-SERVICE IT

Tower lets you launch Playbooks with just a single click. It can prompt you for variables, let you choose from available secure credentials and monitor the resulting deployments.

REMOTE COMMAND EXECUTION

Run simple tasks on any host with Tower's **remote command execution**. Add users or groups, reset passwords, restart a malfunctioning service or patch a critical security issue, quickly.



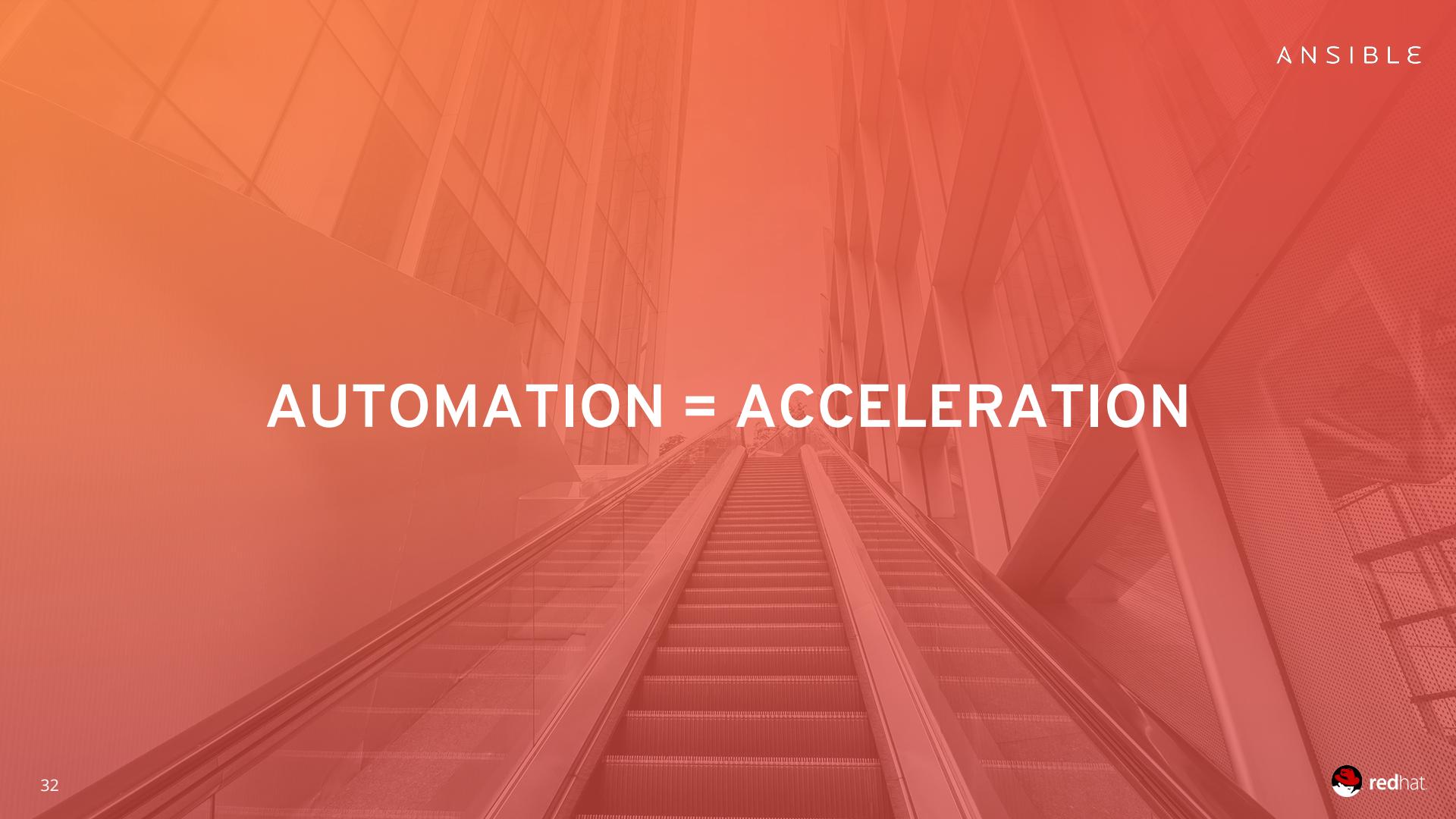


The screenshot shows the Ansible Tower interface with a focus on the 'ACTIVITY STREAM' section. The top navigation bar includes links for TOWER, PROJECTS, INVENTORIES, TEMPLATES, JOBS, and user admin. Below the navigation is a search bar with 'REFRESH' and 'All Activity' dropdown buttons. The activity stream table has columns for TIME, INITIATED BY, EVENT, and ACTIONS. It lists three events:

TIME	INITIATED BY	EVENT	ACTIONS
10/3/2016 5:00:52 PM	admin	created schedule Daily remediation	🔍
10/3/2016 4:51:45 PM	admin	deleted schedule Hourly scan	🔍
10/3/2016 4:51:13 PM	admin	created schedule Hourly scan	🔍

EXTERNAL LOGGING

Connect Tower to your external logging and analytics provider to perform analysis of automation and event correlation across your entire environment.



AUTOMATION = ACCELERATION



GALAXY

15,000 ROLES AT YOUR DISPOSAL

Reusable Roles and Container Apps that allow you to do more, faster

Built into the Ansible CLI and Tower

galaxy.ansible.com

ANSIBLE WINDOWS AUTOMATION

Use Ansible to deploy and manage Windows systems and applications.

70+

Windows Modules

350+

Powershell DSC resources

ansible.com/windows

PLAYBOOK EXAMPLE: WINDOWS

ANSIBLE

```
- hosts: new_servers
  tasks:
    - name: ensure common OS updates are current
      win_updates:
        register: update_result

    - name: ensure domain membership
      win_domain_membership:
        dns_domain_name: contoso.corp
        domain_admin_user: '{{ domain_admin_username }}'
        domain_admin_password: '{{ domain_admin_password }}'
        state: domain
      register: domain_result

    - name: reboot and wait for host if updates or domain change require it
      win_reboot:
        when: update_result.reboot_required or domain_result.reboot_required

    - name: ensure local admin account exists
      win_user:
        name: localadmin
        password: '{{ local_admin_password }}'
        groups: Administrators

    - name: ensure common tools are installed
      win_chocolatey:
        name: '{{ item }}'
      with_items: ['sysinternals', 'googlechrome']
```

ANSIBLE NETWORK AUTOMATION

Use Ansible to manage, validate, and continuously track heterogeneous network device configurations and deployments.

Network modules are included as part of the Ansible distribution.

40

Networking platforms

570+

Networking Modules

ansible.com/networking

GETTING STARTED

Have you used Ansible already?

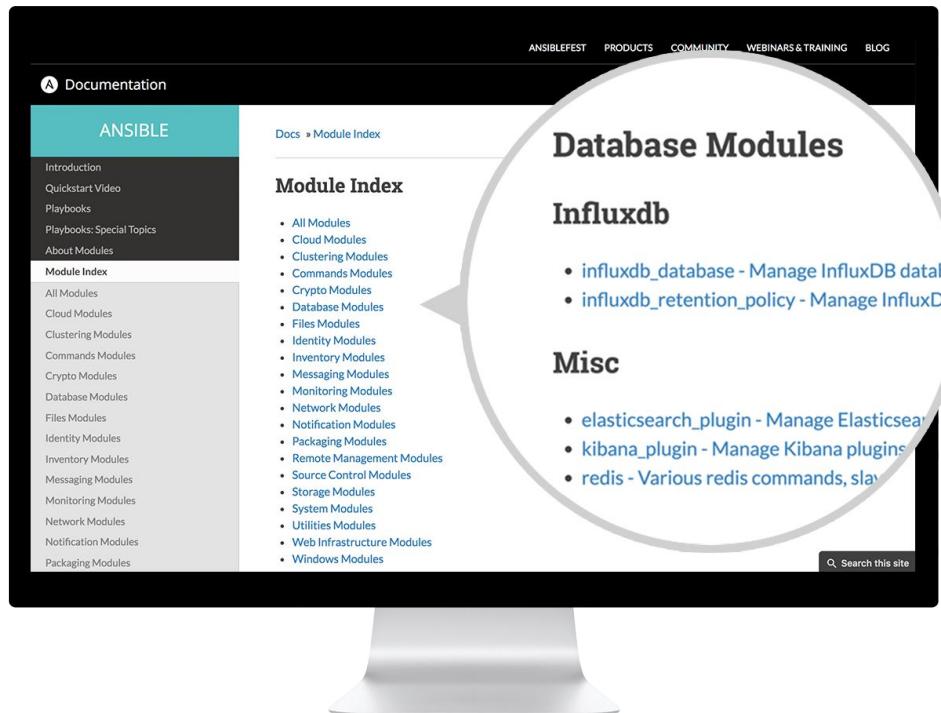
Try Tower for free: ansible.com/tower-trial

Would you like to learn Ansible?

It's easy to get started: ansible.com/get-started

Want to learn more?

Videos, webinars, case studies, whitepapers: ansible.com/resources



LAMP + HAProxy + NAGIOS

github.com/ansible/ansible-examples/tree/master/lamp_haproxy

WINDOWS

github.com/ansible/ansible-examples/tree/master/windows

SECURITY COMPLIANCE

github.com/ansible/ansible-lockdown

NETWORK

github.com/privateip/network-demo

MORE...

galaxy.ansible.com

github.com/ansible/ansible-examples

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