



# Red Hat Ansible Automation Platform

# Automation for all

Ansible technical introduction and overview

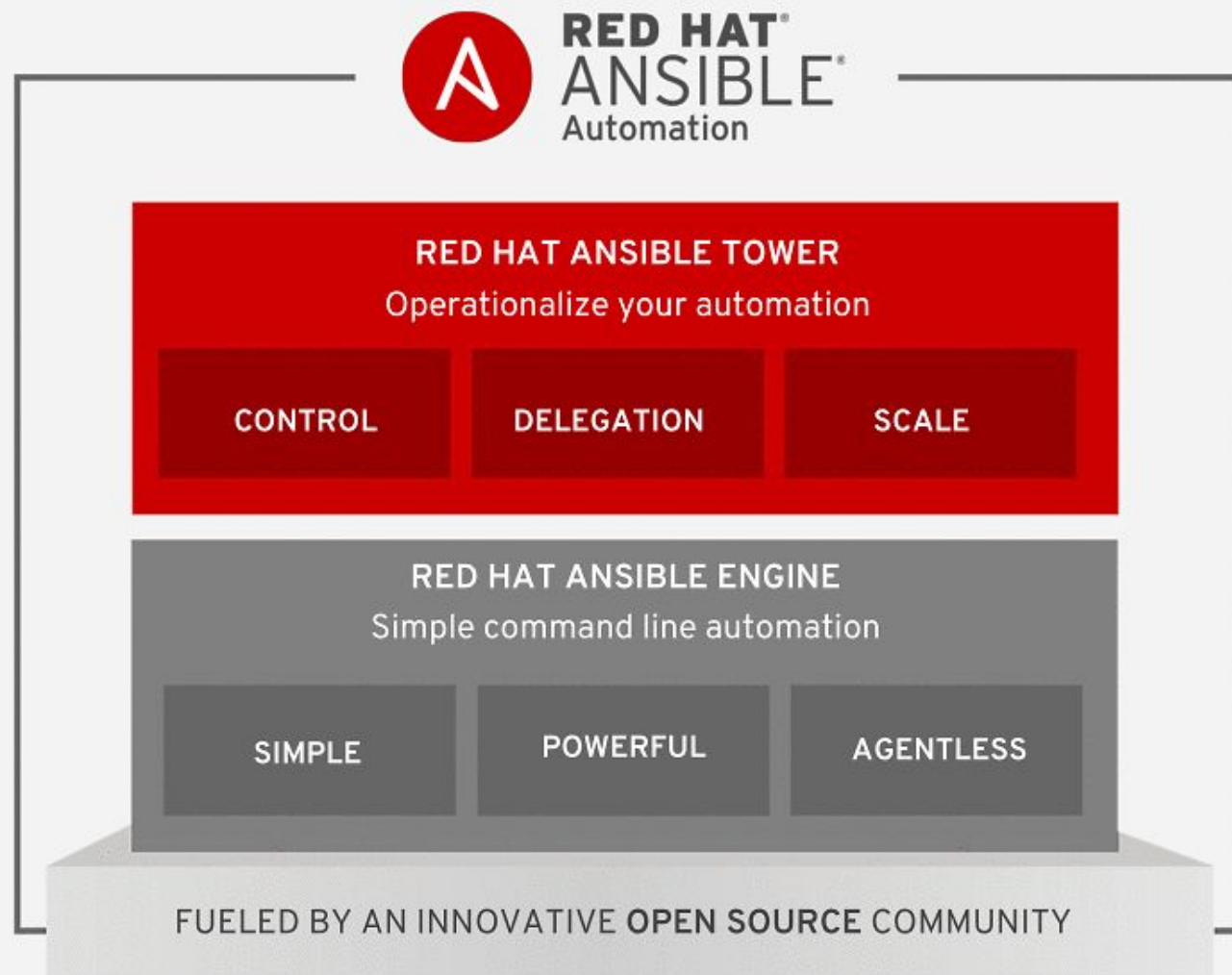
Matt Hermanson  
Cloud Solutions Architect

# WHAT IS ANSIBLE AUTOMATION?

Ansible Automation is the enterprise **framework** for automating across IT operations.

Ansible Engine runs Ansible Playbooks, the automation **language** that can perfectly describes an IT application infrastructure.

Ansible Tower allows you **scale** IT automation, manage complex deployments and speed productivity.



# 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**

# ANSIBLE AUTOMATES TECHNOLOGIES YOU USE

Time to automate is measured in minutes

## CLOUD

AWS  
Azure  
Digital Ocean  
Google  
OpenStack  
Rackspace  
**+more**

## OPERATING SYSTEMS

RHEL and Linux  
UNIX  
Windows  
**+more**

## VIRT & CONTAINER

Docker  
VMware  
RHV  
OpenStack  
OpenShift  
**+more**

## STORAGE

NetApp  
Red Hat Storage  
Infinidat  
**+more**

## WINDOWS

ACLs  
Files  
Packages  
IIS  
Regedit  
Shares  
Services  
Configs  
Users  
Domains  
**+more**

## NETWORK

Arista  
A10  
Cumulus  
Bigswitch  
Cisco  
Cumulus  
Dell  
F5  
Juniper  
Palo Alto  
OpenSwitch  
**+more**

## DEVOPS

Jira  
GitHub  
Vagrant  
Jenkins  
Bamboo  
Atlassian  
Subversion  
Slack  
Hipchat  
**+more**

## MONITORING

Dynatrace  
Airbrake  
BigPanda  
Datadog  
LogicMonitor  
Nagios  
New Relic  
PagerDuty  
Sensu  
StackDriver  
Zabbix  
**+more**

# WHAT CAN I DO USING ANSIBLE?

Automate the deployment and management of your entire IT footprint.

Do this...



On these...



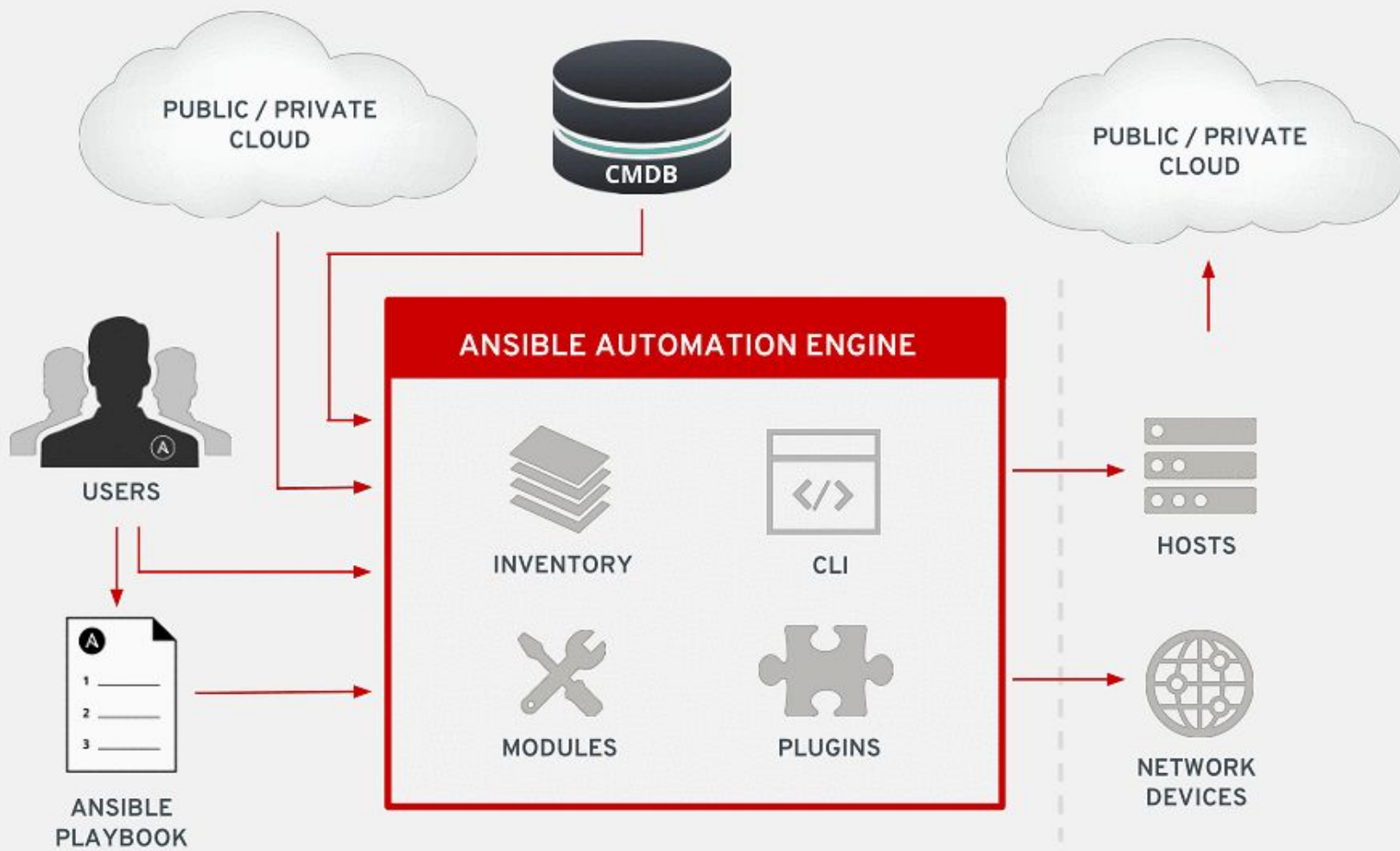
# AUTOMATION FOR EVERYONE

```
---  
- 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
```

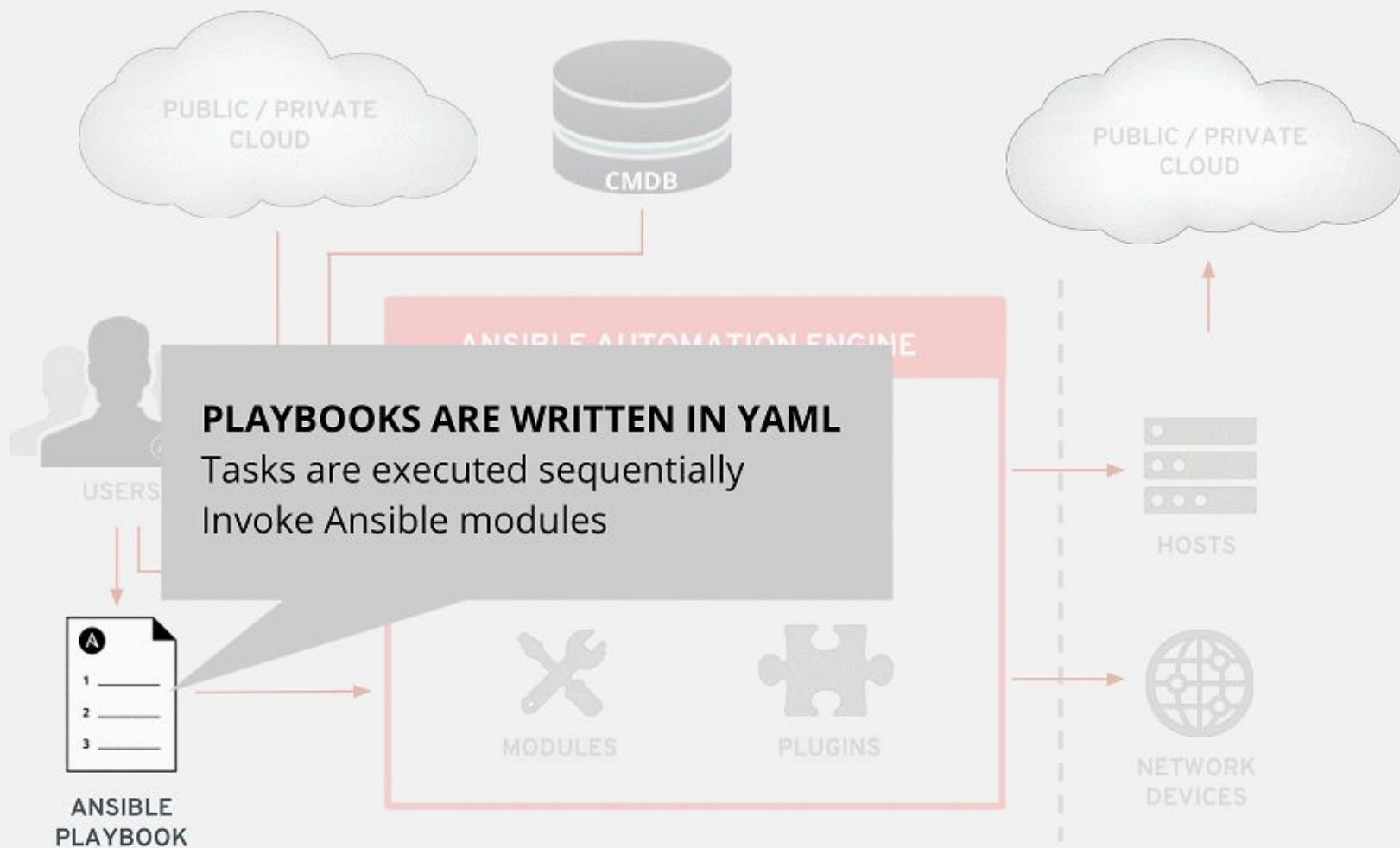


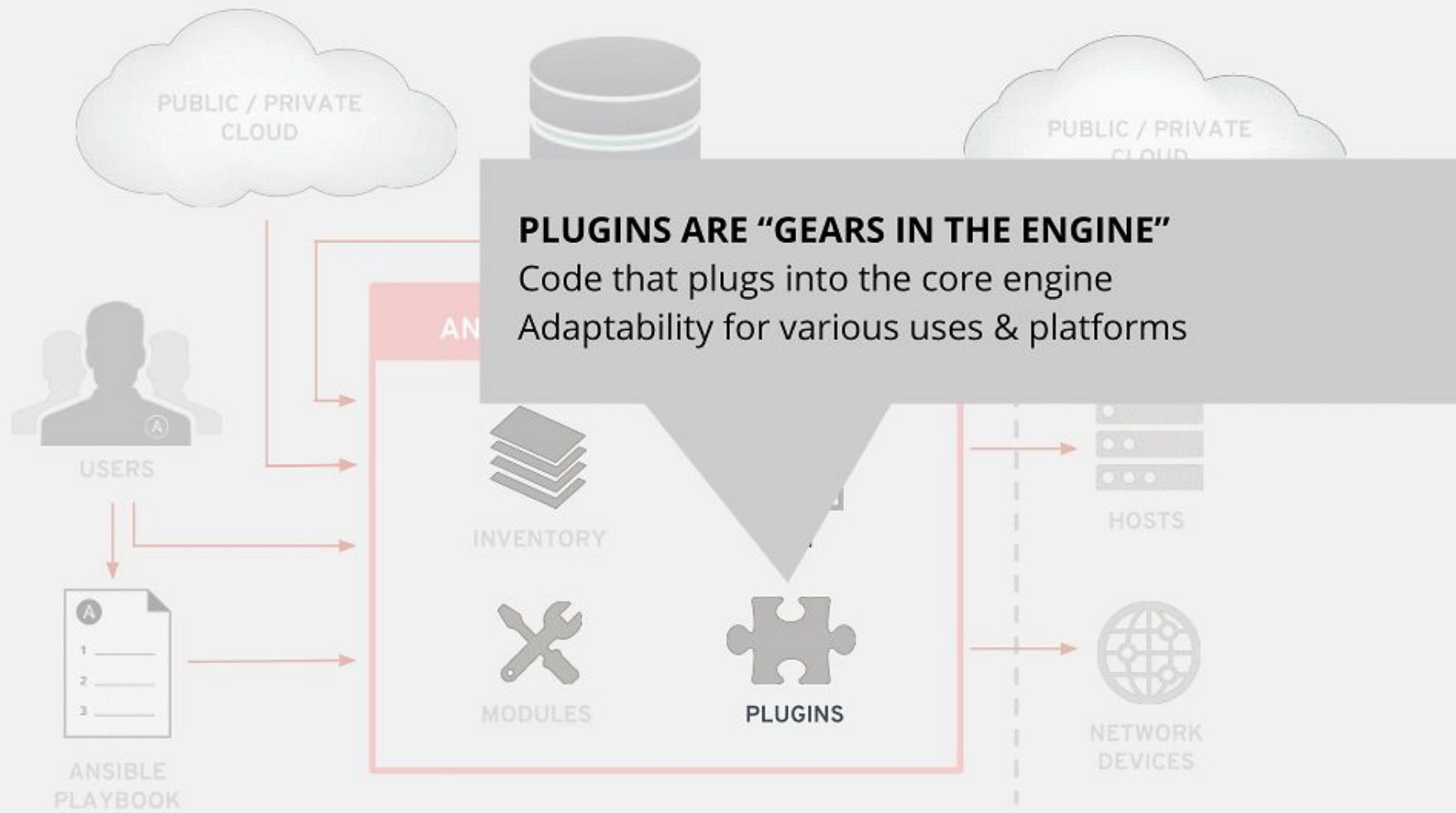
**RED HAT**  
**ANSIBLE**  
Engine

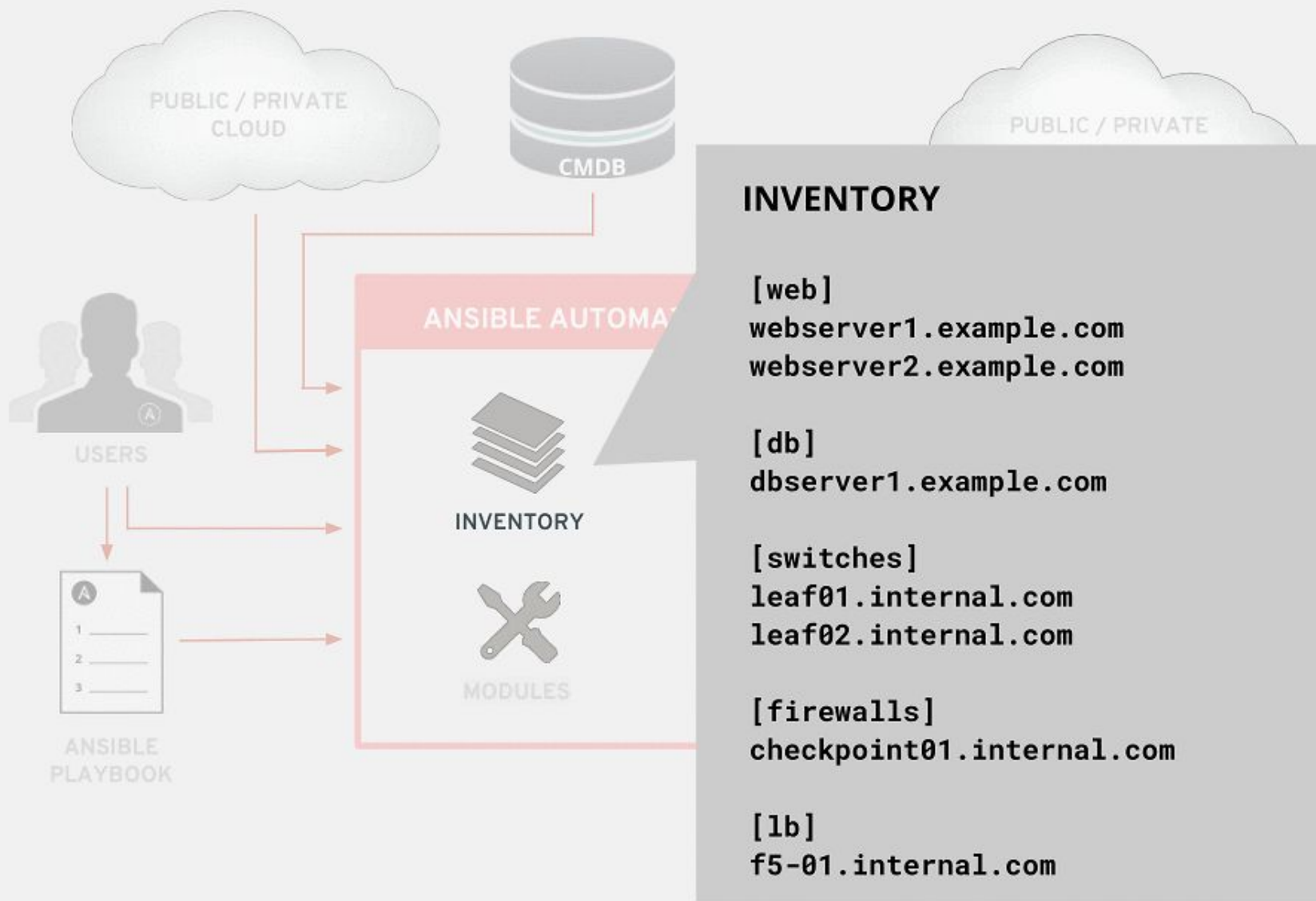
# LANGUAGE OF AUTOMATION

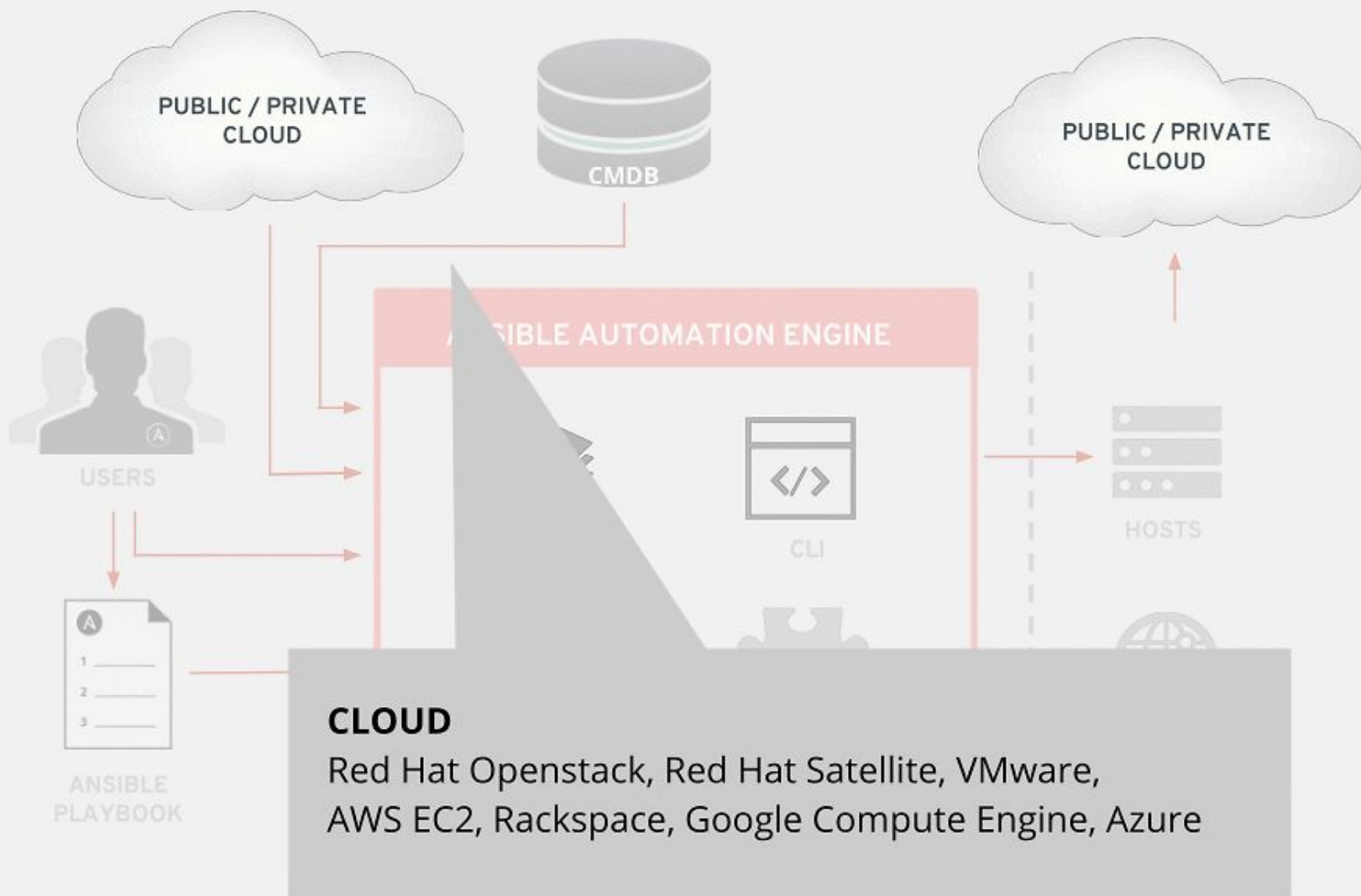


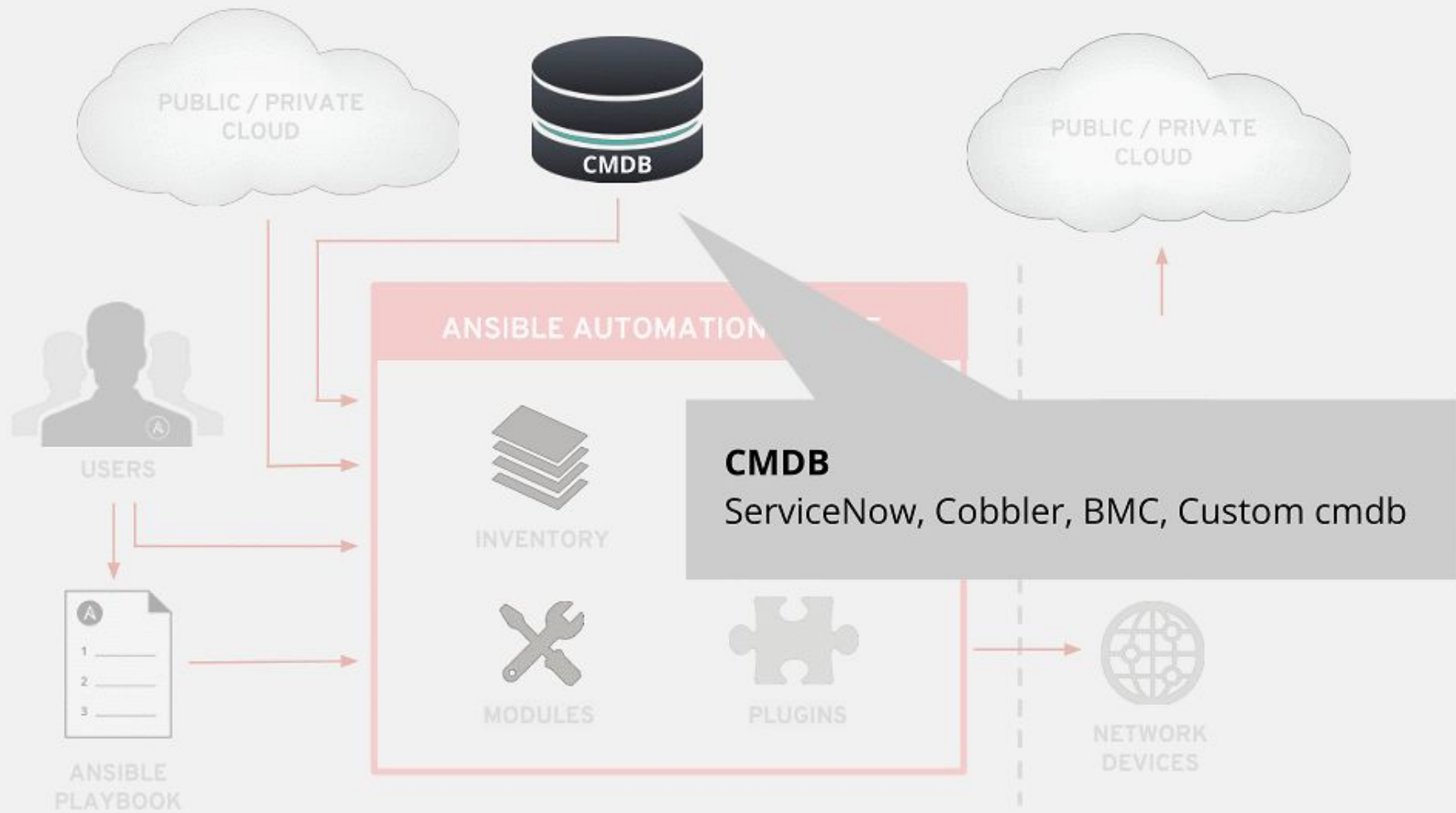


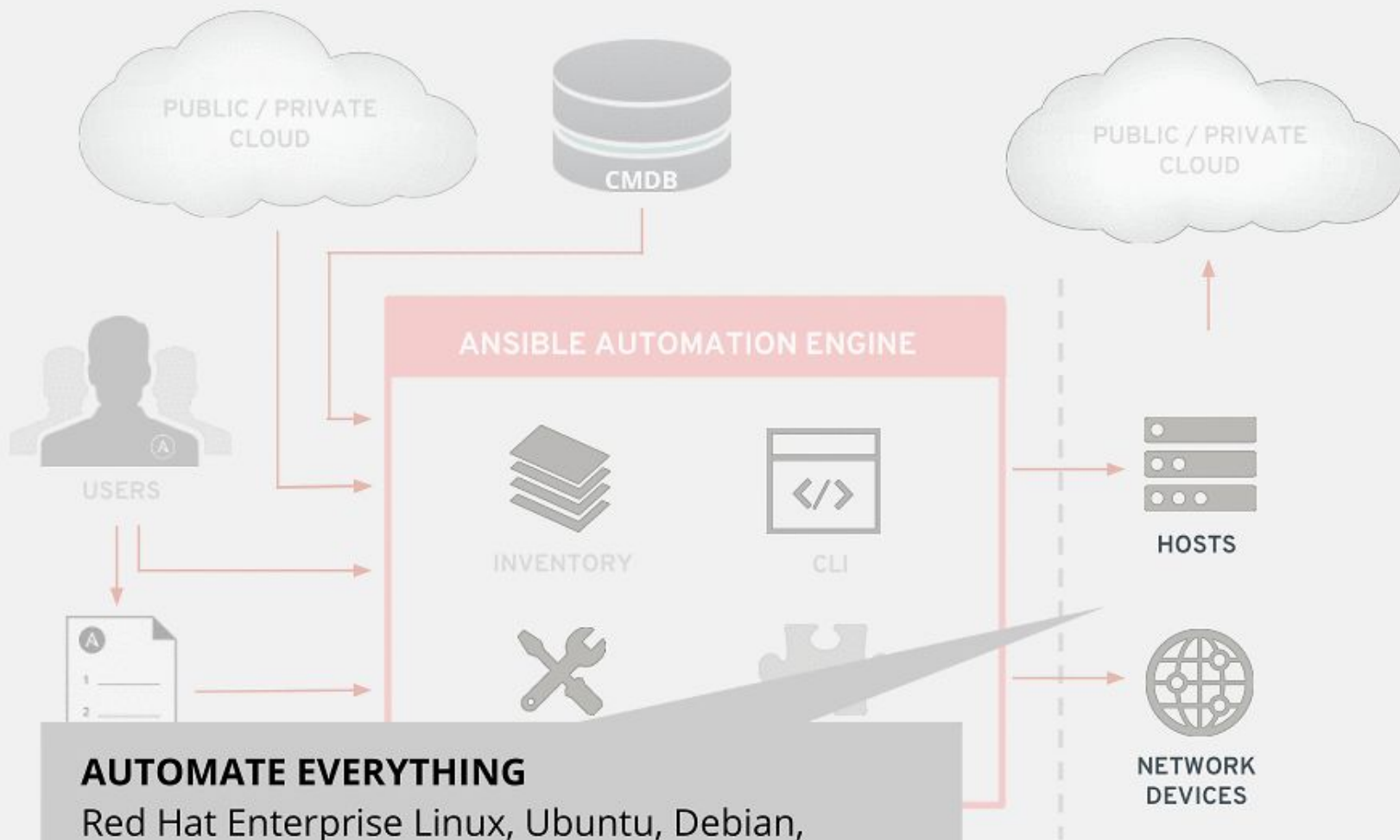












## **AUTOMATE EVERYTHING**

Red Hat Enterprise Linux, Ubuntu, Debian,  
Cisco routers, Arista switches, Juniper routers,  
Windows hosts, Checkpoint firewalls and more



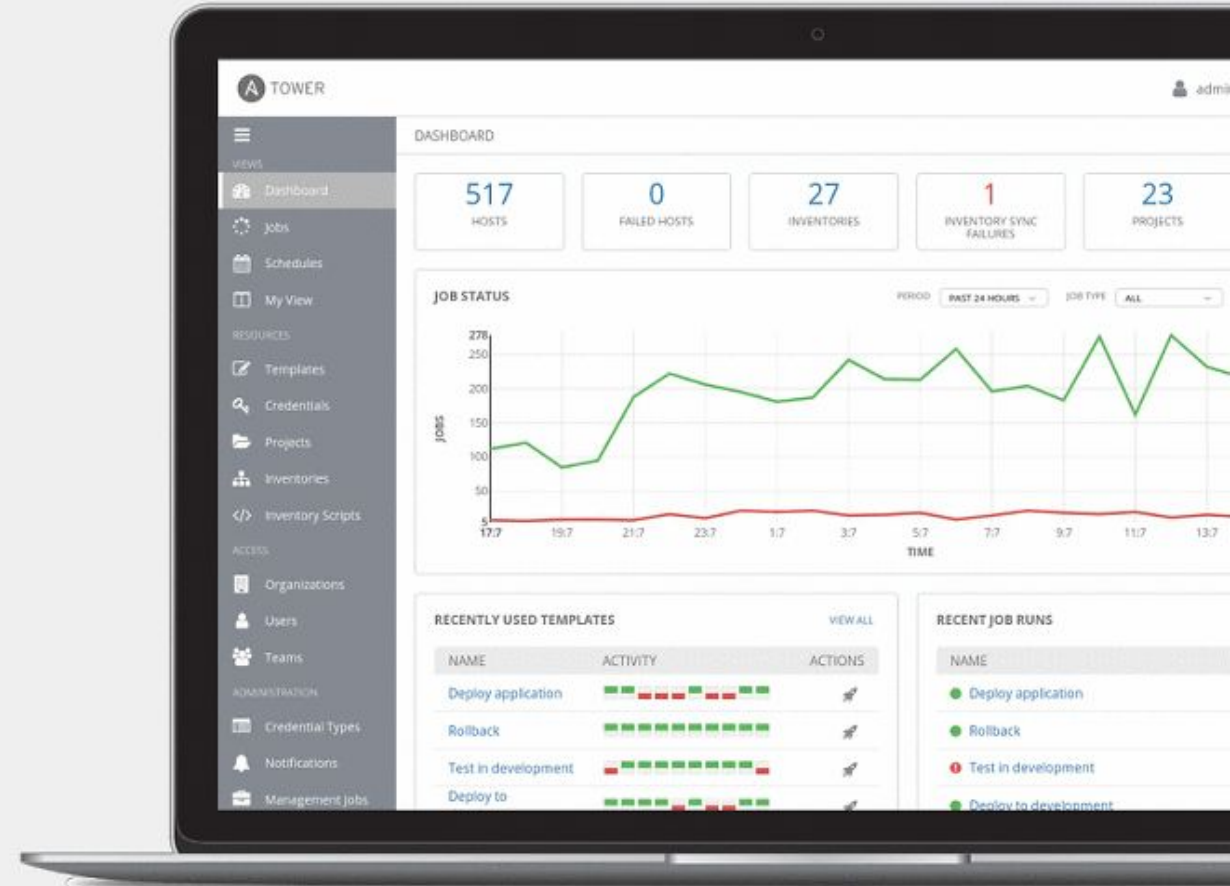
**RED HAT**  
**ANSIBLE**  
Tower

# AUTOMATION ACROSS THE ENTERPRISE

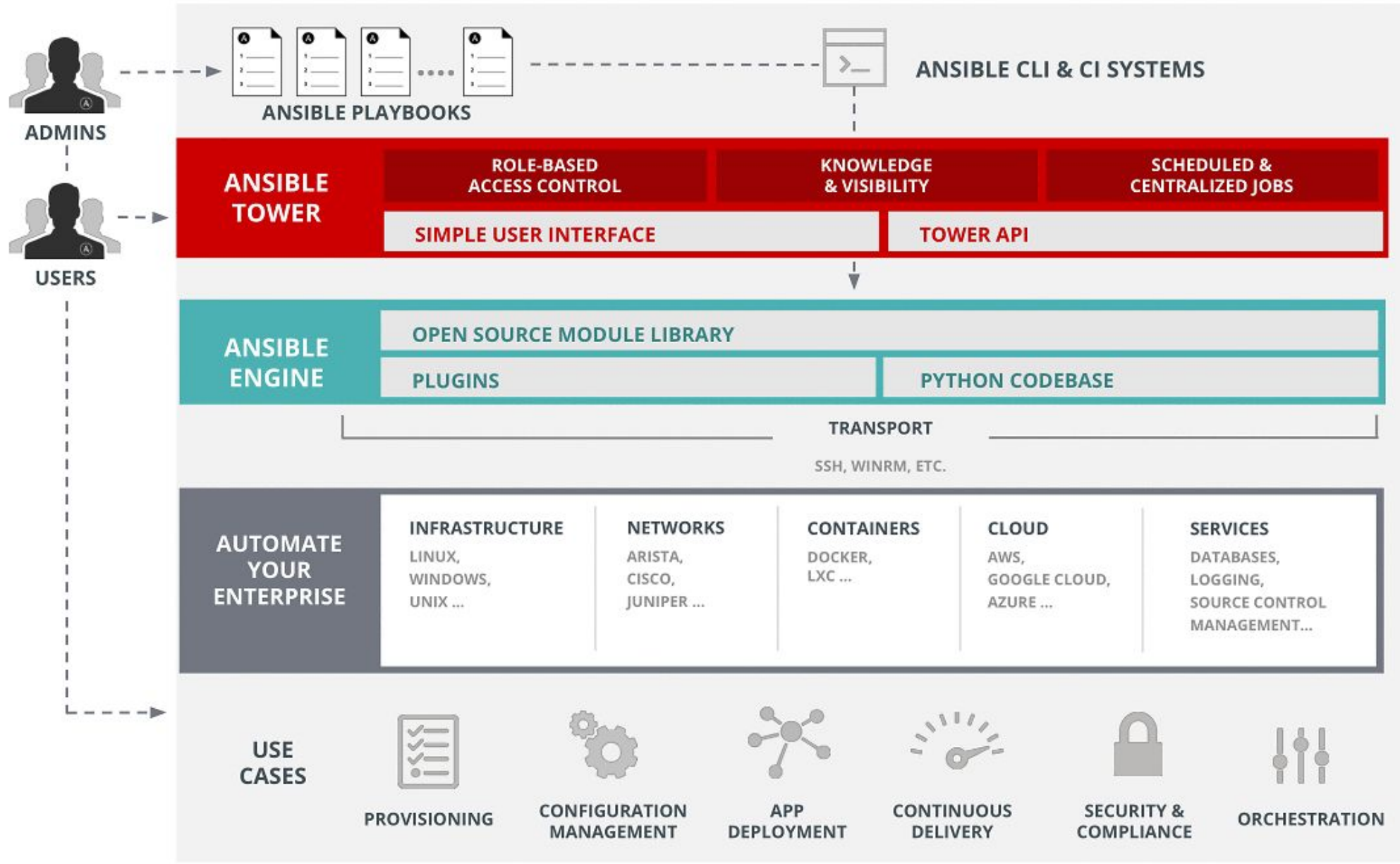
# WHAT IS ANSIBLE TOWER?

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

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









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**ANSIBLE**<sup>®</sup>  
Automation

USE CASE:

**LINUX AUTOMATION**

# LINUX AUTOMATION

**150+**  
Linux Modules

## **AUTOMATE EVERYTHING LINUX**

Red Hat Enterprise Linux, BSD,  
Debian, Ubuntu and many more!

ONLY REQUIREMENTS:  
Python 2 (2.6 or later)  
or Python 3 (3.5 or later)

[ansible.com/get-started](https://ansible.com/get-started)

# AUTOMATION FOR EVERYONE: SYSTEM ADMINISTRATORS

```
---  
- name: upgrade rhel packages  
  hosts: rhel  
  
  tasks:  
    - name: upgrade all packages  
      yum:  
        name: '*'  
        state: latest
```

# AUTOMATION FOR EVERYONE: SYSTEM ADMINISTRATORS

---

- **name:** **reboot rhel hosts**

**hosts:** rhel

**tasks:**

- **name:** **reboot the machine**

**reboot:**

# AUTOMATION FOR EVERYONE: SYSTEM ADMINISTRATORS

---

- **name: check services on rhel hosts**  
**hosts:** rhel  
**become:** yes  
  
**tasks:**
  - **name: ensure nginx is started**  
**service:**  
**name:** nginx  
**state:** started



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Automation

USE CASE:

# NETWORK AUTOMATION

# ANSIBLE NETWORK AUTOMATION

**50**

Network  
Platforms

**700+**

Network  
Modules

**12\***

Galaxy  
Network Roles

[ansible.com/for/networks](https://ansible.com/for/networks)  
[galaxy.ansible.com/ansible-network](https://galaxy.ansible.com/ansible-network)



# WHY AUTOMATE YOUR NETWORK?

## PLAN AND PROTOTYPE VIRTUALLY

Use tasks as reusable building blocks

## USE YOUR CURRENT DEVELOPMENT PRACTICES

Agile, DevOps, Waterfall

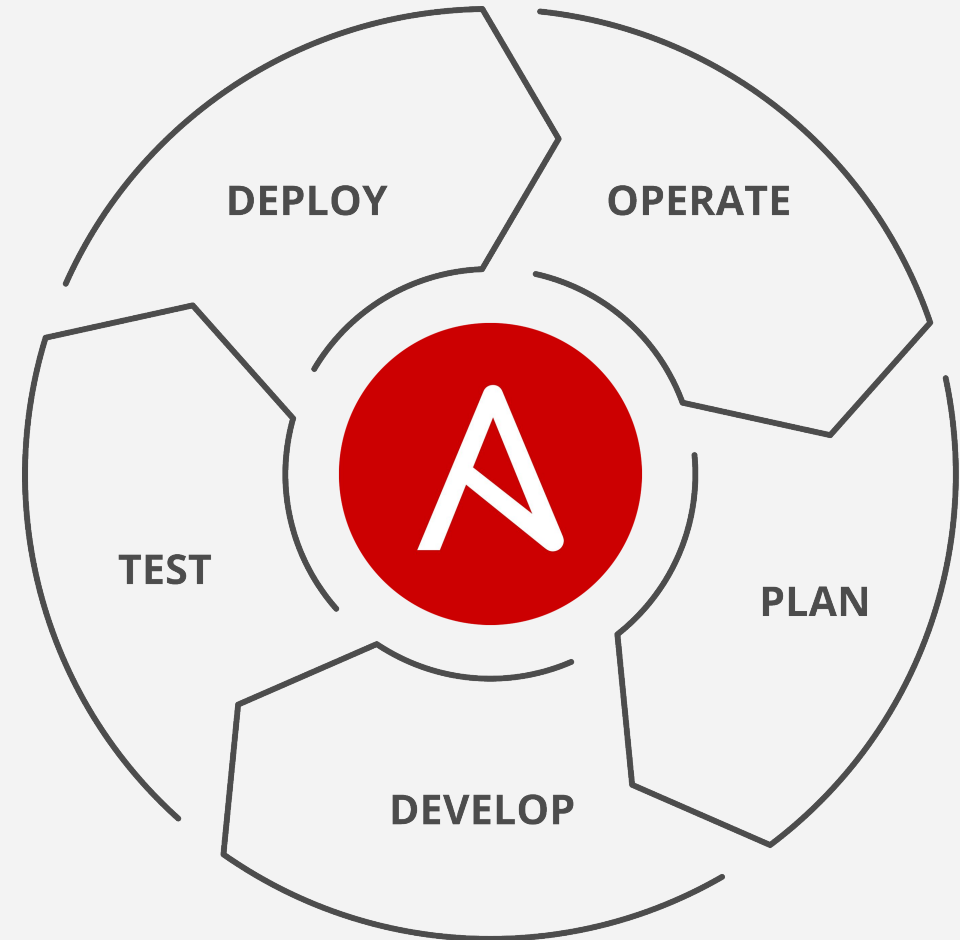
## GO BEYOND THE “PING” TEST

Integrate with formal testing platforms

## BE CONFIDENT DURING DEPLOYMENT

Validate changes were successful

## ENSURE AN ON-GOING STEADY-STATE



# AUTOMATION FOR EVERYONE: NETWORK ENGINEERS

---

- **hosts:** cisco

**gather\_facts:** false

**connection:** network\_cli

**tasks:**

- **name:** show command for cisco

**cli\_command:**

**command:** show ip int br

**register:** result

- **name:** display result to terminal window

**debug:**

**var:** result.stdout\_lines

# AUTOMATION FOR EVERYONE: PLAYBOOK RESULTS

```
[student3@ansible network_setup]$ ansible-playbook example.yml

PLAY [cisco] *****

TASK [show command for cisco] *****
ok: [rtr2]
ok: [rtr1]

TASK [display result to terminal window] *****
ok: [rtr1] => {
  "result.stdout_lines": [
    "Interface      IP-Address    OK? Method Status          Protocol",
    "GigabitEthernet1 172.16.22.120 YES DHCP    up             up",
    "VirtualPortGroup0 192.168.35.101 YES TFTP    up             up"
  ]
}
ok: [rtr2] => {
  "result.stdout_lines": [
    "Interface      IP-Address    OK? Method Status          Protocol",
    "GigabitEthernet1 172.17.1.107  YES DHCP    up             up",
    "VirtualPortGroup0 192.168.35.101 YES TFTP    up             up"
  ]
}

PLAY RECAP *****
rtr1      : ok=2    changed=0    unreachable=0    failed=0    skipped=0
rtr2      : ok=2    changed=0    unreachable=0    failed=0    skipped=0

[student3@ansible network_setup]$
```



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Automation

USE CASE:

# WINDOWS AUTOMATION

# WINDOWS AUTOMATION

**90+**

Windows  
Modules

**1,300+**

Powershell DSC  
resources

[ansible.com/windows](https://ansible.com/windows)

# AUTOMATION FOR EVERYONE: WINDOWS ADMINS

```
---  
- name: windows playbook  
  hosts: new_servers  
  
  tasks:  
- name: ensure local admin account exists  
  win_user:  
    name: localadmin  
    password: '{{ local_admin_password }}'  
    groups: Administrators
```

# AUTOMATION FOR EVERYONE: WINDOWS ADMINS

```
---  
- name: windows playbook  
  hosts: windows_machines  
  
  tasks:  
- name: ensure common tools are installed  
  win_chocolatey:  
    name: '{{ item }}'  
  loop: ['sysinternals', 'googlechrome']
```

# AUTOMATION FOR EVERYONE: WINDOWS ADMINS

---

- **name:** update and reboot

**hosts:** windows\_servers

**tasks:**

- **name:** ensure common OS updates are current

**win\_updates:**

**register:** update\_result

- **name:** reboot and wait for host if updates change require it

**win\_reboot:**

**when:** update\_result.reboot\_required





# Red Hat Ansible Automation

USE CASE:

## Cloud automation

# CLOUD AUTOMATION

**800+**

Cloud  
Modules

**30+**

Cloud Platforms

[ansible.com/cloud](https://ansible.com/cloud)

# PLAYBOOK EXAMPLE: AWS

```
---  
- name: aws playbook  
  hosts: localhost  
  connection: local  
  
  tasks:  
    - name: create AWS VPC ansible-vpc  
      ec2_vpc_net:  
        name: "ansible-vpc"  
        cidr_block: "192.168.0.0/24"  
        tags:  
          demo: the demo vpc  
      register: create_vpc
```

# Thank you

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