



Red Hat Enterprise Linux 8

What's new in the Intelligent OS -Technical Overview

Agenda

Dec 8th 2020

10:00 - 13:00 (Sales)

10:00 Introduction to RedHat

11:00 **RH Partner Program**
- **Programmatic**
- **Access to OPEN**

11:30 BREAK

11:45 **Red Hat Portfolio Overview**

- RHV
- OSP
- Satellite
- Insights

13:00 End of day 1

Dec 9th 2020

10:00 - 13:00 (Sales)

10:00 Update zu CentOS

10:10 **Red Hat OpenShift Platform
for Sales**

11:30 BREAK

11:40 **Red Hat Ansible Automation
for Sales**

13:00 End of day 2

*We listen to your
feedback :-)*

Dec 10th 2020

10:00 - 13:20 (Pre-Sales)

10:00 **RHEL, Insights, Technical**

11:30 BREAK

11:45 **OCP - Technical**

- OpenShift Architecture (20 min)
- OpenShift Network and Storage (20 min)
- OpenShift Installation (15 min)
- Advanced Cluster Management (10 min)
- OpenShift Usage (15 min)
- Intro to OpenShift HandsOn (5 min)

13:00 **Q&A, GLS, OPEN, Learning Path**
13:20 End

LINUX IS THE FOUNDATION

Red Hat Enterprise Linux 8 is the intelligent operating system that is the consistent foundation for the enterprise hybrid cloud.



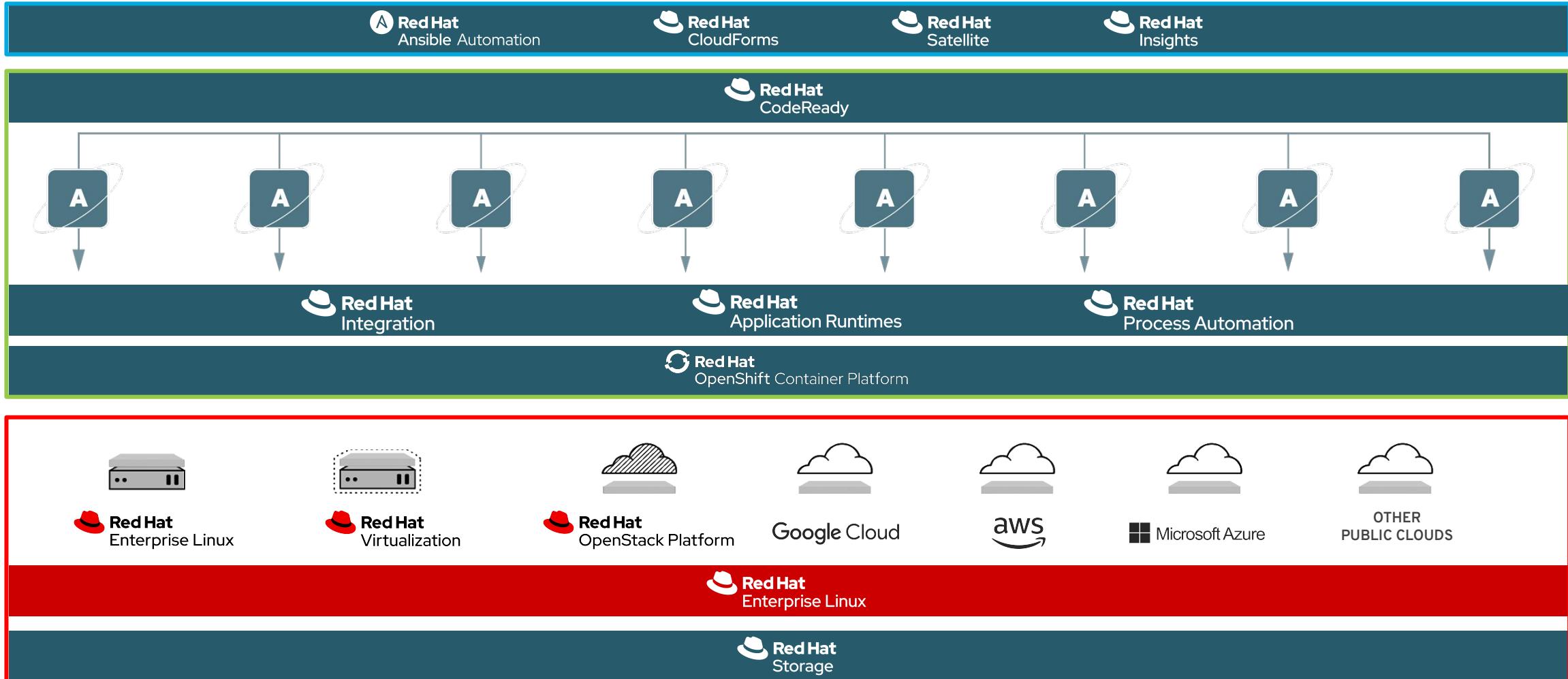
Red Hat
Enterprise Linux 8

Digital transformation can ONLY be done with Linux.

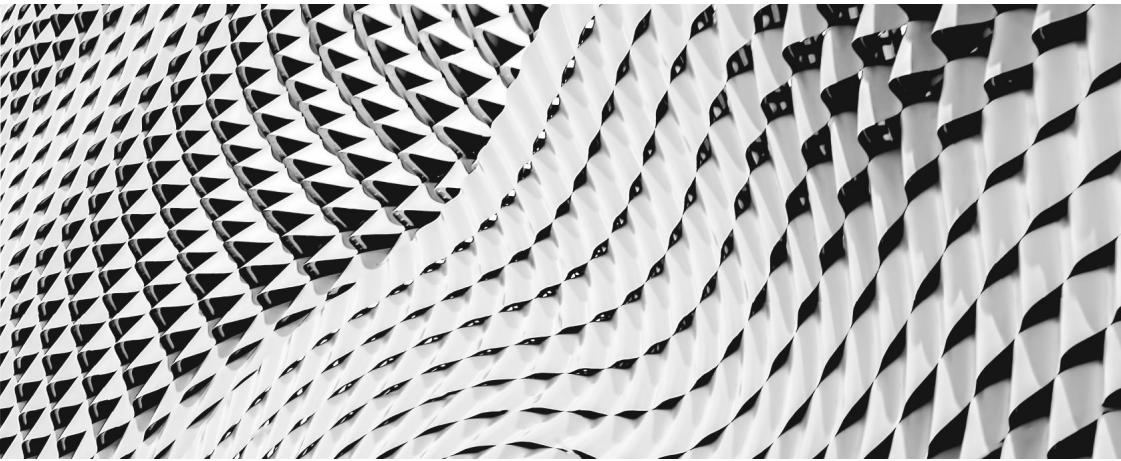
ONLY Red Hat Enterprise Linux provides an intelligent OS that is the consistent foundation for the enterprise hybrid cloud.

Delivering any application on **any footprint** at any time giving you **Control. Confidence. Freedom.**

Powering the hybrid cloud

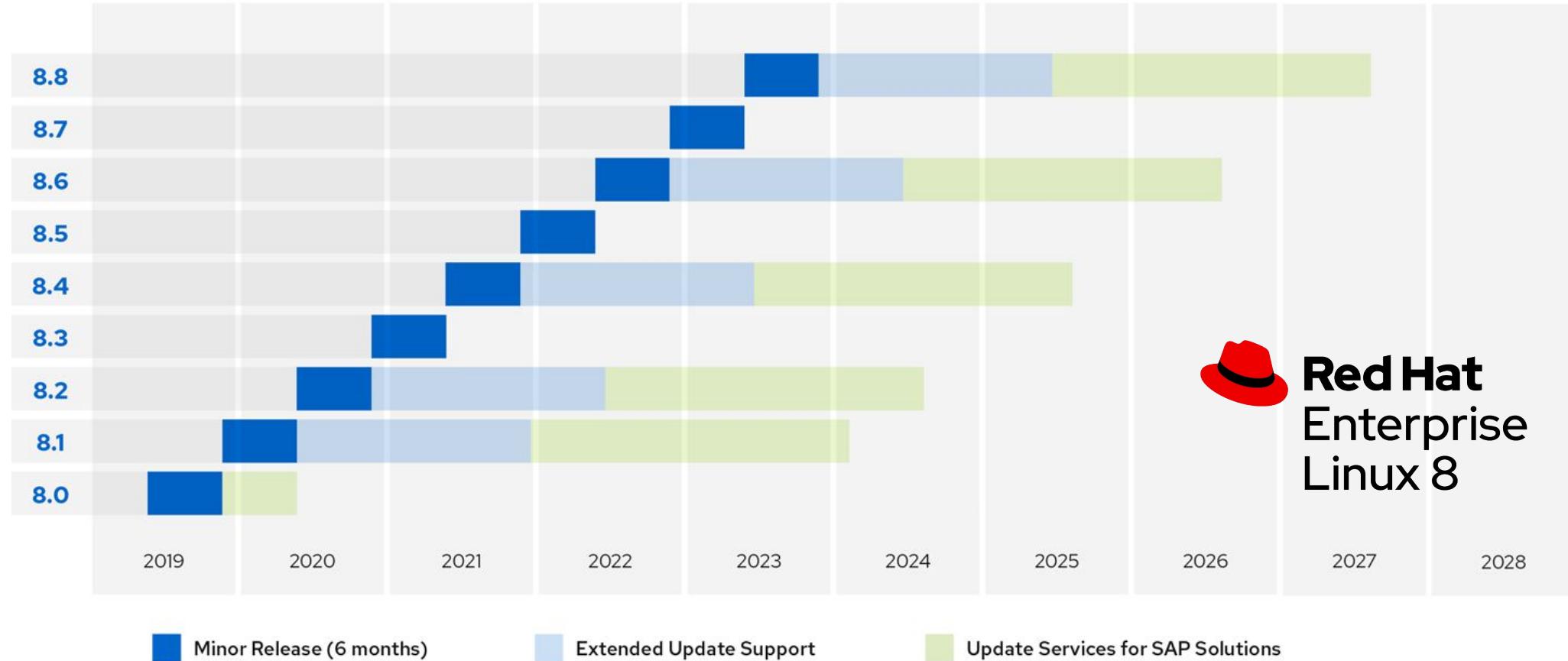


New release cadence



At Summit 2019 Red Hat announced that in future RHEL would be delivered in a new, more flexible way

Planned Red Hat Enterprise Linux 8 life cycle



RHEL_22_0919

10+ years stable API and ABI



Plan for stability with documented interfaces

Red Hat Enterprise Linux provides application stability for the duration of all major releases



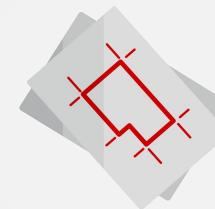
Compatibility levels

Compatibility details for components and packages



Exceptions

Exceptions to compatibility in Red Hat Enterprise Linux



Guidelines

Principles for preserving binary compatibility

Read the Red Hat Enterprise Linux 8 application compatibility guide at access.redhat.com/articles/rhel8-abi-compatibility.

Predictable updates

3 years

Major releases

6 months

Minor updates

2 phases

Support life cycle



On ramp non-Linux users more quickly without the fear of the command line.



RHEL 8 lowers the barrier of entry to Linux for Windows and Linux beginners with enhanced usability and familiar, intuitive deployment and management interfaces.

Manage Systems Easily

Remote single-system views in the web console

The screenshot shows the Red Hat Enterprise Linux web console interface. The left sidebar contains navigation links: System, Logs, Storage, Networking, Virtual Machines, Accounts, Services, Session Recording, Applications, Diagnostic Reports, Kernel Dump, SELinux, Software Updates, Subscriptions, and Terminal. The main area displays several cards:

- Storage**: Shows two charts for Reading and Writing activity over time (13:25 to 13:29) and a table for Filesystems.
- Filesystems**: A table showing /dev/vda1 mounted at / (Size: 1.63 / 9.99 GiB) and cidata mounted at - (Size: 366 KiB).
- NFS Mounts**: A card stating "No NFS mounts set up".
- Storage Logs**: A log entry for April 2, 2019, showing system boot logs related to udisksd and libudisks2 modules.
- RAID Devices**: A card stating "No storage set up as RAID".
- Volume Groups**: A card stating "No volume groups created".
- VDO Devices**: A card with a "Install VDO support" button and a message "VDO support not installed".
- iSCSI Targets**: A card stating "No iSCSI targets set up".
- Drives**: A card listing drives: "VirtIO Disk" (10 GiB Hard Disk, R: 0 B/s, W: 0 B/s) and "QEMU DVD-ROM (QM00001)" (Optical Drive, R: 0 B/s, W: 0 B/s).

Browser-based interface

Offers remotely accessible user interface using host security mechanisms

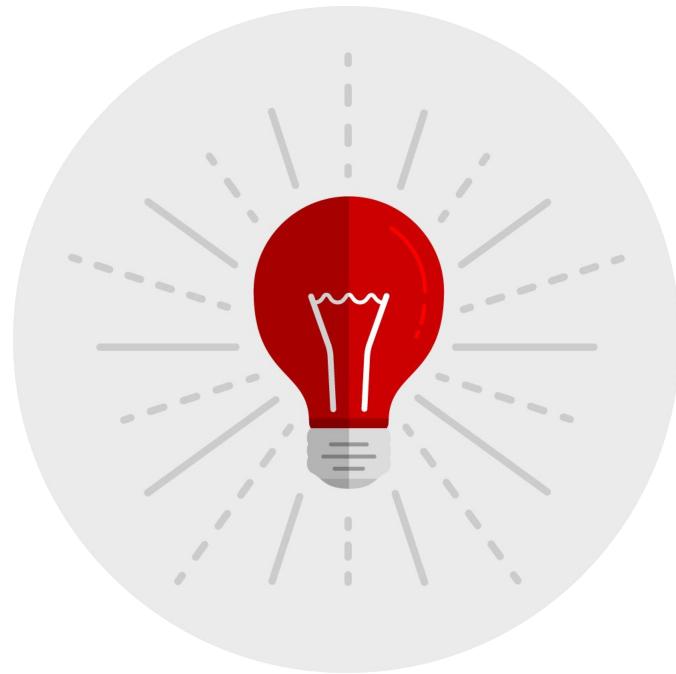
Consolidated view

Provides single view of tasks to speed understanding and completion

Standard management tools

Uses system tools to change state, not a separate workflow

New tools in web console



Container management

From the Podman Containers application, installed by the cockpit-podman package, customers can get new images, manage images, and launch containers.

Firewall zone configuration

Under the Networking application, users can enable/disable firewalld, manage zones, and manage allowed services

Improved Virtual Machine Management

In the Virtual Machines application, provided by the cockpit-machines package, customers can import qcow formatted machine images, install guests using PXE, pause and resume guests, and more...

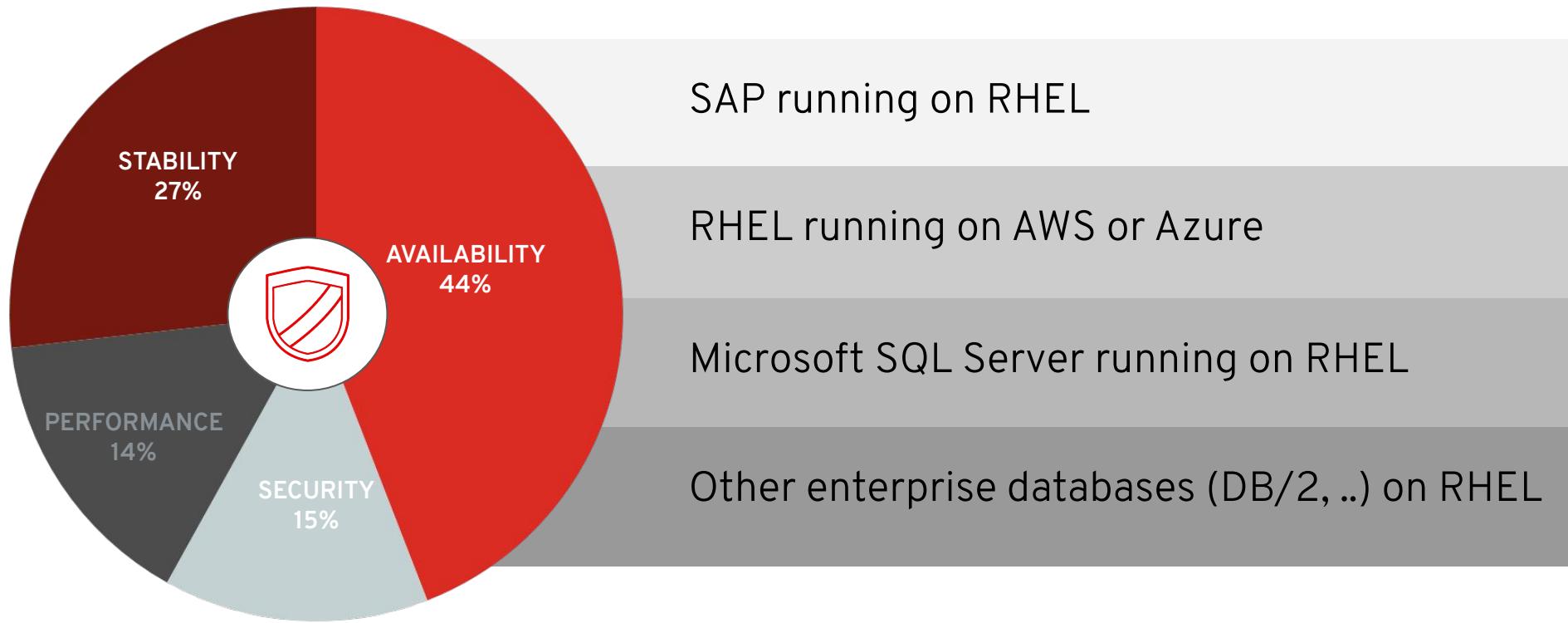
Image builder: your corporate standard in the hybrid cloud

Image builder machine image output formats:

- QEMU QCOW2 Image
- Ext4 File System Image
- Raw Partitioned Disk Image
- Live Bootable ISO
- VMware Virtual Machine Disk
- TAR Archive
- Amazon Machine Image Disk
- Google Cloud Platform
- Azure Disk Image
- Openstack
- Alibaba



Red Hat Insights has more than 1,000+ rules across several categories and workloads



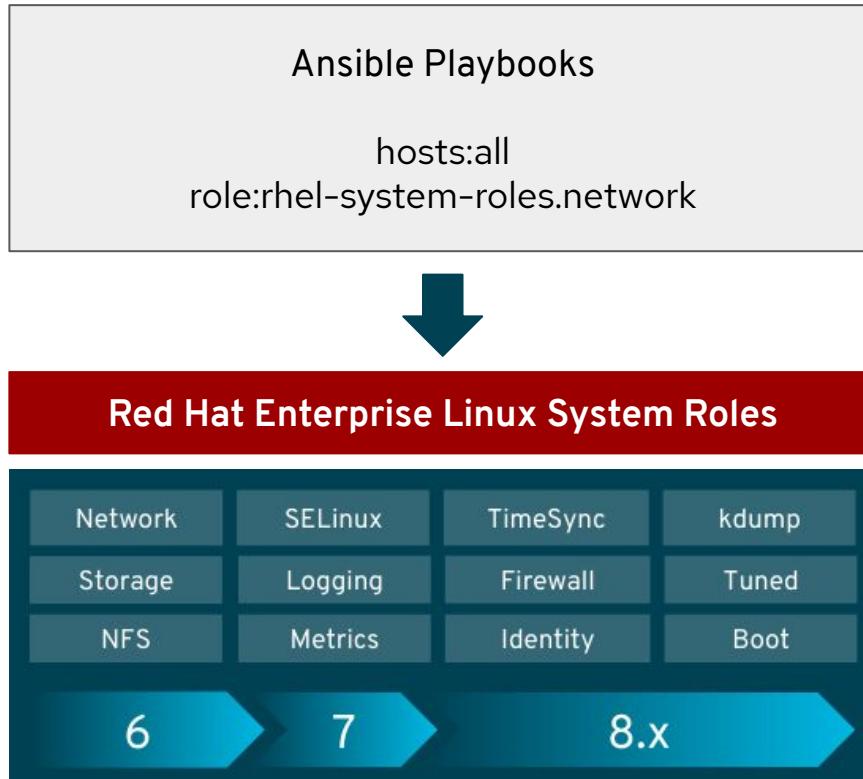
Rules continue to grow, up from 600+ at Summit (May, 2019),
an approximate 60% increase

Faster and more consistent delivery in any deployment footprint...



...with full coverage native automation. RHEL 8 provides a path to an API-driven control plane with enhanced system design and automation capabilities and integrations.

Easier Administration with Ansible



Current Roles:

- Network
- SELinux
- Timesync
- Postfix
- kdump
- storage
- SAP

Planned Roles:

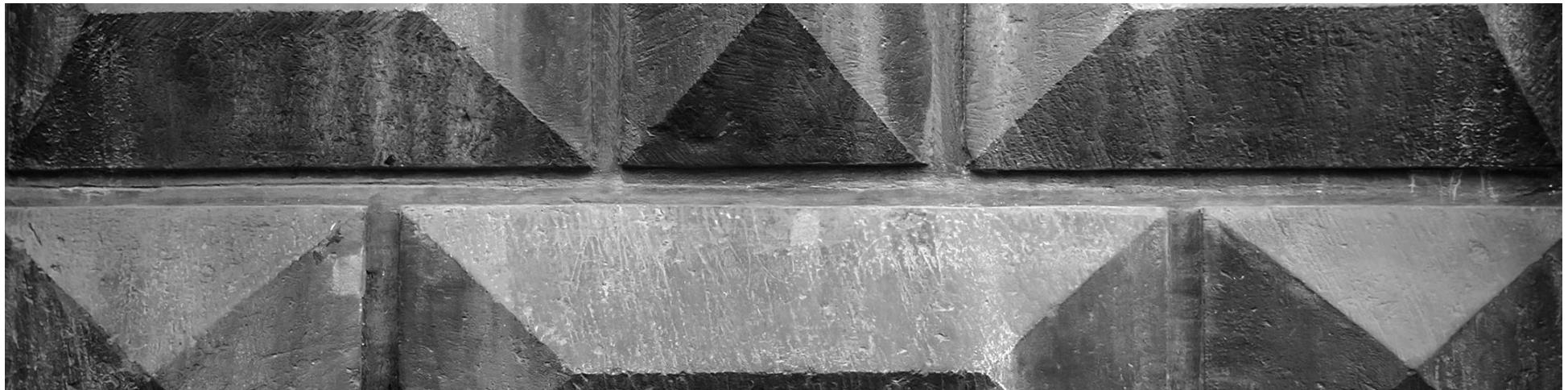
- logging
- tuned
- firewall
- ...

Upstream development:

- <https://github.com/linux-system-roles>
- <https://github.com/redhat-sap>

RHEL system role: Storage

RHEL system roles now includes the ability to control storage across your server population with the Storage system role. Whether you are adding partitions or managing Logical Volume configuration, changes can be made using the Storage system role regardless of the makeup of supported RHEL versions among your population*.

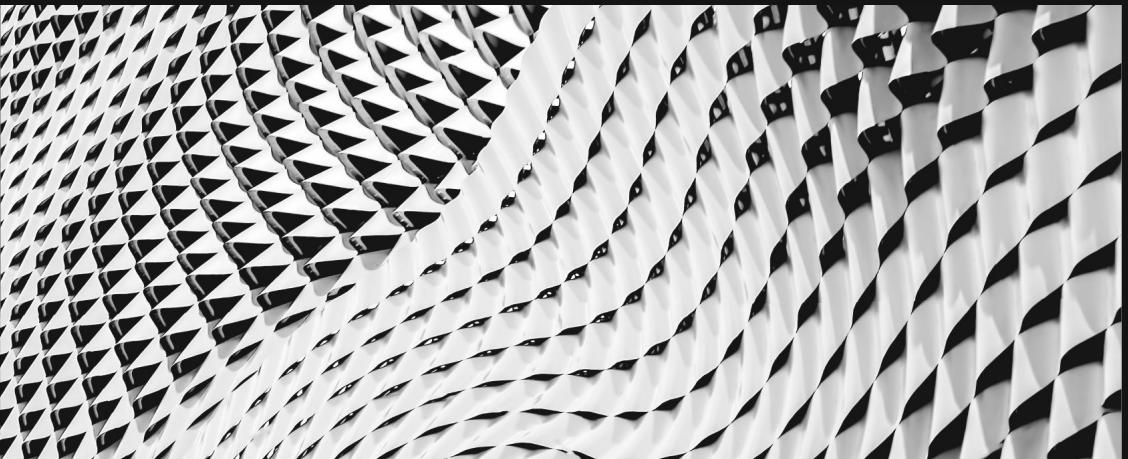


*For releases after Red Hat Enterprise Linux 7.7 and Red Hat Enterprise Linux 8

More Details:

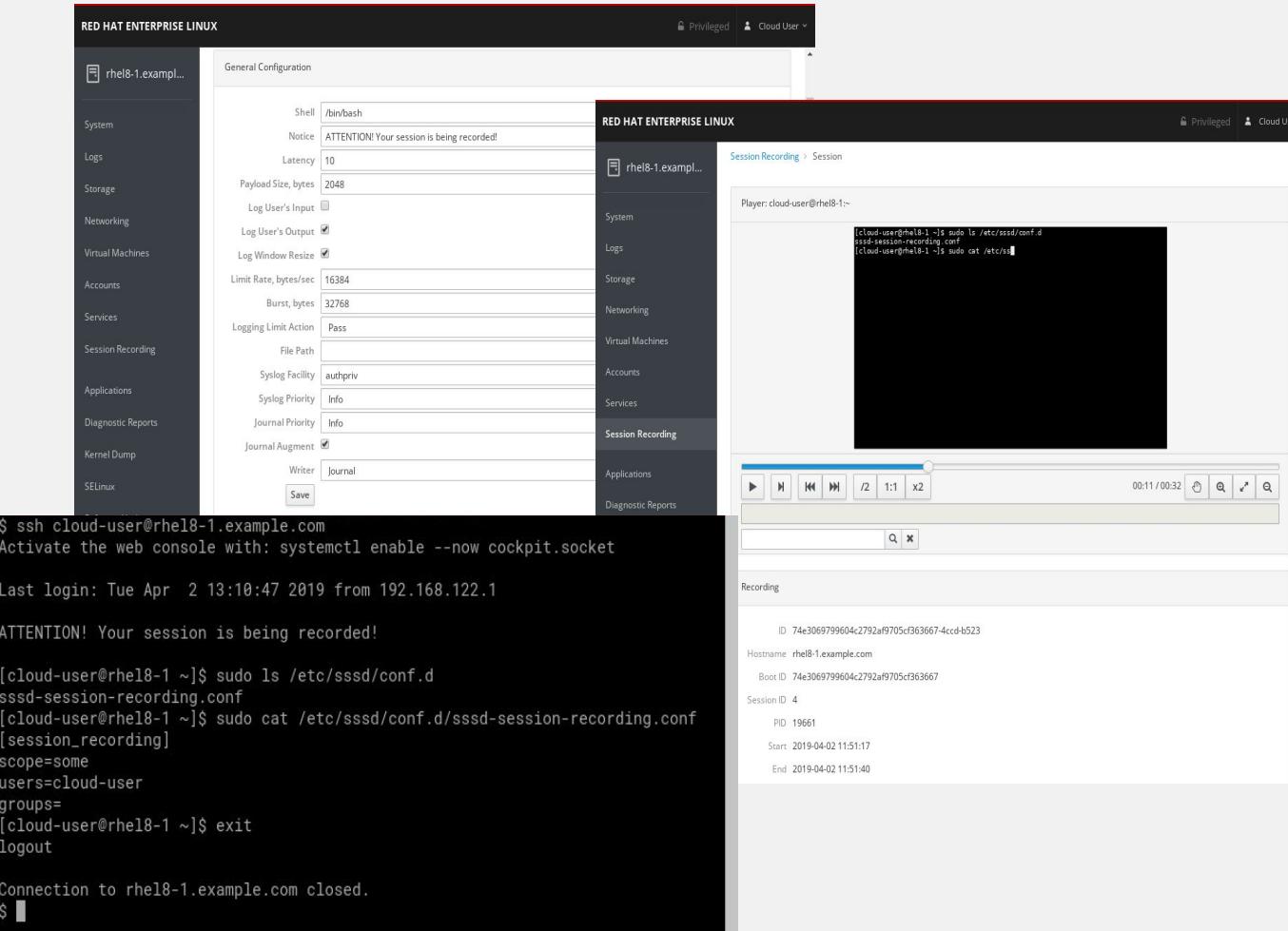
[Managing local storage using RHEL System Roles](#)

Delivers a highly secure platform in cloud infrastructures and for emerging workloads like machine learning.



RHEL 8 lowers the barrier of adoption to new technologies like GPUs while minimizing the attack surface by only deploying the packages you need to support your workload.

Recording user terminal sessions



Audit activities

Create a record of actions taken for review against security policies

Create visual guides

Build run books and training materials with demonstrations

Record and play back

Logged via standard channels with multiple playback options

Security features

Architected for security

It all starts with Linux, build on a solid foundation.



Container Specific SELinux Policies

Red Hat Enterprise Linux 8.1 includes the `udica` package. Using this technology, developers and administrators can create custom SELinux policies that target specific containers.



FIPS & Common Criteria [Update]

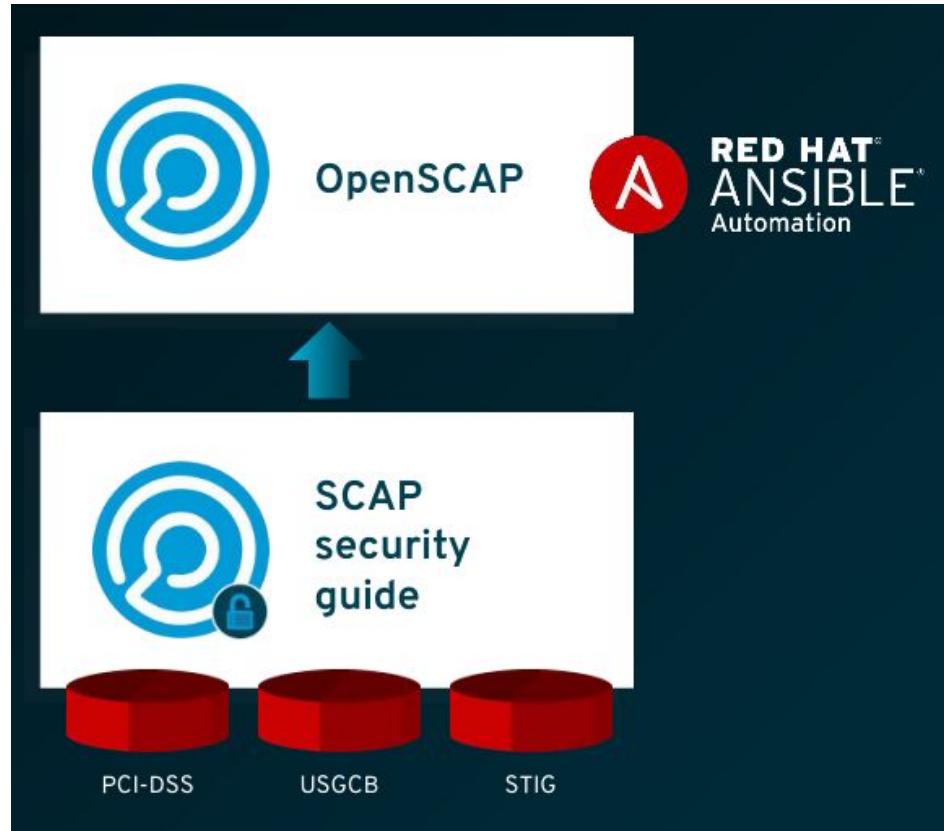
Red Hat Enterprise Linux 8.1 is the first Red Hat Enterprise Linux 8 version planned for FIPS and Common Criteria certifications.



Application Whitelisting

With the inclusion of the `fapolicyd` service, customers can now configure Red Hat Enterprise Linux 8 to permit a specific list of executable binaries or binaries stored specific directories to be executable on their systems.

Automate Security Configurations



Define and tailor
security policies via profiles

Scan and apply
security policies via Red Hat Ansible Automation

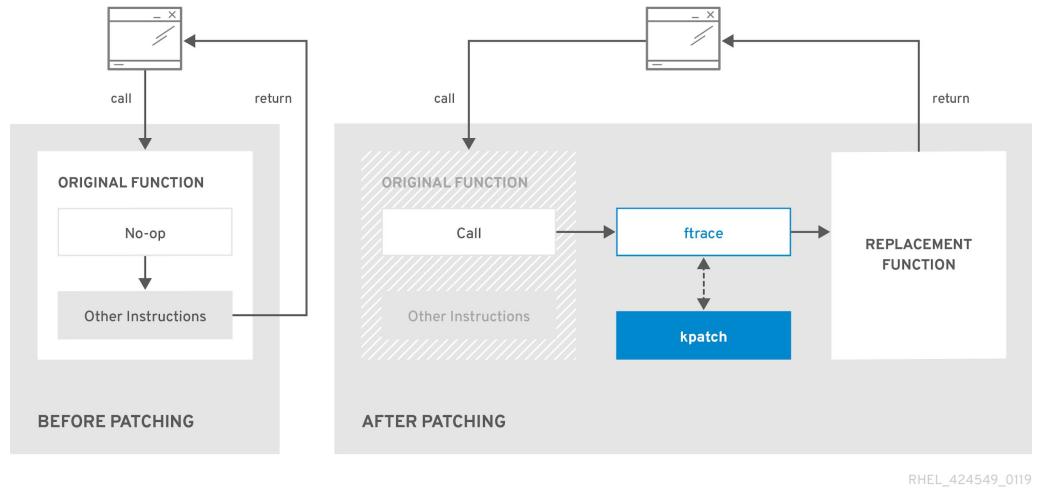
Assert security
policy at build with Ansible Automation or
Anaconda

Predefine profiles, such as:

- DISA STIG (Security Technical Implementation Guide)
- PCI-DSS (Payment Card Industry Data Security Standard)
- NIST USBCB (US Government Configuration Baseline)

kpatch service

Introducing the live kernel patching service for Red Hat Enterprise Linux 8



Replaces portions of the live kernel in memory

The kpatch module is loaded into the running kernel and patched functions are registered to the `ftrace` mechanism with a pointer to the location in memory of the replacement code. Future calls are redirected, through `ftrace`, to the new code.



Maintenance on your schedule

Important or Critical kernel CVE? No problem. Instead of scheduling an emergency maintenance for the affected systems, you can apply a kpatch to your running kernel and reconcile the system during a normally scheduled service window.



Support for up to one year

kpatches will be created for a dot release kernel for up to one year. Meaning the kernel released with RHEL 8.1 will continue to get kpatches through the service until November 2020.

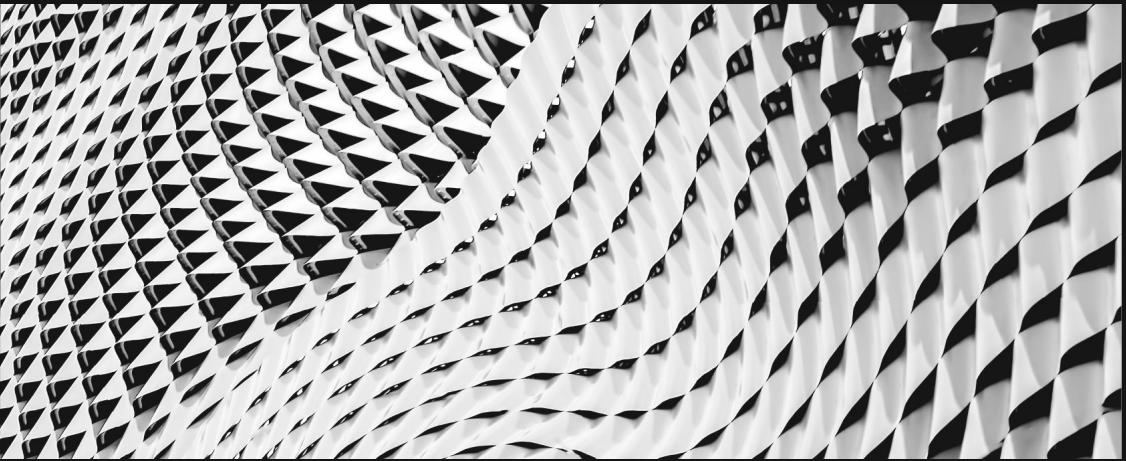
New CVE management policy

Updated CVE policy providing benefit to later lifecycle phases

Red Hat Enterprise Linux now **provides coverage for all Critical and Important Security CVEs** throughout the standard 10 year lifecycle.



A seamless, non-disruptive migration process for existing RHEL deployments.



RHEL 8 enhances the application migration process from earlier RHEL 7 versions to RHEL 8 so you can take advantages of the latest innovations.

In-place upgrades

Improvements to RHEL7 to RHEL8 in-place upgrades

In-Place Upgrade Report for: localhost.localdomain

Title	Risk Factor	Description	Tags
Repositories map file is invalid (/etc/leapp/files/repopmap.csv)	High	✗ Inhibitor 🔗 Links	upgrade process
OpenSSH configured to use removed ciphers	High	✗ Inhibitor 🕒 Remediation	authentication security network services
OpenSSH configured to use removed mac	High	✗ Inhibitor 🕒 Remediation	authentication security network services
Packages not signed by Red Hat found in the system	High	🕒 Remediation	sanity
LUKS encrypted partition detected	High	✗ Inhibitor	boot encryption
Possible problems with remote login using root account	High	✗ Inhibitor 🕒 Remediation	authentication security network services
chrony using default configuration	Medium		services time management
Postfix has incompatible changes in the next major version	Low		services email
The subscription-manager release is going to be set to 8.0	Low		upgrade process
Schedule SELinux relabeling	Low		selinux security

**Additional supported architectures**

Now Supported:

64-bit ARM
pSeries
zSeries

**Upgrade process improvements**

Red Hat continues to enhance and improve the in-place upgrade tooling and process. In this release, customers can now upgrade systems that have more complex filesystem mountpoint configurations.

**Reporting integration into web console**

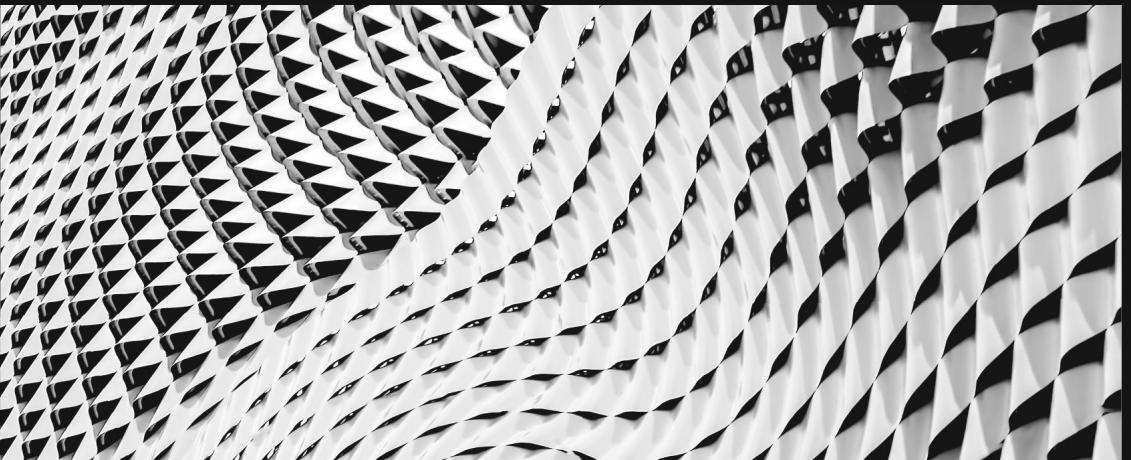
Pre-upgrade assistant reporting is now integrated into the web console for Red Hat Enterprise Linux 7. Customers interested in upgrading may now review the results of the pre-upgrade assistant

Red Hat Enterprise Linux 6 guests

Red Hat Enterprise Linux 6 has roughly one year left on the standard 10 year product lifecycle. To assist customers in transitioning from older hardware and ultimately to a newer version of RHEL, Red Hat Enterprise Linux 8.1 now supports RHEL6-based virtual machine guests.



Fastest time to “Hello World”...



...with streamlined access
to high quality open
source development tools.

RHEL 8 delivers more
versions and more updates
of supported, popular open
source language
frameworks and
databases.

New application streams



Software version flexibility with yum modules

Delivering new language and software choices
with application streams

- Ruby 2.6
- Nodejs 12
- PHP 7.3
- NGINX 1.16

Rootless containers

Rootless Containers

**buildah**

Build Open Container Initiative
(OCI) and Docker Images

**skopeo**

Inspect, copy, and sign images

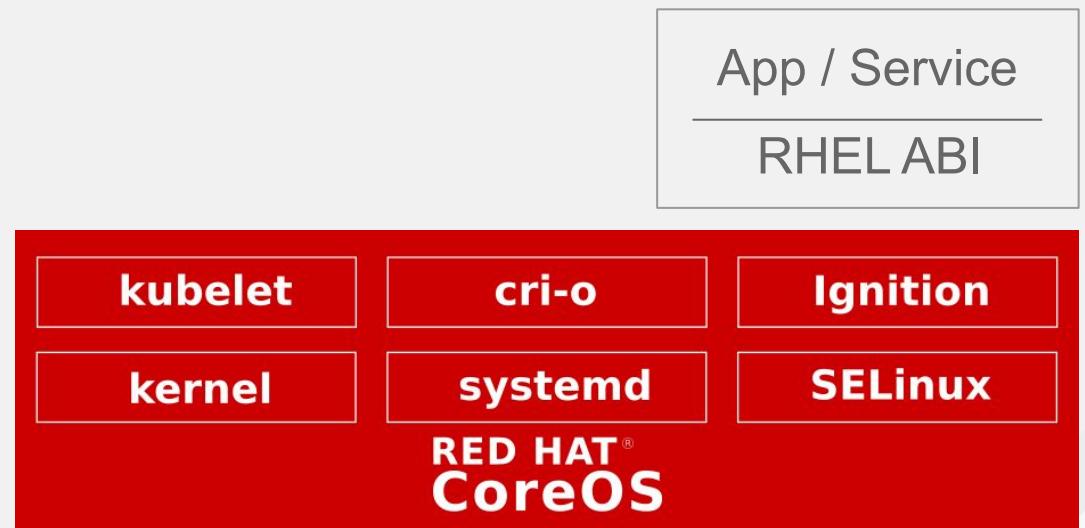
**podman**

Run, manage, and debug
containers

Red Hat CoreOS

Built for stability, scale, and hands-free operation

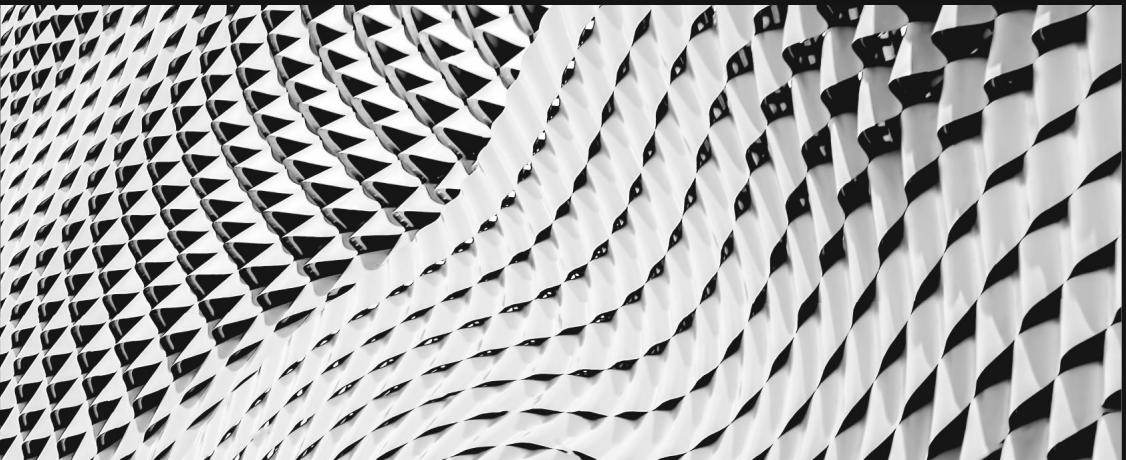
- Full support for the RHEL ABI & container ecosystem
- An immutable host, delivered and managed via OpenShift
 - Aligned lifecycle and release cadence
 - Updates & upgrades deployed via operators
- UX inspired by Container Linux
 - Read-only OS binaries in /usr
 - Integrated container & Kubernetes stack
 - One-touch provisioning with Ignition



Other Red Hat Enterprise Linux Highlights

- Storage VDO compression and deduplication
- System Management from Single Node (cockpit) to large hybrid environments (Satellite)
- Networking Crypto Offload capabilities
- Identity Management

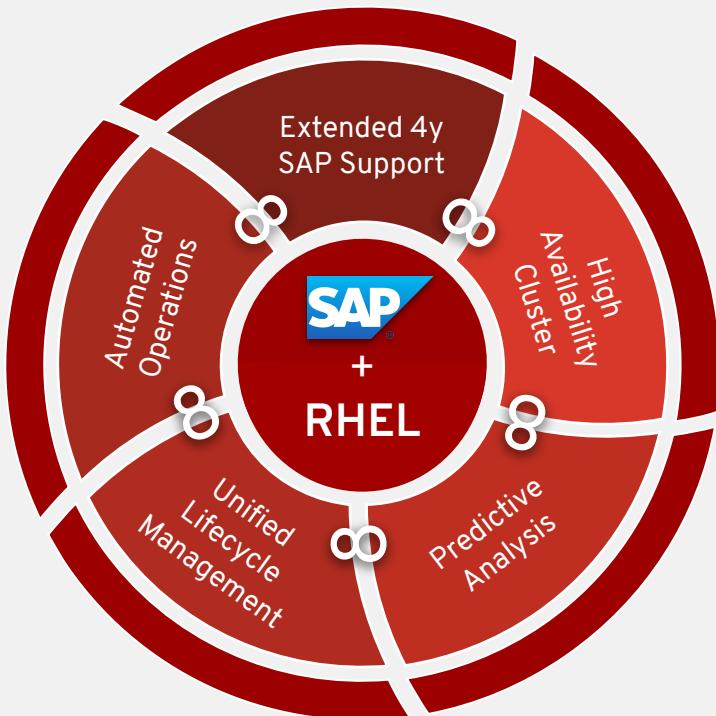
A trusted partner for Oracle, SAP HANA, Microsoft SQL Server, Postgres, and machine learning workloads.



RHEL 8 is optimized to support your critical database workloads as well as support for leading ISV applications and workloads.

RHEL 8 for SAP Solutions

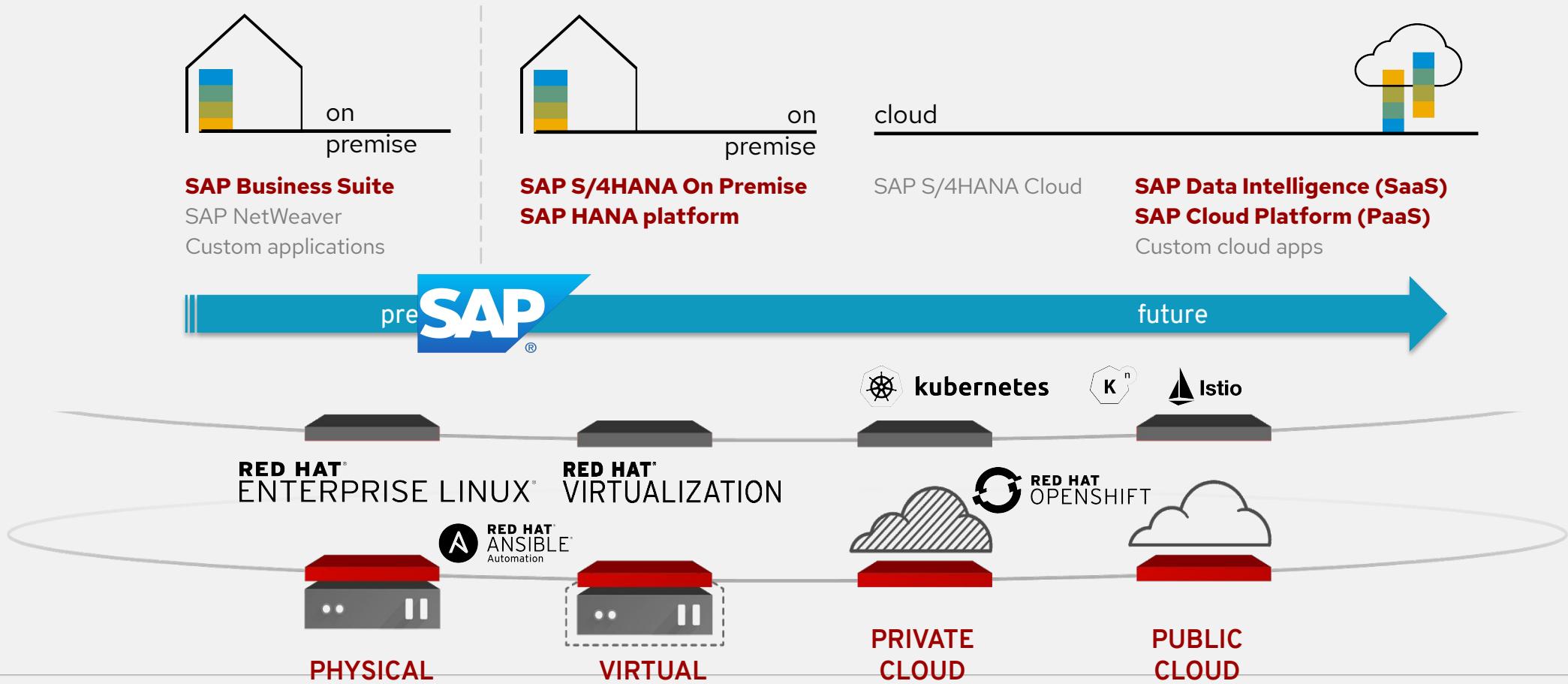
tailored for the needs of business critical applications



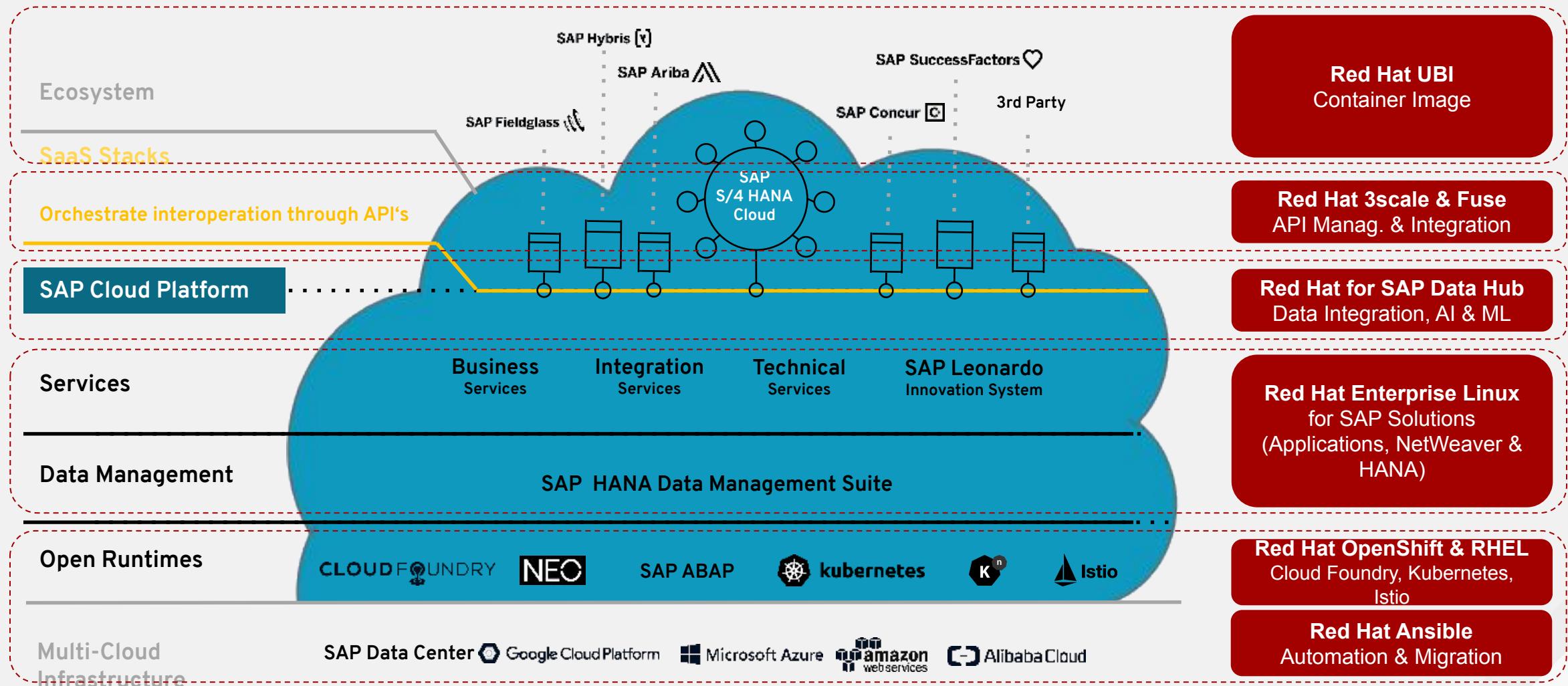
- Enabled for **continuous availability** of SAP applications, through High Availability solutions for SAP HANA, NetWeaver and S/4 HANA, as well as SAP HANA tested in-place upgrade and Live Patching capabilities for Critical and Important CVEs (**RHEL HA add-on and Red Hat SAP HA solution incl.**)
- Focus on **SAP application lifecycle**, providing a stable foundation with support for certain minor releases of RHEL for up to 4 years from GA (**RHEL Extended Update Support for SAP incl.**)
- **Proactive monitoring and remote management** of SAP landscapes, with real-time assessment for risks related to performance, availability, stability, and security (**Red Hat Insights and Smart Management add-on incl.**)
- **Ready to run**, delivering high-performance profiles, runtime libraries and file system add-ons, turning SAP into a first class citizen on RHEL (**RHEL for SAP solutions specific software components incl.**)

Red Hat Solutions for SAP

Where SAP and Red Hat intersect present and future architecture



SAP's Architecture* – Why RED HAT beyond HANA!



Red Hat Enterprise Linux for SAP Solutions

SAP Certification Status & Roadmap

Today

SAP Net Weaver / RHEL 7

on Intel 64, zSystem and IBM Power
as of SAP Note [2369910](#)

SAP HANA / RHEL 8.0

on Intel 64 and IBM Power LE, as of SAP Note [2235581](#)

SAP ASE and Max DB / RHEL 8

as of SAP Note [2489781](#) and [1444241](#)

SAP NetWeaver / RHV 4.3

on Intel 64, zSystem and IBM Power
as of SAP Note [1400911](#)

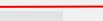
SAP HANA 3TB VM support (single/multiVM)

with RHV 4.2/4.3 on Intel 64 as of SAP Note [2852117](#)

RHEL HA solution for S/4 HANA and NetWeaver

SAP certified on Intel 64 / RHEL7

Next (2020)



SAP NetWeaver / RHEL 8.x

on Intel 64, zSystem and IBM Power

SAP BI / RHEL 8.x

on Intel 64

SAP HANA / RHEL 8.1 + 8.2 (skip 8.3)

on Intel 64 and IBM Power LE

SAP NetWeaver / RHV 4.4

on Intel 64, zSystem and IBM Power

SAP HANA 6TB VM support

with RHV 4.4 on Intel 64

RHEL HA for S/4 HANA and NetWeaver

SAP certified on Intel 64 and IBM Power / RHEL 8

Red Hat Enterprise Linux for SAP Solutions

Recent Product Enhancements & Outlook

Today

RHEL HA for SAP Solutions

for Highly Available deployments of SAP HANA,
S/4 HANA and NetWeaver deployments

Intel Optane DC Memory FS-DAX

production support for deployments of SAP HANA
2.0 SPS 04 (or later)

Live kernel patching

for critical and important CVEs

Automated day-0 system setup

using RHEL system roles for SAP

Next (2020)

RHEL HA for SAP solutions support

for SAP HANA multi-target replication

RHEL in-place upgrade

for smooth transition from RHEL 7 to 8

Performance optimizations

such as GCC, NUMA etc.

for SAP workloads such as SAP HANA

Proactive SAP system monitoring

leveraging RHEL Insights rules for SAP

Red Hat Enterprise Linux for Real Time

Red Hat Enterprise Linux for Real Time is a computing platform for deadline-oriented applications and time-sensitive workloads. Using a specialized version of the Red Hat Enterprise Linux kernel that has been tuned to deliver consistent low-latency response times, Red Hat Enterprise Linux for Real Time retains the reliability, scalability, and performance of the world's leading enterprise Linux platform.

Additional Content

Learn more at <https://lab.redhat.com>

Explore Red Hat Enterprise Linux 8

These interactive learning scenarios provide you with a pre-configured Red Hat® Enterprise Linux® instance to experiment, learn, and see how Red Hat can help you solve real-world problems.



LEARNING SCENARIOS

Using Web Console to build virtual machine images

Learn how to manage virtual machines produced for different providers through a single, Web Console included application.

[START SCENARIO](#)

Managing software from an application stream

Learn how to choose versions of popular and supported open source languages and offer them to users through an application stream.

[START SCENARIO](#)

Deploying containers using Container Tools [podman]

Explore how Podman helps you run workloads in containers by taking an existing container image and deploying it into a runtime environment.

[START SCENARIO](#)

Performance observability in practice with bcc-tools

Collect data on various system activities, such as disk performance, latency, and more using the bcc-tools. This data can help identify issues with application performance.

[START SCENARIO](#)

Creating images with Container Tools [buildah]

Try different methods to build an application container, modify an existing container image and build one from scratch using the Container Tool buildah.

[START SCENARIO](#)

Configuring Terminal Session Recording

Keep track of what is happening on your systems by using Terminal Session Recording to record and review terminal sessions of users and administrators.

[START SCENARIO](#)

Thank you

Red Hat is the world's leading provider of enterprise open source software solutions. Award-winning support, training, and consulting services make Red Hat a trusted adviser to the Fortune 500.



[linkedin.com/company/red-hat](https://www.linkedin.com/company/red-hat)



[youtube.com/user/RedHatVideos](https://www.youtube.com/user/RedHatVideos)



[facebook.com/redhatinc](https://www.facebook.com/redhatinc)



twitter.com/RedHat

Red Hat OpenShift Technical Overview



Alfred Bach

Principal Solution Architect,
Red Hat EMEA - Partner Enablement
abach@redhat.com

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OpenShift - technical overview

Modules

OpenShift Architecture 20 min

OpenShift Network and Storage 20 min

OpenShift Installation 15 min

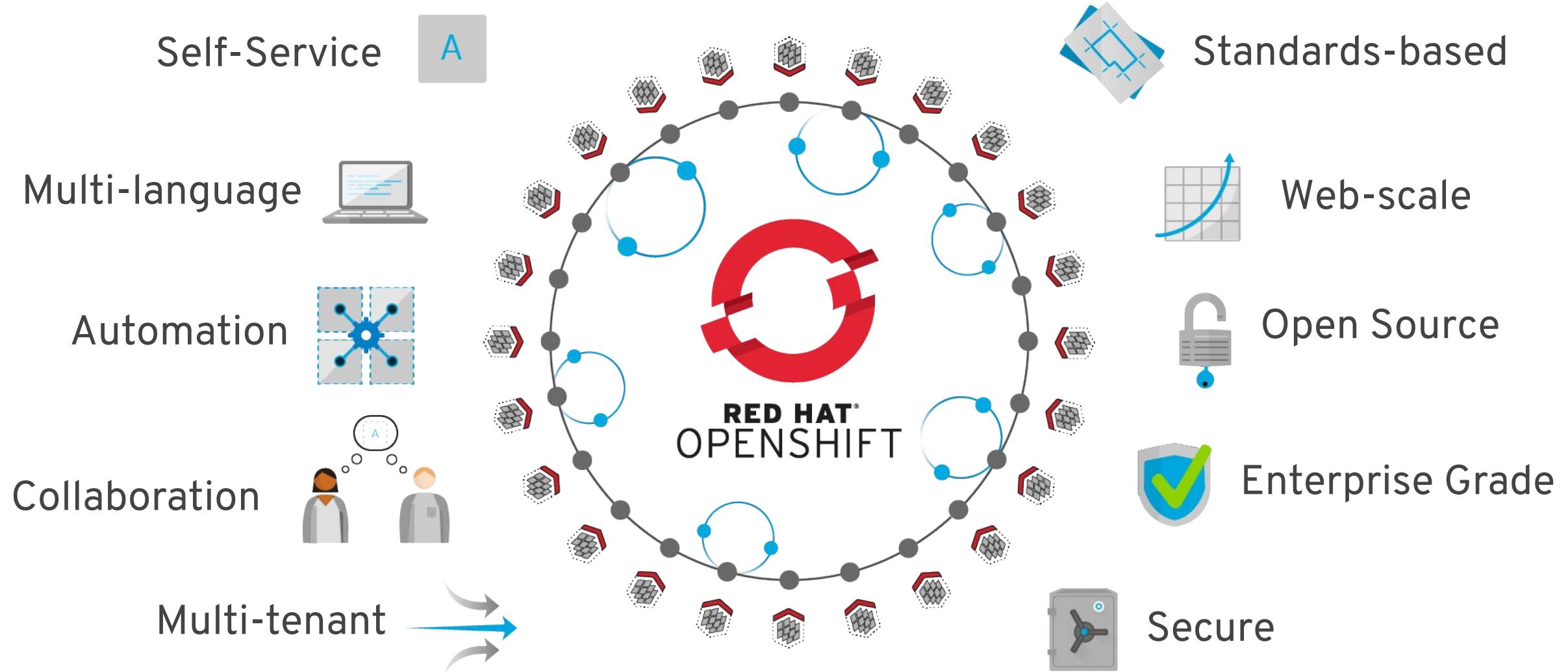
Advanced Cluster Management 10 min

OpenShift Usage 15 min

OpenShift Hands On Intro 5 min

OPENShift CONTAINER PLATFORM

Technical Value



Overwhelmed? Please see the CNCF Trail Map. That and the interactive landscape are at l.cncf.io

Database



Streaming & Messaging



Application Definition & Image Build



Continuous Integration & Delivery



Platform



Certified Kubernetes - Distribution

Observability and Analysis



App Definition and Development



Cloud-Native Storage



Container Runtime



Cloud-Native Network

Orchestration & Management

Automation & Configuration



Container Registry



Security & Compliance



Key Management



Runtime

Public



Kubernetes Certified Service Provider



Cloud

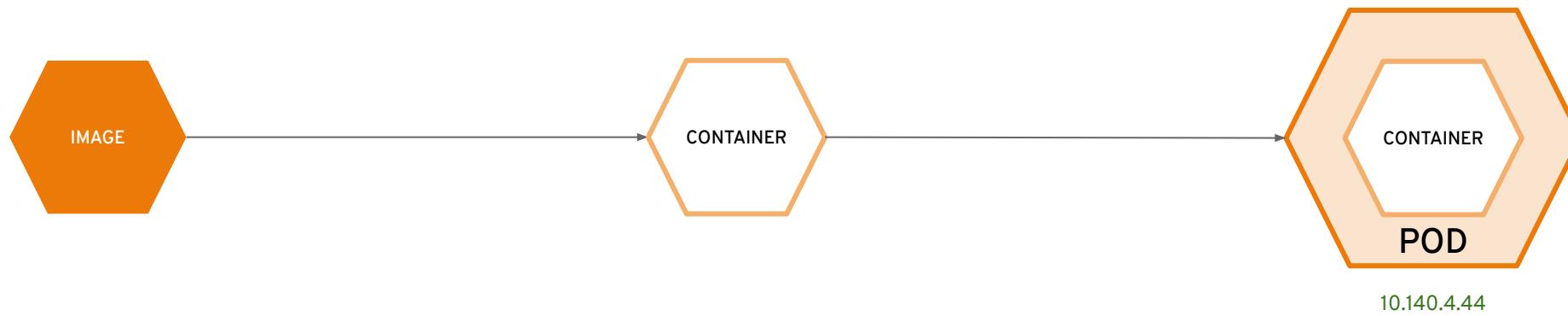






OpenShift Architecture

everything runs in pods



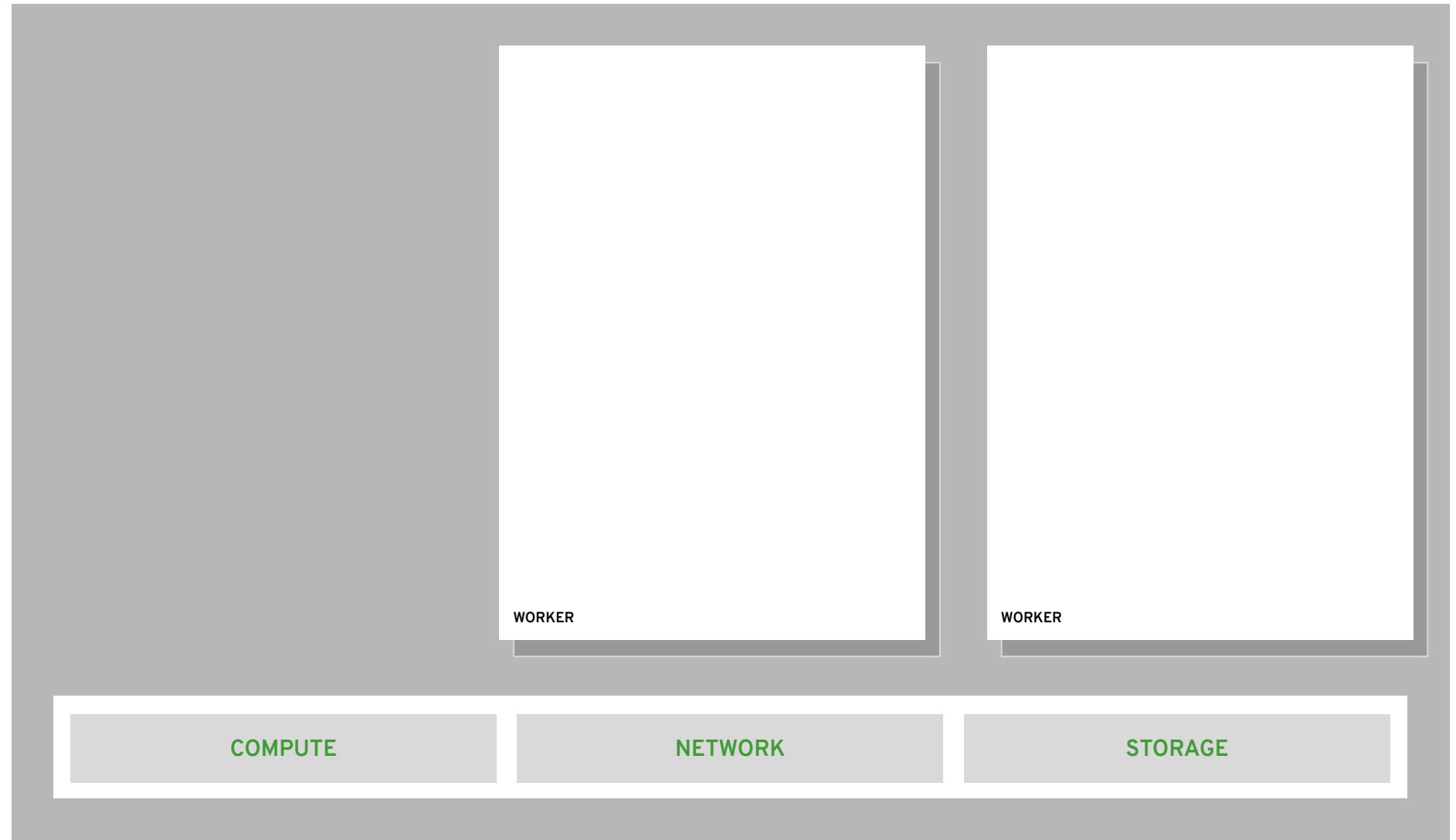
your choice of infrastructure

COMPUTE

NETWORK

STORAGE

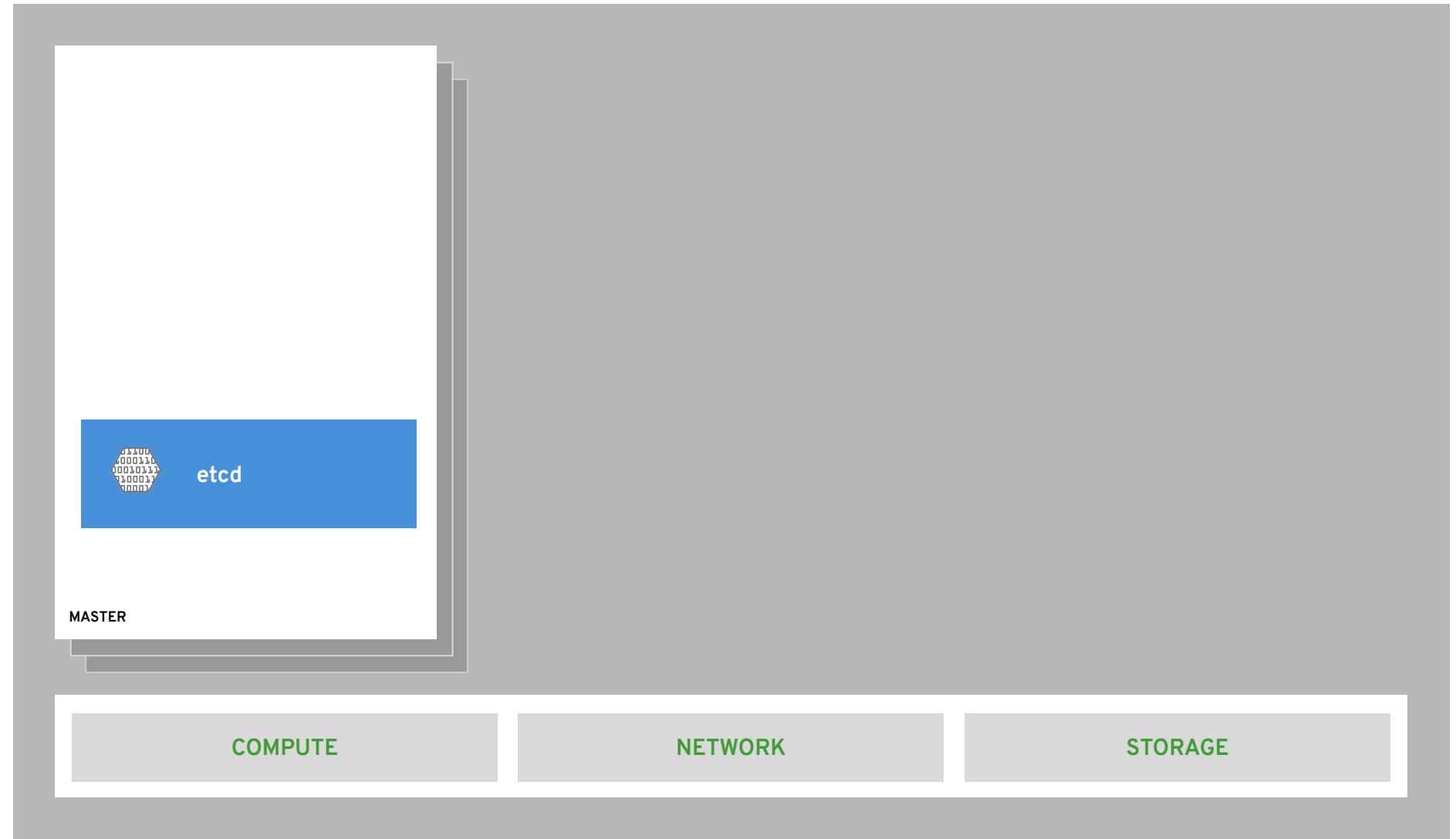
workers run workloads



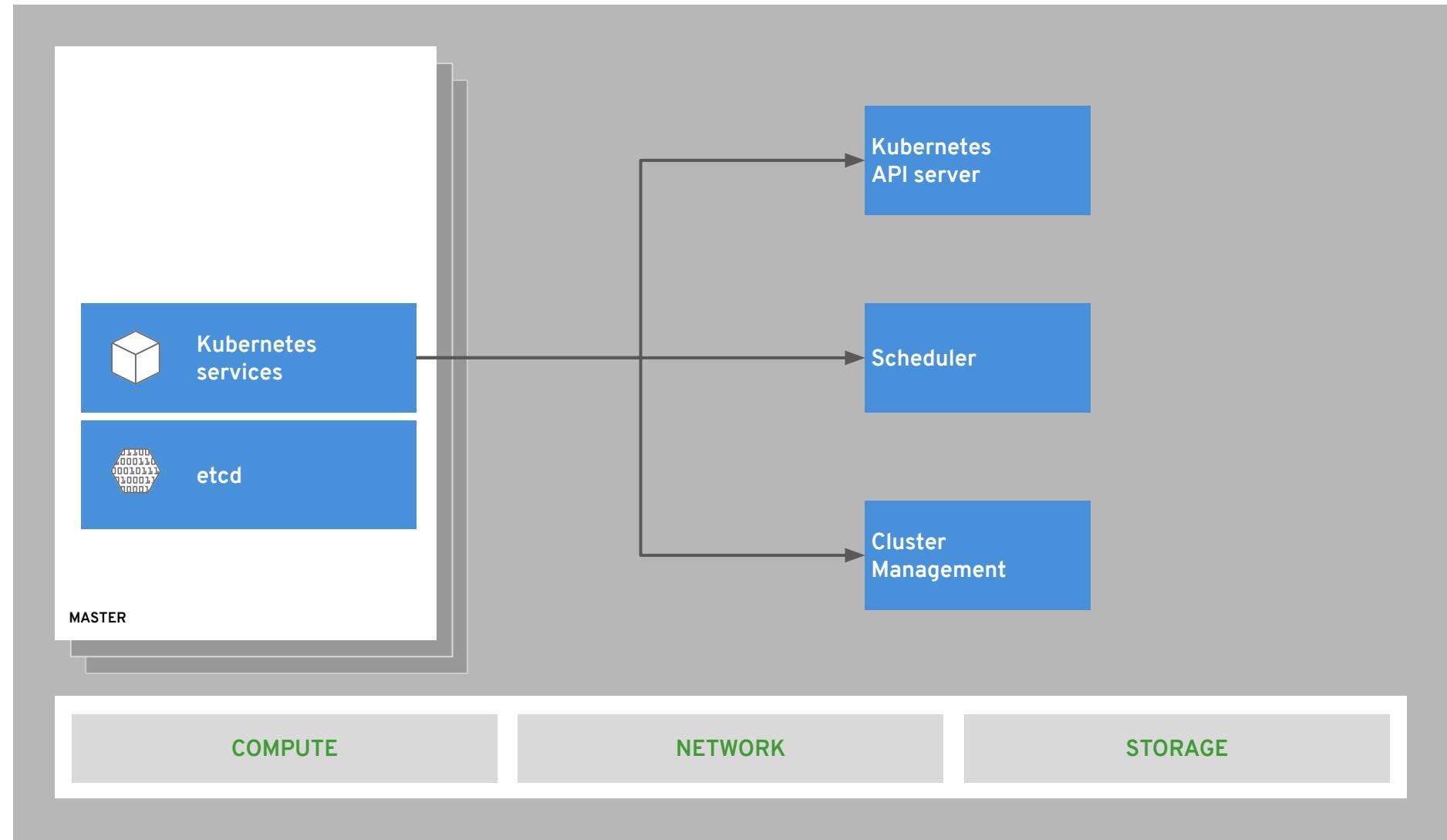
masters are the control plane



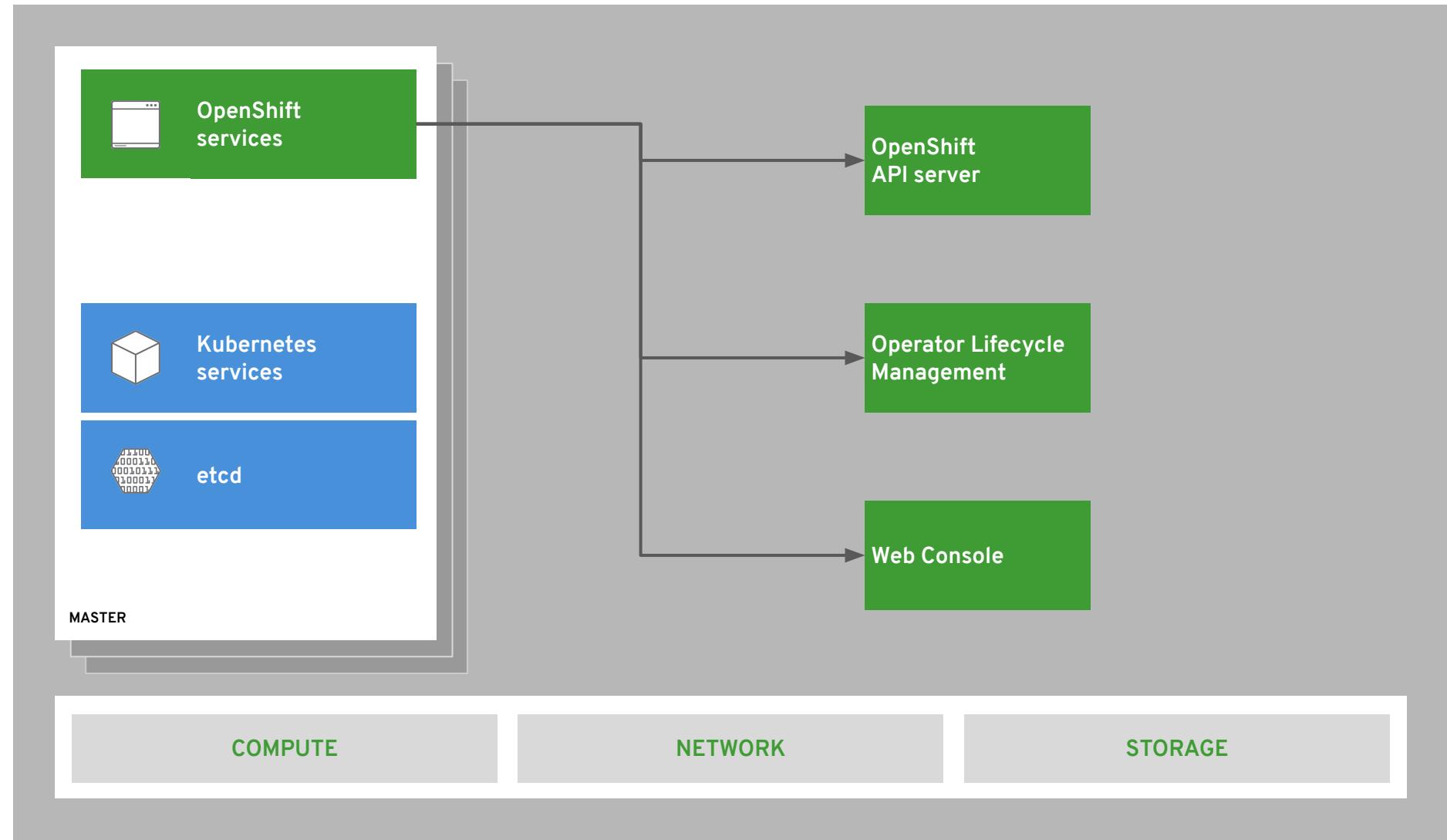
state of everything



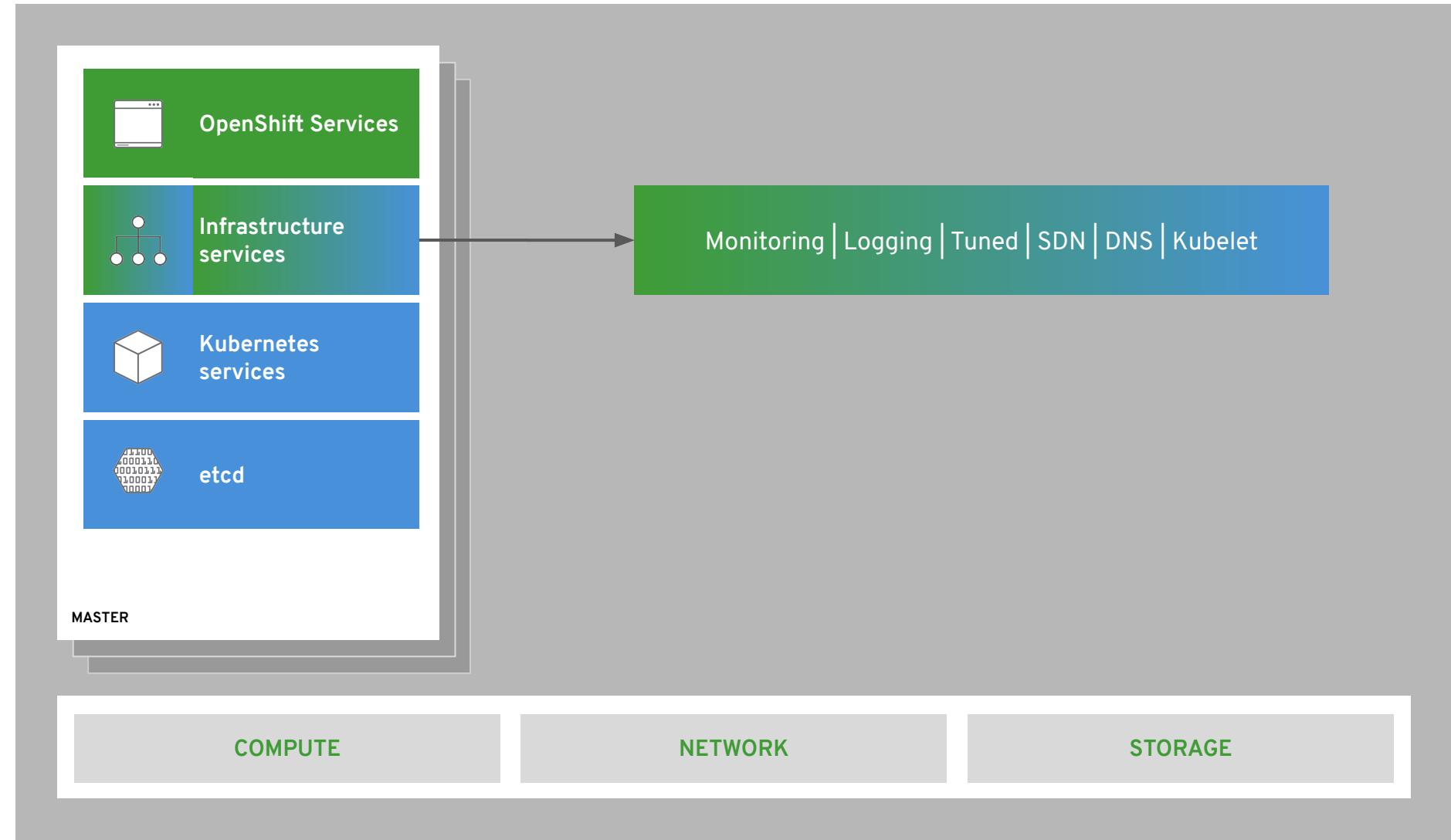
core kubernetes components



core OpenShift components



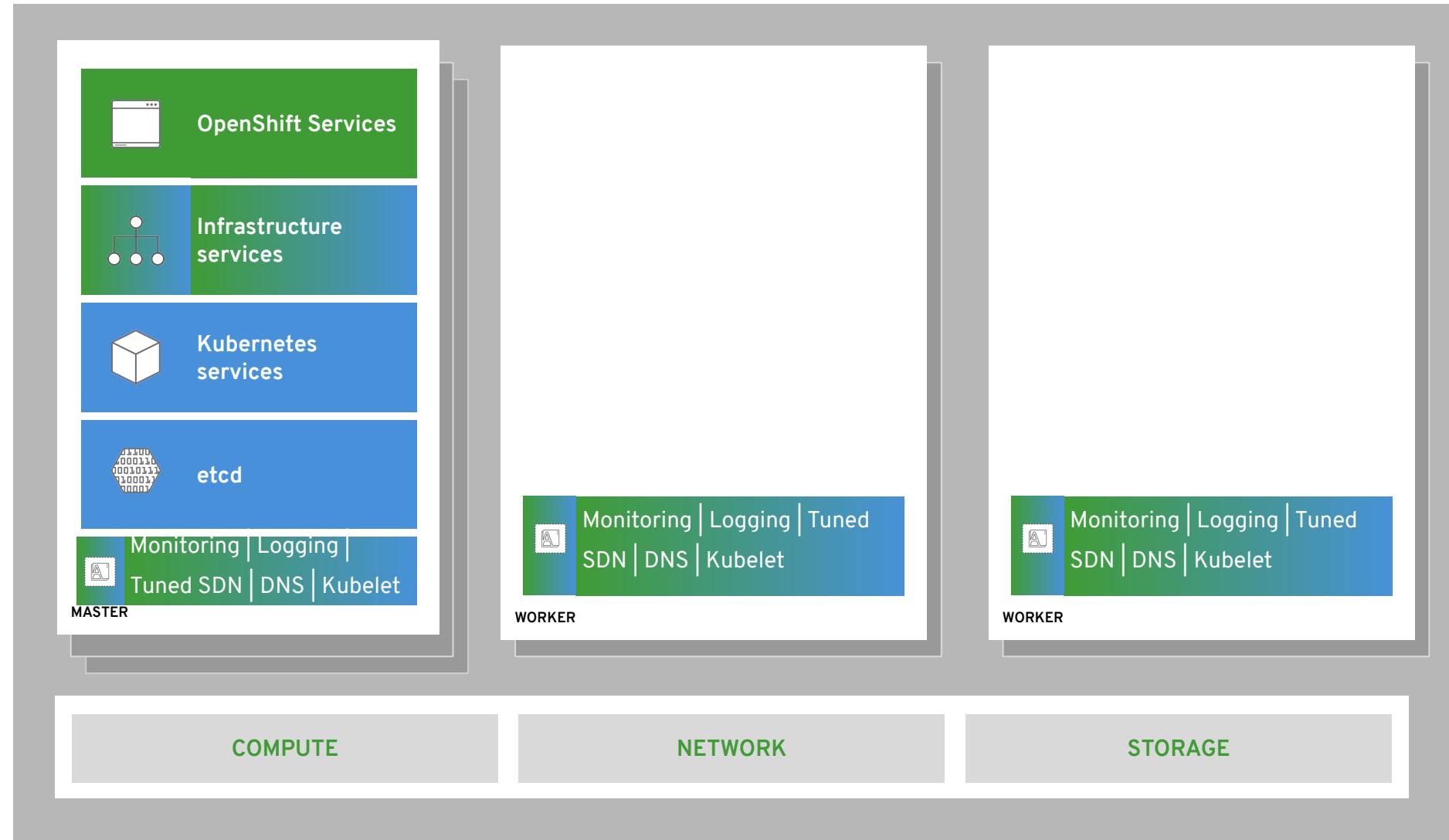
internal and support infrastructure services



OPENSHIFT CONTAINER PLATFORM |

Architectural Overview

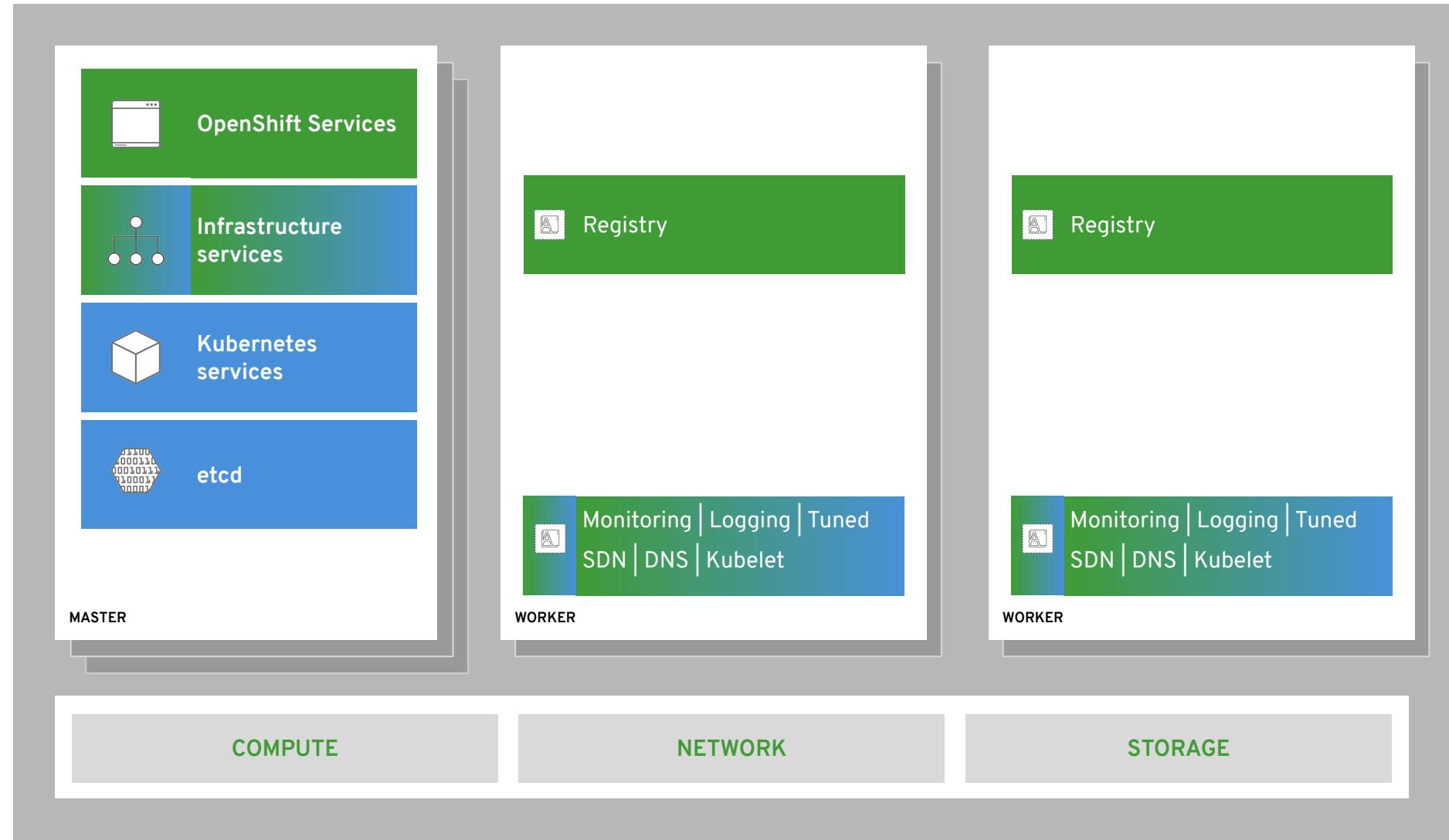
run on all hosts



OPENSHIFT CONTAINER PLATFORM |

Architectural Overview

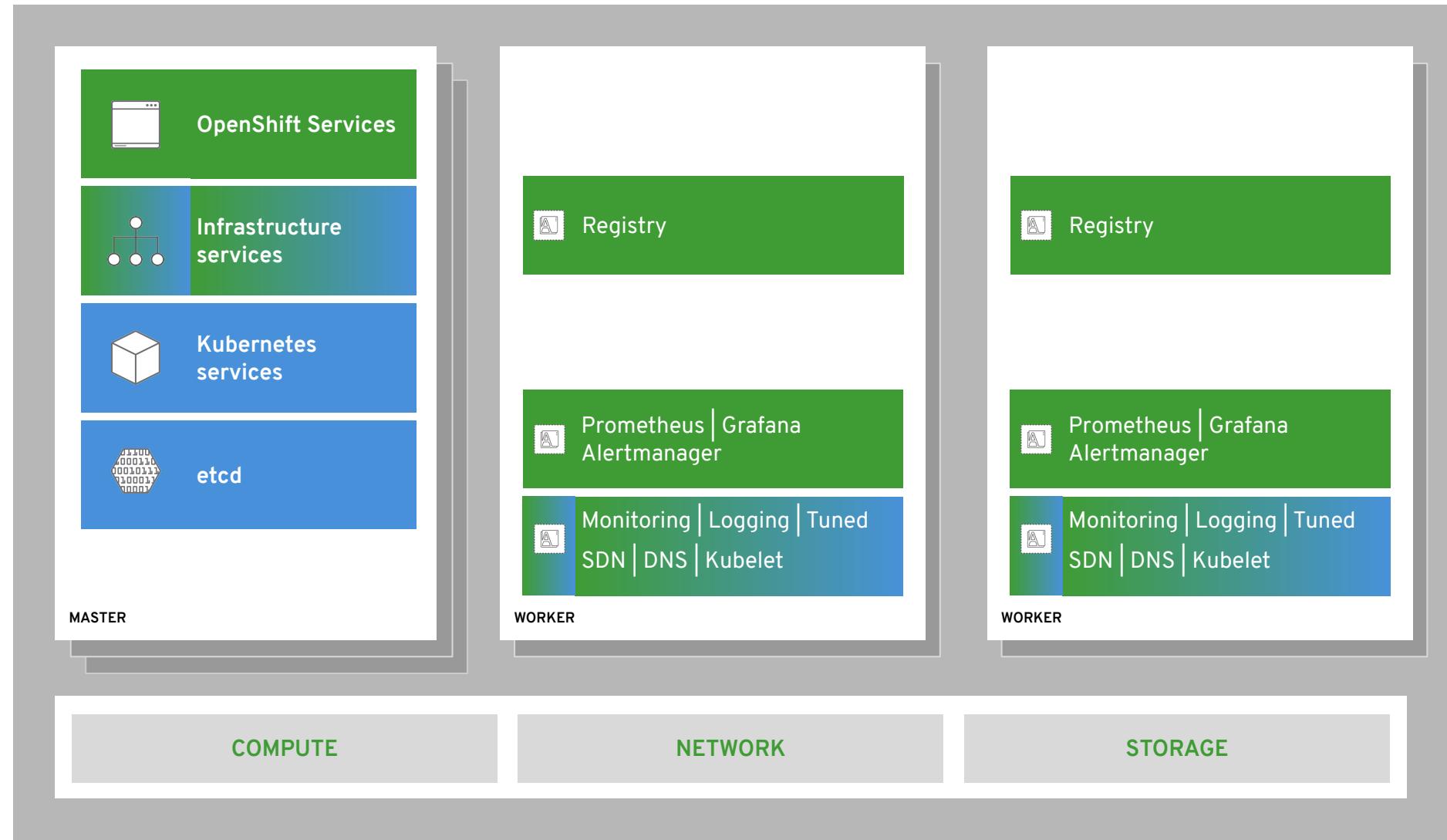
integrated image registry



OPENSHIFT CONTAINER PLATFORM |

Architectural Overview

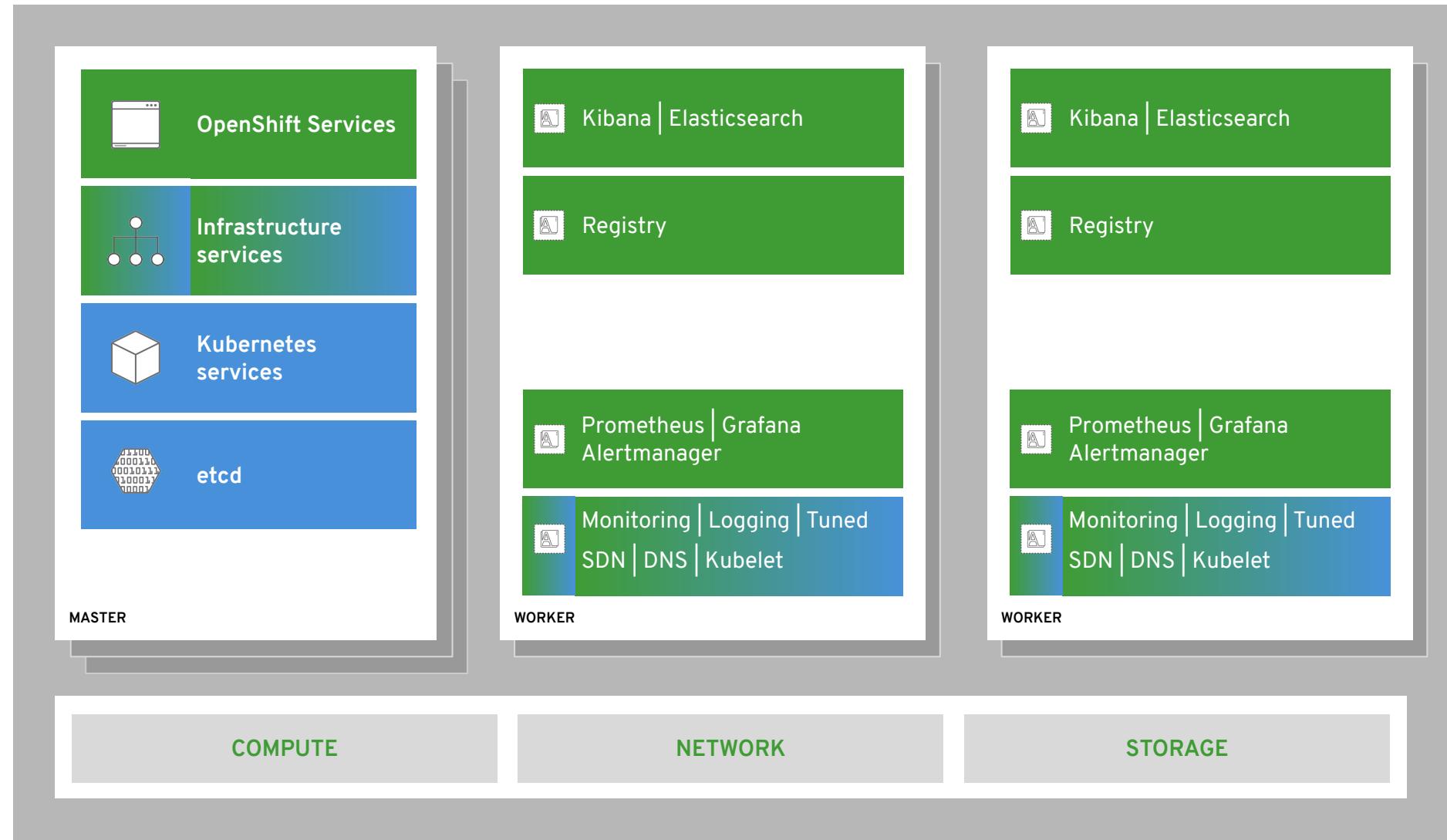
cluster monitoring



OPENSHIFT CONTAINER PLATFORM |

Architectural Overview

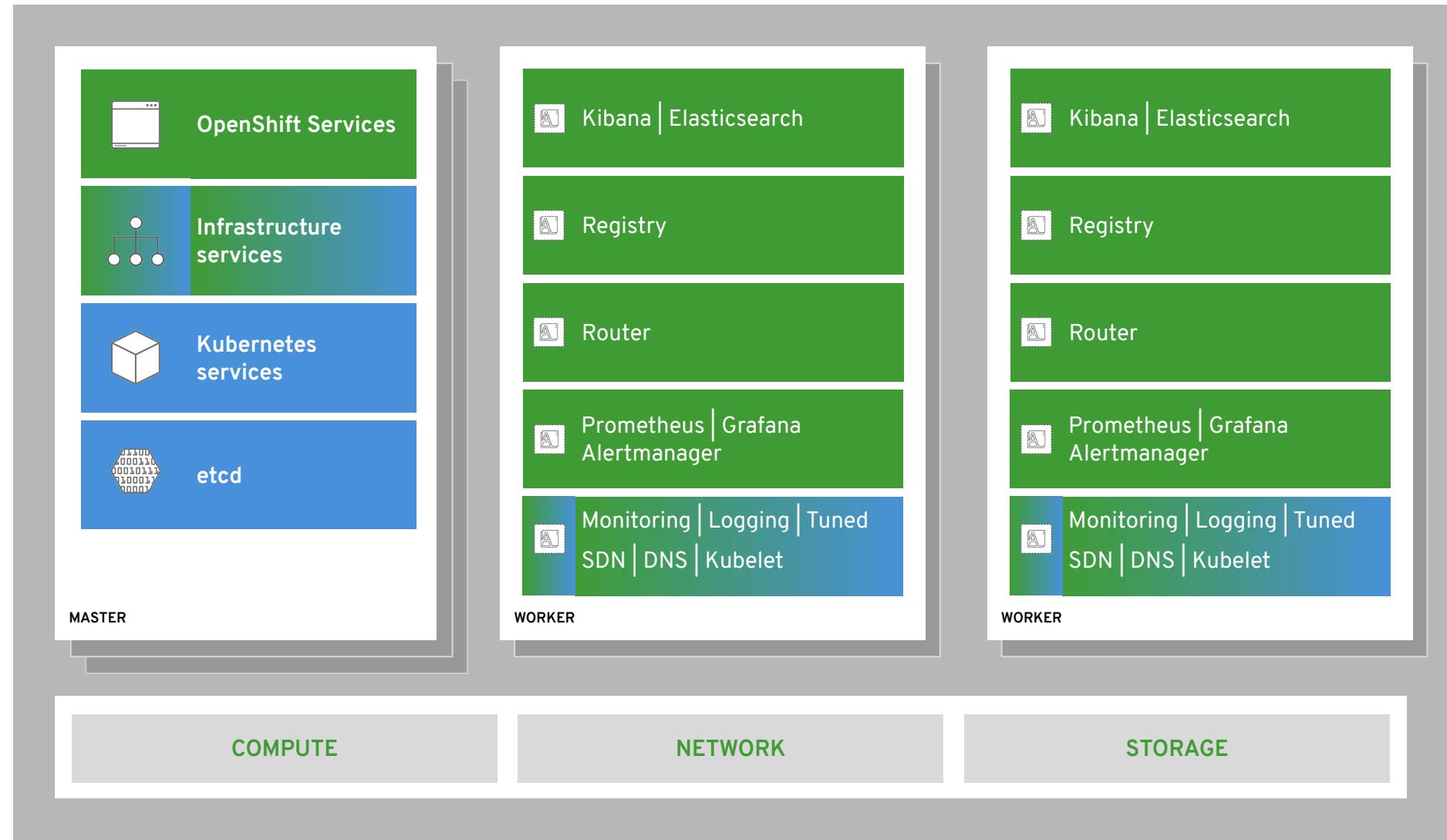
log aggregation



OPENSHIFT CONTAINER PLATFORM |

Architectural Overview

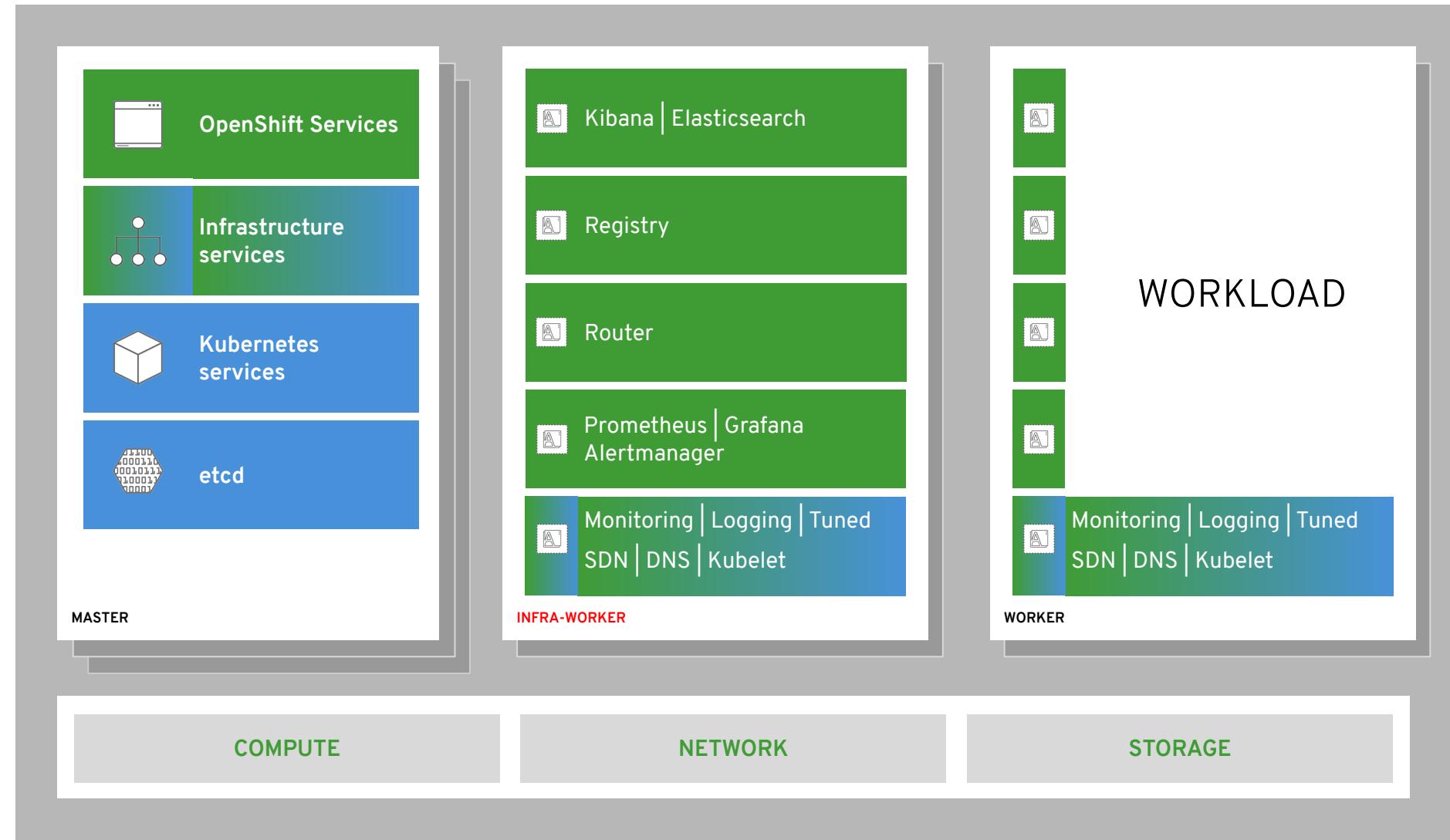
integrated routing



OPENSHIFT CONTAINER PLATFORM |

Architectural Overview

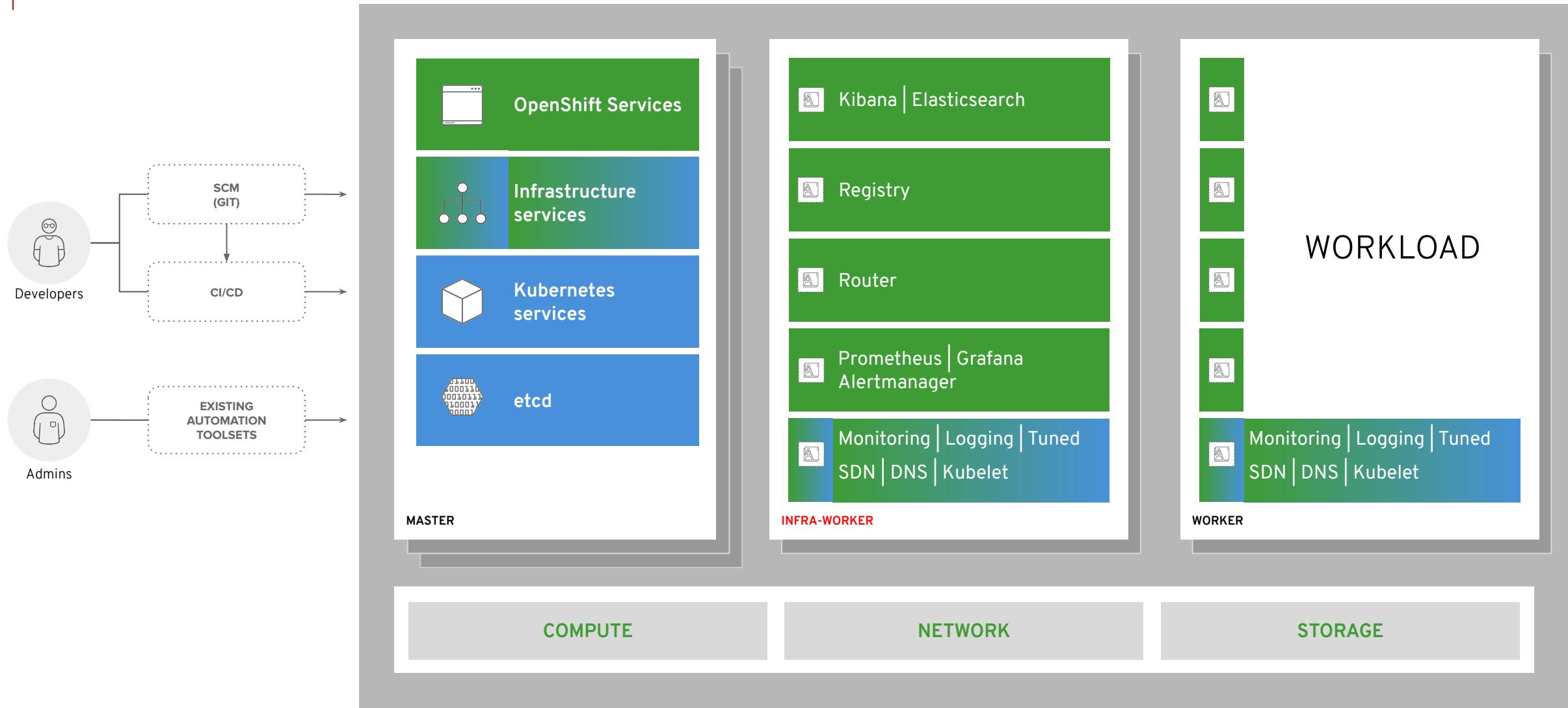
Concept of “InfraNodes”



OPENSHIFT CONTAINER PLATFORM

Architectural Overview

dev and ops via web, cli, API, and IDE



Persistent Storage

Connecting
real-world
storage to your
containers to
enable stateful
applications

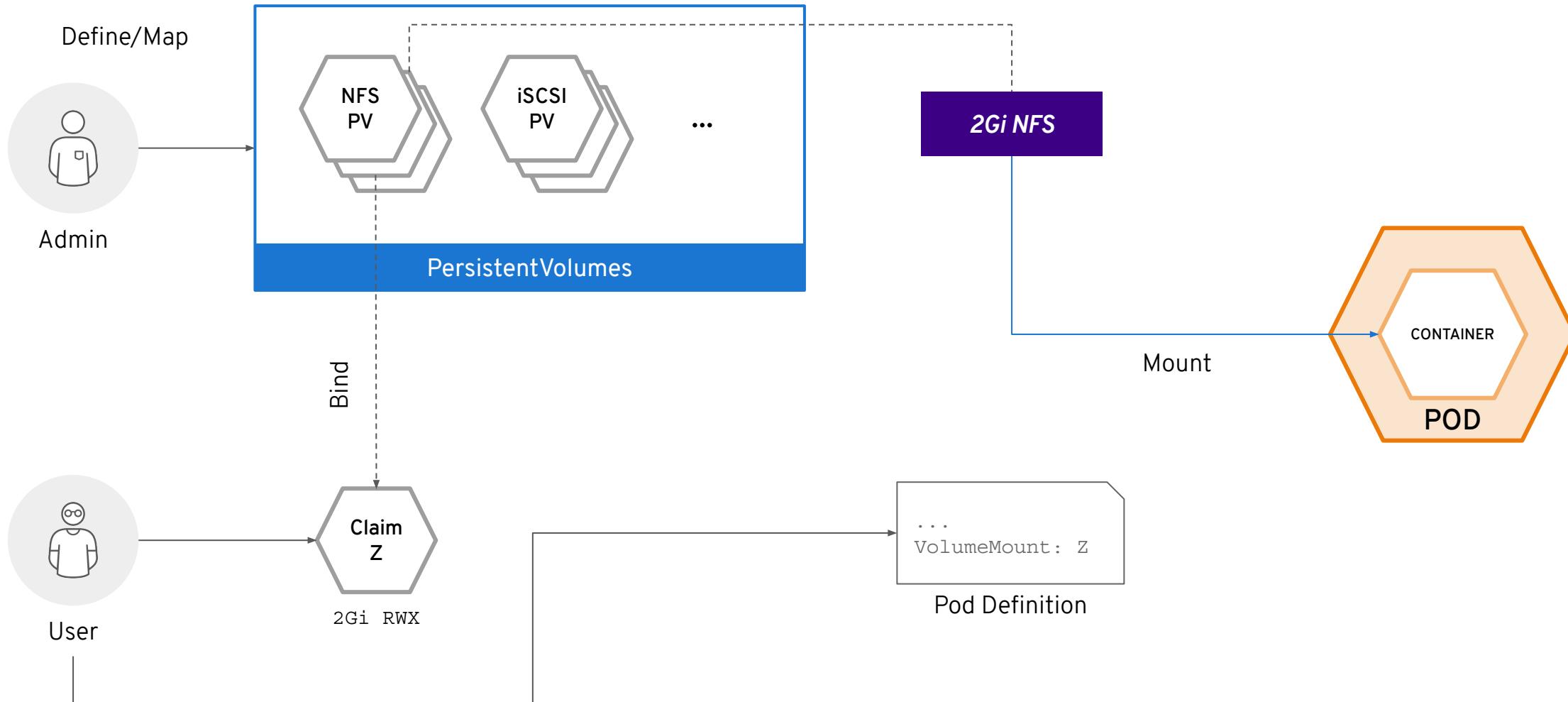
A broad spectrum of
static and dynamic storage endpoints

NFS	OpenStack Cinder	iSCSI	Azure Disk	AWS EBS	FlexVolume
GlusterFS	Ceph RBD	Fiber Channel	Azure File	GCE Persistent Disk	VMWare vSphere VMDK
NetApp Trident*		Container Storage Interface (CSI)**			

OPENSHIFT CONTAINER PLATFORM | Persistent Storage

CONFIDENTIAL Designator

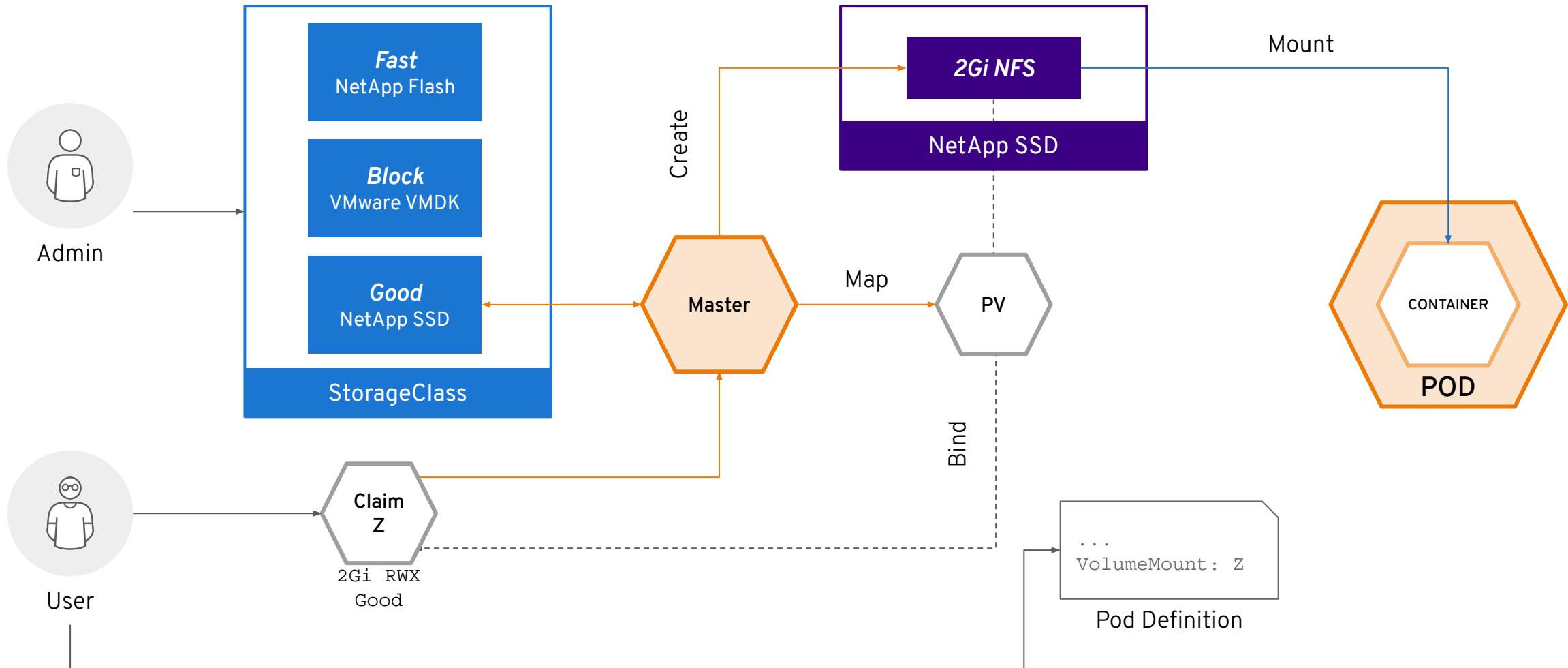
Static Storage Provisioning



OPENShift CONTAINER PLATFORM | Persistent Storage

CONFIDENTIAL Designator

Dynamic Storage Provisioning



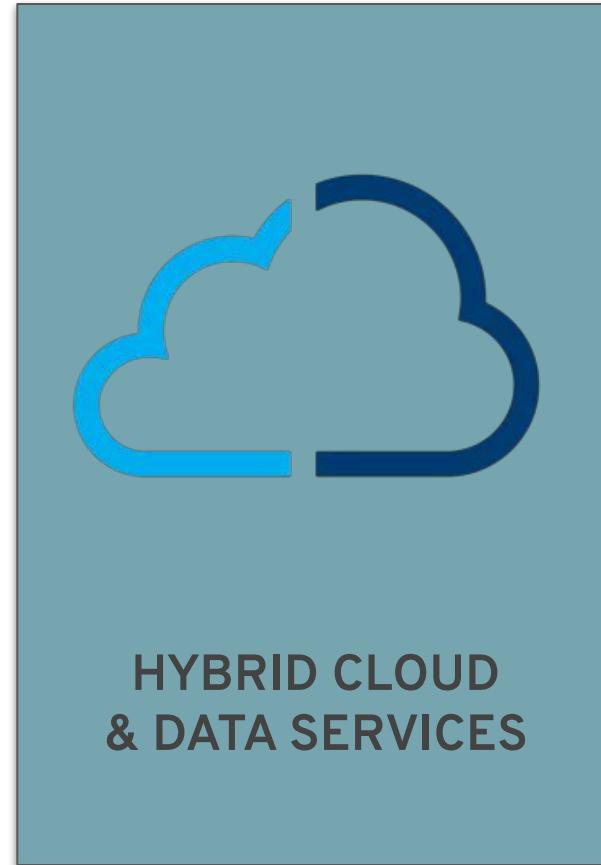
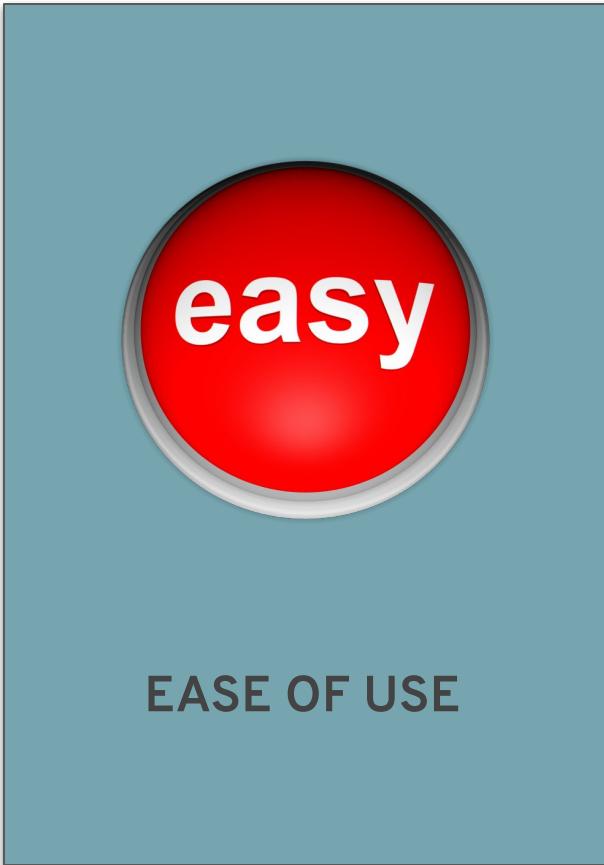
What is it?

Add-On for OpenShift for running stateful apps

Highly scalable, production-grade persistent storage

- For **stateful applications** running in Red Hat® OpenShift
- Optimized for Red Hat **OpenShift Infrastructure services**
- Developed, released and deployed in synch with Red Hat OpenShift
- Supported via a single contract with Red Hat OpenShift
- Complete persistent storage fabric across hybrid cloud for OCP

OCS 4.X - Focus Areas



Presenter's Name

Title

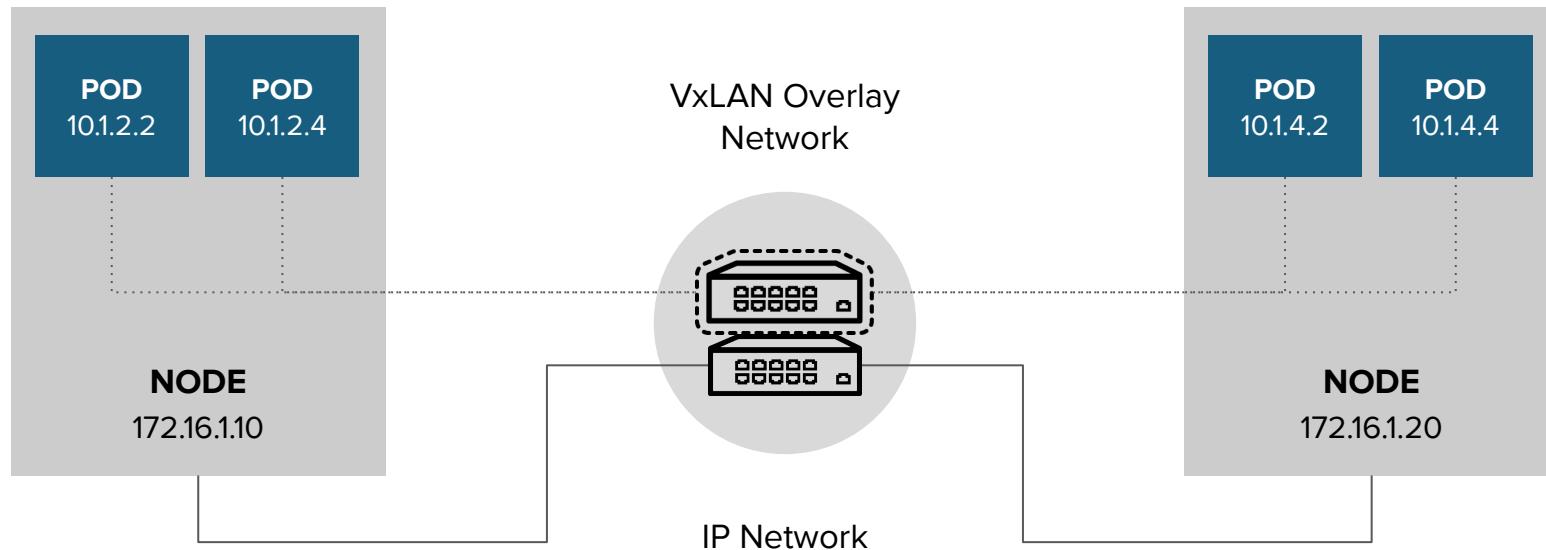
OpenShift Networking

Presenter's
Name

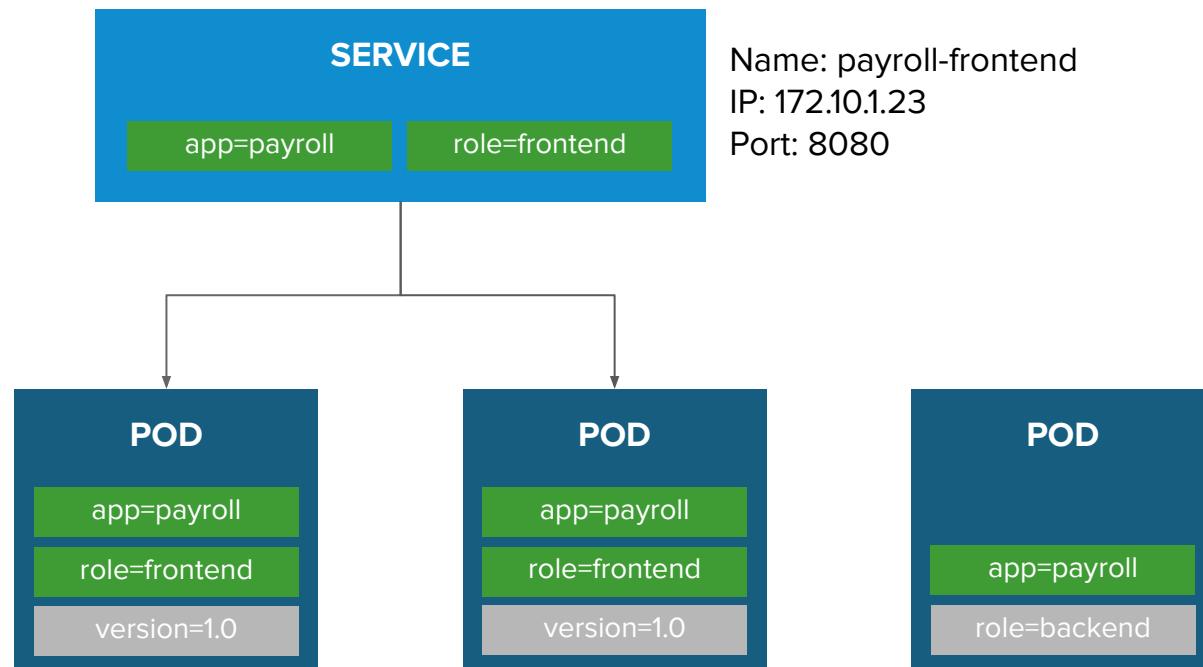
Title

68

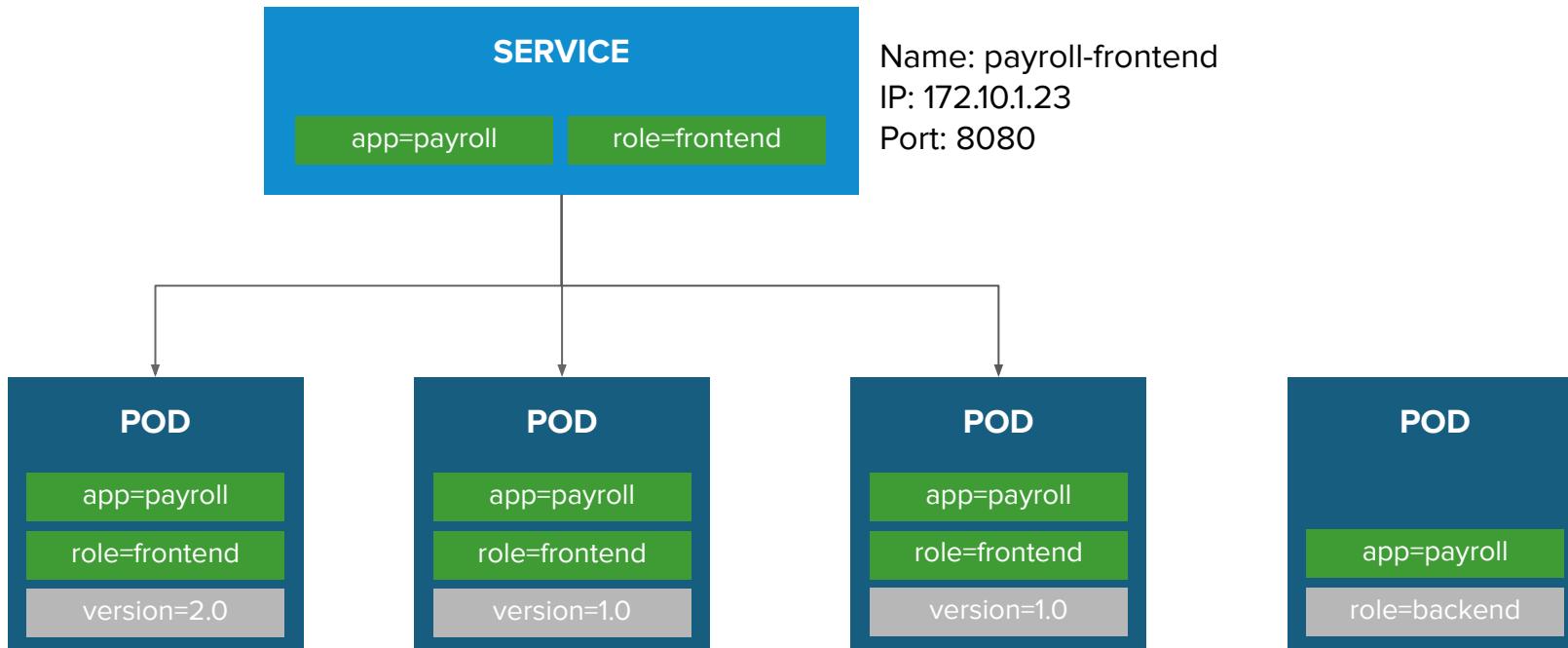
OPENSIFT NETWORKING



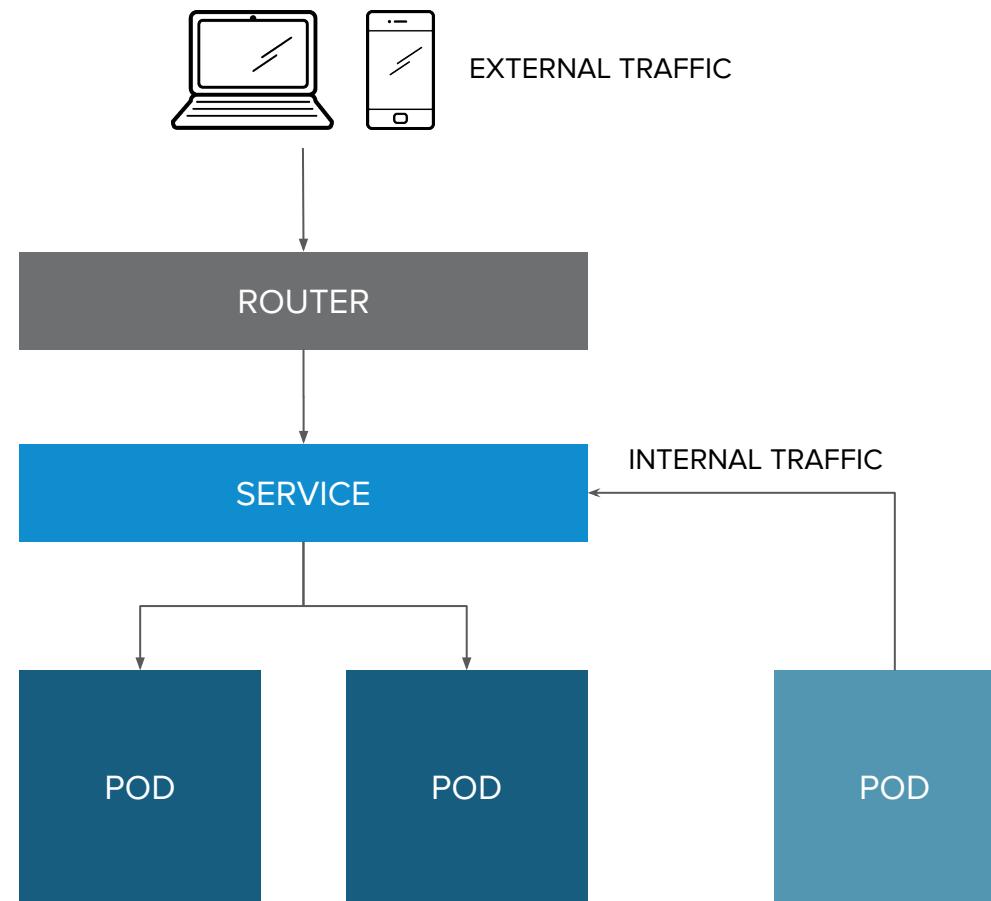
BUILT-IN SERVICE DISCOVERY INTERNAL LOAD-BALANCING



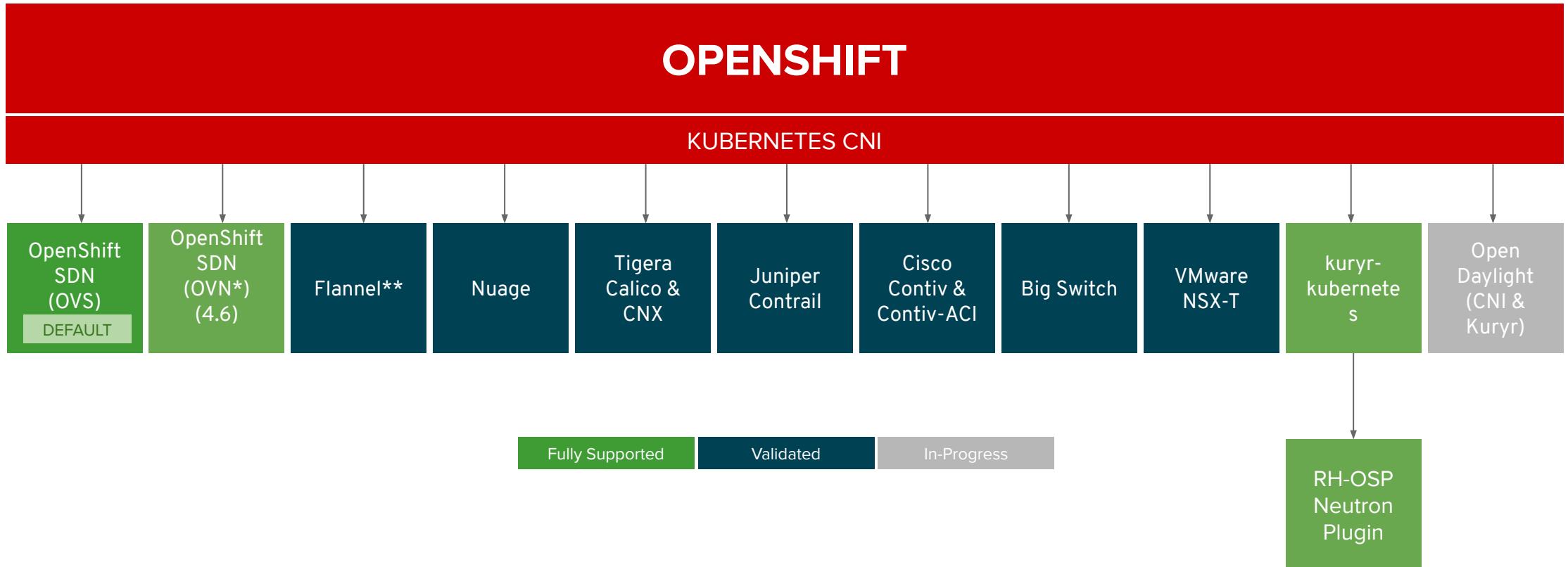
BUILT-IN SERVICE DISCOVERY INTERNAL LOAD-BALANCING



ROUTE EXPOSES SERVICES EXTERNALLY



OPENShift NETWORK PLUGINS





OpenShift Installation

Installation Paradigms

OPENSIFT CONTAINER PLATFORM

Full Stack Automated (IPI)

Simplified opinionated “Best Practices” for cluster provisioning

Fully automated installation and updates including host container OS.



Red Hat
Enterprise Linux
CoreOS

Pre-existing Infrastructure (UPI)

Customer managed resources & infrastructure provisioning

Plug into existing DNS and security boundaries



Red Hat
Enterprise Linux
CoreOS



Red Hat
Enterprise Linux

HOSTED OPENSIFT

Red Hat OpenShift on IBM Cloud *

Deploy directly from the IBM Cloud console. An IBM service, master nodes are managed by IBM Cloud engineers.

Azure Red Hat OpenShift **

Deploy directly from the Azure console. A MSFT service, jointly managed by Red Hat and Microsoft

OpenShift Dedicated **

Get a powerful cluster, fully managed by Red Hat engineers and support; a Red Hat service.

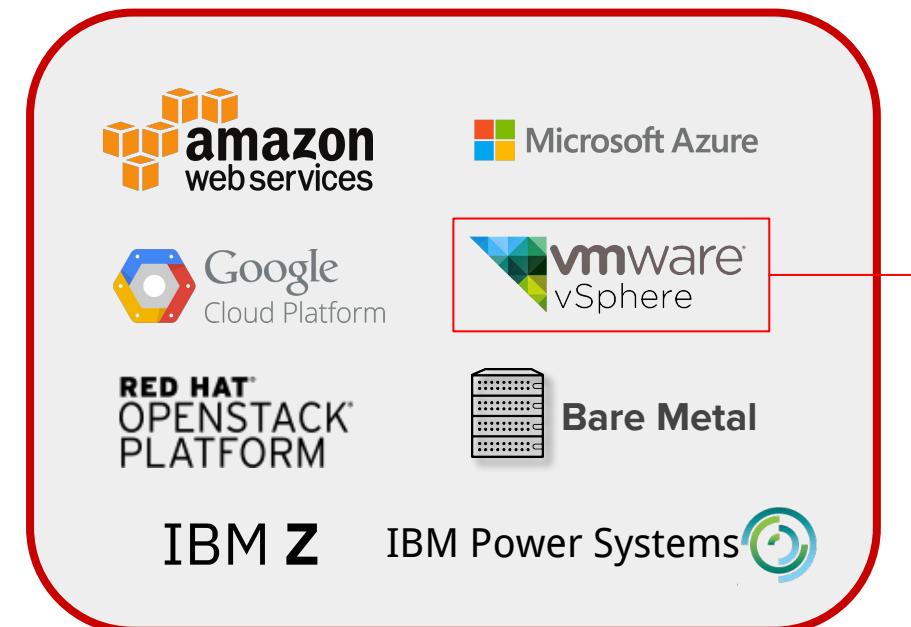
4.6 Supported Providers

Full Stack Automation (IPI)



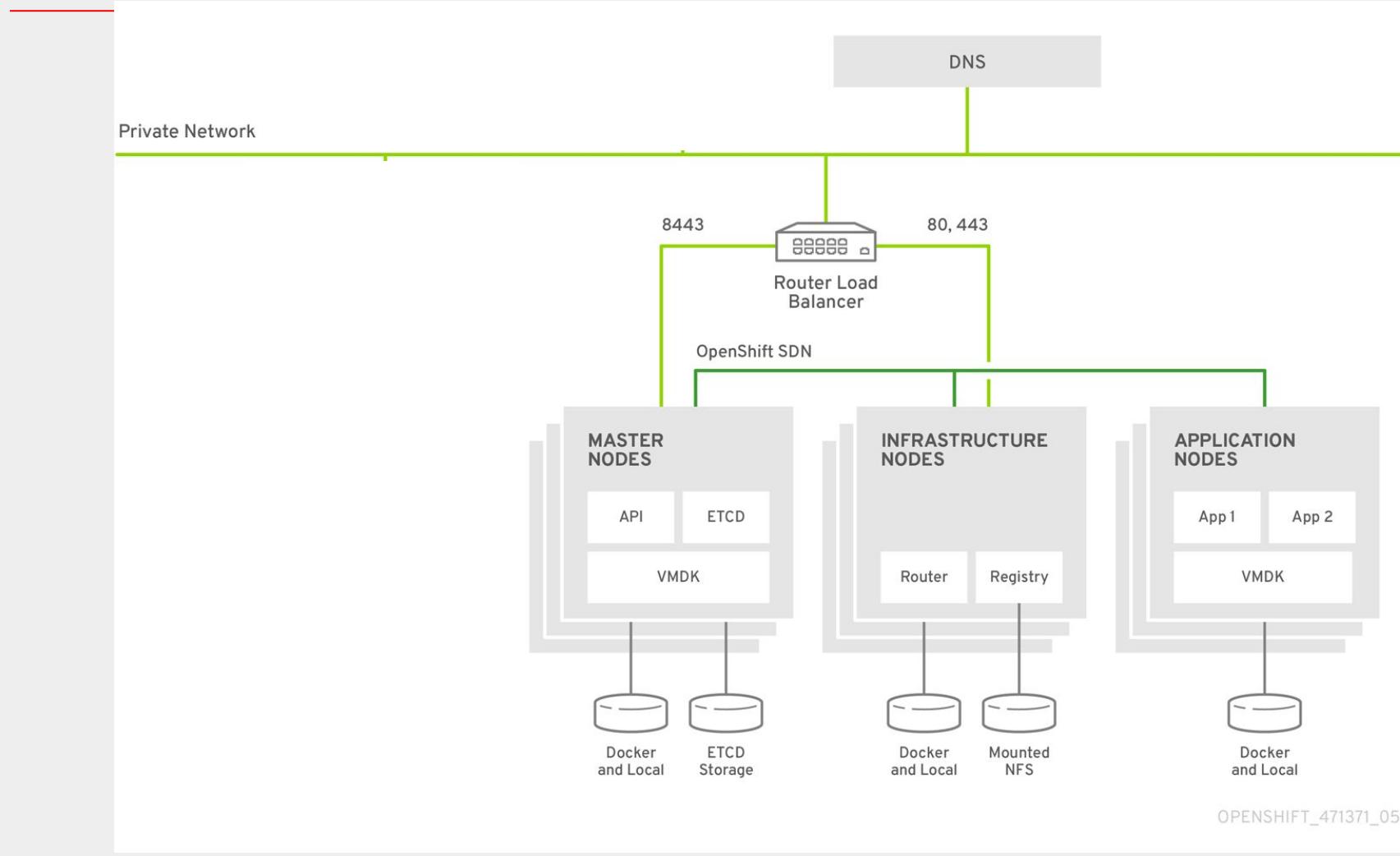
New addition in OCP
4.6

Pre-existing Infrastructure (UPI)



Now supports deploying
to VMware vSphere 7.0

OCP Layout



IBM Cloud Q Catalog Docs Support Manage ▾ 1972836 - RH Demo ▾

← View All / Create a new OpenShift cluster

Create a new OpenShift cluster

Location

Availability
Single zone Multizone

Geography

Worker zone
 Amsterdam 03
 Frankfurt 02
 Frankfurt 04
 Frankfurt 05
 London 02

Order summary

b3c.4x16 - 4 vCPUs 16GB RAM

3 worker nodes 0,81 \$ / hr

IP allocation

OCP license fee 1.200,00 \$ / month

Total* 1.781,04 \$ / month
estimated

*Actual monthly total will vary with tiered pricing for the hourly worker nodes and the 30-day fixed OCP license fee.

Additional charges for bandwidth might apply. Learn more.

Create cluster

Add to estimate

Need help? Contact IBM Cloud Sales

ENTIAL Designator

Red Hat

Red Hat OpenShift Cluster Manager

Clusters

Documentation

OperatorHub.io

Cluster Manager Feedback

Report an OpenShift Bug

Red Hat OpenShift Infrastructure Provider

aws

Bare Metal

Azure </> Developer Preview

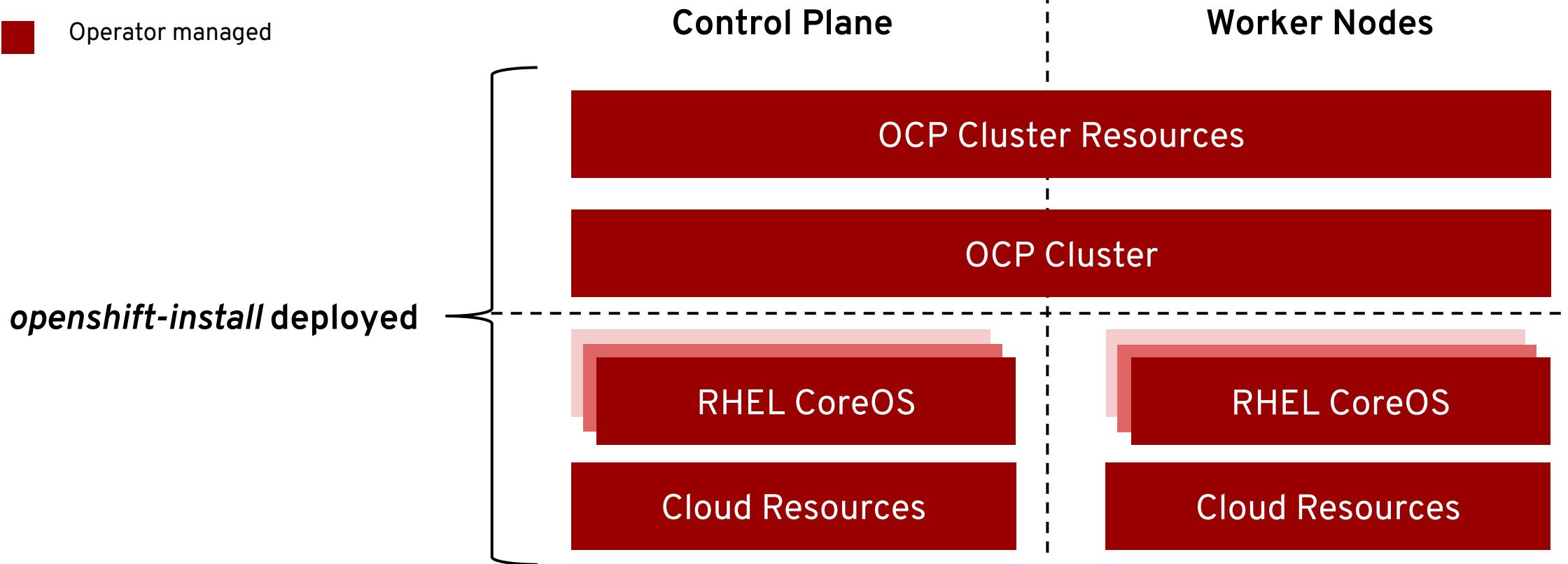
vmware vSphere

The screenshot shows the Red Hat OpenShift Cluster Manager interface. On the left, there's a sidebar with navigation links: 'Red Hat OpenShift Cluster Manager' (selected), 'Clusters' (underlined), 'Documentation', 'OperatorHub.io', 'Cluster Manager Feedback', and 'Report an OpenShift Bug'. The main content area is titled 'Red Hat OpenShift Infrastructure Provider' and lists four options: 'aws' (with its logo), 'Bare Metal' (with a server icon), 'Azure </> Developer Preview' (with its logo), and 'vmware vSphere' (with its logo). The 'aws' and 'Bare Metal' sections are currently expanded.

OPENShift CONTAINER PLATFORM | Installation

Full-stack Automated Installation (aka IPI)

- User managed
- Operator managed



Pre-existing Infrastructure Installation (aka UPI)

User managed

Operator managed

***openshift-install* deployed**

Note: Control plane nodes
must run RHEL CoreOS!

Customer deployed

Control Plane

Worker Nodes

OCP Cluster Resources

OCP Cluster

RHEL CoreOS

Cloud Resources

RHEL
CoreOS

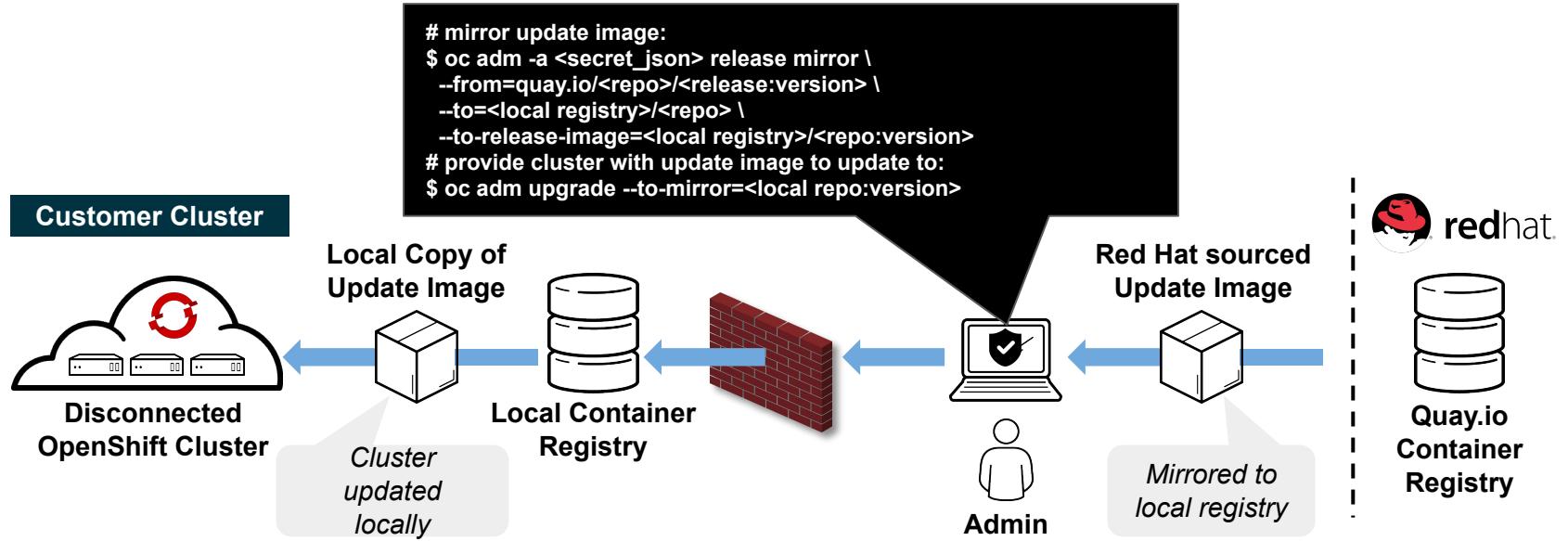
RHEL 7

Cloud Resources

Comparison of Paradigms

	Full Stack Automation	Pre-existing Infrastructure
Build Network	Installer	User
Setup Load Balancers	Installer	User
Configure DNS	Installer	User
Hardware/VM Provisioning	Installer	User
OS Installation	Installer	User
Generate Ignition Configs	Installer	Installer
OS Support	Installer: RHEL CoreOS	User: RHEL CoreOS + RHEL 7
Node Provisioning / Autoscaling	Yes	Only for providers with OpenShift Machine API support

Disconnected “Air-gapped” Installation & Upgrading



Overview

- 4.2 introduces support for installing and updating OpenShift clusters in disconnected environments
- Requires local Docker 2.2 spec compliant container registry to host OpenShift content
- Designed to work with the user provisioned infrastructure deployment method
 - *Note: Will not work with Installer provisioned infrastructure deployments*

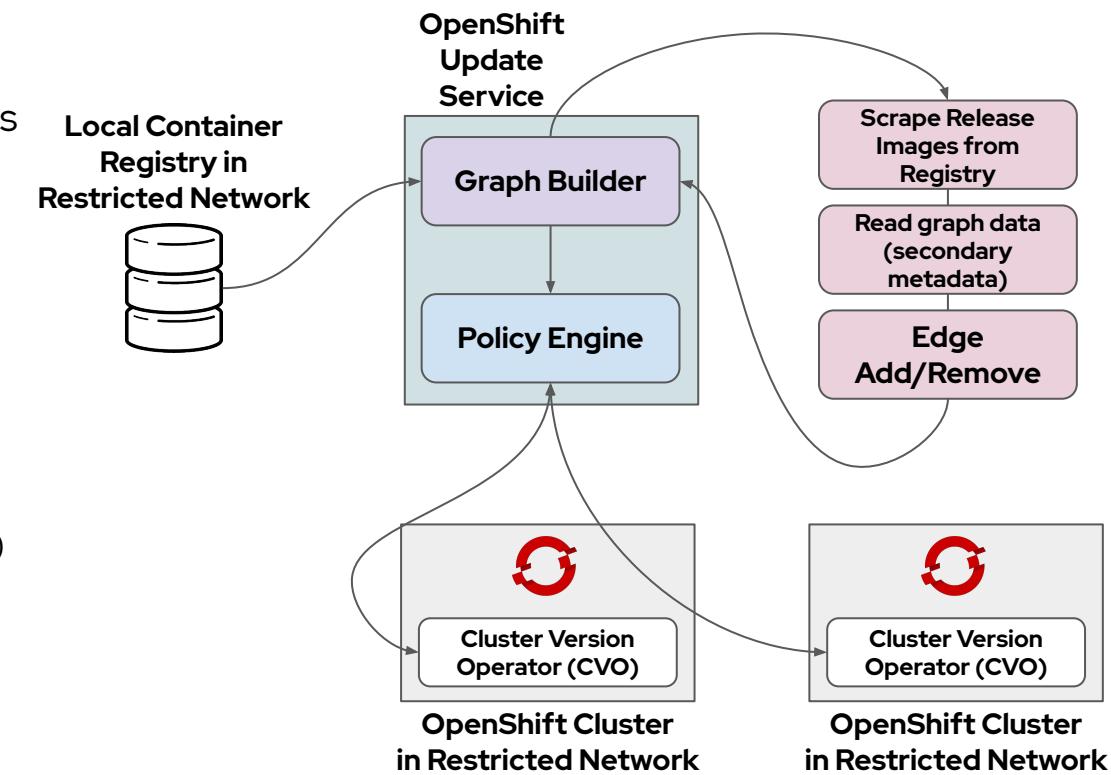
Installation Procedure

- Mirror OpenShift content to local container registry in the disconnected environment
- Generate install-config.yaml: `$./openshift-install create install-config --dir <dir>`
 - Edit and add pull secret (PullSecret), CA certificate (AdditionalTrustBundle), and image content sources (ImageContentSources) to install-config.yaml
- Set the `OPENSHIFT_INSTALL_RELEASE_IMAGE_OVERRIDE` environment variable during the creation of the ignition configs
- Generate the ignition configuration: `$./openshift-install create ignition-configs --dir <dir>`
- Use the resulting ignition files to bootstrap the cluster deployment

OpenShift Update Service

Update manager for your clusters in restricted or disconnected networks

- OpenShift Update Service (OSUS) is the on-premise release of Red Hat's hosted update service
- Supports the publishing of upgrade graph information to clusters in restricted networks
- Provides clusters with a list of next recommended update versions based on the current version installed on the cluster
- Comprised of two services:
 - **Graph Builder:** Fetches OpenShift release payload information (primary metadata) from any container registry (compatible with [Docker registry V2 API](#)) and builds a [directed acyclic graph](#) (DAG) representing valid upgrade edges
 - **Policy Engine:** Responsible for selectively serving updates to every cluster by altering a client's view of the graph with a set of filters
- GA release planned for post-4.6 and will be distributed on Operator Hub as an optional add-on operator
- [Blog post announcing OpenShift Update Service](#) Generally Available



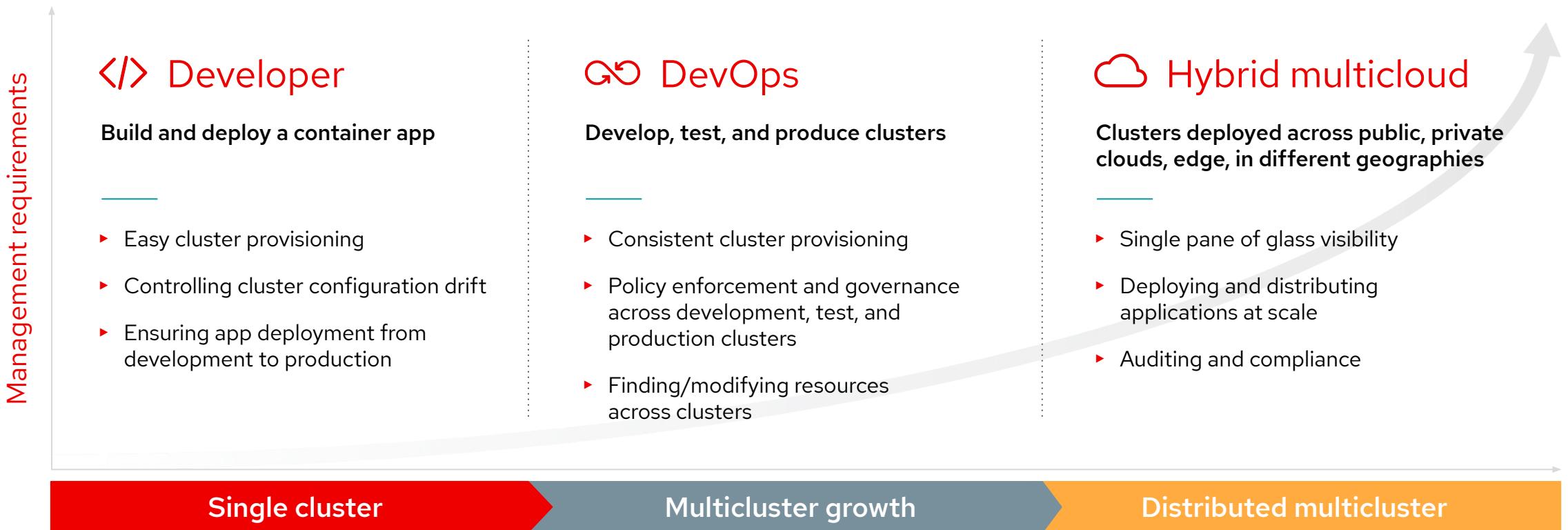


Red Hat Advanced Cluster Management for Kubernetes

Multicluster Management

Multicloud management challenges

How do I normalize and centralize key functions across environments?



Red Hat Advanced Cluster Management for Kubernetes

Robust. Proven. Award winning.



Multicloud lifecycle management

The screenshot displays four main panels of the Red Hat Advanced Cluster Management interface:

- Overview:** Shows clusters from Google (1 cluster), Amazon (2 clusters), and OpenShift (1 cluster).
- Control Plane Health:** Monitors the API Server.
- Governance and risk:** Provides a summary of NIST CSF and NIST SP 800-53 violations, with 1/3 cluster violations and 3/3 policy violations.
- Applications:** Manages the "pacman-appl" application across multiple clusters, showing resource topology and deployment details.

Below the applications panel is a detailed diagram illustrating the application lifecycle:

```
graph TD; A((Ansiblejob)) --> B((Subscription)); B --> C((Deployment)); C --> D((Replicaset)); D --> E((Placements)); E --> F((Ansiblejob)); F --> G((Ansiblejob));
```

The diagram shows the flow from Ansible jobs through a subscription, deployment, replicaset, placements, and back to Ansible jobs, involving 3 clusters.



Policy driven governance, risk, and compliance



Advanced application lifecycle management



Multicloud observability for health and optimization

Red Hat Advanced Cluster Management for Kubernetes



Manage OpenShift Everywhere

- OCP cluster provision with Cloud, Bare Metal and vSphere providers



Multi-cluster Observability

- Cluster health monitoring with scalable Thanos based architecture



Enhanced Application and Policy Mgmt

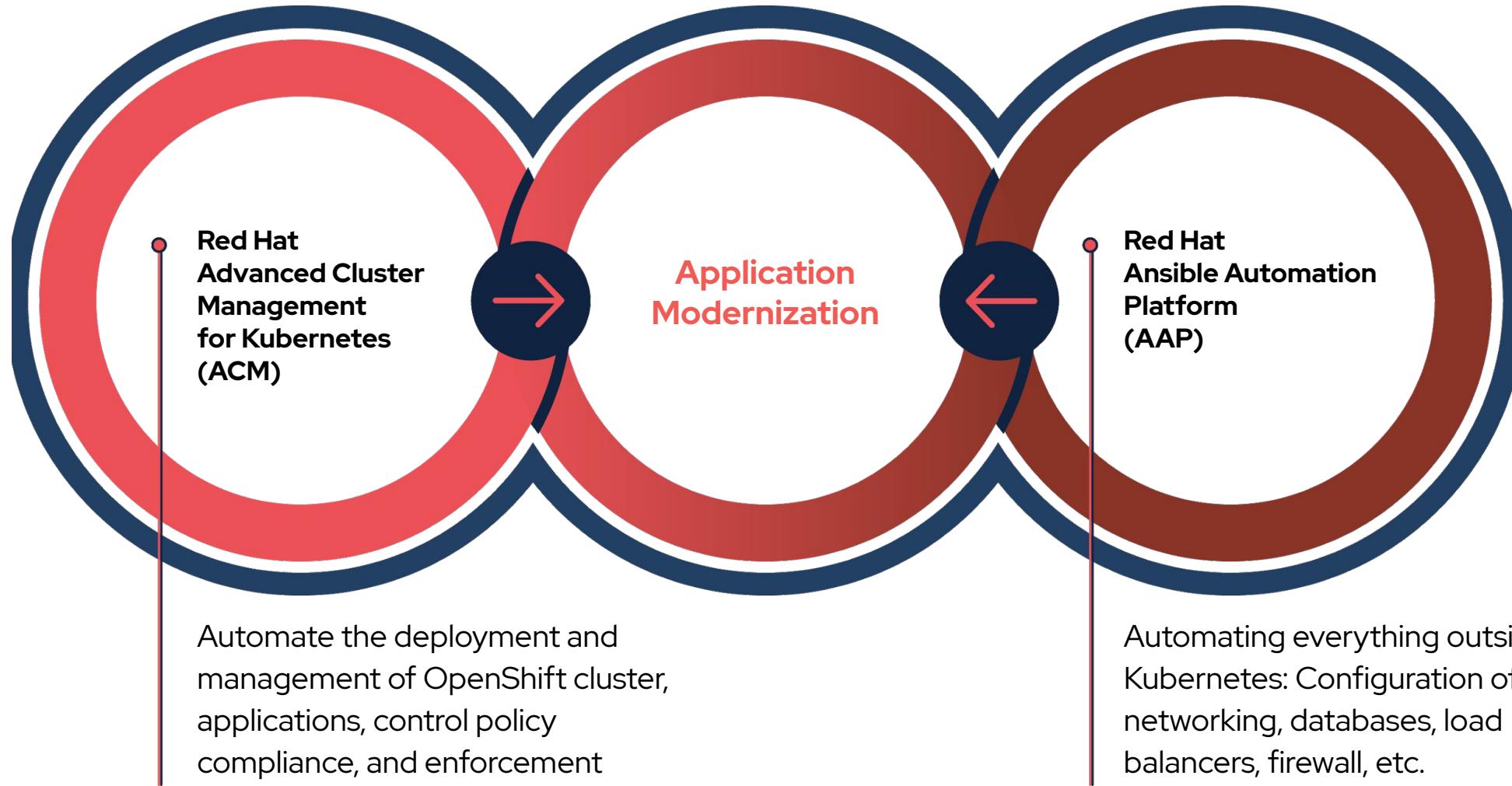
- Simplified App Creation experience
- Open Source Repo for Policies
- More OOTB Security Policies
- Open Policy Agent (OPA) support



Better Together

- Extend Automation with Ansible
- Partner and EcoSystem expansion

Application modernization driven by Automation of Kubernetes and beyond....





OpenShift Usage

Operations

The screenshot shows the Red Hat OpenShift Container Platform dashboard. The top navigation bar includes the Red Hat logo, the text "Red Hat OpenShift Container Platform", and a user dropdown set to "kube:admin". A blue banner at the top states, "You are logged in as a temporary administrative user. Update the cluster OAuth configuration to allow others to log in." The left sidebar has a "Administrator" section with a "Home" tab selected, followed by "Dashboards", "Projects", "Search", "Explore", and "Events". Below this are sections for "Operators", "Workloads", "Networking", "Storage", "Builds", "Monitoring", "Compute", "User Management", and "Administration". The main content area is titled "Dashboards" and "Overview". It displays cluster details like Cluster API Address (https://api.shift.rhepd.com:6443), Cluster ID (62d4366e-adal-4b71-8201-0ac7b6ec4d9f), and OpenShift Version (4.3.8). It also shows a "Status" section with a green checkmark for Cluster and Control Plane, and a yellow warning icon for alerts. A "Cluster Utilization" chart shows CPU usage over the last hour. The "Cluster Inventory" section lists 8 Nodes, 246 Pods, 0 Storage Classes, and 3 PVCs.

Development

The screenshot shows the Red Hat OpenShift Container Platform interface. The top navigation bar includes the Red Hat logo, 'Red Hat OpenShift Container Platform', and a user dropdown for 'kube:admin'. The left sidebar has sections for 'Developer' (selected), '+Add', 'Topology' (selected), 'Builds', and 'Advanced'. The main content area displays a grid of application icons. A blue banner at the top states: 'You are logged in as a temporary administrative user. Update the cluster OAuth configuration to allow others to log in.' Below this, the 'Project: che' and 'Application: all applications' dropdowns are shown, along with 'Shortcuts' and a three-dot menu icon.

Application Name	Status
codeready-oper...	Running
codeready	Running
keycloak	Running
devfile-registry	Running
plugin-registry	Running
postgres	Running

Multi Cluster Management

The screenshot shows the Red Hat OpenShift Cluster Manager web interface. The left sidebar has a dark theme with the Red Hat logo at the top. The 'Clusters' section is selected, showing a list of clusters. The main area is titled 'Clusters' and contains a table with the following columns: Name, Status, Type, Created, Version, and Provider (Location). The table lists eight clusters:

Name	Status	Type	Created	Version	Provider (Location)
019f62fe-a187-4afe-9f9c-8a98aa05dd64	Disconnected	OCP	Evaluation expired	N/A	N/A
01a7f69d-9763-4df5-b0af-7c220222afa1	Disconnected	OCP	Evaluation expired	4.2.10 (Update)	AWS (US West, Oregon)
01adf7ed-00f2-4153-9829-976cea087e20	Disconnected	OCP	Evaluation expired	4.2.14	AWS (US East, N. Virginia)
01afccc7-82cc-48e5-9332-8f9fae982090	Disconnected	OCP	60-day trial	N/A	AWS (US East, N. Virginia)
01b65bd4-9270-44f3-a466-9451a4a4e041	Disconnected	OCP	Evaluation expired	4.1.0 (Update)	N/A
01cc054b-c237-412b-bff8-788e47364a79	Disconnected	OCP	60-day trial	4.3.1	AZURE (N/A)
01d4c552-58c7-4af5-8846-fec896a3e707	Updating	OCP	Evaluation expired	N/A → 4.2.0-0.okd-2019-09-14-130640	LIBVIRT (N/A)
01d9c915-00d0-4c03-82b0-1f58d25fdaf9	Disconnected	OCP	60-day trial	4.3.1	VSPHERE (N/A)



OpenShift Hands-On Lab and Summary

LEARN.OPENSIFT.COM

Foundations of OpenShift

START COURSE

Building Applications On OpenShift

START COURSE

Subsystems, Components, and Internals

START COURSE

OpenShift Playgrounds

START COURSE

Service Mesh workshop with Istio

START COURSE

Serverless scenarios with OpenShift Cloud Functions

START COURSE

Interactive Learning Scenarios provide you with a pre-configured OpenShift instance, accessible from your browser without any downloads or configuration.

OpenShift - technical overview

Modules

OpenShift Architecture 25 min

OpenShift Network and Storage 10 min

OpenShift Installation 15 min

Advanced Cluster Management 10 min

OpenShift Usage 20 min

OpenShift HandsOn Intro 5 min



Thank You



linkedin.com/company/red-hat



youtube.com/user/RedHatVideos



facebook.com/redhatinc



twitter.com/RedHat



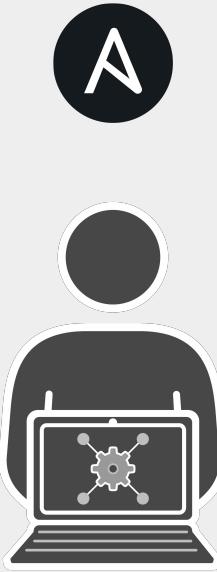
Red Hat

Ansible Automation Platform

Starting at 11:40

Automation for all

Ansible technical introduction and overview



Automation happens when one person meets a
problem they never want to solve again

Teams are automating...



Lines Of Business



Network



Security



Operations

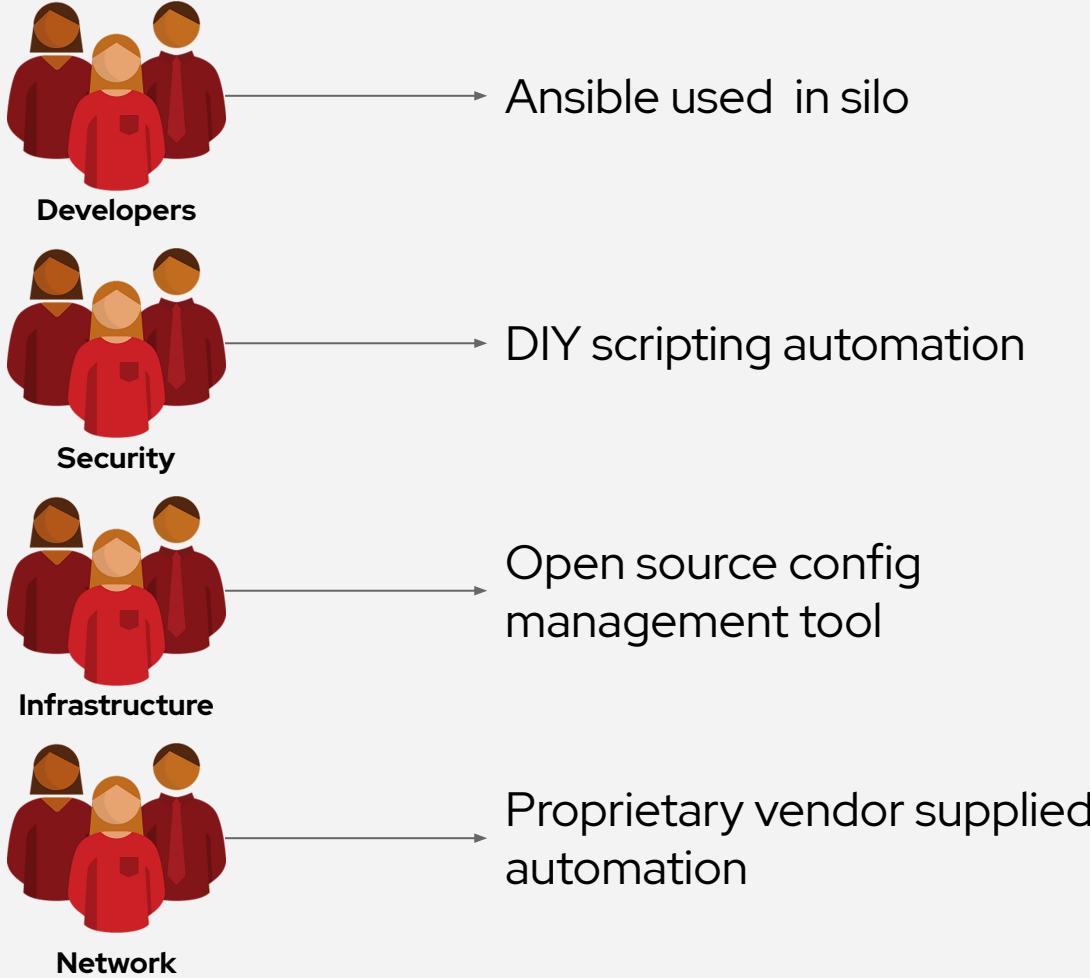


Developers



Infrastructure

Ad-hoc Automation is happening in silos



Is organic
automation enough?

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

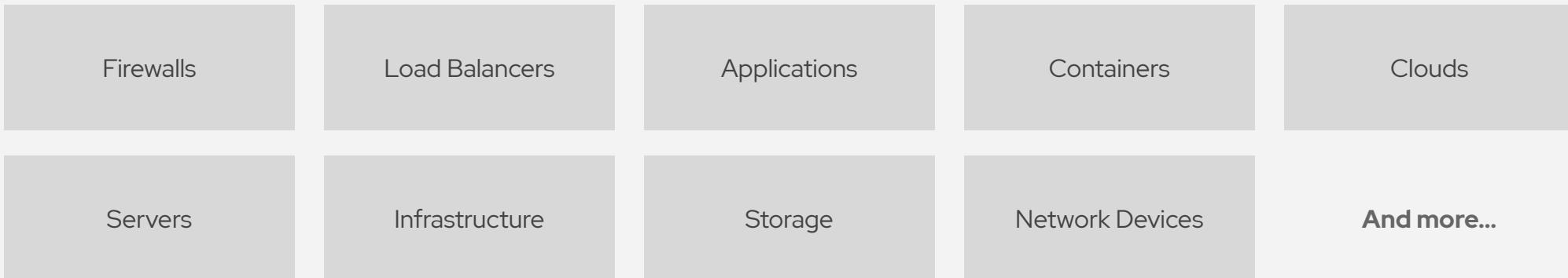
What can I do using Ansible?

Automate the deployment and management of your entire IT footprint.

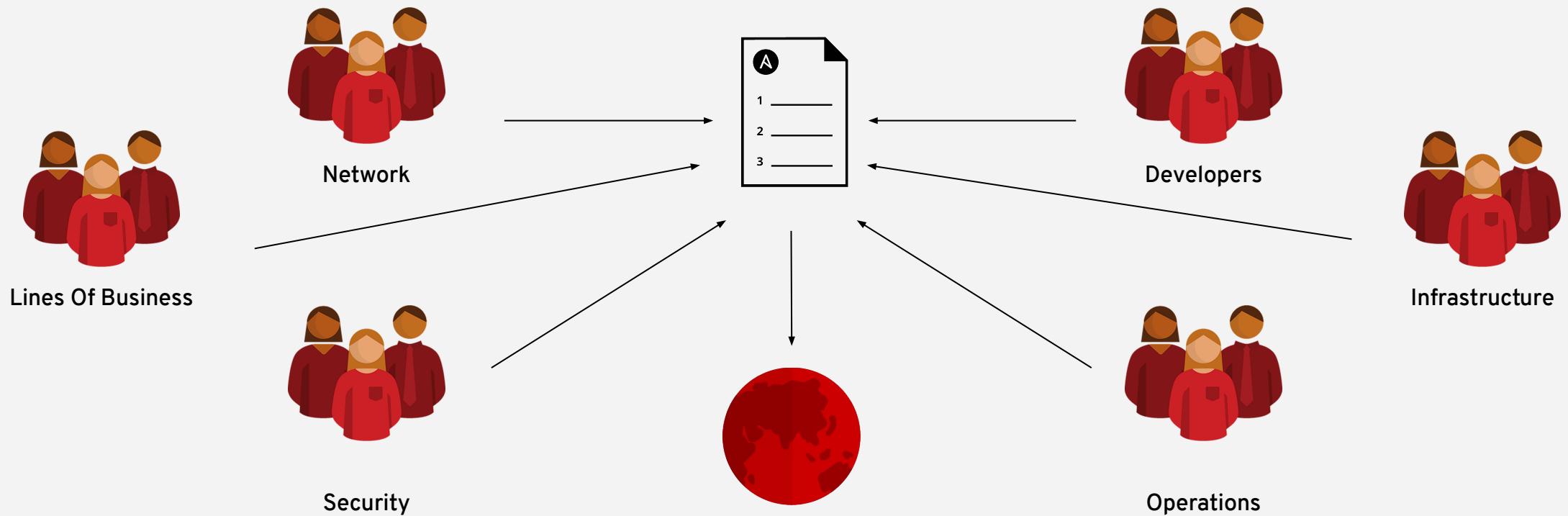
Do this...



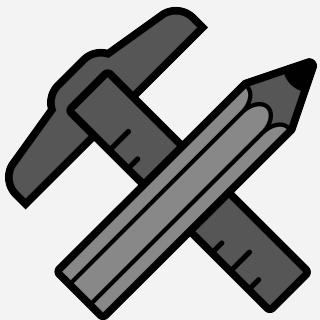
On these...



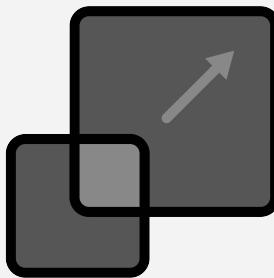
When automation crosses teams, you need an automation platform



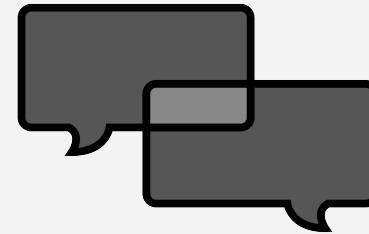
A platform can help you:



Create

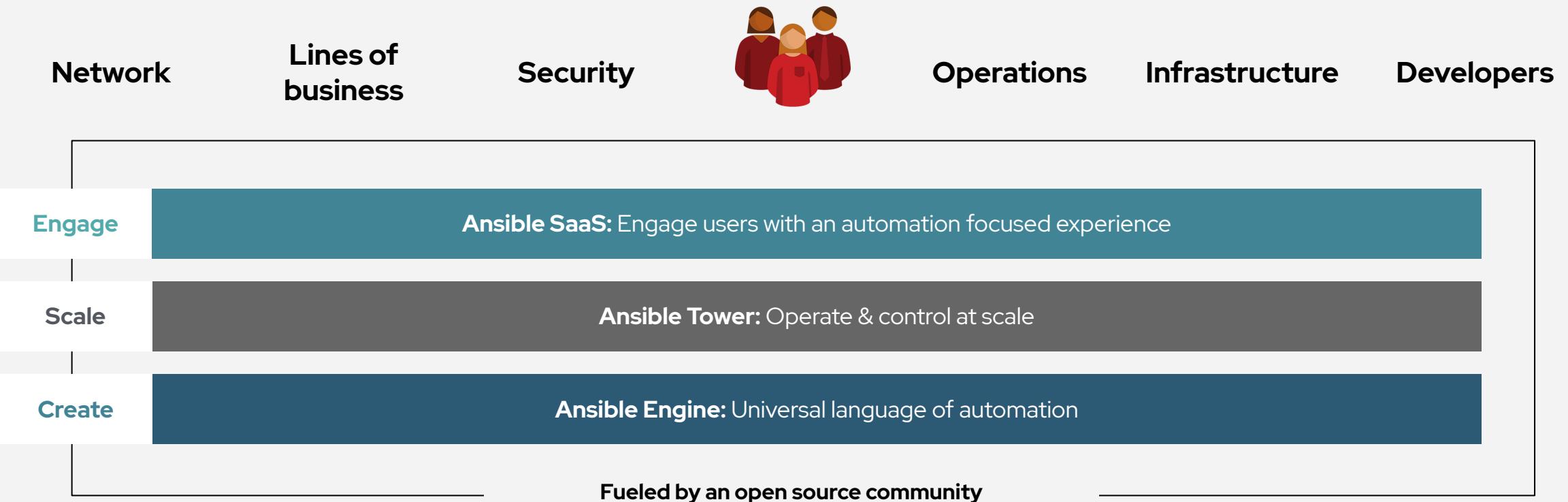


Scale



Engage

Red Hat Ansible Automation Platform



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

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





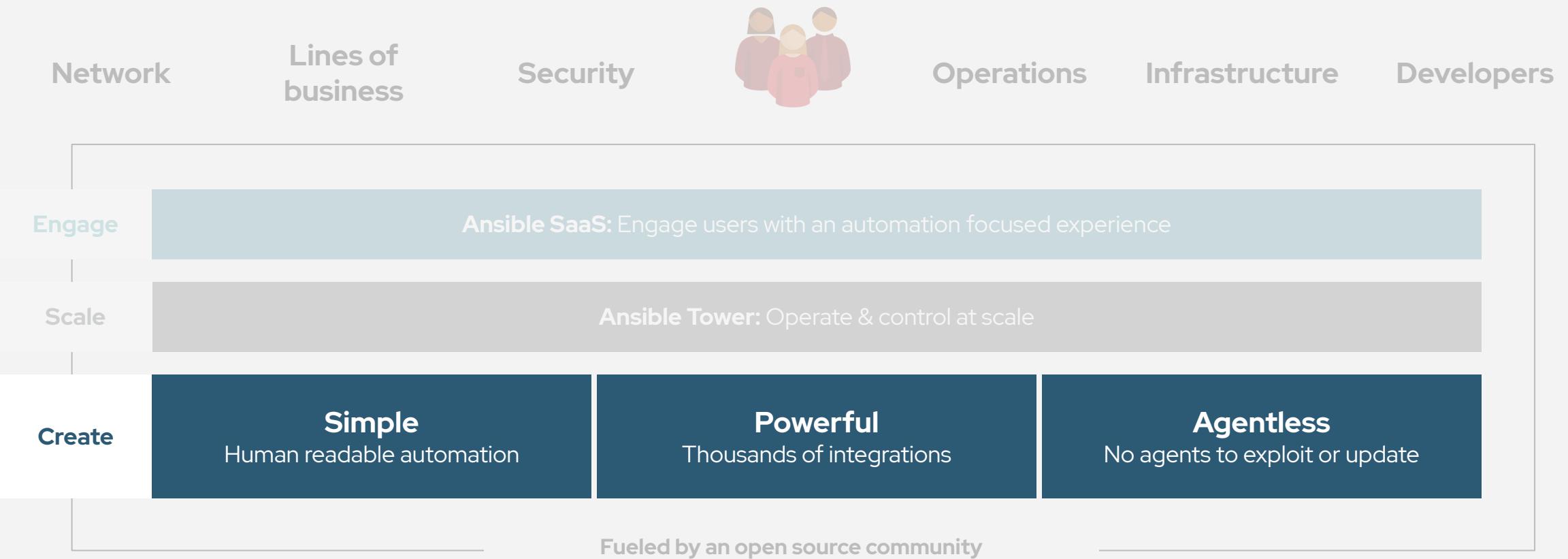
Red Hat

Ansible Automation Platform

Red Hat Ansible Engine:
Universal language
of automation



Red Hat Ansible Automation Platform



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.

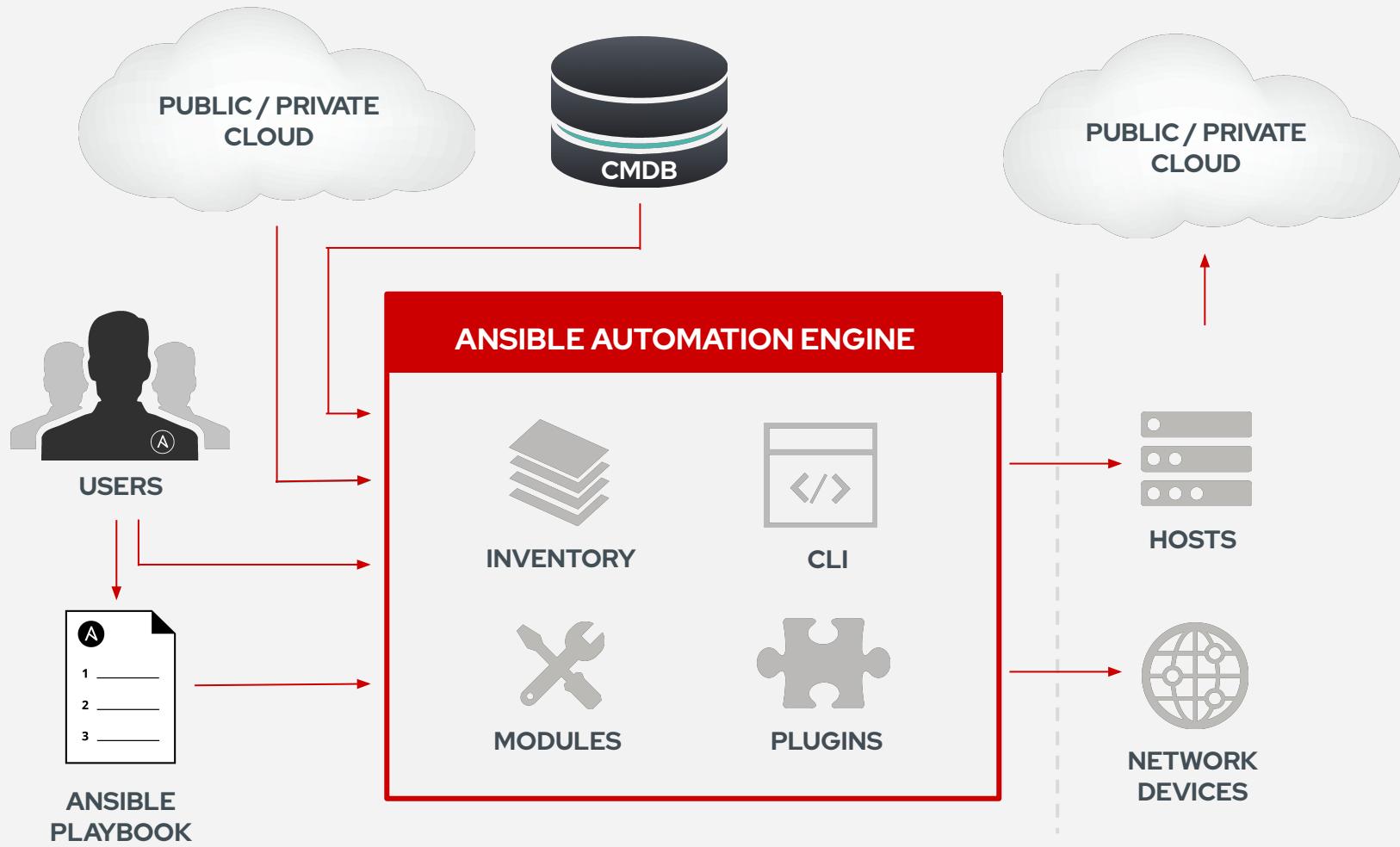
Dynamic inventories

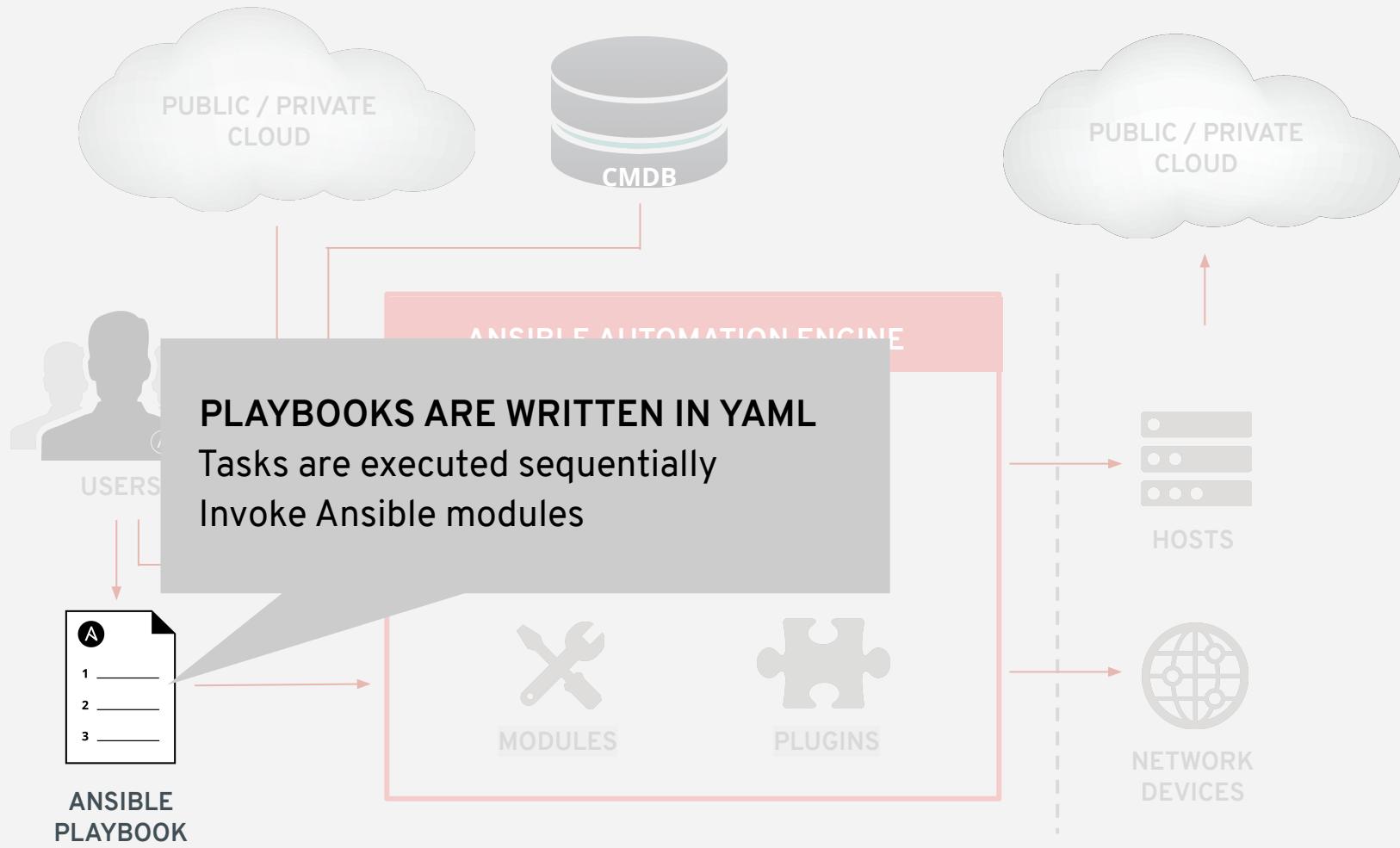
Capture all the servers 100% of the time, regardless of infrastructure, location, etc.

Orchestration plays well with others

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

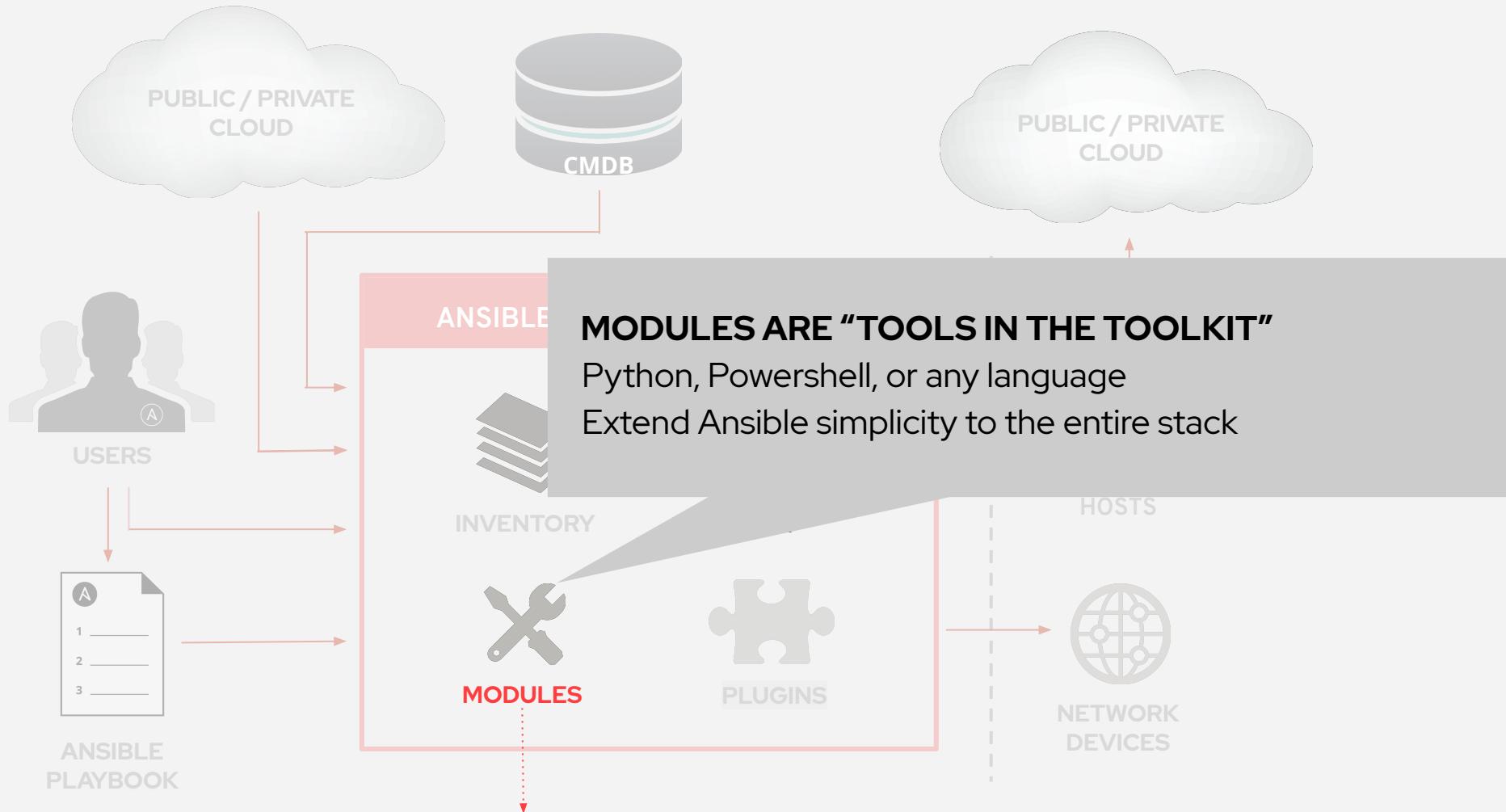




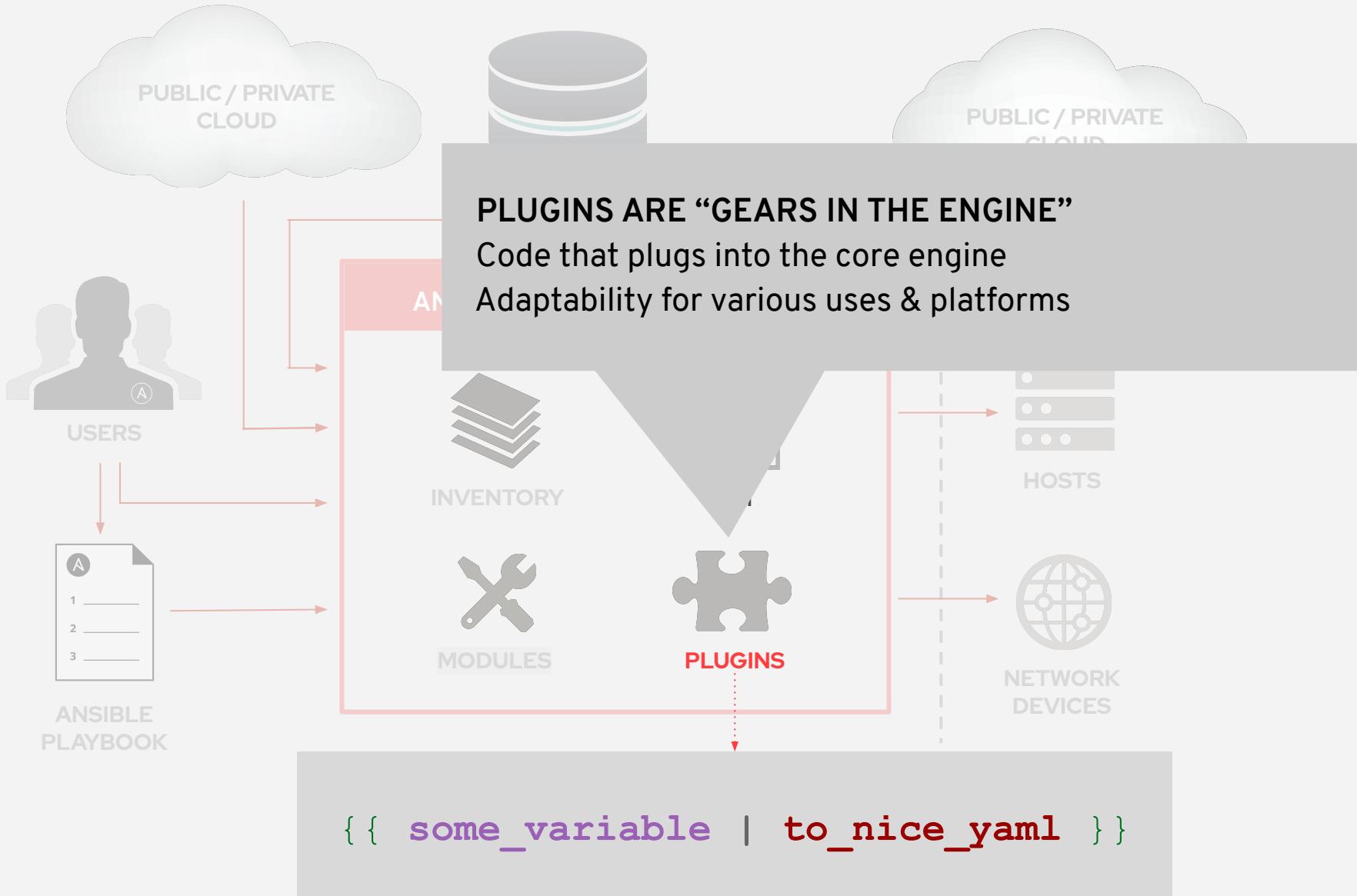


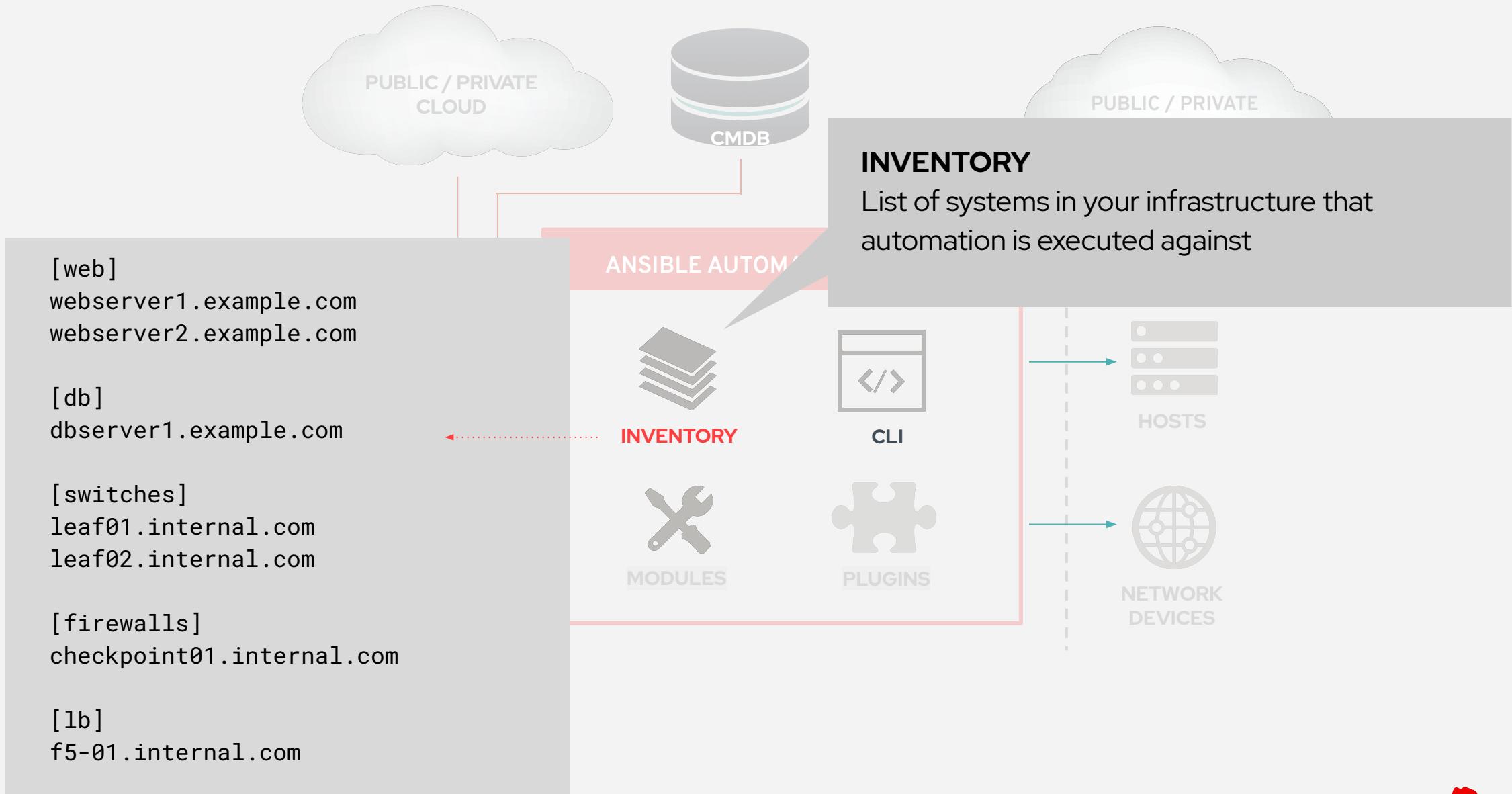
```
---
```

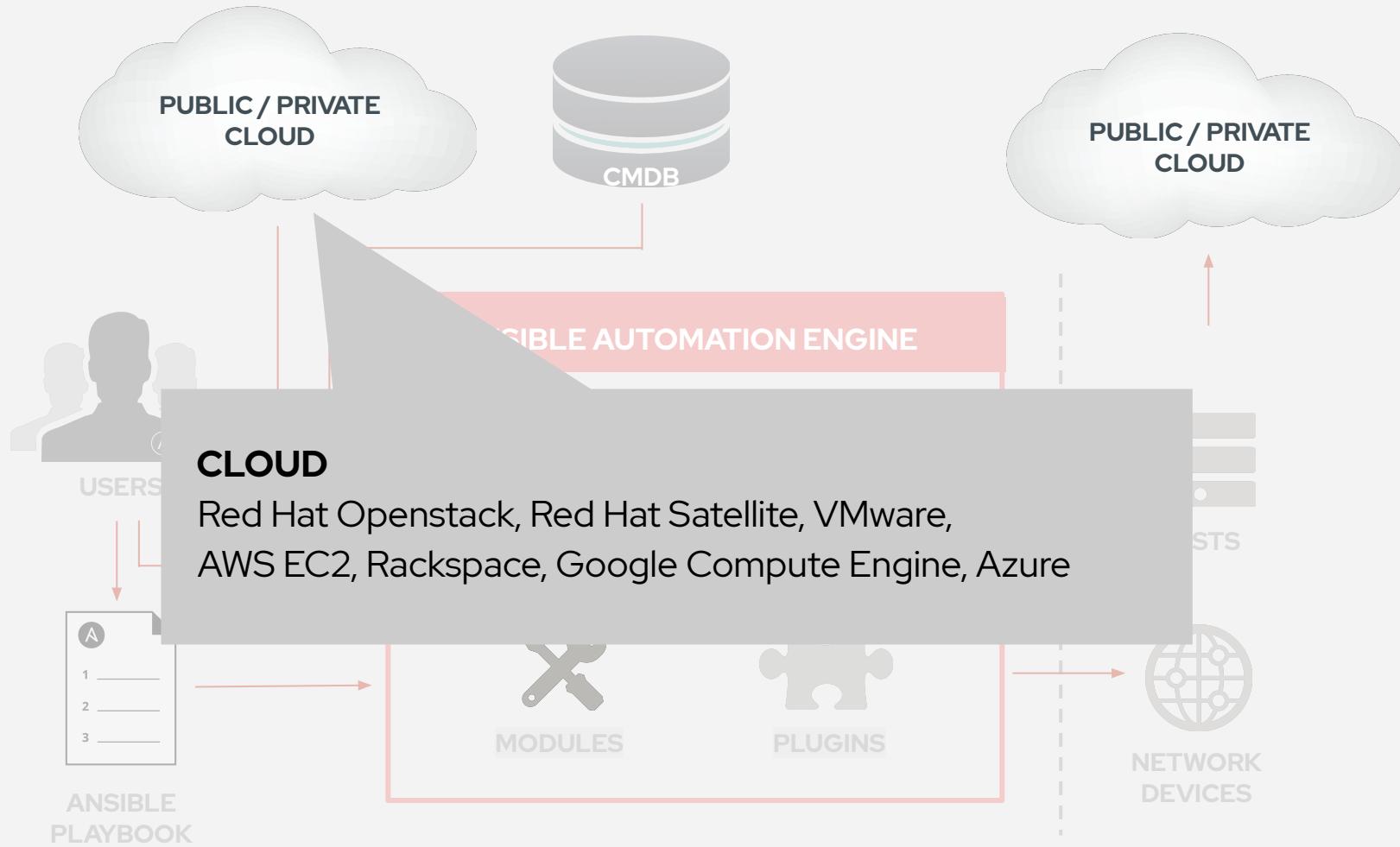
- **name: install and start apache**
 - hosts:** web
 - become:** yes
 - vars:**
 - http_port:** 80
- tasks:**
 - **name: httpd package is present**
 - yum:**
 - name:** httpd
 - state:** latest
 - **name: latest index.html file is present**
 - template:**
 - src:** files/index.html
 - dest:** /var/www/html/
 - **name: httpd is started**
 - service:**
 - name:** httpd
 - state:** started

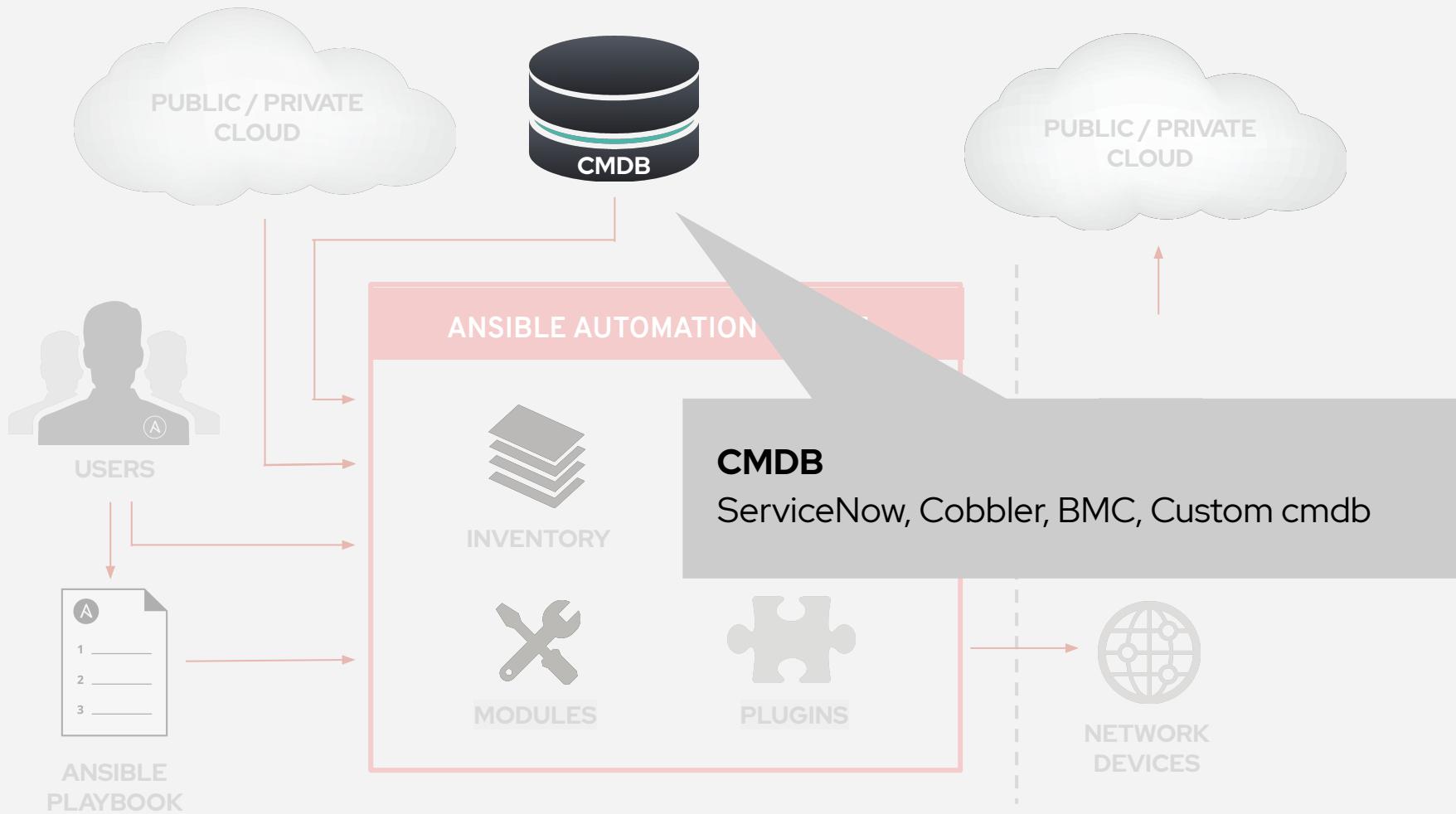


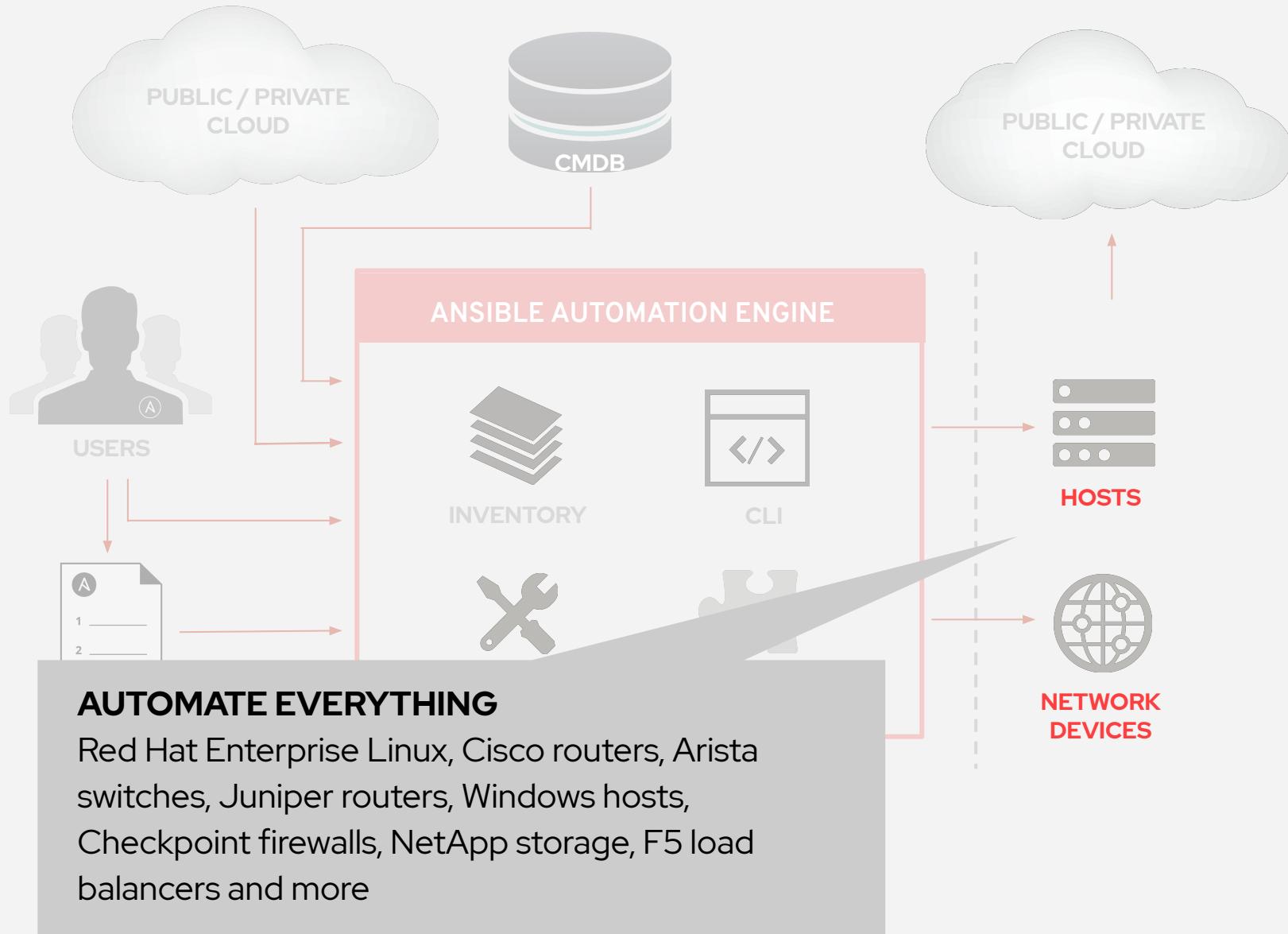
```
- name: latest index.html file is present
  template:
    src: files/index.html
    dest: /var/www/html/
```











Ansible Playbook examples:

GITHUB EXAMPLES

github.com/ansible/ansible-examples
github.com/ansible/workshops

LAMP + HAProxy + NAGIOS

bit.ly/lamp_haproxy

WINDOWS

bit.ly/ansible_windows

COMPLIANCE

bit.ly/ansible_compliance

NETWORK

github.com/network-automation

SECURITY

github.com/ansible-security/

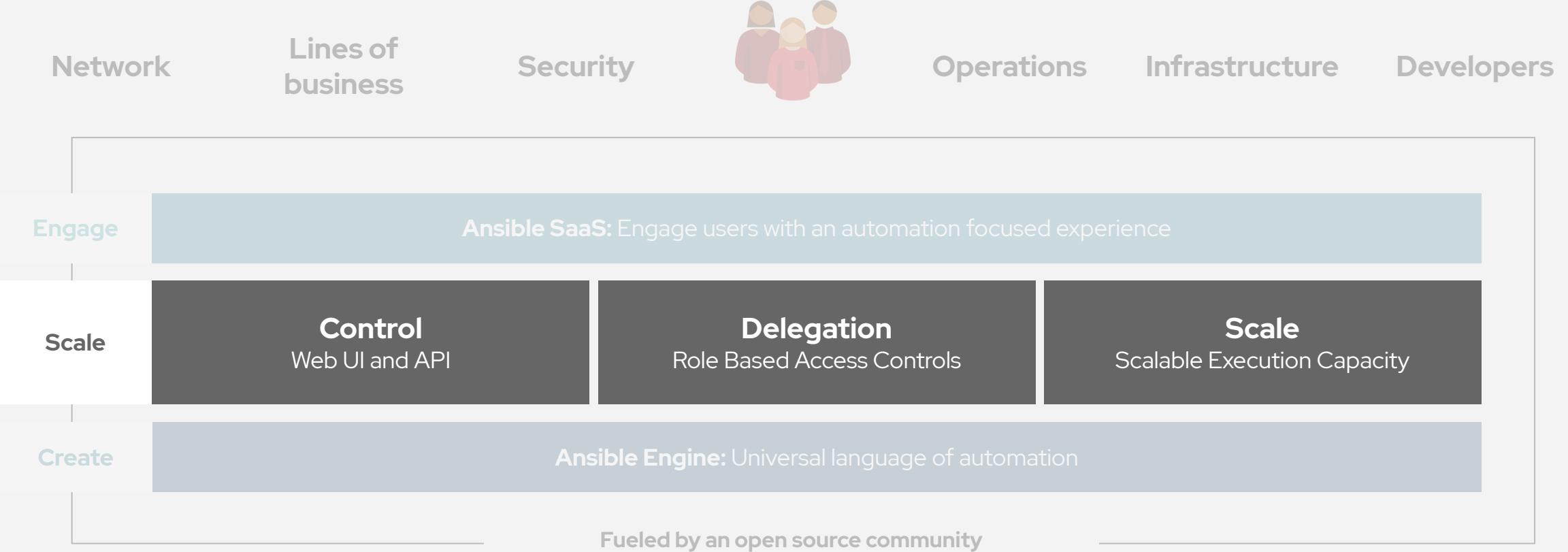


Red Hat Ansible Automation Platform

Red Hat Ansible Tower:
Operate and
control at scale



Red Hat Ansible Automation Platform



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 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.

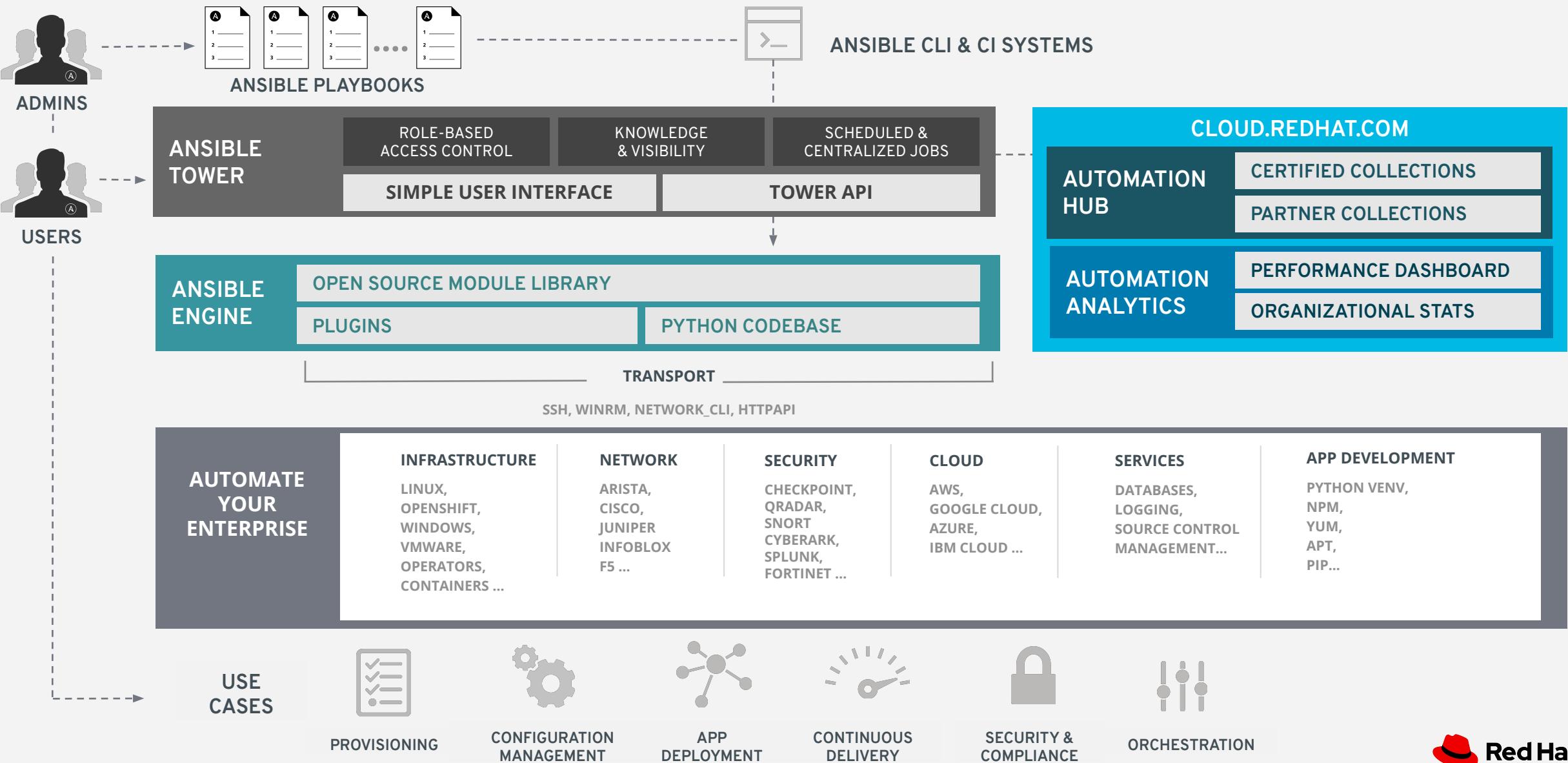
Centralized logging

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.

Ansible Automation Platform



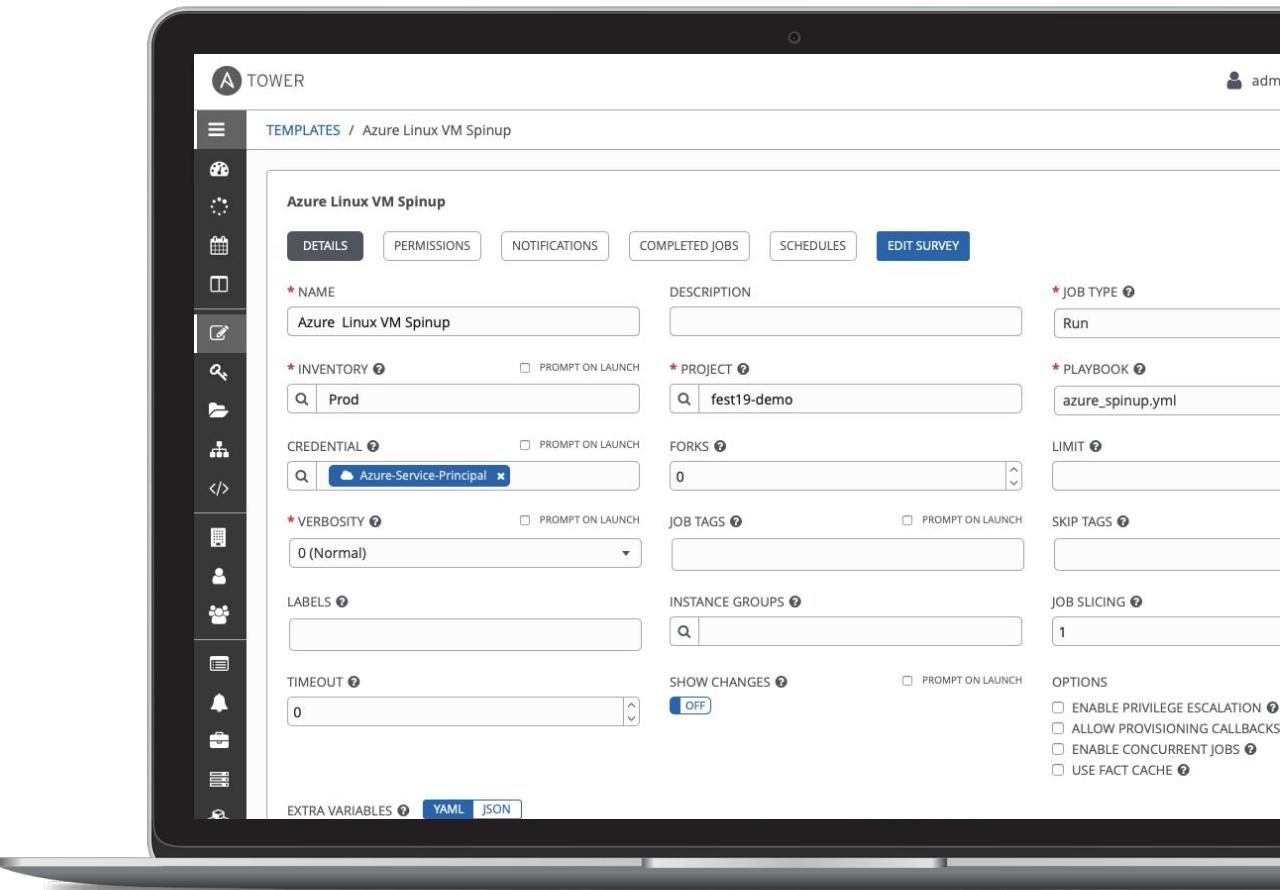
Job Templates

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



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

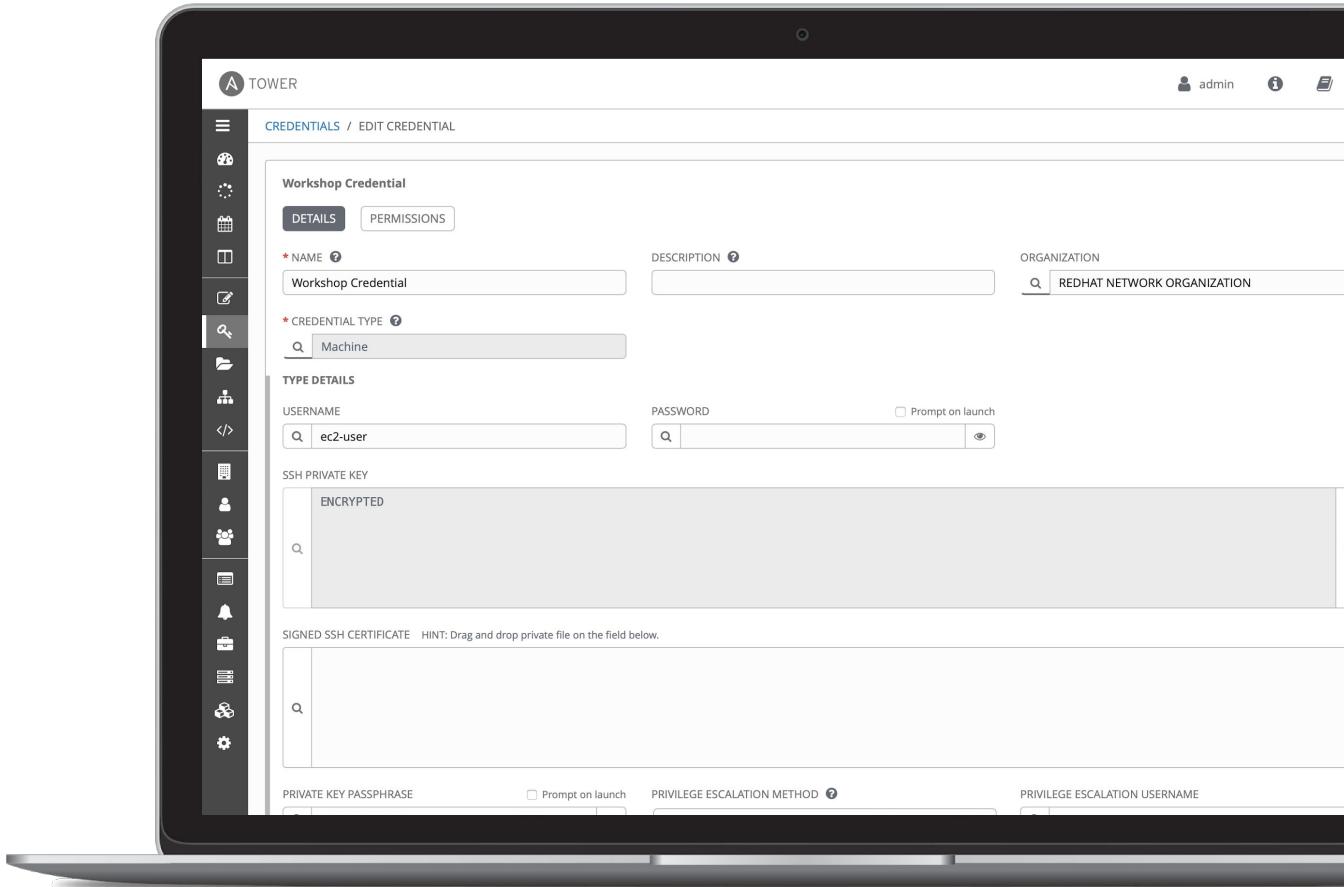
The screenshot shows the Ansible Tower interface on a laptop screen. The top navigation bar includes 'INVENTORIES / Workshop Inventory / HOSTS'. The main content area displays a list of hosts under 'Workshop Inventory' with columns for 'HOSTS' and 'RELATED GROUPS'. The hosts listed are 'ON' (radio button selected), 'ansible', 'rtr1', 'rtr2', 'rtr3', and 'rtr4'. To the right of each host are its related groups: 'control' (under ansible), 'cisco' and 'dc1' (under rtr1), 'arista' and 'dc2' (under rtr2), 'dc1' and 'juniper' (under rtr3), and 'arista' and 'dc2' (under rtr4). Below this, there is another section for 'INVENTORIES' and 'HOSTS' with search and filter fields.

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

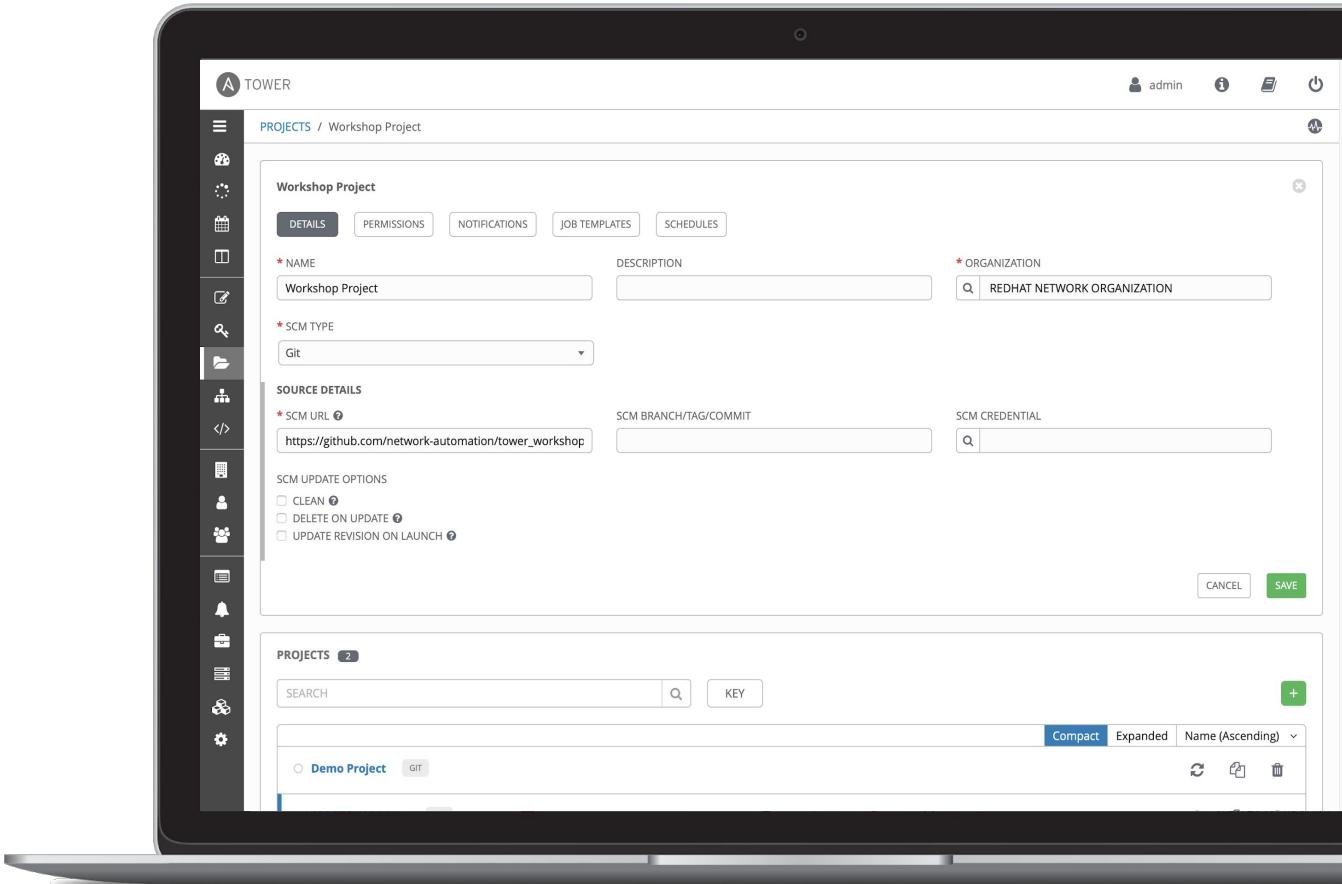
Centralized management of various credentials allows end users to leverage a secret without ever exposing that secret to them.



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.



RESTful API

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

The screenshot shows the 'TOWER REST API' web interface. At the top, there's a navigation bar with a user icon labeled 'admin', a 'Log out' button, and several other icons. Below the header, the URL 'REST API / Version 2' is displayed. The main content area is titled 'Version 2' and shows a single endpoint: 'GET /api/v2/'. Underneath this, the response details are shown:

HTTP 200 OK
Allow: GET, HEAD, OPTIONS
Content-Type: application/json
Vary: Accept
X-API-Node: localhost
X-API-Time: 0.019s

The response body is a JSON object:

```
{  
    "ping": "/api/v2/ping/",  
    "instances": "/api/v2/instances/",  
    "instance_groups": "/api/v2/instance_groups/",  
    "config": "/api/v2/config/",  
    "settings": "/api/v2/settings/",  
    "me": "/api/v2/me/",  
    "dashboard": "/api/v2/dashboard/",  
    "organizations": "/api/v2/organizations/",  
    "users": "/api/v2/users/",  
    "projects": "/api/v2/projects/",  
    "project_updates": "/api/v2/project_updates/",  
    "teams": "/api/v2/teams/",  
    "credentials": "/api/v2/credentials/",  
}
```

A callout bubble points to the JSON response body with the text: 'This structured JSON output contains clickable links'.

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

The screenshot shows a user interface for managing RBAC permissions. At the top, there's a navigation bar with 'TOWER' and a user icon 'admin'. Below it, a sidebar lists 'Dashboard', 'Jobs', 'Schedules', 'My View', 'Templates', 'Credentials', 'Projects', 'Inventories', 'Inventory Scans', and 'Organizations'. The main content area has a title 'CONFIGURE RED HAT ENTERPRISE LINUX WEB SERVERS | ADD USERS / TEAMS'. It includes a note '1 Please select Users / Teams from the lists below.' and two buttons: 'USERS' (highlighted with a red box) and 'TEAMS'. Below these are 'SEARCH' and 'KEY' buttons. A table lists users with checkboxes: 'ewiggin' (Ender Wiggin) and 'mrackham' (Mazer Rackham). At the bottom are 'CANCEL' and 'SAVE' buttons.

USERNAME	FIRST NAME	LAST NAME
<input type="checkbox"/> ewiggin	Ender	Wiggin
<input type="checkbox"/> mrackham	Mazer	Rackham

Enterprise Authentication

Use your existing enterprise authentication including:

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

The screenshot shows the Ansible Tower interface with the 'SETTINGS / AUTHENTICATION' section selected. On the left, there's a sidebar with 'VIEWS' and 'RESOURCES' sections. The 'AUTHENTICATION' tab is active. A horizontal row of buttons represents different authentication methods: AZURE AD, GITHUB, GOOGLE OAUTH2, LDAP, RADIUS, SAML, and TACACS+. The 'TACACS+' button is highlighted with a red box. Below these buttons are configuration fields for 'TACACS+ SERVER', 'TACACS+ PORT', 'TACACS+ SECRET', 'TACACS+ AUTH SESSION TIMEOUT', and 'TACACS+ AUTHENTICATION PROTOCOL'. A large gray callout bubble points from the top right towards the 'TACACS+' button, containing the text: 'Multiple supported enterprise authentication methods are easily integrated with Ansible Tower'.

Centralized Logging

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

The screenshot shows the Ansible Tower interface with the sidebar menu open. The main area is titled 'SETTINGS / SYSTEM' under the 'SYSTEM' tab. It includes sections for 'MISC. SYSTEM', 'ACTIVITY STREAM', and 'LOGGING'. The 'LOGGING' section contains fields for 'ENABLE EXTERNAL LOGGING' (set to 'OFF'), 'LOGGING AGGREGATOR' (set to 'log.eros.rhdemo.io'), 'LOGGING AGGREGATOR PORT' (empty), 'LOGGING AGGREGATOR USERNAME' (set to 'ender'), 'LOGGING AGGREGATOR PASSWORD/TOKEN' (empty), 'LOG SYSTEM TRACKING FACTS INDIVIDUALLY' (set to 'OFF'), 'LOGGING AGGREGATOR PROTOCOL' (set to 'HTTPS/HTTP'), and 'LOGGING AGGREGATOR LEVEL' (empty). A callout bubble points to the 'LOGGING AGGREGATOR TYPE' dropdown, which is highlighted with a red border. The dropdown menu lists several options: 'splunk' (selected and highlighted in grey), 'logstash', 'splunk', 'loggly', 'sumologic', and 'other'. The number '5' is also visible at the bottom of the dropdown list.

Multiple supported 3rd party external logging methods are easily integrated with Ansible Tower

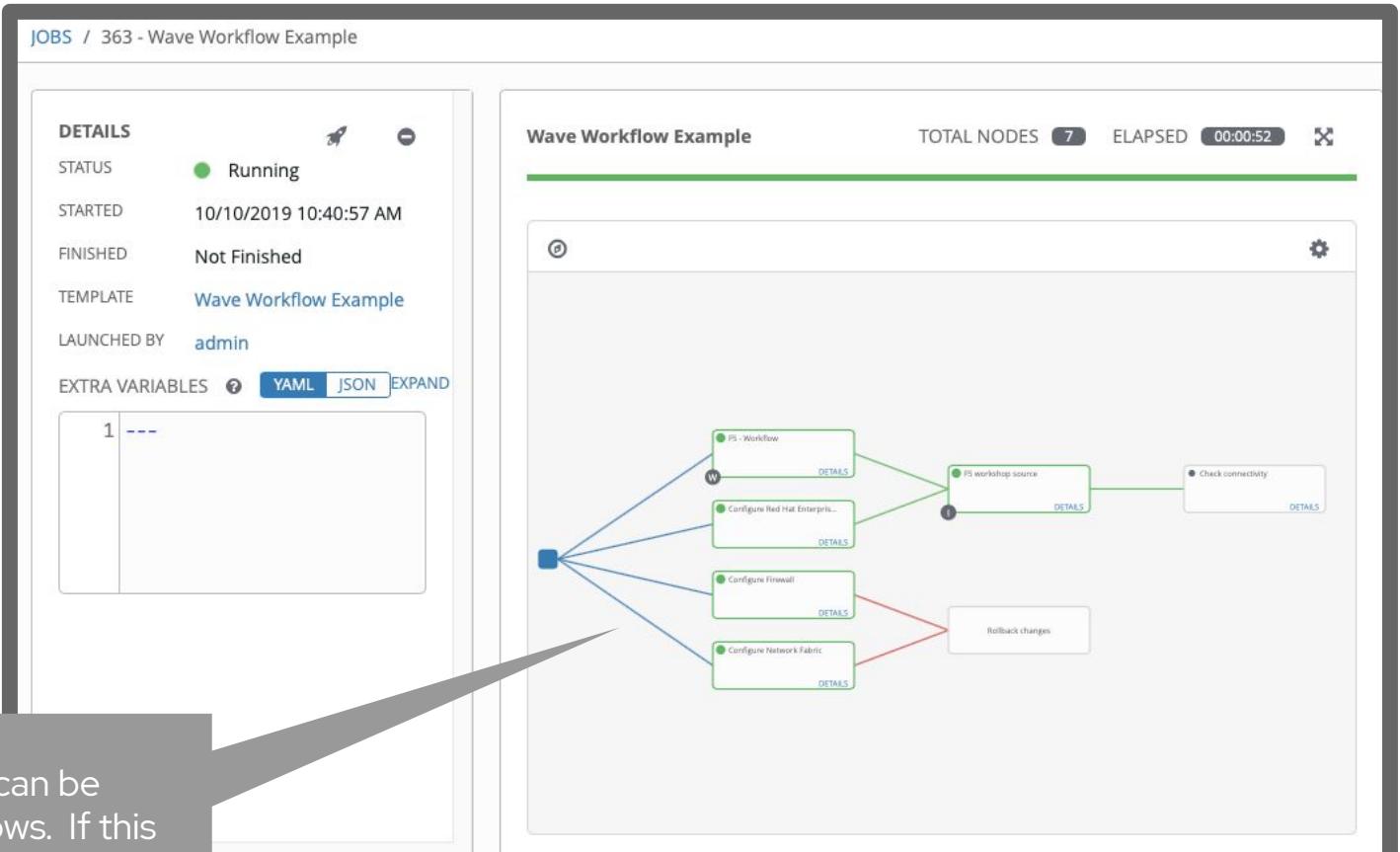
Workflows

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

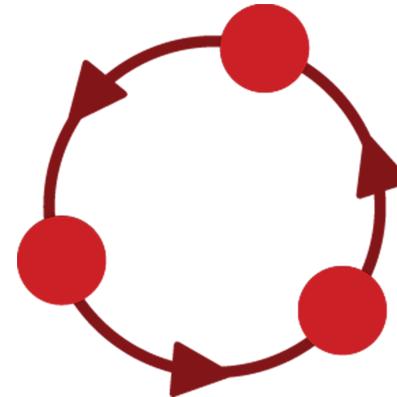
Conditional logic can be applied to workflows. If this job fails this next Job is run!



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.

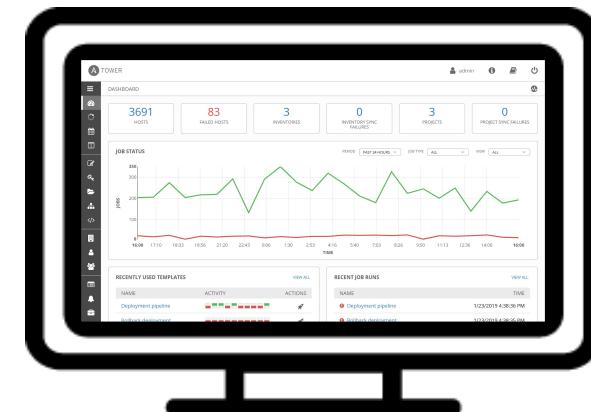


Scale

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

Ansible Tower





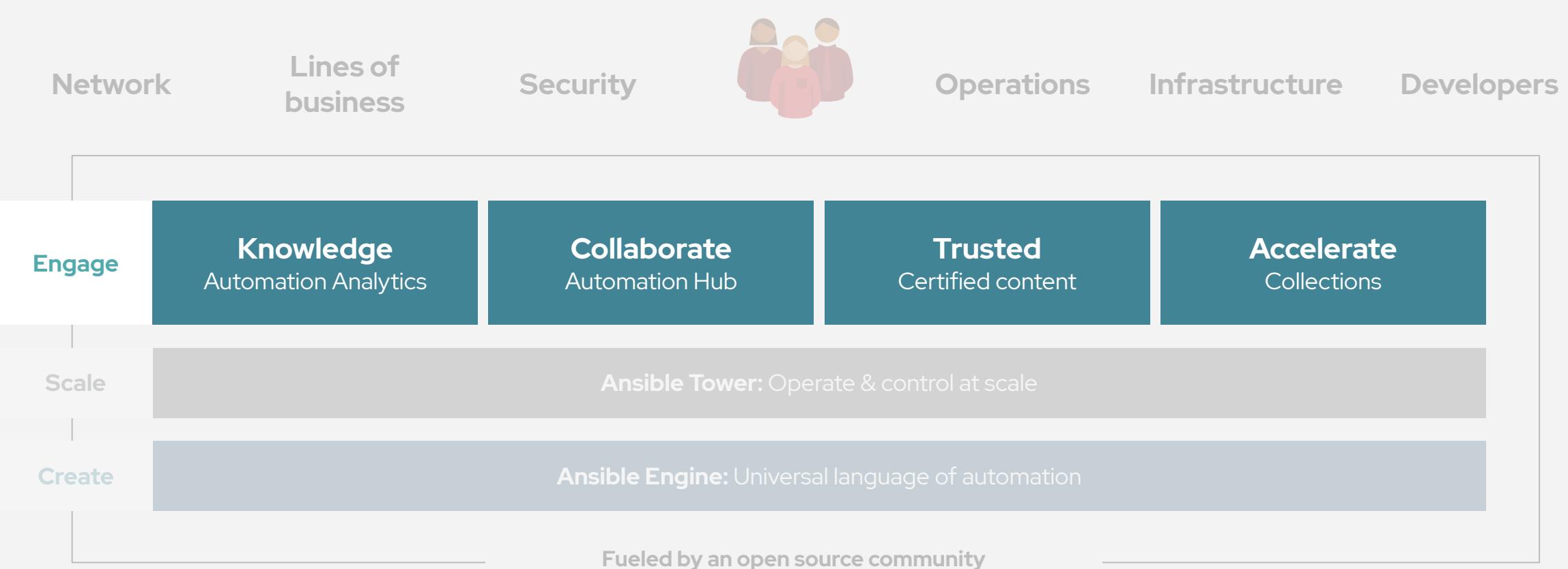
Red Hat Ansible Automation Platform

[CLOUD.REDHAT.COM](https://cloud.redhat.com)

Engage users with
an automation
focused experience



Red Hat Ansible Automation Platform



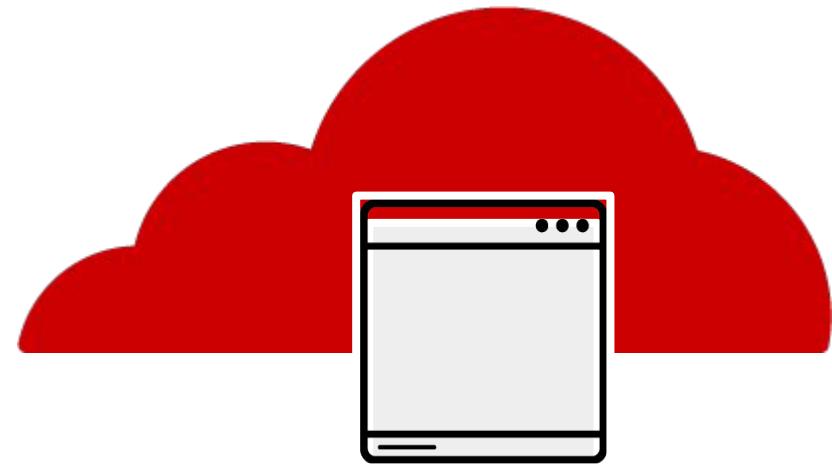
Automation Analytics: What is it?

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

Analytics for all Ansible Tower clusters for an organization

Includes:

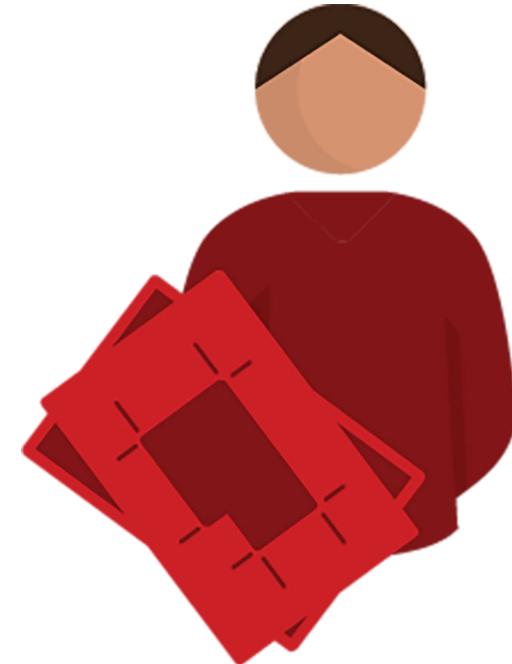
- visual dashboard
- health notifications
- organization statistics



Automation Analytics: What does it provide?

Enables an Automation Center of Excellence

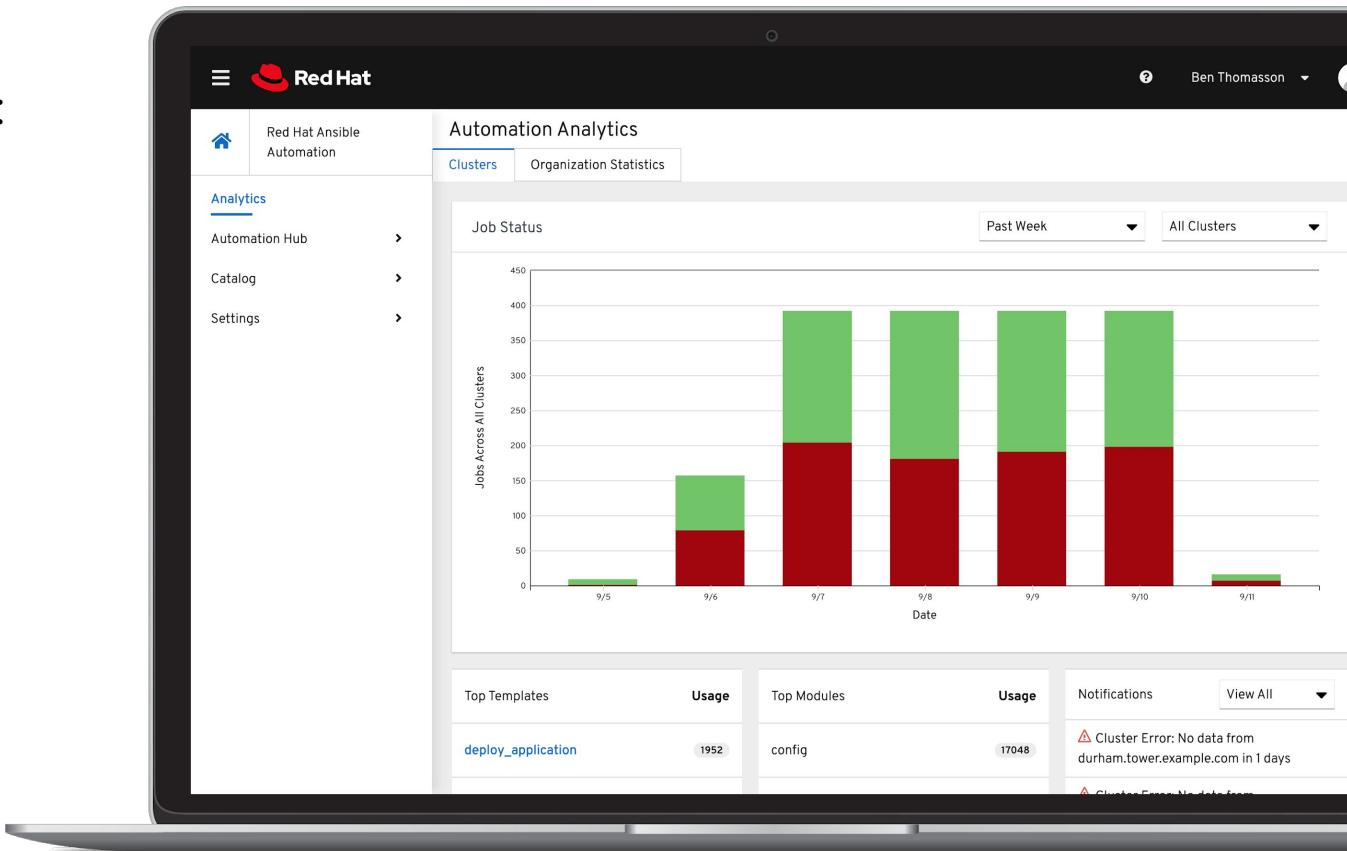
- View information about automation health, usage and performance across your enterprise.
- Gain information about automation in your enterprise:
 - Which organizations are using the most automation?
 - Utilization rates
 - Enterprise-wide success and failure rates for automation



Analytics dashboard

Information across all clusters for an enterprise:

- Job Status graph
- Top Job Templates
- Top Modules



Health notifications

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

Notifications View All ▾

⚠ Cluster Error: No data from durham.tower.example.com in 1 days

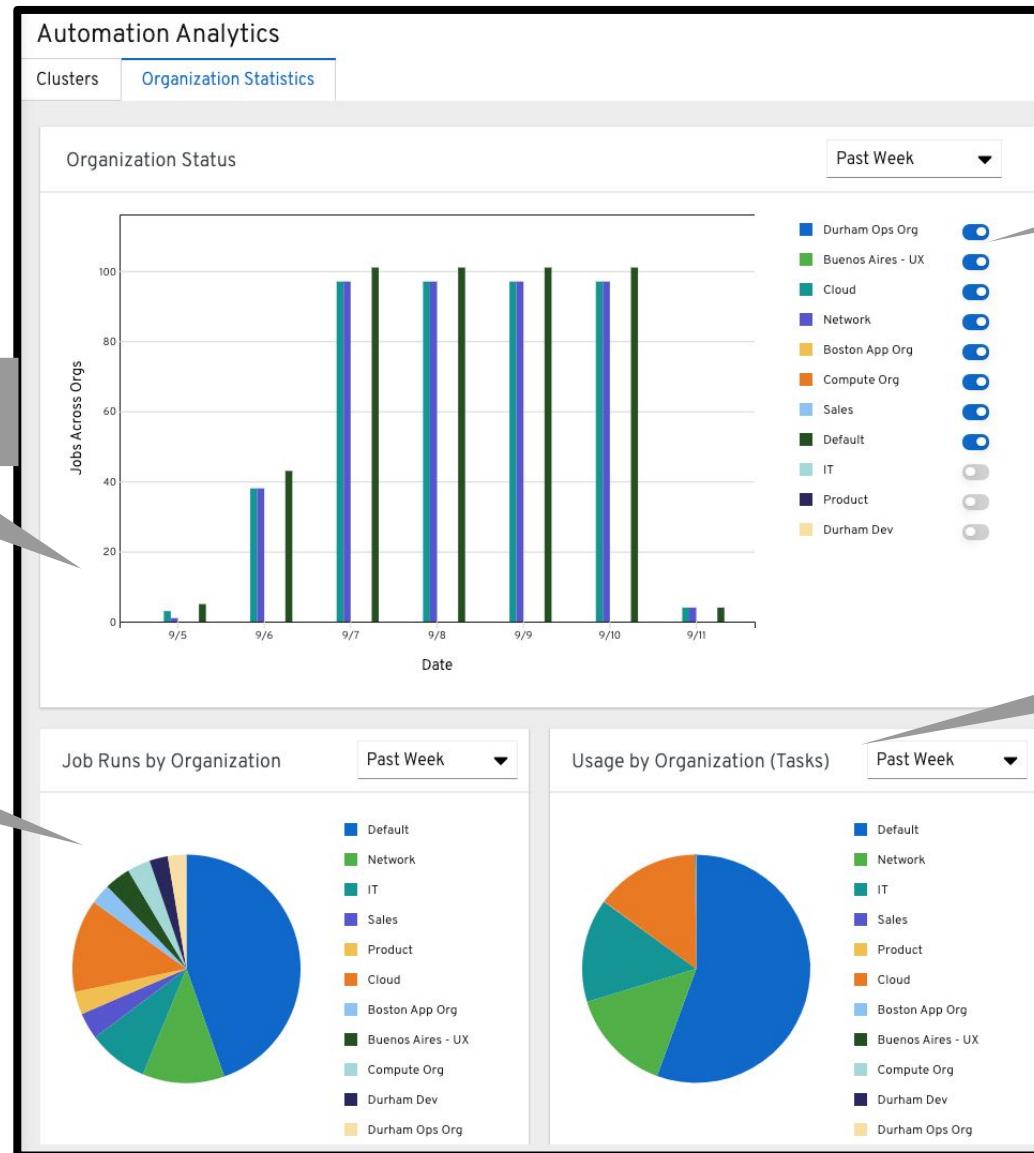
⚠ Cluster Error: No data from madrid.tower.example.com in 1 days

Notifications last updated 2019-09-11 07:42:12 UTC

Organizational statistics

Job Status by Organization

Job Runs by Organization



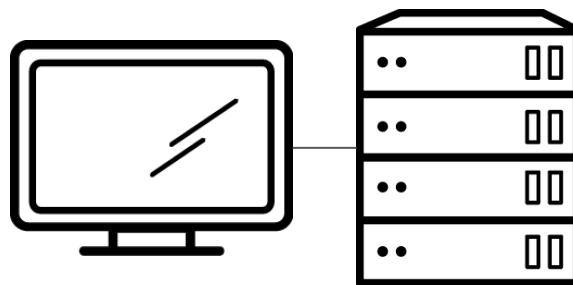
Filter by Organization

Usage by Organization

Dashboard comparison

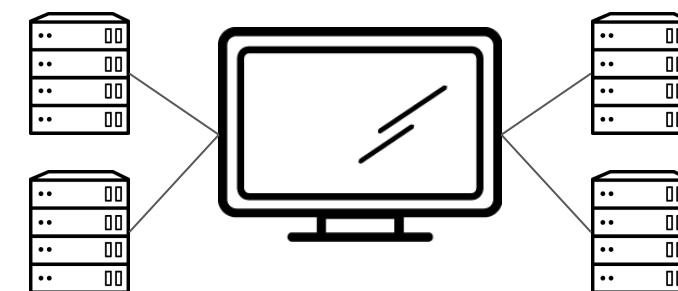
Ansible Tower

- Recent job templates
- No module data
- One cluster



Automation Analytics

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



Ansible Content Collections

Simplified and consistent content delivery

Provides quick benefit by lowering barriers to automation

Streamlines tech partners providing direct-to-user automation

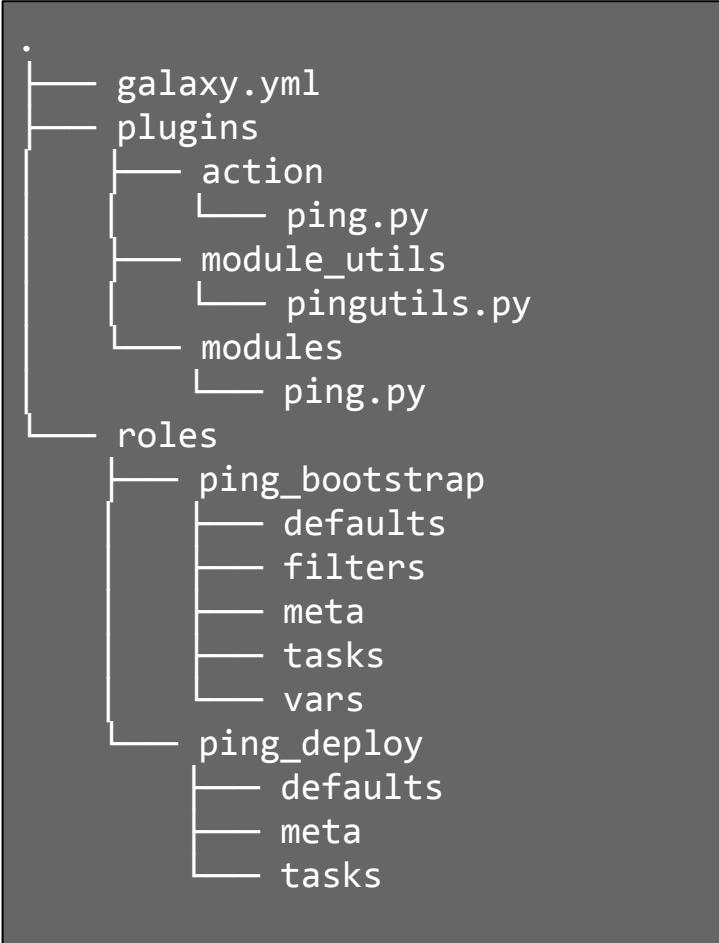
Simplifies internal collaboration, distribution, versioning

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



Ansible Content Collection example

Directory Layout



In a playbook

```
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:
```

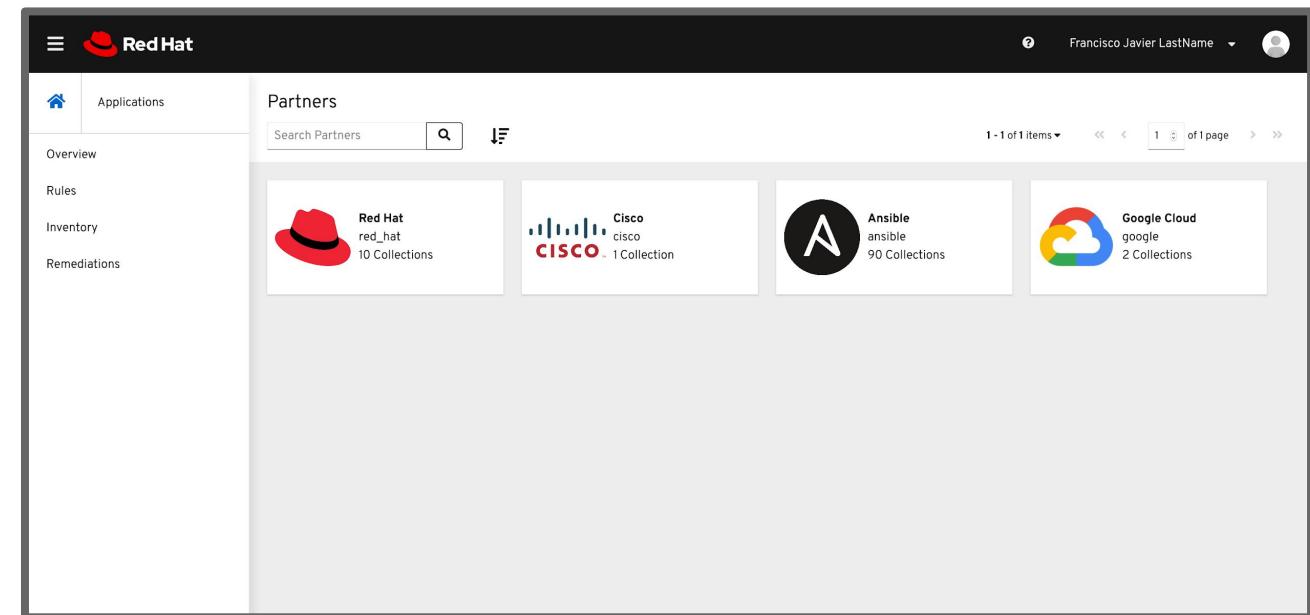
Automation Hub

Discover, publish, and manage Collections

Quickly discover available Red Hat and certified content through Collections.

Manage and test your organization's view of available content.*

Manage your locally available automation via on-premise.*



Next steps:

Get started

ansible.com/get-started

ansible.com/tower-trial

Workshops and training

ansible.com/workshops

[Red Hat Training](#)

Join the community

ansible.com/community

Share your story

[Follow us @Ansible](#)

[Friend us on Facebook](#)

Thank you

Red Hat is the world's leading provider of enterprise open source software solutions. Award-winning support, training, and consulting services make Red Hat a trusted adviser to the Fortune 500.

 linkedin.com/company/red-hat

 youtube.com/user/AnsibleAutomation

 facebook.com/AnsibleAutomation

 twitter.com/Ansible





Red Hat

Ansible Automation Platform

Strategic Use Cases



Red Hat
Ansible Automation
Platform

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



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



Red Hat
Ansible Automation
Platform

USE CASE:
NETWORK AUTOMATION

ANSIBLE NETWORK AUTOMATION

65+

Network
Platforms

1000+

Network
Modules

15*

Galaxy
Network Roles

ansible.com/for/networks

galaxy.ansible.com/ansible-network

*Roles developed and maintained by Ansible Network Engineering



WHY AUTOMATE YOUR NETWORK?

PLAN AND PROTOTYPE VIRTUALLY

Use tasks as reusable building blocks

USE YOUR CURRENT DEVELOPMENT PRACTICES

Agile, DevOps, Waterfall

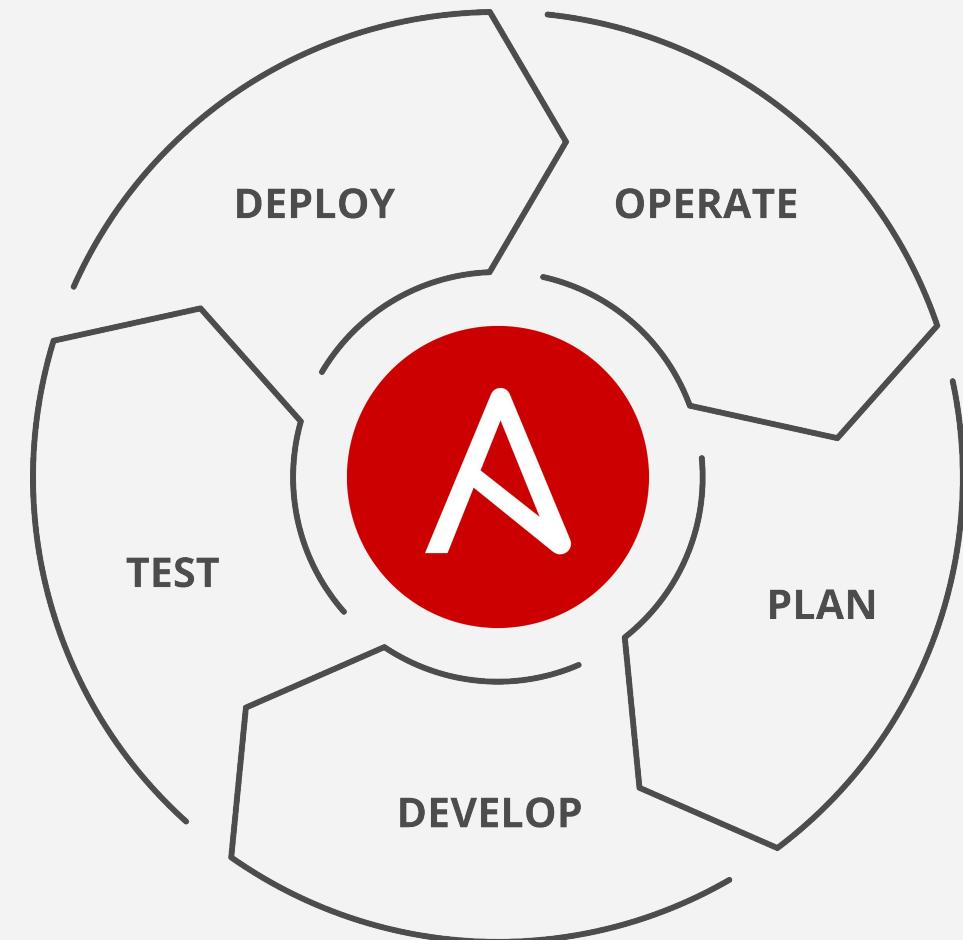
GO BEYOND THE “PING” TEST

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]$
```

AUTOMATION FOR EVERYONE: NETWORK ENGINEERS

```
---
```

- **hosts**: juniper
- gather_facts**: false
- connection**: network_cli

- tasks**:
- **name**: show command for juniper
- cli_command**:
 command: show interfaces terse em1
- register**: result

- **name**: display result to terminal window
- debug**:
 var: result.stdout_lines

AUTOMATION FOR EVERYONE: PLAYBOOK RESULTS

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

PLAY [juniper] ****
TASK [show command for juniper] ****
ok: [rtr3]
ok: [rtr4]

TASK [display result to terminal window] ****
ok: [rtr3] => {
    "result.stdout_lines": [
        "Interface          Admin Link Proto  Local                  Remote",
        "em1                up   up",           "10.0.0.4/8      ",
        "em1.0              up   up   inet    128.0.0.1/2     ,
        "                  "               128.0.0.4/2     ,
        "                  "               fe80::5254:ff:fe12:bdfe/64",
        "                  "               fec0::a:0:0:4/64",
        "                  "               0x4"
    ]
}
ok: [rtr4] => {
    "result.stdout_lines": [
        "Interface          Admin Link Proto  Local                  Remote",
        "em1                up   up",           "10.0.0.4/8      ",
        "em1.0              up   up   inet    128.0.0.1/2     ,
        "                  "               128.0.0.4/2     ,
        "                  "               fe80::5254:ff:fe12:bdfe/64",
        "                  "               fec0::a:0:0:4/64",
        "                  "               0x4"
    ]
}

PLAY RECAP ****
rtr3                  : ok=2    changed=0    unreachable=0    failed=0    skipped=0
rtr4                  : ok=2    changed=0    unreachable=0    failed=0    skipped=0

[student3@ansible network_setup]$
```





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USE CASE:
WINDOWS AUTOMATION

WINDOWS AUTOMATION

90+

Windows
Modules

1,300+

Powershell DSC
resources

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

AUTOMATION FOR EVERYONE: WINDOWS ADMINS

```
---
```

- **name:** update domain and reboot
 - hosts:** windows_servers
 - tasks:**
 - **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 domain change require it
 - win_reboot:**
 - when:** domain_result.reboot_required



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USE CASE:
Cloud automation

CLOUD AUTOMATION

800+

Cloud
Modules

30+

Cloud Platforms

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
```

PLAYBOOK EXAMPLE: AZURE

```
---
```

```
- name: azure playbook
  hosts: localhost
  connection: local

  tasks:
    - name: create virtual network
      azure_rm_virtualnetwork:
        resource_group: myResourceGroup
        name: myVnet
        address_prefixes: "10.0.0.0/16"
```

PLAYBOOK EXAMPLE: RED HAT OPENSTACK

```
---
```

- **name:** openstack playbook
 - hosts:** localhost
 - connection:** local

- tasks:**
 - **name:** launch an instance
 - os_server:**
 - name:** vm1
 - cloud:** mordred
 - region_name:** ams01
 - image:** Red Hat Enterprise Linux 7.4
 - flavor_ram:** 4096



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Ansible Automation
Platform

USE CASE:
Security Automation

What Is It?

Ansible Security Automation is our expansion deeper into the security use case. The goal is to provide a more efficient, streamlined way for security teams to automate their various processes for the identification, search, and response to security events. This is more complex and higher-value than the application of a security baseline (PCI, STIG, CIS) to a server.

Ansible Security Automation is a supported set of Ansible modules, roles and playbooks designed to unify the security response to cyberattacks.

What Does It Do?



Triage Of Suspicious Activities

Enabling programmatic access to log configurations such as destination, verbosity, etc.



Threat Hunting

Automating alerts, correlation searches and signature manipulation



Incident Response

Creating new security policies to whitelist, blacklist or quarantine a machine

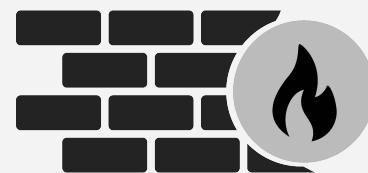
Partners - Security ISVs



Security Information &
Events Management

splunk®

IBM®



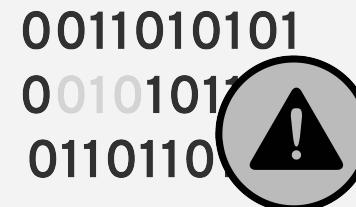
Enterprise
Firewalls

Check Point®
SOFTWARE TECHNOLOGIES LTD

CISCO™

f5®

FORTINET®



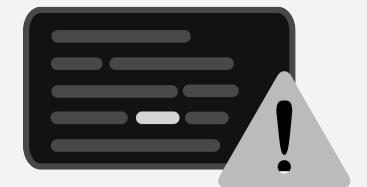
Intrusion Detection &
Prevention Systems

SNORT®



Check Point®
SOFTWARE TECHNOLOGIES LTD

FORTINET®



Privileged Access
Management

CYBERARK®

yncope™

Red Hat

AUTOMATION FOR EVERYONE: SECURITY OPERATIONS

```
---
```

- **name:** Create access rule in Checkpoint
 - hosts:** checkpoint
 - connection:** httpapi

tasks:

- **name:** create access rule
 - checkpoint_access_rule:**
 - layer:** Network
 - name:** "Drop attacker"
 - position:** top
 - source:** attacker
 - destination:** Any
 - action:** Drop

AUTOMATION FOR EVERYONE: SECURITY OPERATIONS

```
---
```

- name: Change QRadar rule state
 - hosts: qradar
 - tasks:
 - name: get info about qradar rule
 - qradar_rule_info:
 - name: "Potential DDoS Against Single Host (TCP)"
 - register: rule_info
 - name: disable rule by id
 - qradar_rule:
 - state: disabled
 - id: "{{ rule_info.rules[0]['id'] }}"

AUTOMATION FOR EVERYONE: SECURITY OPERATIONS

```
---
```

```
- name: Add Snort rule
  hosts: snort

  tasks:
    - name: Add snort password attack rule
      include_role:
        name: "ansible_security.ids_rule"
    vars:
      rule: "alert tcp any 443 -> 192.168.12.0/24 any"
      state: present
      rules_file: /etc/snort/rules/grab_everything_http.rules
```

More infos available

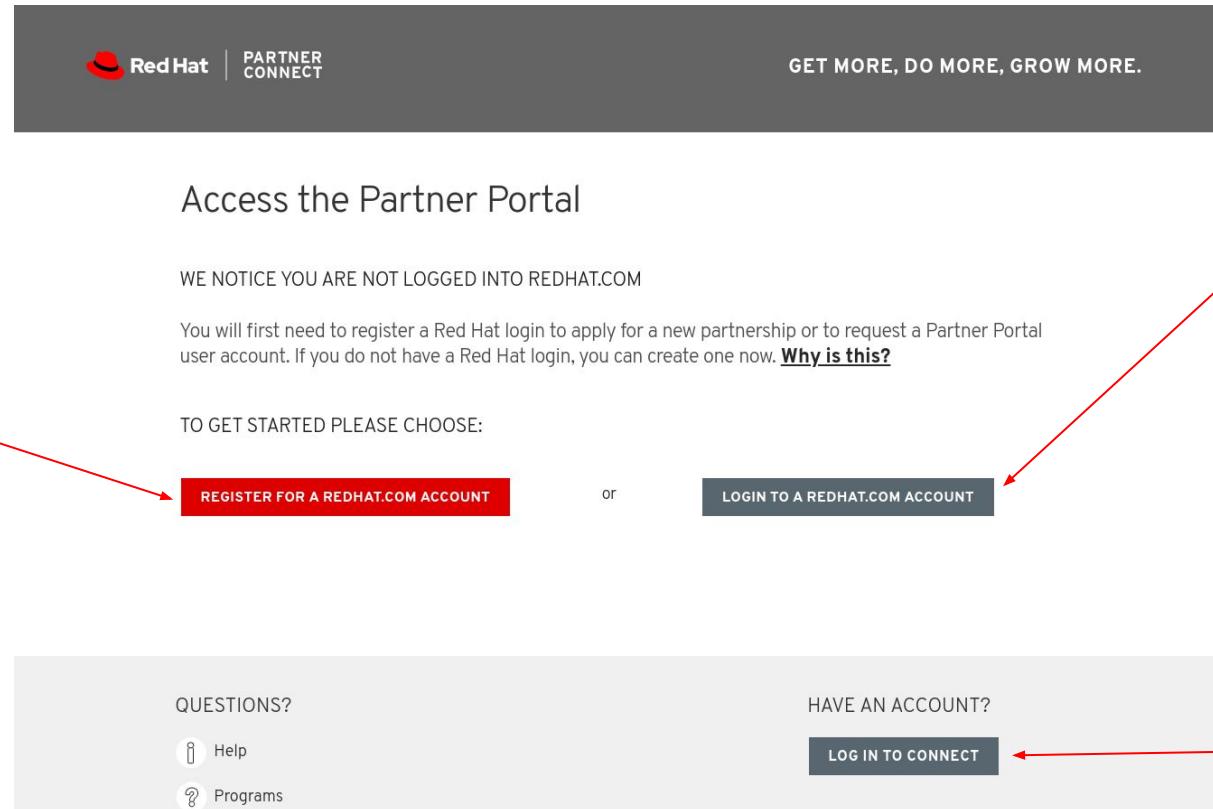


Alfred Bach

Principal Solution Architect,
Red Hat EMEA - Partner Enablement
abach@redhat.com

Register as Partner

Go to: <https://partner.redhat.com>



Click here
if you do not have
a redhat.com
customer portal
account, with your
CorporateEmail
adres

Click here
if you already have
a redhat.com
customer portal
account with your
corporate address

Click here
if you already have
registered your
account as partner
and continue on
slide 7

Register as Partner

Fill Out the form or login with your account

Create Account

1. Fill out the form
2. submit
3. confirm Email

Create a Red Hat Login

A Red Hat account gives you access to product evaluations, purchasing capabilities and knowledge management content. Red Hat will use the personal data collected below, such as your contact information and account information, to create and administer your Red Hat account. We use the personal data to identify and authenticate you, fulfill your requests and to provide you with information, support and customer service. For more information, please see [Red Hat's Privacy Statement](#).

* Indicates Required Field

Need access to an account?

If your company has an existing Red Hat account, your organization administrator can [grant you access](#). If you have questions, [contact customer service](#).

Login Information

* Create a Red Hat

Login:

Free text

Your login is a user ID for accessing your account across all Red Hat sites. It must be at least five characters and cannot be changed once created.

* Email Address:

Company
Email
address

* Password:

Show

Your password must be at least 8 characters long. A strong password combines lower case letters, upper case letters, numbers, and symbols.

* Confirm Password:

Show

Login with your account



Log in to your Red Hat account

[Forgot your login or password?](#)

New to Red Hat?
If you are new to Red Hat, register now for access to product evaluations and purchasing capabilities.

[Register ▶](#)

Need to access an account?
If your company has an existing Red Hat account, your organization administrator can grant you access.

[Create new user* ▶](#)

*Organization administrators only

Get help
If you have questions, [contact customer service](#).

[Contact customer service ▶](#)

Register as Partner

The screen after login -> Join your company



Access the Partner Portal

Click here

GET ACCESS TO EVERYTHING YOU NEED FOR PARTNERSHIP SUCCESS

APPLY FOR PARTNERSHIP

JOIN AN EXISTING PARTNER COMPANY

QUESTIONS?



Help



Programs

HAVE AN ACCOUNT?

LOG IN TO CONNECT

Register as Partner

Determine Partner

Join an existing partner company

You can gain exclusive access to tools, training, and valuable resources in Red Hat Connect by joining your company's partner account. Fill out the form using company email address to gain access.

1 ENTER YOUR EMAIL AND LOCATION

Contact Email abach@redhat.com

Company
Country

Austria

VAT Number

Partner Type

- Independent Software Vendor
- Solution Provider
- Training
- Systems Integrator
- Alliance Partners / OEM
- Embedded
- Service/Cloud Provider

2 SELECT COMPANY

NEXT STEP

Select your country

Leave Empty

Select Partner Type

Click here

Register as Partner

According to your Email address and country compatible companies are displayed

Join an existing partner company

You can gain exclusive access to tools, training, and valuable resources in Red Hat Connect by joining your company's partner account. Fill out the form using company email address to gain access.

ENTER YOUR EMAIL AND LOCATION

2 SELECT COMPANY [What is this?](#)

Company Name	Partner Type	Location	Region Subregion
[REDACTED]	Systems Integrator	港区, 東京	APAC Japan
[REDACTED]	Systems Integrator	London, GB	EMEA NWE
[REDACTED]	Systems Integrator	Bratislava, SK	EMEA CEMEA
[REDACTED]	Systems Integrator	Praha 4, CZ	EMEA CEMEA
[REDACTED]	Systems Integrator	Berlin, DE	EMEA Germany
[REDACTED]	Systems Integrator	Bridgend, GB	EMEA NWE

[PREVIOUS STEP](#) [I can't find my company](#) **SUBMIT FOR APPROVAL**

Select your nearest subsidiary

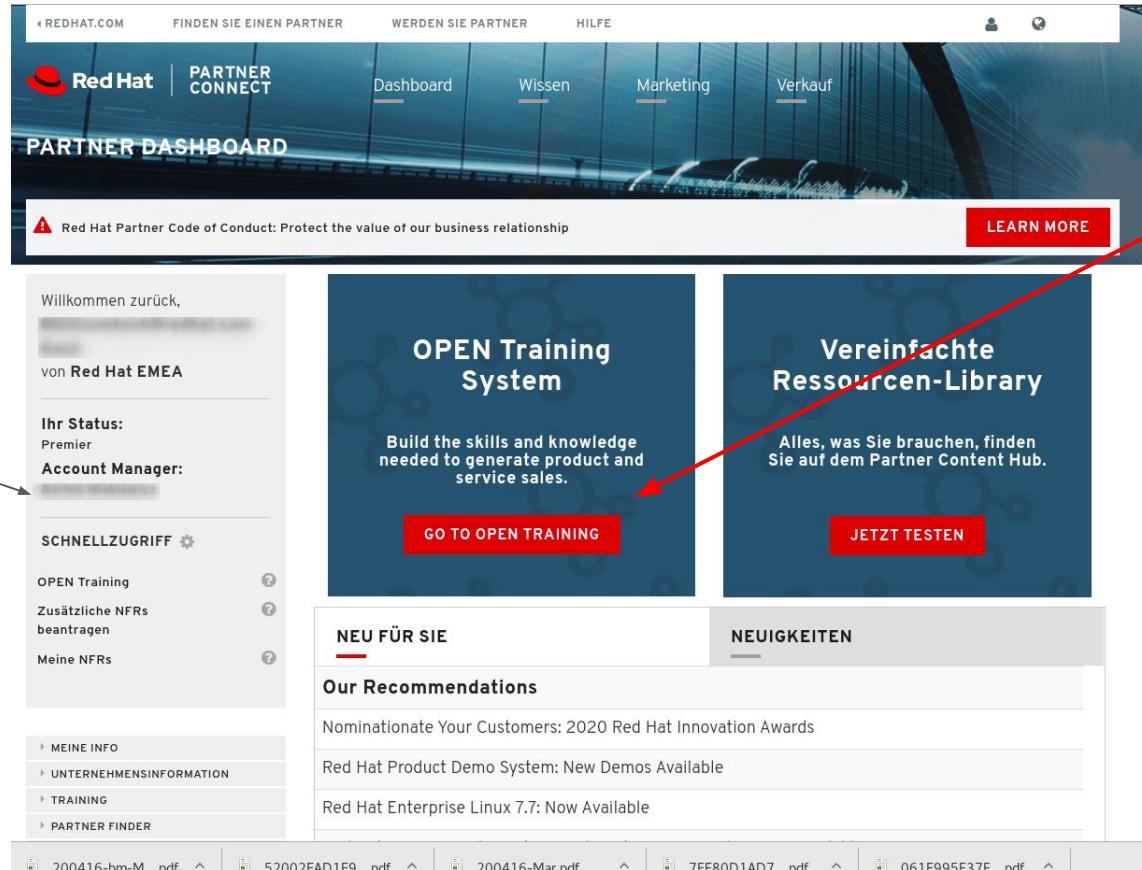
Click here & done

Register as Partner

Ready to use the portal
go again to <https://partner.redhat.com>

After confirming a final Email you will be able to access the partner portal

Your Redhat
Account
Manager



Click Here
to go to the
learning portal

DESIGNED TO FIT YOUR NEEDS



**RED HAT
OPEN TRAINING**
role-specific, self-paced
training courses



**RED HAT PRODUCT
DEMO SYSTEM**
online demos created by
Red Hat technical experts



**ONLINE TECHNICAL
LIBRARY**
easy to use database of
tagged, searchable
resources

ROLES

Red Hat OPEN



- Value pitch
- Qualification
- Competitive positioning
- Objection handling
- Pricing



- Technical sales
- Qualification
- Competitive positioning
- Objection handling and pricing
- How-to demo



- Product installation
- App development
- Proof-of-concept delivery
- Solution architecture

Open your partnership for success

Together, we can deliver hybrid cloud solutions with the flexibility, freedom, and support customers need.

[Let's get started](#)

Why you should partner with Red Hat

Whether you want to build and certify software, sell more Red Hat® solutions, or provide high-quality services using innovative technologies, Red Hat's open source approach lays the groundwork to effectively reach your customers—today and beyond.

[Explore the programs](#)

Red Hat OPEN training system catalog

Red Hat Online Partner Enablement Network (OPEN) helps partners build skills to generate more sales and enhance customer satisfaction. This training is complimentary for Red Hat Partners.



Browse the catalog of the Red Hat OPEN training system below. This training is complimentary for Red Hat Partners.

Browse Catalog

Delivery Method

Course Learning Path
 Video

[Advanced](#)

Categories

IT Challenge

Agile Integration
Cloud-Native Application Development
Hybrid Cloud Infrastructure
IT Automation and Management
IT Optimization

Role

Skill

Specialization

Role

Browse All

Search

ENHANCE YOUR KNOWLEDGE OF RED HAT WITH RED HAT PRODUCT DEMO SYSTEM

Red Hat OPEN provides partners with access to the Red Hat Product Demo System. Partners can use demos as stand-alone learning exercises or in conjunction with Red Hat OPEN training courses.

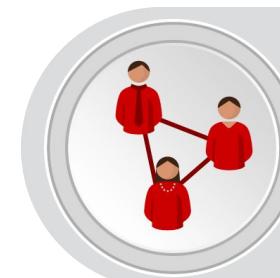
PRODUCT DEMOS

Observe online product demos by Red Hat Experts



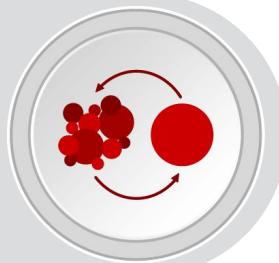
DEMONSTRATE

Confidently speak to the technical details of Red Hat technologies



ENHANCE

Learn and practice how to perform demos



MOBILITY

Online, on-demand system can be anytime, anywhere



Europe, Middle East, and Africa
Red Hat Partner Programs
and Development
Let's do something great. Together.



Enablement > Trainings

Trainings

Thank you for your interest in Red Hat Partner Enablement trainings. Please note:
Due to this website being upgraded in March 2020, all existing and new users will
need to register for a new user profile at redhat-partner.com.

Once registered, you can easily log in, manage your profile and register for any new
trainings and webinars.

Red Hat Deep Dive Technical Training - Advanced Deployment with Red Hat Ansible Automation

Target audience:

Delivery

Date(s):

09 – 13 Mar 20 | Spain

22 – 26 Jun 20 | Germany

[Details & Registration](#)

General requirements

- These trainings are for Red Hat Partners only!
- All trainings (workshops, sales days, etc.) are available in ENGLISH ONLY!
- Any question about your partner status or how to become a Red Hat Partner - get in contact with our partner team.
- Bring your own laptop with a working browser!

Red Hat Deep Dive Technical Training – Advanced Red Hat OpenShift Container Platform Deployment and Management

Target audience:

Delivery, Consulting,

[Details & Registration](#)

Access to OPEN

Most of the trainings require prerequisites: online courses that have to be enrolled in OPEN (Online Partner Enablement Network). You need to have an active Red Hat Partner Account to access OPEN.

Global Learning Services

 For safety reasons, we are rebuilding Red Hat Summit into a virtual experience. [Get the details](#)

 Products Solutions Learning & support Resources Red Hat & open source  English  Search  Log in  Websites

RED HAT TRAINING

All training courses and exams

POPULAR

RED HAT SYSTEM ADMINISTRATION I

RH124

Provides students with Linux administration "survival skills" by focusing on core administration tasks.

[View course →](#)

LINUX AUTOMATION WITH ANSIBLE

RH294

Teaches the skills needed to manage large numbers of systems and applications efficiently and consistently.

[View course →](#)

RED HAT LEARNING SUBSCRIPTION

Customize your learning experience with on-demand, unlimited access to our online training resources.

[Find out more →](#)

FORMATS & LOCATIONS

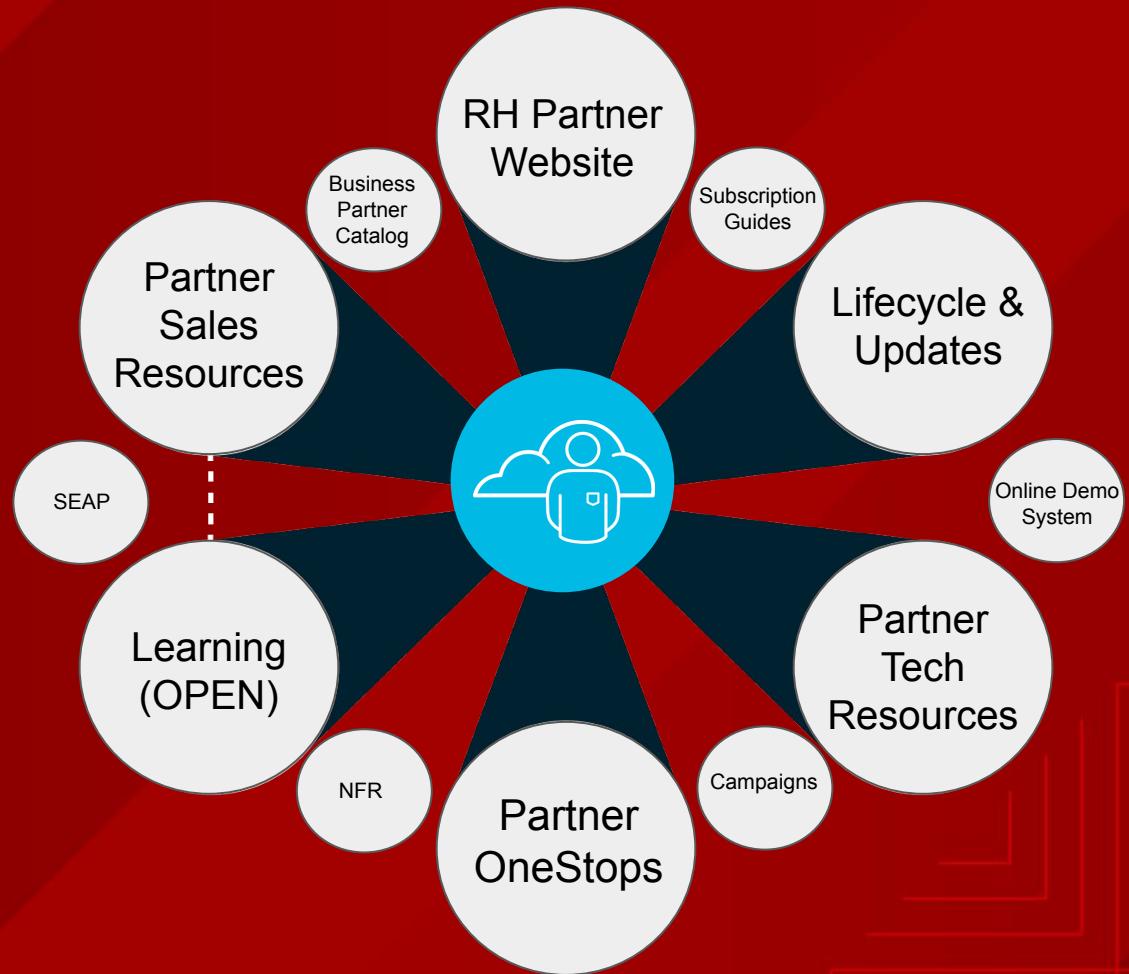
- [Ways to train](#)
- [Ways to test](#)
- [Where to train and test](#)

[Access your content →](#)



PARTNER SALES ENABLEMENT

Tools you all need to know



Other
Links

Training &
Cert

<http://bit.ly/redhat-partnerlinks>





[linkedin.com/company/red-hat](https://www.linkedin.com/company/red-hat)



[youtube.com/user/RedHatVideos](https://www.youtube.com/user/RedHatVideos)



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