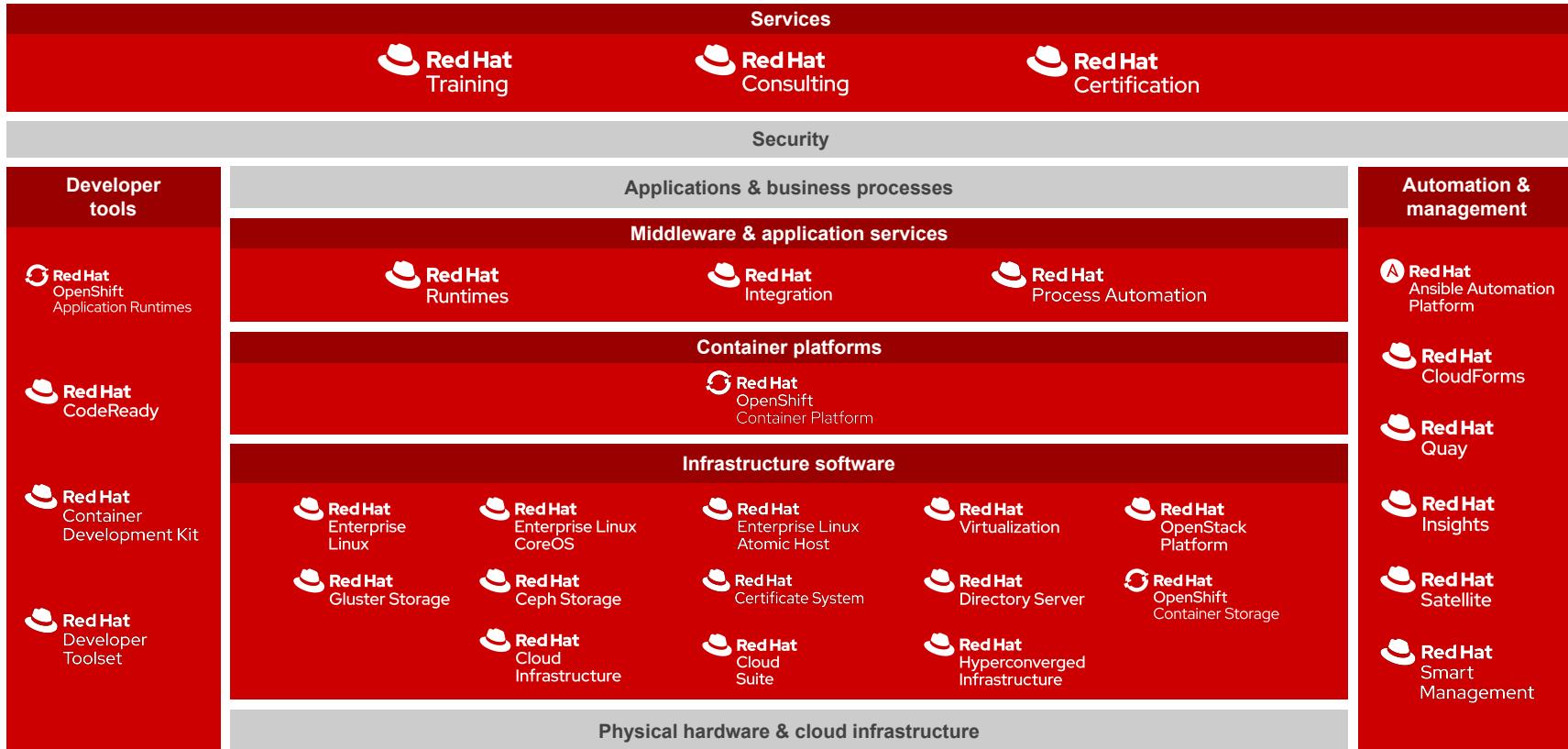




Red Hat Portfolio Overview





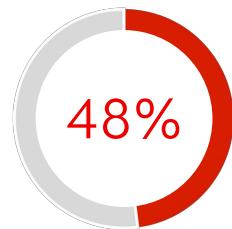
Red Hat
Enterprise Linux

Platform

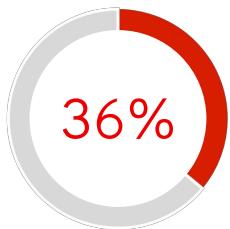
Red Hat Enterprise Linux is the preferred Linux distribution for cloud deployments

#1

Red Hat Enterprise Linux is the top commercial Linux distribution for public cloud deployments.¹



of surveyed organizations choose Red Hat Enterprise Linux for current and new organization-wide application deployments.¹



of surveyed organizations considered and selected Red Hat Enterprise Linux for Linux deployments.¹

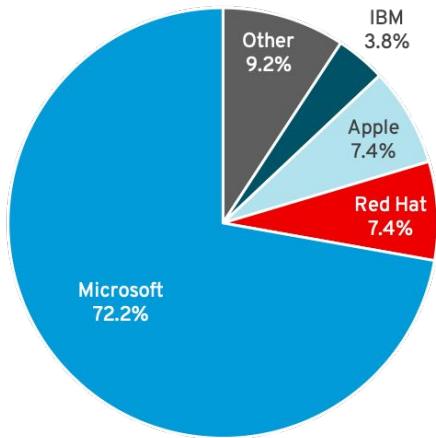


of surveyed organizations choose Red Hat Enterprise Linux for public cloud deployments.¹

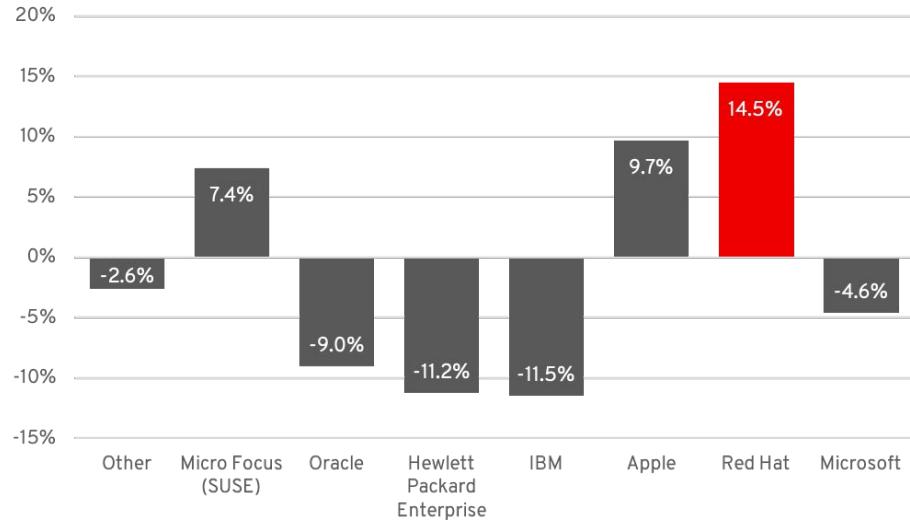
Read the complete report at
redhat.com/en/resources/state-of-linux-in-public-cloud-for-enterprises.

Red Hat leads the Linux operating system market

Worldwide operating systems and subsystems
2017 market share by revenue



Worldwide operating systems and subsystems growth by vendor revenue, 2012-2017
Compound annual growth rate (CAGR) percentage

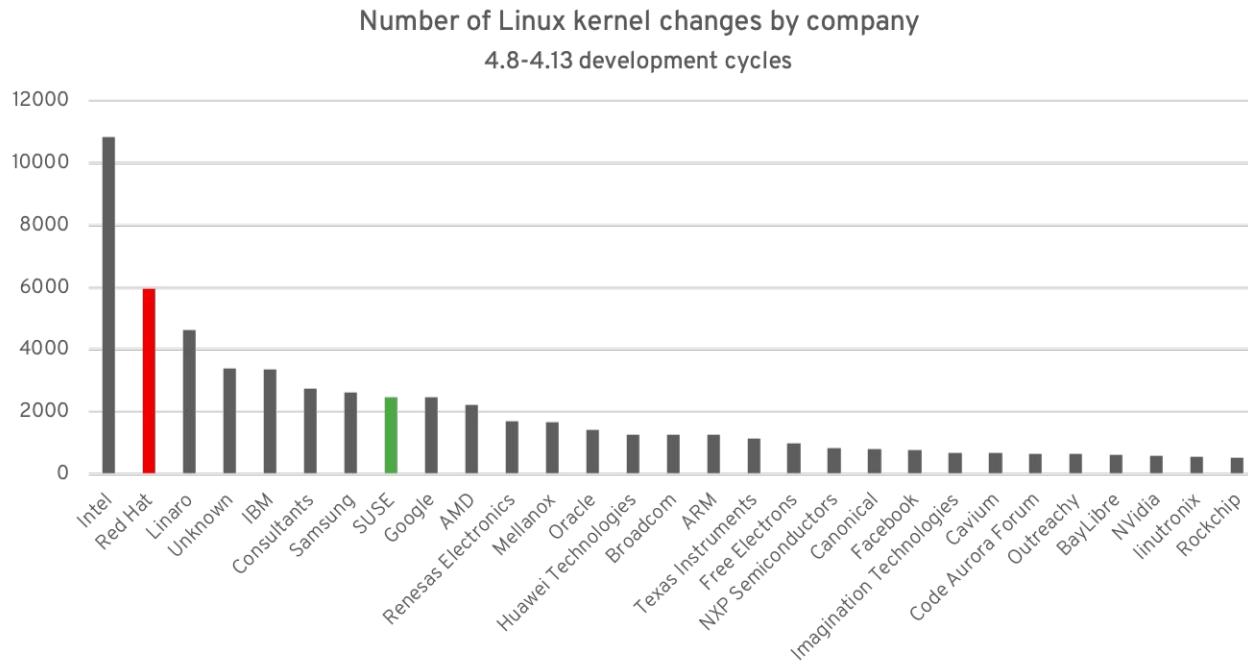


Red Hat Enterprise Linux leads the market

Worldwide Linux server operating environment, new license paid shipments and subscriptions by vendor

	2014		2015		2016		2017	
	SHIPMENTS	MARKET SHARE						
RED HAT ENTERPRISE LINUX	1,974,000	67%	2,205,000	66%	2,389,000	65%	2,857,000	65%
SUSE LINUX ENTERPRISE SERVER	691,000	23%	788,000	24%	886,000	24%	1,040,000	24%
OTHER PAID LINUX SERVER Includes Oracle, Ubuntu, and others	301,000	10%	351,000	10%	386,000	11%	465,000	11%

Red Hat continues to be one of the top kernel contributors



Combined Red Hat and IBM contributions: 9,324 changes or 3.75x SUSE's contributions

Who owns SUSE now?

SuSE Linux AG

SuSE Linux AG founded in Germany.



Novell acquires SuSE Linux AG.

Attachmate Group

Attachment Group acquires Novell and SUSE.



Attachmate Group merges with Micro Focus International.

EQT Partners

EQT Partners acquires the SUSE business segment.



Plan for stability with documented interfaces

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



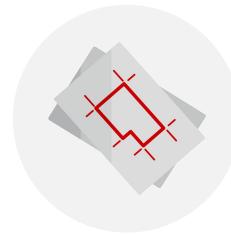
Compatibility levels

Compatibility details for components and packages



Exceptions

Exceptions to compatibility in Red Hat Enterprise Linux



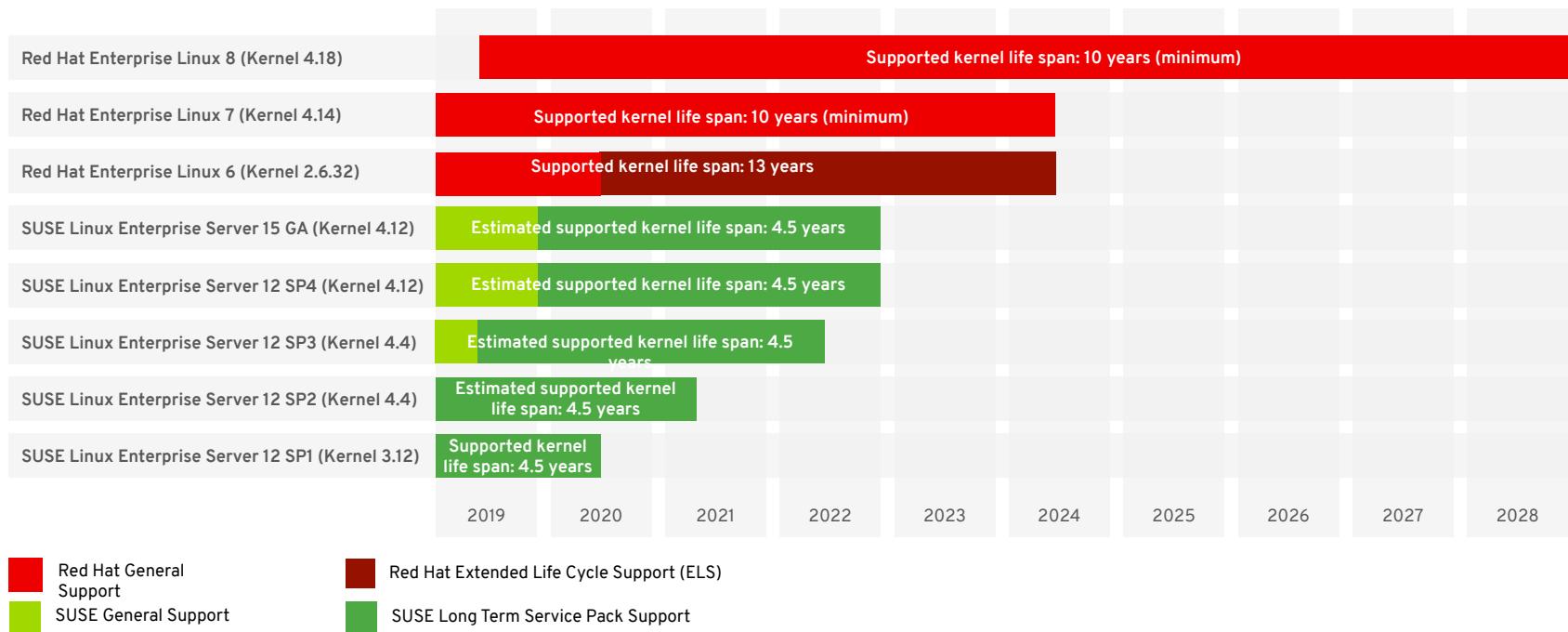
Guidelines

Principles for preserving binary compatibility

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

Kernel life-cycle comparison

Shorter kernel life cycles require more frequent application recertification





Red Hat Enterprise Linux 8

Build your future on a stable, high-performing platform that can scale to meet the needs of your organization today and tomorrow.

LINUX IS THE FOUNDATION

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



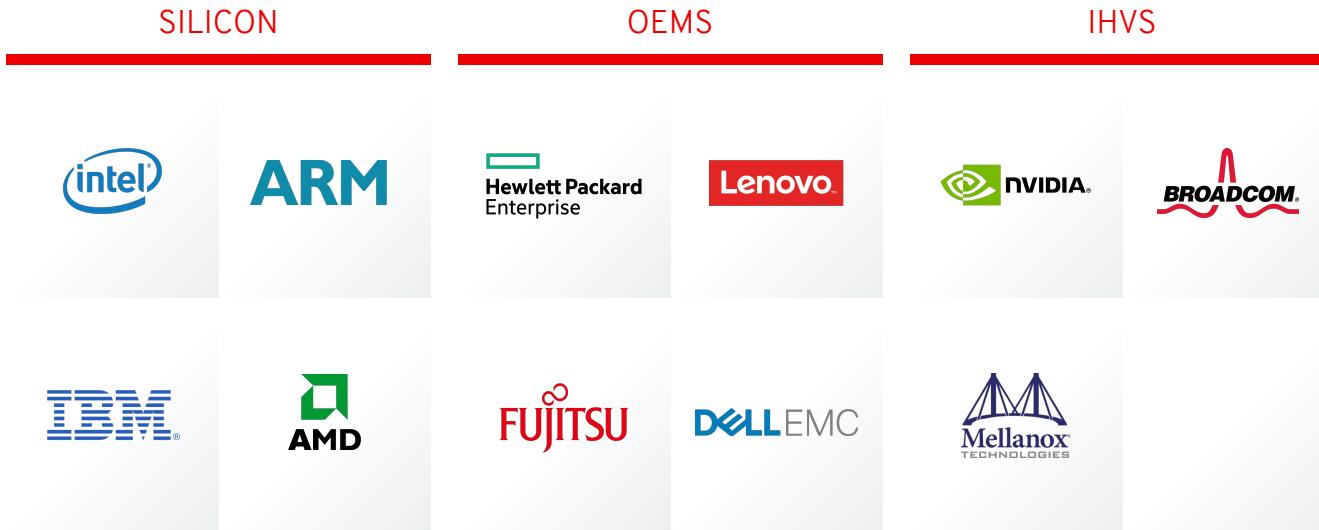
Red Hat
Enterprise Linux 8

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.**

Hardware partner ecosystem



Red Hat Certified Cloud and Service Providers

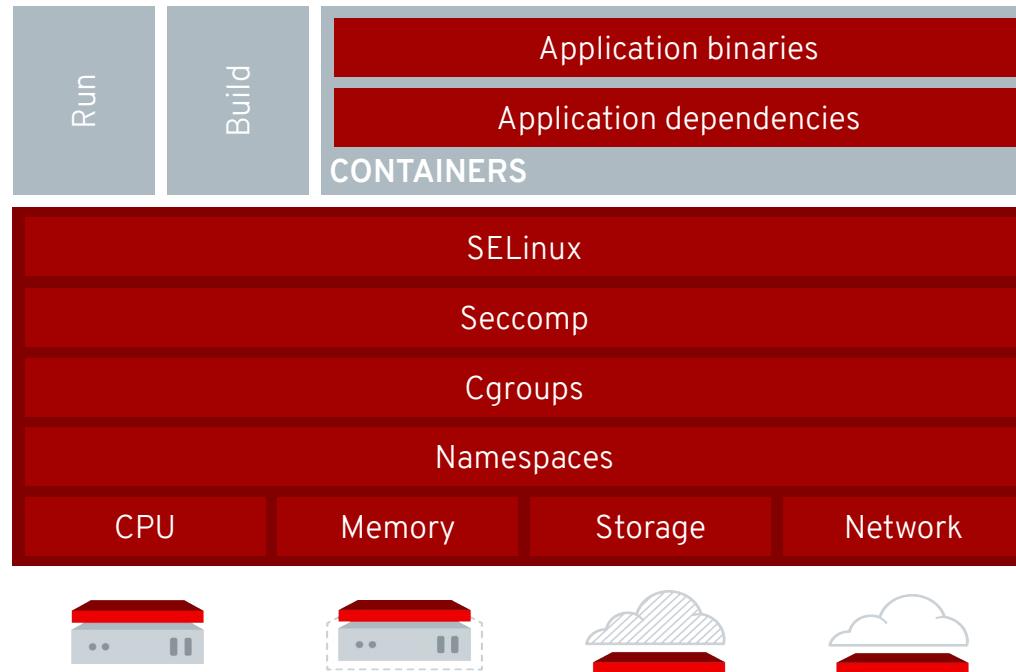


Google Cloud



Microsoft
Azure

Containers are Linux





Cloud



Big ideas drive business innovation



Cloud
DevOps Digital transformation
Artificial intelligence
Internet of things
Open source communities
Open organization
Kubernetes

Containers

Business innovation is all around us.
Every organization in every geography and in every industry can innovate and create more customer value and differentiation with open source technologies and an open culture.

Creating value depends on your ability to deliver applications faster

Cloud-native
applications



AI & machine
learning



Analytics



Internet of
Things

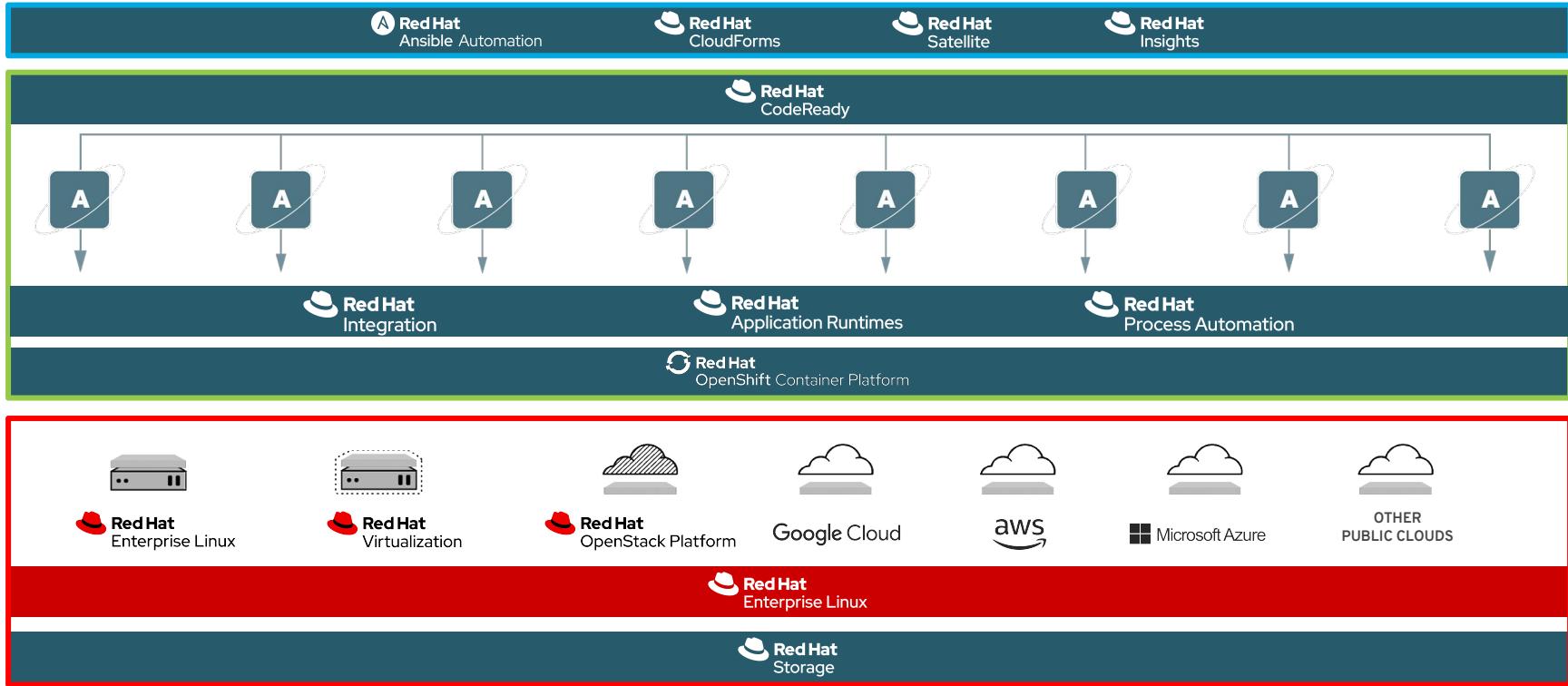


Innovation
culture



Containers, Kubernetes, and hybrid cloud are key ingredients.
OpenShift is the best platform to deliver container-based applications.

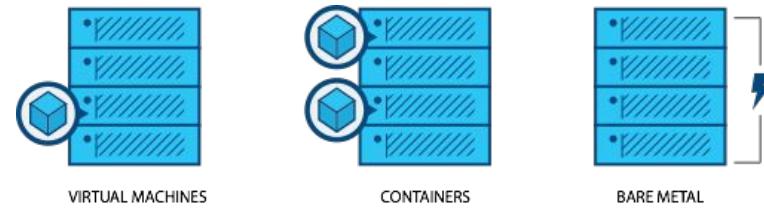
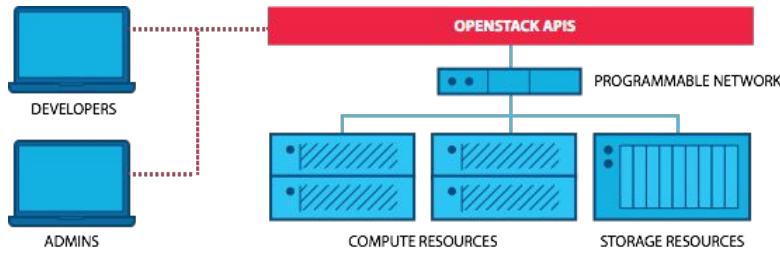
Powering the hybrid cloud



OpenStack



What is OpenStack?



Programmable infrastructure that lays a common set of APIs on top of compute, networking and storage to provide a cloud infrastructure-as-a-service (IaaS)

One platform for virtual machines, containers and bare metal

OpenStack is open source software based on Linux

HERE'S WHY THAT MATTERS

Choice & control: ability to choose between and switch vendors

Ability to contribute or directly influence the roadmap

Widely adopted open source APIs are the new standards

Part of a vibrant community to share knowledge and help each other; inherits the base of Linux for hardware and software ecosystem, security, and innovation

OPENSTACK PRINCIPLES

1 OPEN SOURCE

2 OPEN DESIGN

3 OPEN DEVELOPMENT

4 OPEN COMMUNITY

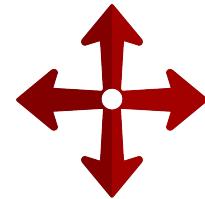
What is OpenStack used for?



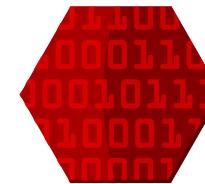
NETWORK FUNCTION
VIRTUALIZATION



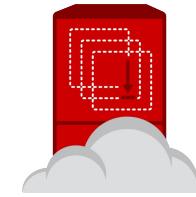
DEVELOPER CLOUD



EDGE COMPUTING

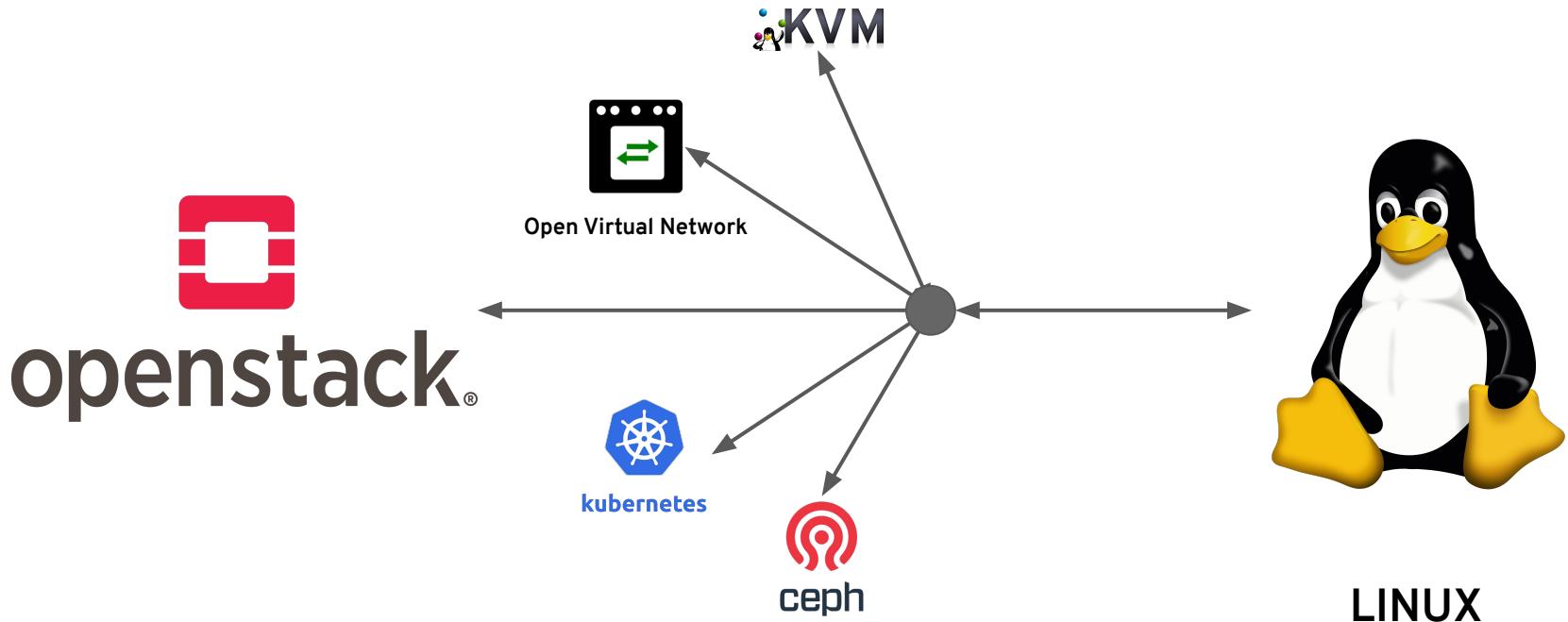


AI/ML/HPC



SERVICE PROVIDER

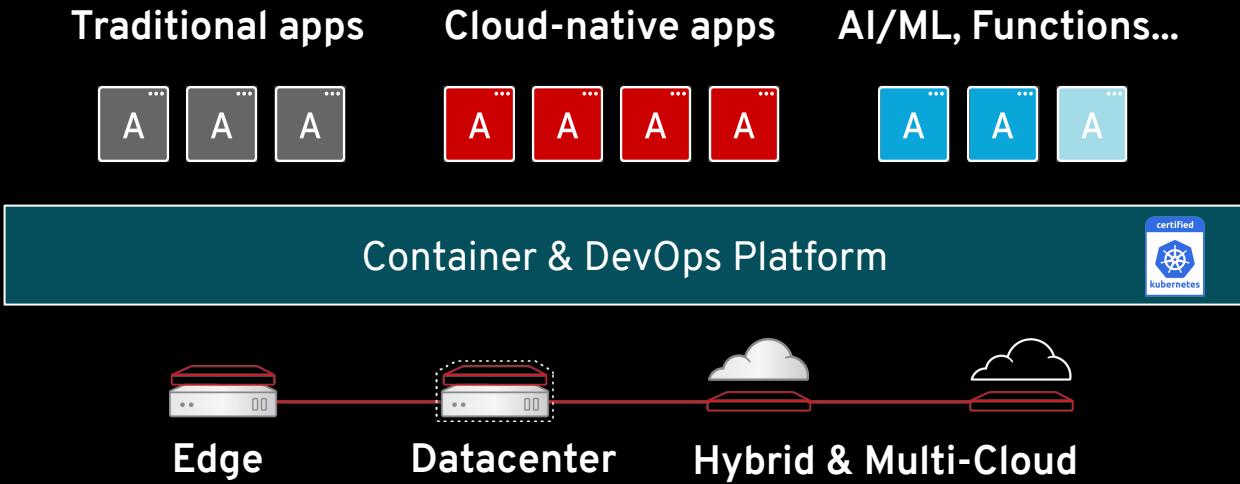
OpenStack and open infrastructure depend on Linux



OpenShift

 Red Hat
OpenShift
Container Platform

With OpenShift you can deliver all your applications in a whole new way



More than 1,000 Red Hat OpenShift customers



MODERNIZE APPS



BBVA KOHLS



CLOUD NATIVE DEV

AMADEUS



Schiphol
Amsterdam Airport

Deutsche Bank

MULTI-CLOUD



Hilton Emirates NBD

MOBILE

HCA Healthcare bp
T...Systems...

ExxonMobil



BIG DATA | ANALYTICS

AI | ML

SMARTBOW

BMW GROUP VORWERK

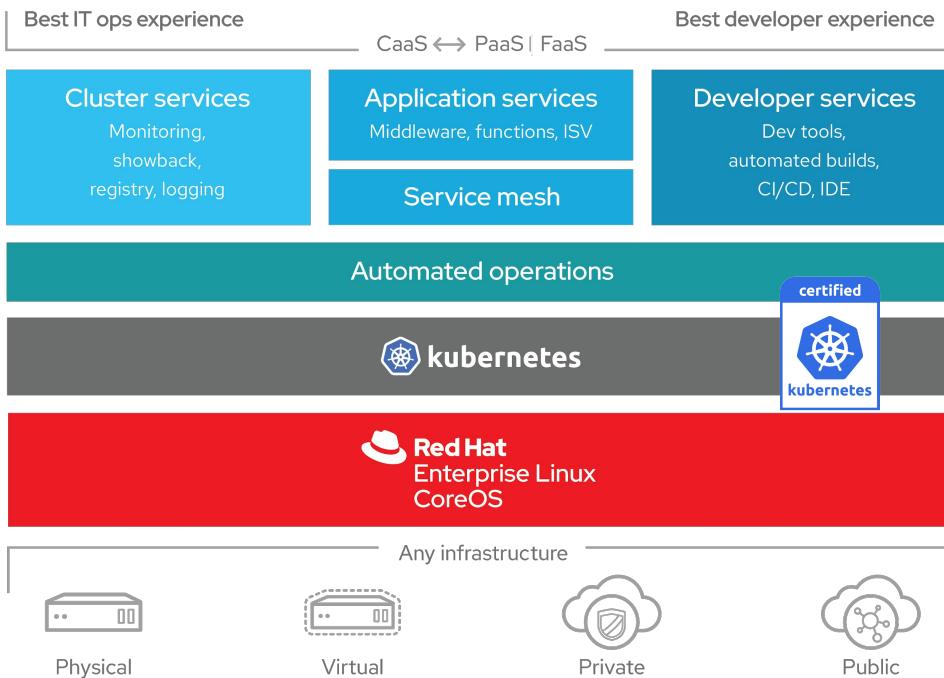
IOT

Why customers choose Red Hat OpenShift

The diagram consists of four main sections, each enclosed in a dashed border:

- Trusted enterprise Kubernetes**: Contains an icon of a server with a gear inside, representing a containerized environment.
- Cloud-like experience everywhere**: Contains the OpenShift logo (a red circular arrow) above two clouds, one containing a network icon and the other a shield icon.
- Empowering developers to innovate**: Contains icons for Spring (green leaf), Node.js (green hexagon with 'node'), Docker (yellow blob), a smartphone displaying various app icons, Kafka (blue hexagon with nodes), and Kubernetes (blue hexagon with 'K' and 'n').
- Open source innovation**: Contains icons for Helm (blue hexagon with a steering wheel), OpenShift (blue sailboat), Rook (red flame), CoreOS (red lightning bolt), Ceph (blue hexagon with a gear), etcd (blue hexagon with a gear and 'etcd'), and Kubernetes (blue hexagon with a snowflake).

OpenShift 4 - A smarter Kubernetes platform



Automated, full-stack installation from the container host to application services

Seamless Kubernetes deployment to any cloud or on-premises environment

Autoscaling of cloud resources

One-click updates for platform, services, and applications

“”

We can localize clusters in different markets if we need to and therefore serve our customers on a worldwide scale.

Dr. Alexander Lenk
Lead Architect Connected
Vehicle, Digital Backend,
Big Data, Blockchain
BMW Group

BMW
Connected Drive





Red Hat
Enterprise Linux

Management

Red Hat
Insights

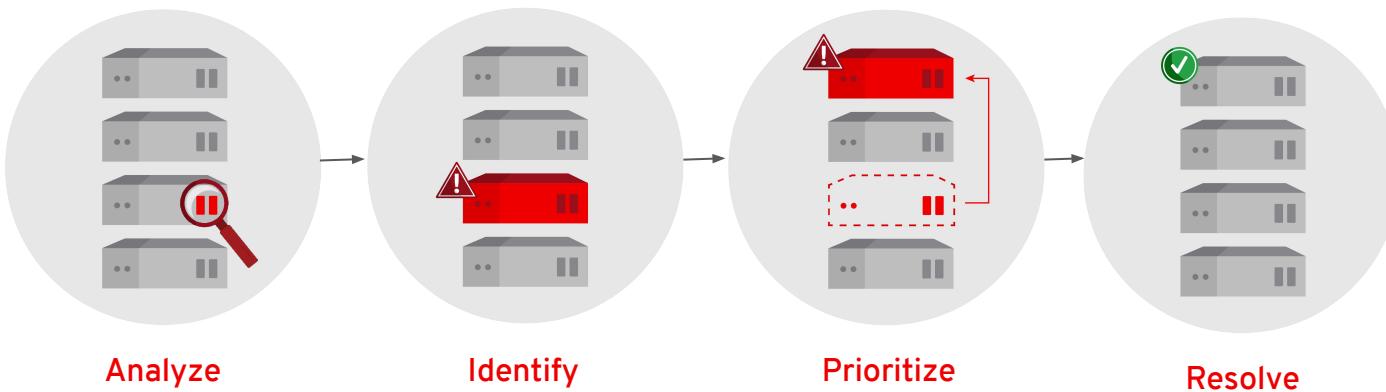
Red Hat
Ansible Automation
Platform

Red Hat
Satellite

Insights



Gain operating intelligence



Red Hat Insights

Included with your Red Hat Enterprise Linux subscription

Assesses

customer's Red Hat environments

Remediates

findings with prescriptive remediation steps or an Ansible playbook

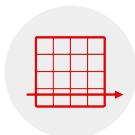
Insights

rule contributions directly from Red Hat subject matter experts

Identifying risks for Availability, performance, stability and security

Key risks discovered

Tailored resolution steps included for resolution



Performance issue

Network interface is not performing at maximum speed



Recommended action

Check cable, connections, and remote switch settings



Security risk detected

Privilege escalation



Recommended action

Apply mitigation and update the kernel



Availability

OpenShift operations fail if insufficient CPU or memory



Recommended action

Increase CPU and/or memory reservation



Stability

Filesystem has exceeded 95% capacity

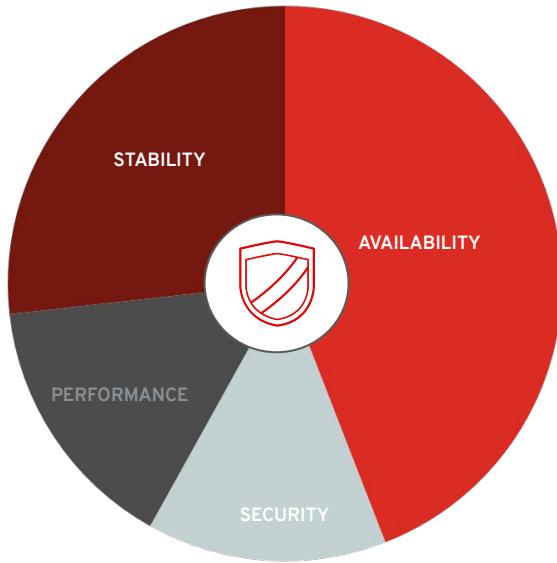


Recommended action

Increase free space on the host.

More than just security

Red Hat Insights has more than 1000 rules—here is how they stack up across categories



- **Availability** 44%
- **Security** 15%
- **Stability** 27%
- **Performance** 14%

Red Hat Insights

Resolve potential issues before they impact business operations

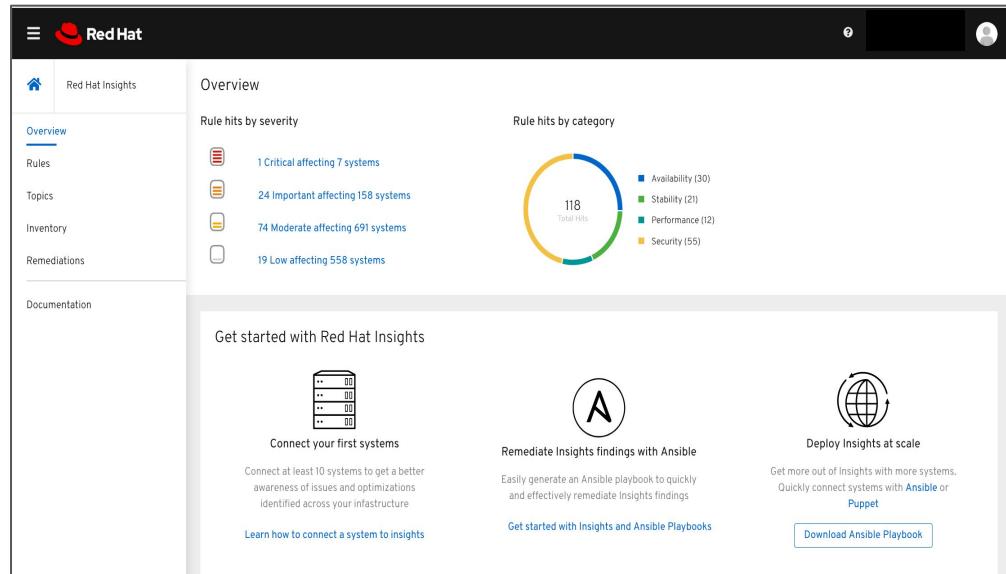
PROACTIVE RISK IDENTIFICATION WITH REMEDIATION GUIDANCE

for RHEL environments on-premises, on the cloud
or on private cloud

INCLUDED WITH ACTIVE SUBSCRIPTIONS
Red Hat Enterprise Linux subscriptions,
versions 6.4 and higher

IDENTIFIES A VARIETY OF RISKS
Performance, security, availability, stability
plus application or platform-specific

ONE MANAGEMENT TOOL
One Red Hat Enterprise Linux management tool for all
RHEL deployments (multi-clouds, on premises)





Red Hat Ansible Automation Platform

Automation for all





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

Ad-hoc Automation is happening in silos



Developers

→ Ansible used in silo



Security

→ DIY scripting automation



Infrastructure

→ Open source config management tool



Network

→ Proprietary vendor supplied automation

Is organic automation enough?

Teams are automating...



Lines Of Business



Network



Security



Operations



Developers



Infrastructure

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

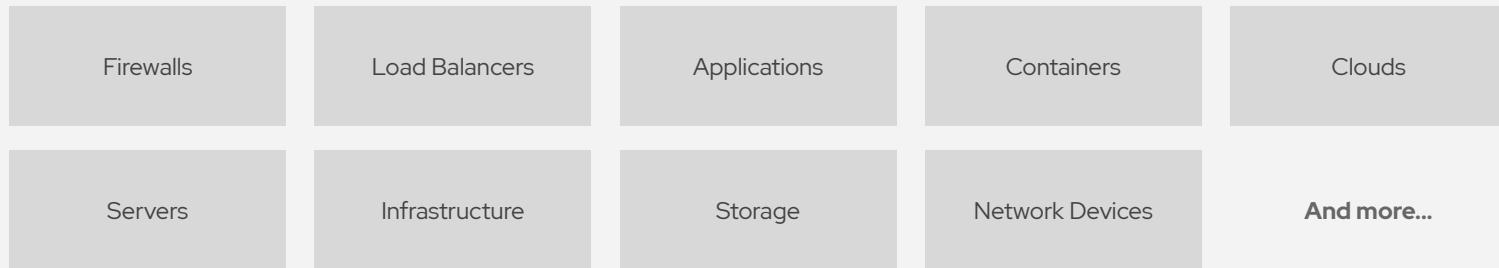
What can I do using Ansible?

Automate the deployment and management of your entire IT footprint.

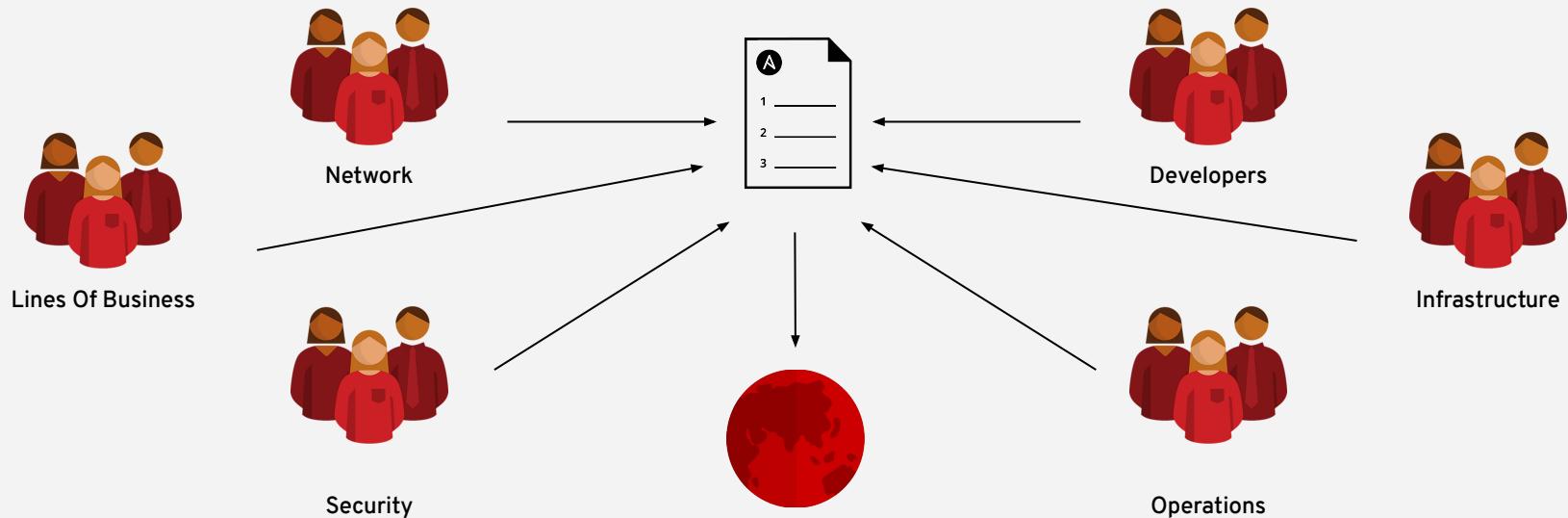
Do this...



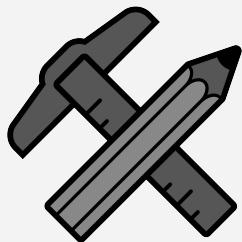
On these...



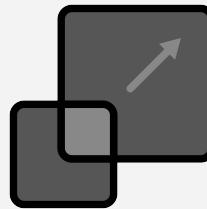
When automation crosses teams, you need an automation platform



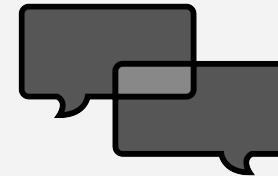
A platform can help you:



Create

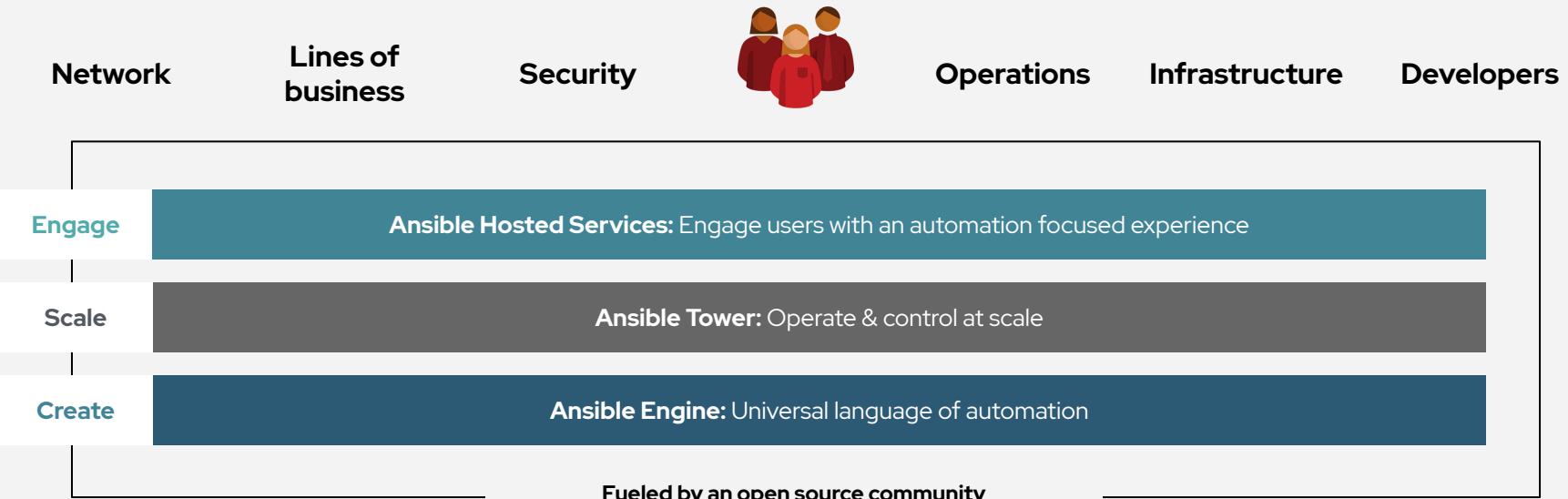


Scale



Engage

Red Hat Ansible Automation Platform



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

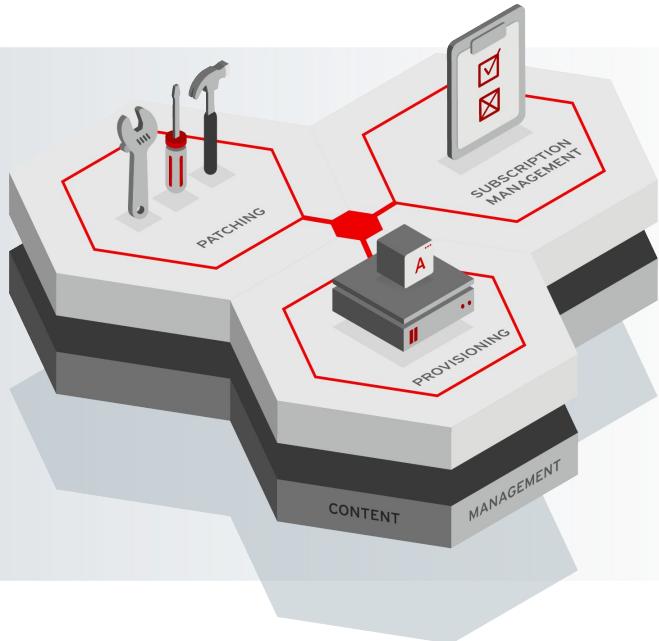
Financial summary:

146%

ROI on Ansible Tower

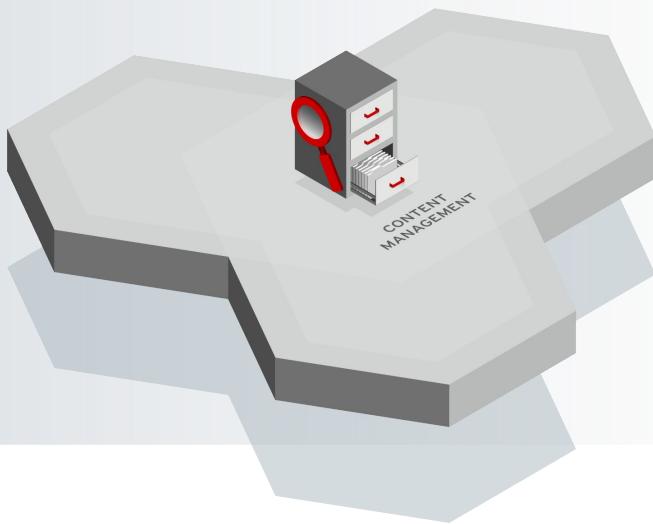
<3 MONTHS

Payback on Ansible Tower



Red Hat Satellite

Content Management



Content Repository any type of content made available to any host

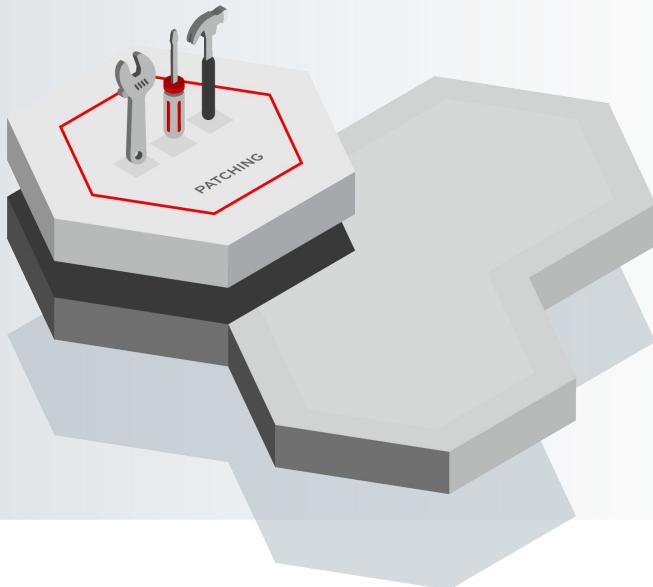


Curation of content prior to distribution



Distribution of content as close as possible to the end point.

Patch Management



Report on hosts that need updates, fixes, or enhancements

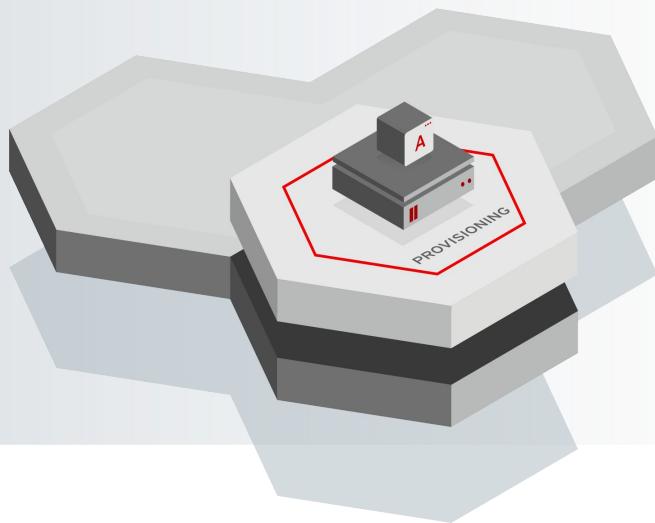


Group homogeneous systems so that you can easily work with them



Respond quickly to patching requirements using scalable automation

Provisioning Management



Provision to bare metal, virtual, private, and public clouds

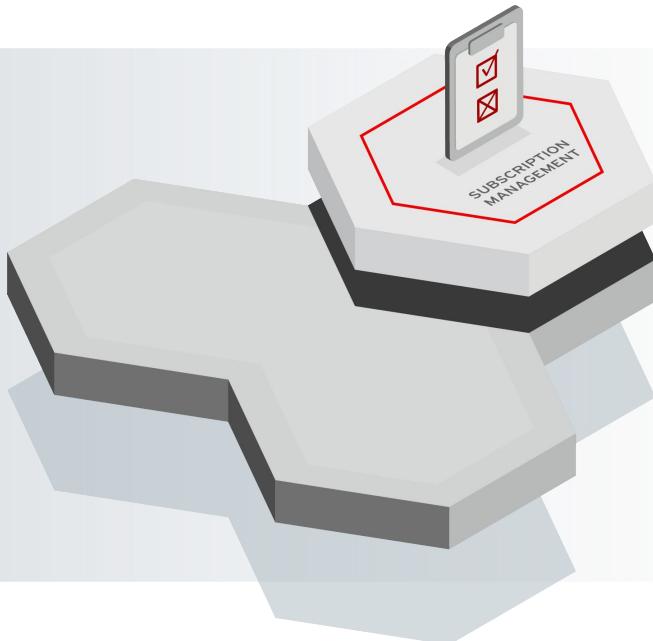


Import non-provisioned hosts



Automate using Ansible roles to perform post-provisioning steps

Subscription Management



Centrally manage subscription usage

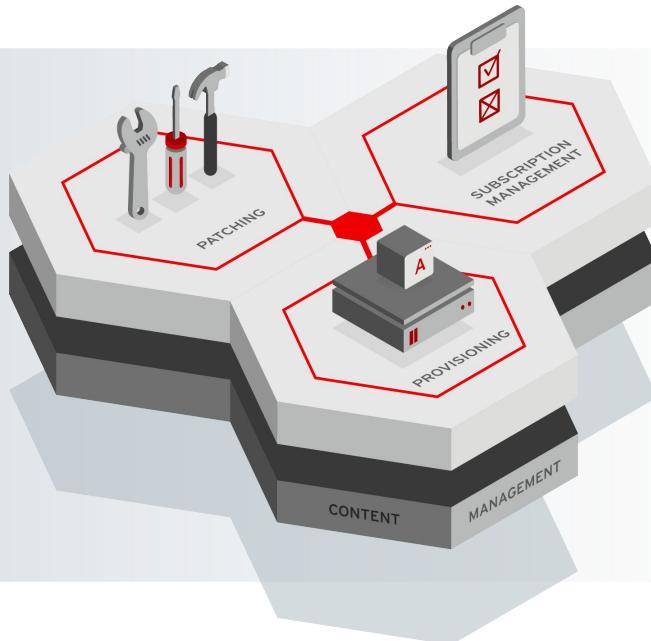


Maintain accurate inventory and utilization information



Report on subscription consumption

Additional Satellite Capabilities



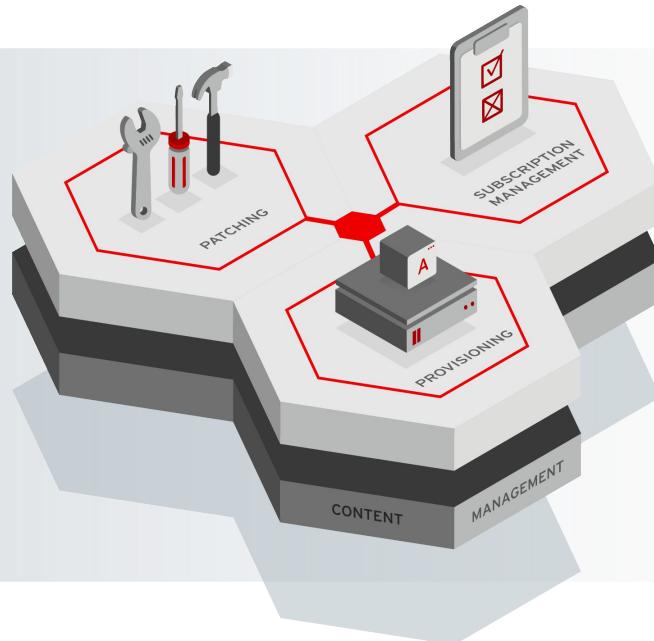
Configuration Management using Ansible or Puppet



Automation through integration with Ansible Tower



Compliance using OpenSCAP policies



Standard Operating Environment hosts are the same across your environment



Reliable and Resilient Using Red Hat Insights



Secure your systems are patched, up to date, and compliant with security policies



Confidence in your subscription utilization

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

Competition

SPARE SLIDES

THE RHEL ENEMY LIST

IN ORDER OF REVENUE IMPACT

COMPETITOR	IMPACT
Oracle Linux	#1 competitor in terms of revenue impact
CentOS	#1 competitor by frequency of encounter both on-prem and in the cloud
SUSE	Opportunity: SAP Threat of SLES-ES in EMEA
Amazon Linux	Occasional losses, many battles lost before we got to the party
Ubuntu	Lots of awareness, often first-mover advantage in the cloud

ORACLE LINUX

TECHNOLOGY & OFFERING

- Oracle Linux is built from Red Hat Enterprise Linux source code we publish
- Releases of new versions & patches come within hours of Red Hat
- Ships with 2 kernels--ours (RHCK) & theirs (UEK)
- Oracle Linux support plan offers support for Red Hat Enterprise Linux
- Premium Oracle Linux support comes with Ksplice, Spacewalk, & OpenStack
- Priced by the server
- No extended update support (EUS)
- Has a version of extended life cycle support (ELS)
- 50% to 90% less than Red Hat Enterprise Linux

ORACLE'S RHEL TAKEOVER TACTICS

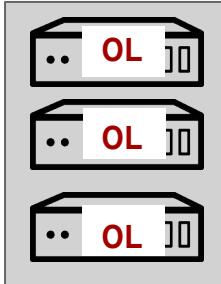
CONVERT/MIGRATE EXISTING RHEL SYSTEMS TO ORACLE LINUX SYSTEMS WITH NO REINSTALLATION

1. Customer downloads 'up2date' script from Oracle
2. Customer runs the script which:
 - a. Removes some RHEL packages
 - b. Removes all Red Hat trademarks
 - c. Adds Oracle Linux packages
3. Reboot
4. System now identifies as Oracle Linux while 60% of the remaining binaries are the original RHEL install

A “MIGRATION” TO ORACLE LINUX

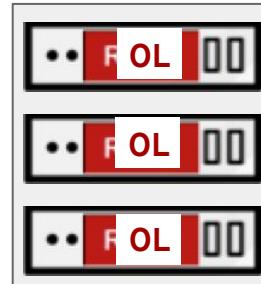
TOTAL RHEL SUBSCRIPTIONS REQUIRED = 6

No RHEL
subscription
required

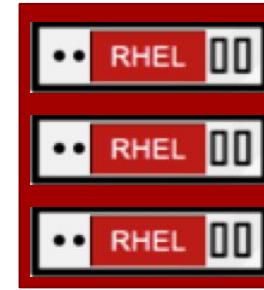


Clean installs of
Oracle Linux

Subscriptions are required for all RHEL installs,
as well as systems that have partial installs



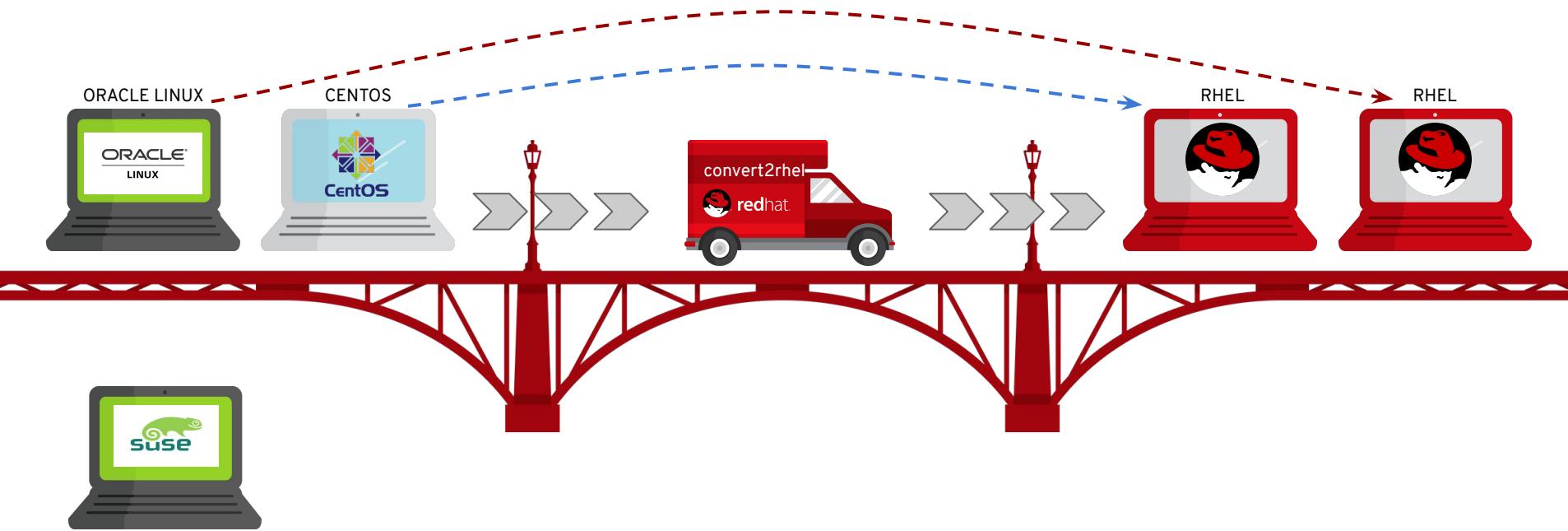
RHEL systems that have been “converted”
to OL but still contain RHEL binaries
still require paid subscriptions
IF there are other active RHEL subs



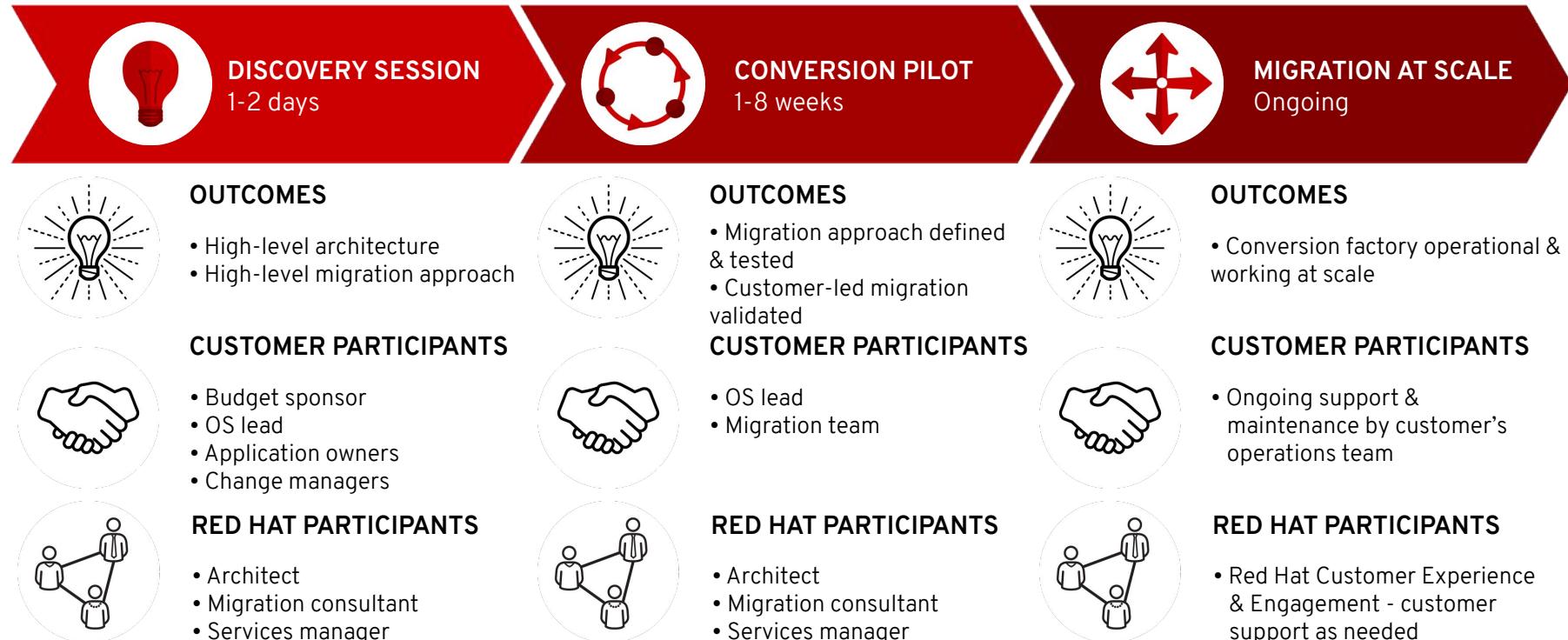
Active RHEL
subscriptions

CONVERT TO RHEL

CONVERTING SYSTEMS FROM ORACLE LINUX AND CENTOS TO RED HAT
ENTERPRISE LINUX



CONVERT TO RHEL JOURNEY



CentOS

CUSTOMER MOTIVATIONS

- CentOS viewed as free RHEL
- RHEL seen as too hard to consume, manage, & track
- CentOS is “good enough”
- No requirements for certifications

CentOS LINUX

TECHNOLOGY & OFFERING

- CentOS Linux is built from RHEL source code we publish
- Releases of new versions & patches come within hours of Red Hat release
- Forum support for free
- Paid support available via Rogue Wave
- No EUS, ELS, kpatch, or certifications

SUSE ENTERPRISE LINUX SERVER (SLES)

TECHNOLOGY & OFFERING

- SUSE Linux is the #2 paid Linux for on-prem & private cloud
- New private owner later this year
- Minor releases can rebase kernels
- Generating \$300M annually
- SLES-ES support plan offers support for RHEL (No EUS)
- Competitively priced
- Live (kernel) patching service available as an add-on

SUSE ENTERPRISE LINUX SERVER (SLES)

MOTIVATIONS & TACTICS

- Convince SAP customers that SUSE has a stronger partnership with SAP than Red Hat
- Present SUSE Live Patching Service as a better kernel patching solution than kpatch (because it is)
- Promote their own emerging tech including Cloud Foundry
- Offer RHEL customers lower price for support of their RHEL environments

SUSE & THE SAP CONNECTION

YOUR MOTIVATIONS & TACTICS

- SAP: The World's Largest Provider of Enterprise Application Software (over \$28B in Revenue for 2018)*
- Anecdotal evidence indicates that a substantial portion of it's over **\$300M in annual revenue** comes from fees as a premier platform for SAP applications.
- SAP, after years of keeping Red Hat at arm's length is now actively partnering with us - Oracle is a mutual enemy
- Red Hat's "RHEL for SAP Solution" SKU is an effective tool for SUSE takeout
- The number 1 application we are in contention for is HANA
- SUSE knows we are coming for the SAP business and is swinging back