



Herzlich Willkommen zum 4. OpenShift Anwendertreffen

Sebastian Faulhaber, Red Hat
Lutz Lange, Red Hat
Holger Koch, Deutsche Bahn

18. September 2017

A group of approximately 15-20 people, mostly men, are gathered in a modern, brightly lit meeting room. They are standing around a large whiteboard on the left side of the frame, which contains handwritten notes and diagrams. The room features rows of grey chairs in the background, suggesting a conference or seminar setting. The walls are decorated with large, stylized geometric patterns in black and white. The overall atmosphere is professional and collaborative.

***“WE GROW
WHEN WE SHARE.”***

Webseite - <http://www.openshift-anwender.de>

Slack Channel - <http://openshift-de.slack.com>

Mailing Liste - openshift-anwender@redhat.com

Twitter #openshiftuser

Vielen Dank! Merci! Gracias! Thank you!





ORGANISATORISCHES

Brandschutz / Notfälle

Veröffentlichung Foto und Video

Raucherbereiche

Sonstiges

Agenda

09:00 - 10:20 Uhr	Einführung und Überblick zu OpenShift [Lutz Lange, Red Hat]
10:30 - 11:00 Uhr	<i>Begrüßung, Organisatorisches und Vorstellung</i>
11:00 - 11:45 Uhr	OpenShift auf AWS ein Anwendungsfall [Holger Koch, Deutsche Bahn]
11:45 - 12:30 Uhr	Highlights in OpenShift 3.6 [Lutz Lange, Red Hat]
12:30 - 13:30 Uhr	<i>Mittagspause & Gruppenfoto</i>
13:30 - 15:00 Uhr	Offene Diskussion / Lab Track
15:00 - 15:20 Uhr	<i>Kaffeepause</i>
15:20 - 16:15 Uhr	Offene Diskussion / Lab Track
ab 16:15	<i>Networking und Getränke</i>



OpenSpaces Diskussion

BREAKOUT GRUPPEN

01 OpenShift Einsteiger

02 Elastic OpenShift Cluster *[Holger Koch, Erhard Weinell]*

03 Service Catalog *[Robert Bohne]*

04 Monitoring Applications End-2-End *[Heiko Rupp]*

05 OpenShift Operations Erfahrungen und Best Practices

Abschluss & Zusammenfassung

Euer Feedback ist uns wichtig!



<http://goo.gl/iZEGqr>



THANK YOU



plus.google.com/+RedHat



facebook.com/redhatinc



linkedin.com/company/red-hat



twitter.com/RedHatNews



youtube.com/user/RedHatVideos

Appendix

Anwendertreffen, Meetups, Commons

Was ist das alles?

OpenShift Commons - <http://commons.openshift.com>

Dachorganisation zum OpenShift Community weltweit

Anwendertreffen - <http://openshift-anwender.de>

Deutschsprachige Gruppe von OpenShift Anwendern mit ca. 2-3 Live Treffen pro Jahr.

OpenShift Meetups - Stuttgart, Dortmund, Berlin ...

Lokale OpenShift Anwendertreffen, die regelmäßiger durchgeführt werden.

Häufig als Abendveranstaltung

ORG Team Anwendertreffen

Von Vorgaben zur Selbstorganisation

- Core Org Team
 - Sebastian Faulhaber - Red Hat Solution Architect
 - Lutz Lange - Red Hat Solution Architect
 - Holger Koch - DB Systel
- Lokale Unterstützung
 - Holger Koch
- Offene Fragen
 - Wie kommen wir dahin dass sich die Gruppe selbst verwaltet?
 - Wer mag aktiv die nächsten Treffen mitgestalten?

Nächste Anwendertreffen

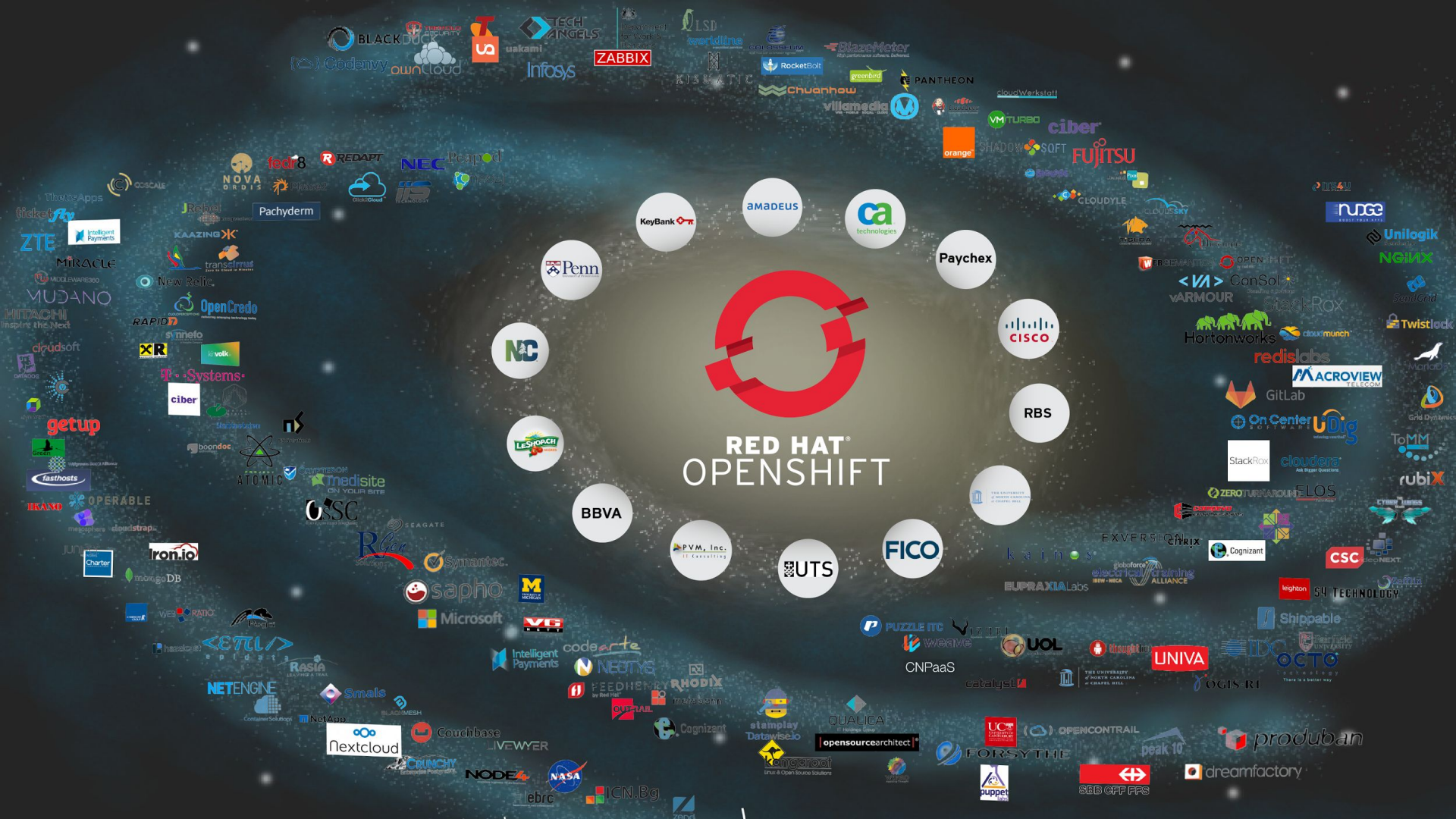
Kleines Anwendertreffen 14. November in München bei Consol.

Ein großes Treffen im März-18 oder April-18 in Berlin bei der Telekom?



OPENSIFT CONTAINER PLATFORM TECHNICAL OVERVIEW

Lutz Lange
Solution Architect
14-Sept-17





WALL OF CONFUSION





Your Journey to Cloud Native



Re-Org to
DevOps



Self-Service,
On-Demand,
Elastic,
Infrastructure
as
Code
(Cloud)



Automation
Puppet, Chef,
Ansible
and/or
Kubernetes



CI & CD
Deployment
Pipeline



Advanced
Deployment
Techniques



Silicon
Valley
DotCom
Startup

Using
Microservices



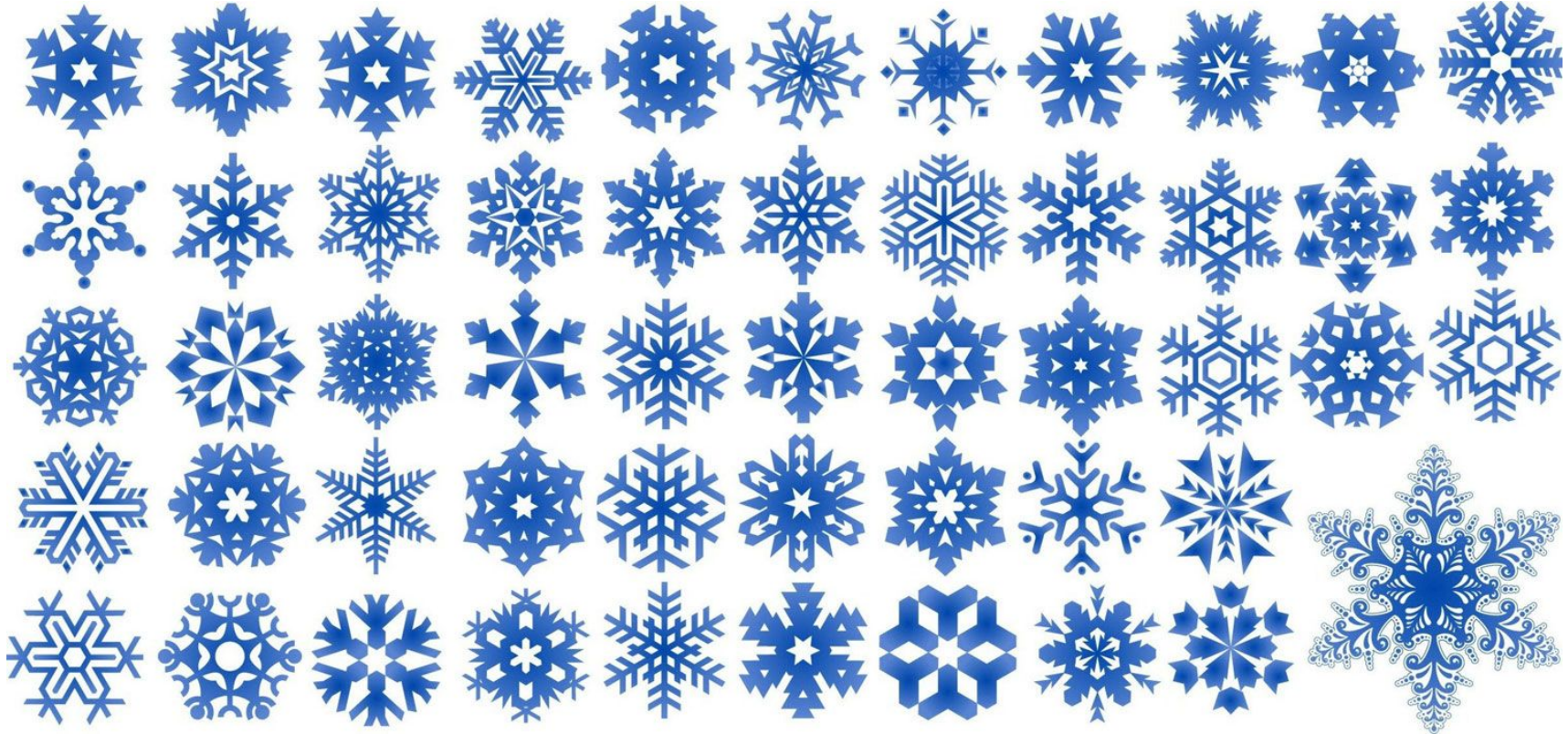
1. How many days or weeks do you have to wait for a VM?
2. How many tickets need to be filed?
3. How many managers need to approve it?
4. What if a house builder had to wait days/weeks for a hammer or some nails?
5. What signal does this send to the people who need the resources?

Why do expensive resources like developers wait so long for inexpensive resources like VMs?



You need self-service, API-driven (ticketless),
quota managed, infrastructure on-demand

Snowflakes or Phoenix?




Snowflakes or Phoenix?

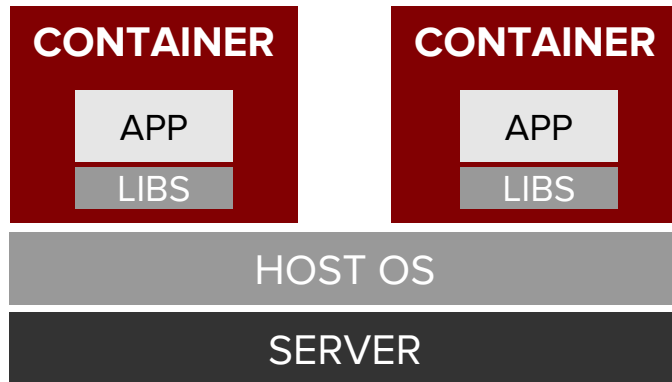


Containers package applications with dependencies and isolate the runtime

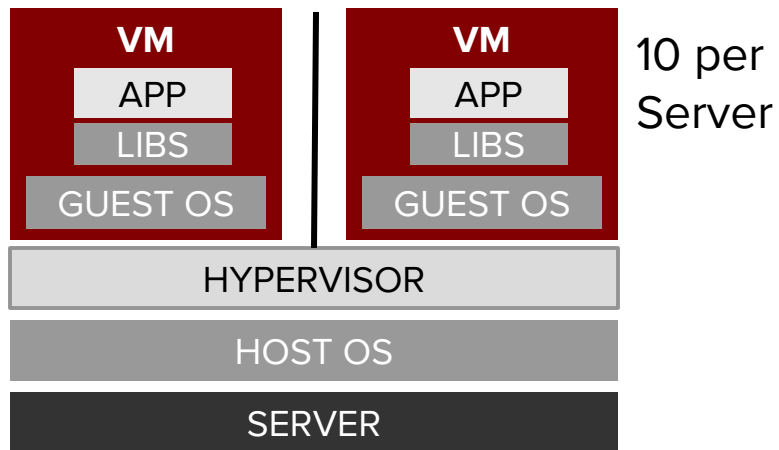
- Easy to deploy and portable across host systems
- Created from immutable, layered images
- Isolated from a host operating system.

In RHEL, this is done through:

- Control Groups (cgroups)
- kernel namespaces
- SELinux, sVirt, iptables
- Docker 



Containers provide high density and efficiency at the expense of isolation



PHYSICAL SERVER



27 HRS

VIRTUAL MACHINE

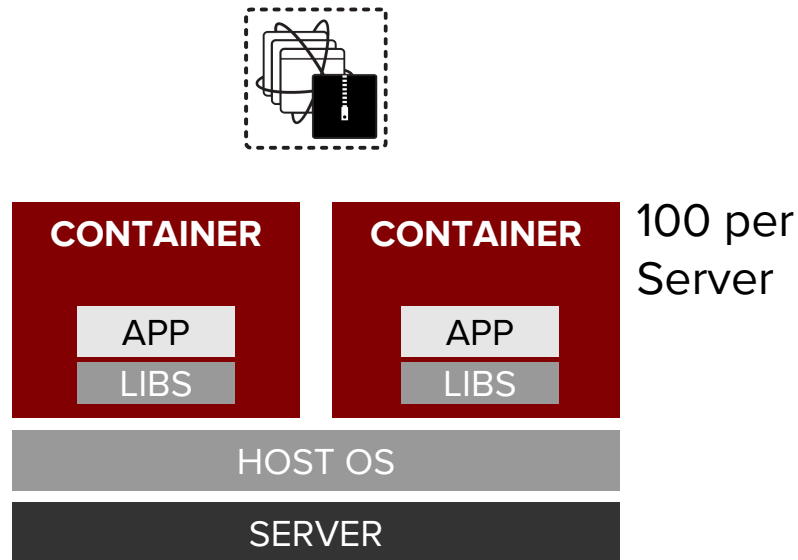


12 MINS

CONTAINER INSTANCE

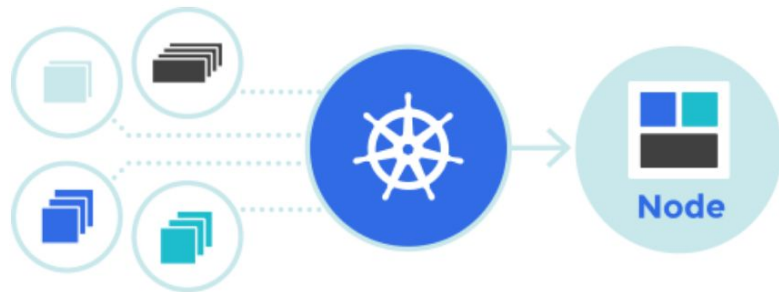


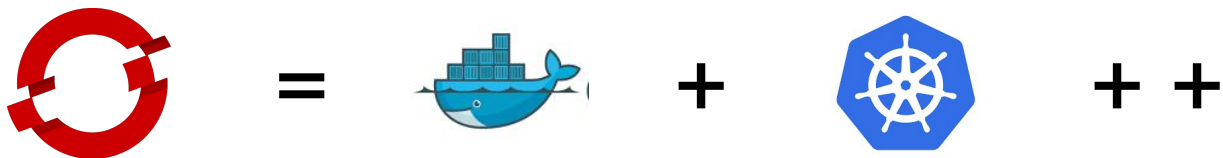
10 SECS



WHAT IS KUBERNETES?

- Orchestration of large amounts of running containers spread across a lot of hosts.
- “Kubernetes is an open-source platform for automating deployment, scaling, and operations of application containers across clusters of hosts, providing container-centric infrastructure.” [1]
- Open Sourced by Google
- Planet Scale





made enterprise

OPENSIFT MAKES DOCKER UND KUBERNETES EASY TO USE



WHAT COMES IN KUBERNETES

- Container Scheduling on Multiple Hosts
- Self-healing

- Scaling
- Service Discovery
- Rolling Deploys and Rollbacks



WHAT OPENSIFT ADDS OVER KUBERNETES

Ops:

- Software Defined Network
- Persistent Storage
- Container Native Storage (CNS / SDS)
- Log Aggregation and Analysis
- Monitoring | Telemetry
- Capacity Management
- Egress Routing for Enterprise integration
- Router Sharding
- Full Stack Support
- System Certifications and Patching
- ...

Security:

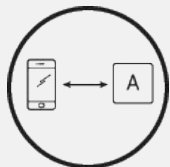
- Role Based Access Control
- Container Security and Isolation
- Multi-tenancy

Dev:

- Automatically Triggered Deployments (CICD)
- Integrated Customizable Pipelines (CICD)
- Build and Deployment Configurations
- Weighted AB Testing
- Stateful Workloads (Storage, StatefulSets)
- Workload Containerization
- Self-service
- User Experience
- ...

- Secured Registries
- Automated Deployment Patching
- ...

Containers Transform



Monolith



N-Tier



Microservices

Applications



Datacenter

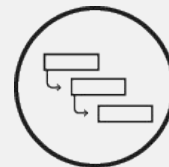


Hosted

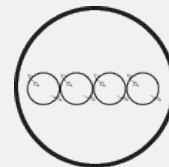


Hybrid

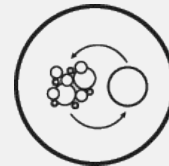
Infrastructures



Waterfall



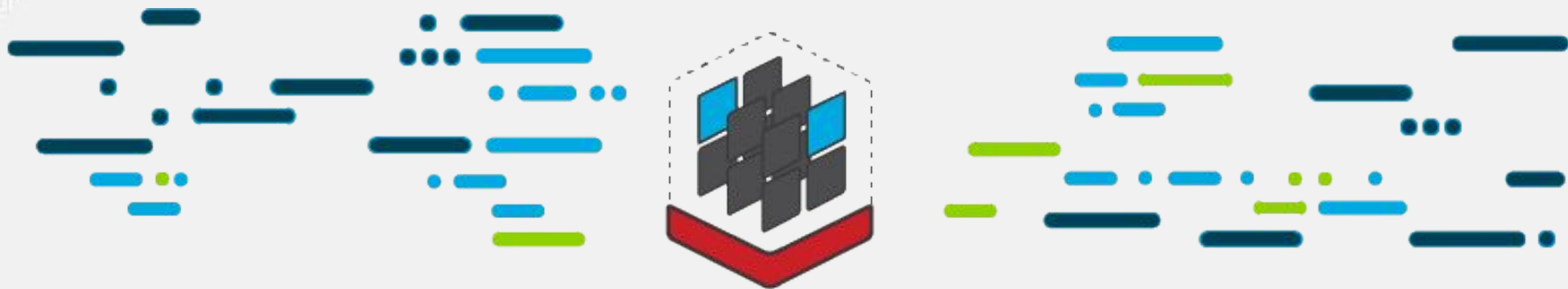
Agile



DevOps

Processes

What Are Containers?



It Depends on Who You Ask

Sys-Admins / Ops

- Sandboxed application processes on a shared Linux OS kernel
- Simpler, lighter, and denser than virtual machines
- Portable across different environments

Developers

- Package my application and all of its dependencies
- Deploy to any environment in seconds and enable CI/CD
- Easily access and share containerized components

Containers - An Evolution in Application Deployment

- Enable efficiency and automation for microservices, but also support traditional applications
- Enable faster and more consistent deployments from Development to Production
- Enable application portability across 4 infrastructure footprints: Physical, Virtual, Private & Public Cloud

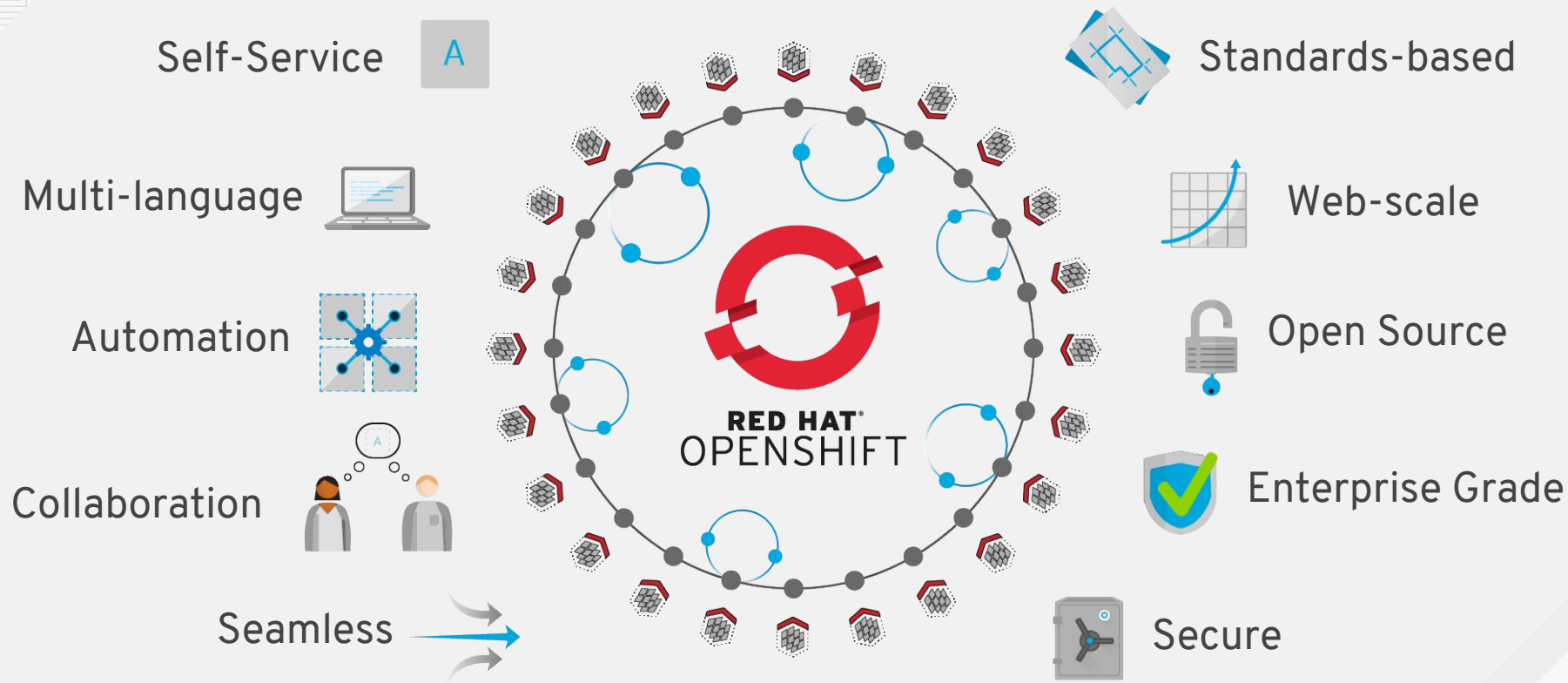


Facilitating A Rich Container Ecosystem

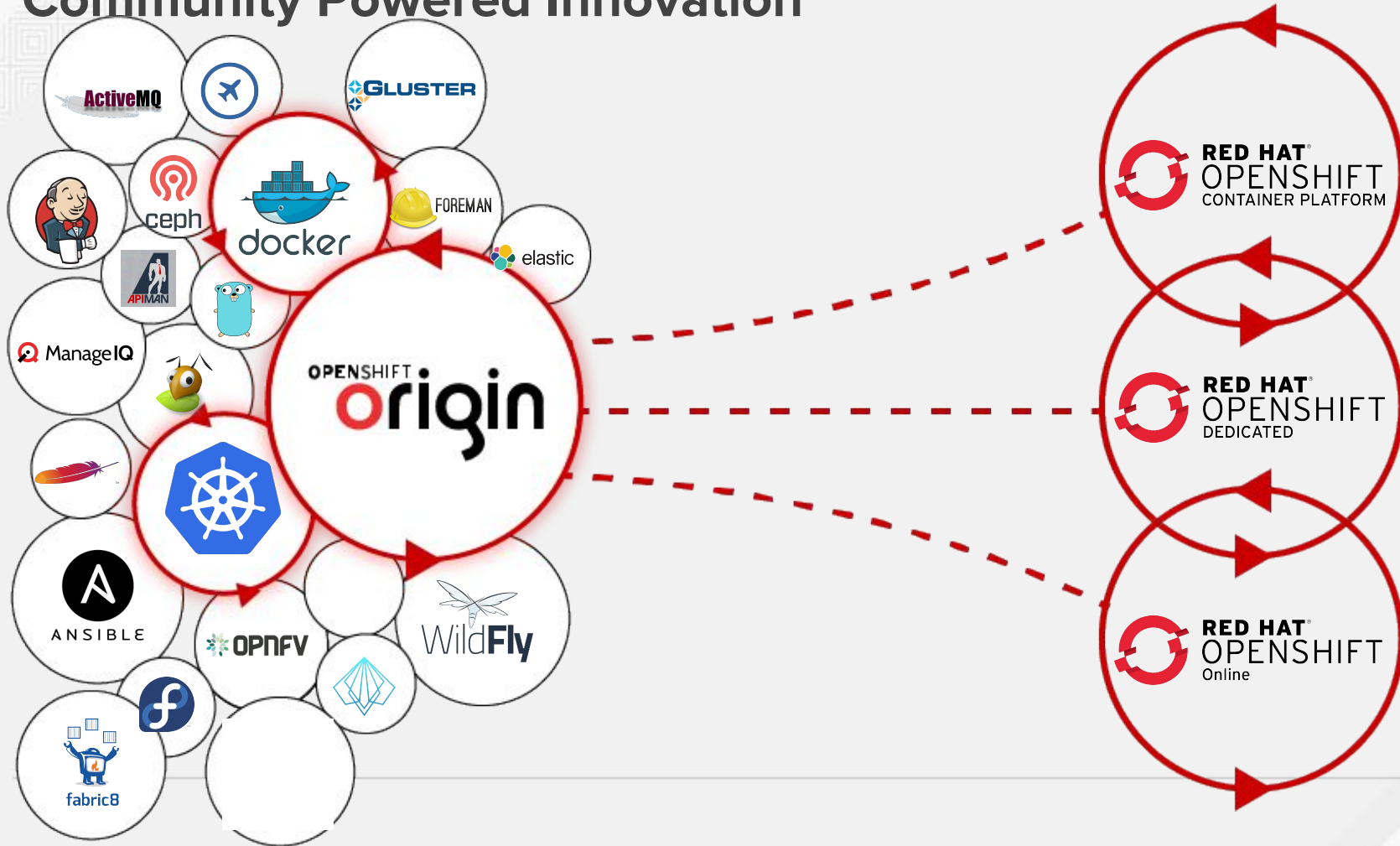


Represented by a broad coalition of industry leaders focused on common standards for software containers

Create and drive the adoption of a new computing paradigm that is optimized for modern distributed systems



Community Powered Innovation



Trusted Container OS



Enterprise Container Host

Container Runtime & Packaging
(Docker)

Atomic Host

Red Hat Enterprise Linux

Trusted by Fortune Global
500 companies



Enterprise Kubernetes



Container Orchestration & Cluster Management
(kubernetes)

Networking

Storage

Registry

Logs &
Metrics

Security

Infrastructure Automation & Mg



Enterprise Container Host

Container Runtime & Packaging
(Docker)

Atomic Host

Red Hat Enterprise Linux



kubernetes

Cloudforms
Red Hat Storage

Enterprise Container Platform



Self-Service

Service Catalog
(Language Runtimes, Middleware, Databases)

Build Automation

Deployment Automation

OpenShift Application Lifecycle Management
(CI/CD)



Container Orchestration & Cluster Management
(kubernetes)

Networking

Storage

Registry

Logs &
Metrics

Security

Infrastructure Automation & Cockpit



Enterprise Container Host

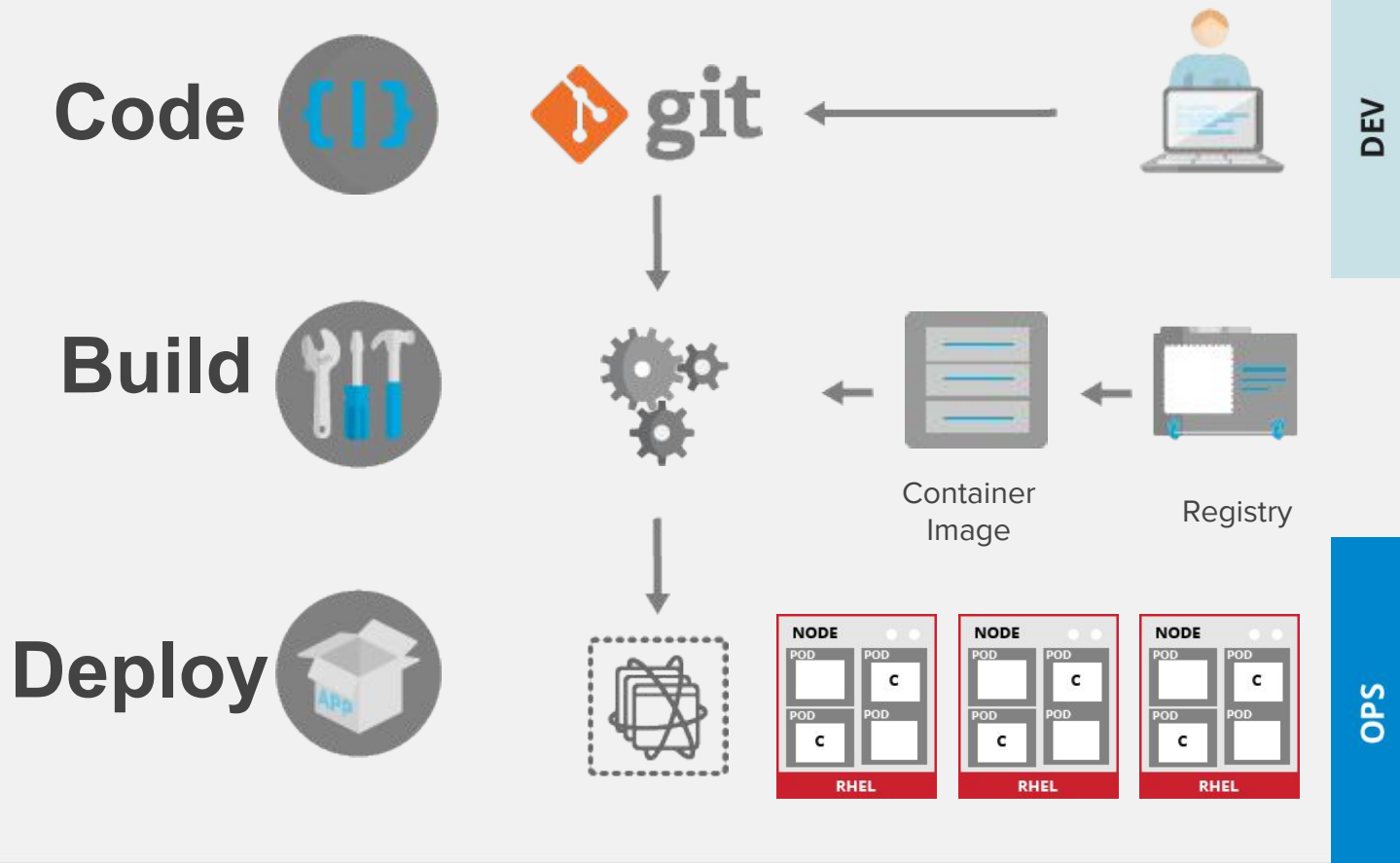
Container Runtime & Packaging
(Docker)

Atomic Host

Red Hat Enterprise Linux

Source-2-Image Application Pipelines Dev Tools

Source 2 Image Walk Through



Traditional, Stateful, and Microservices-based Apps

Business
Automation

Container

Integration

Container

Data &
Storage

Container

Web &
Mobile

Container



Self-Service

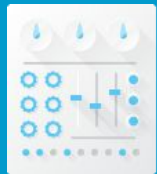
Service Catalog

(Language Runtimes, Middleware, Databases)

Build Automation

Deployment Automation

OpenShift Application Lifecycle Management
(CI/CD)



Container Orchestration & Cluster Management
(kubernetes)

Networking

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Enterprise Container Host

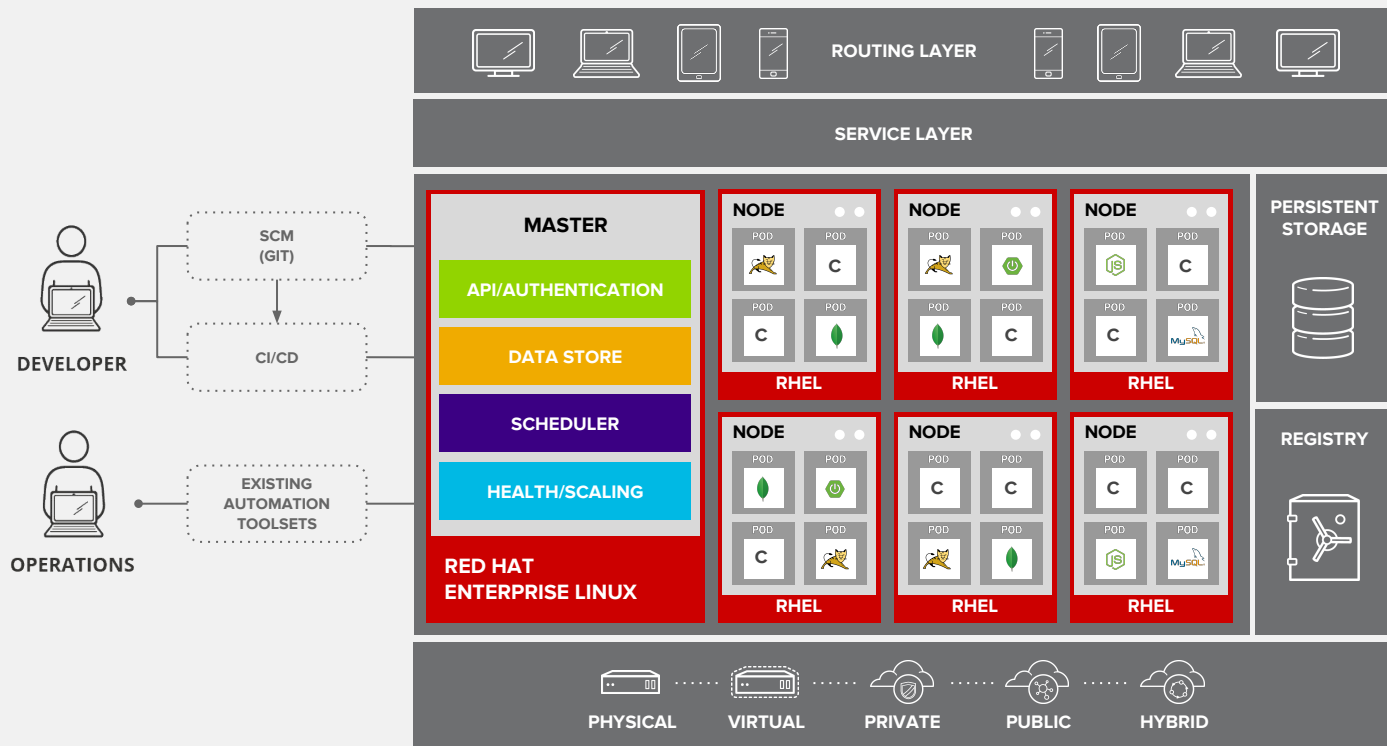
Container Runtime & Packaging
(Docker)

Atomic Host

Red Hat Enterprise Linux

JBOSS EAP
JBOSS DATA GRID
JBOSS DATA
VIRTUALIZATION
JBOSS AM-Q
JBOSS BRMS
JBOSS BPM
JBOSS FUSE
RED HAT MOBILE
3 Scale

OPENSIFT ARCHITECTURE

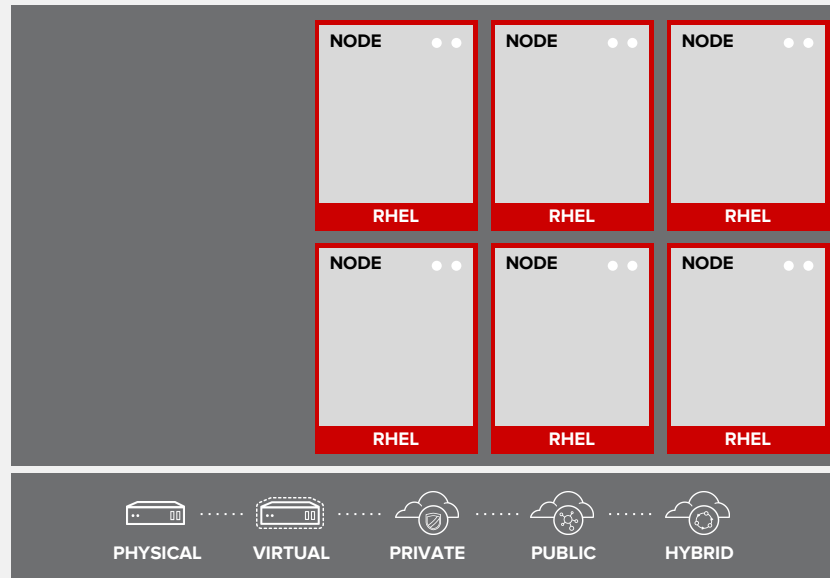


OPENSIFT ARCHITECTURE

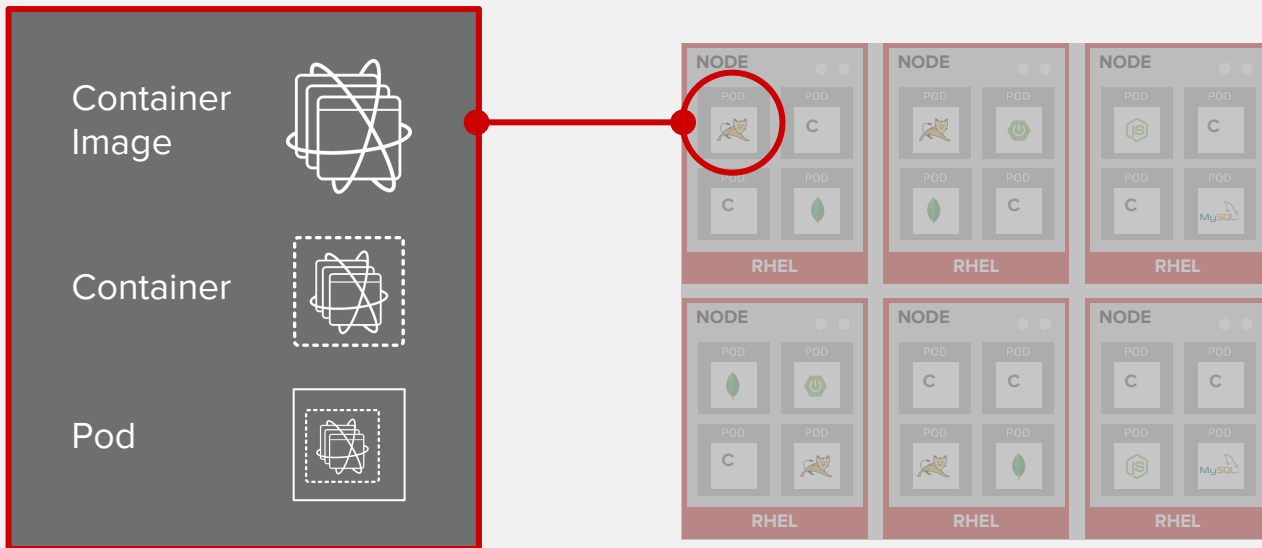
YOUR CHOICE OF INFRASTRUCTURE



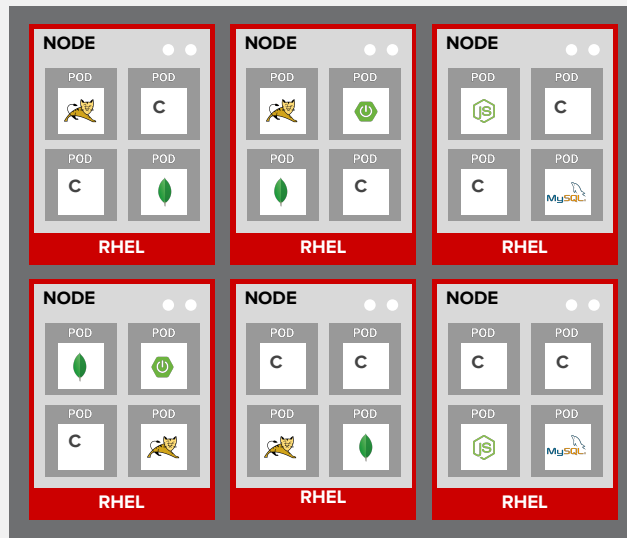
NODES RHEL INSTANCES WHERE APPS RUN



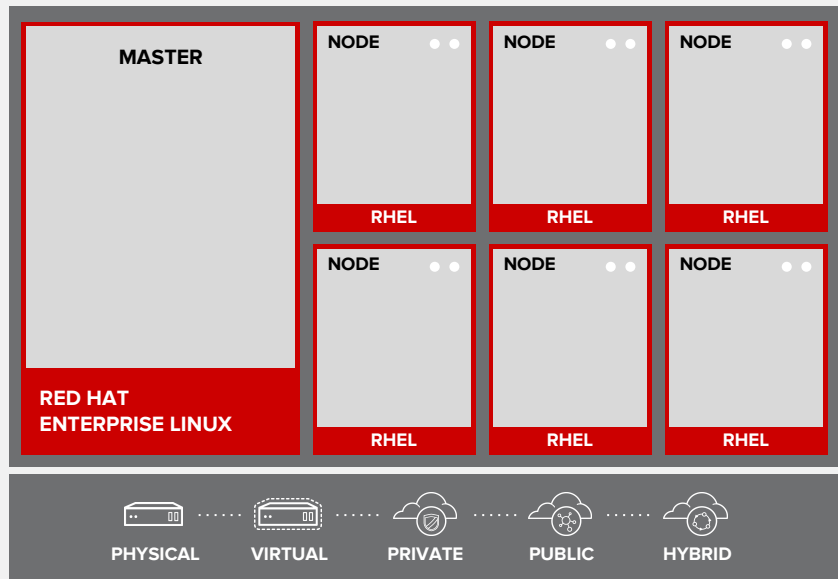
APPS RUN IN CONTAINERS



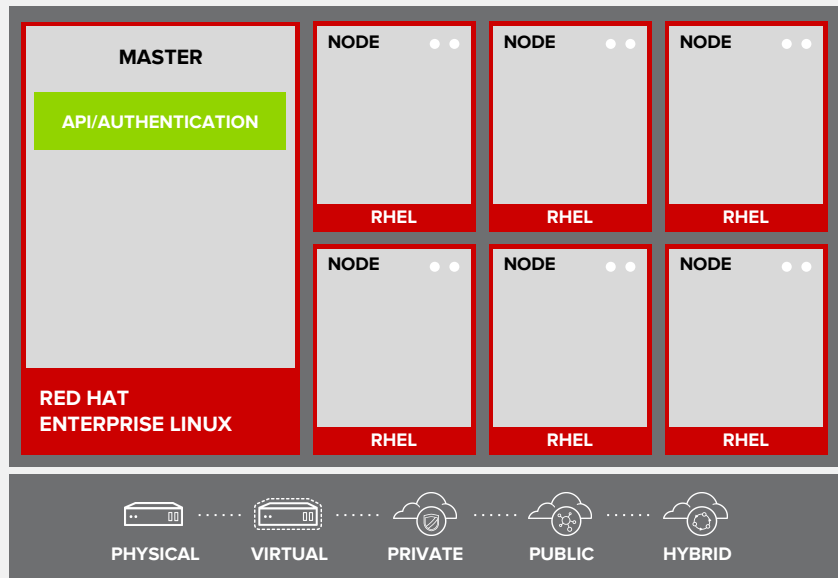
PODS ARE THE UNIT OF ORCHESTRATION



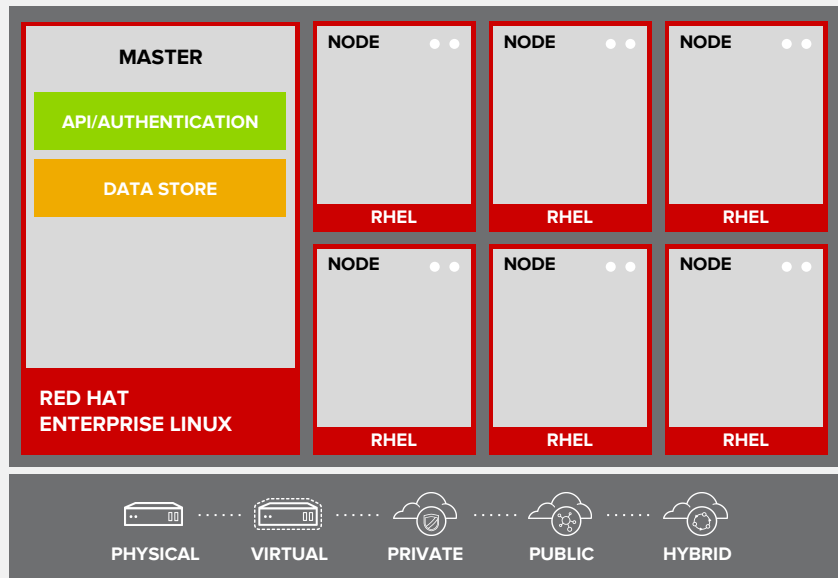
MASTERS ARE THE CONTROL PLANE



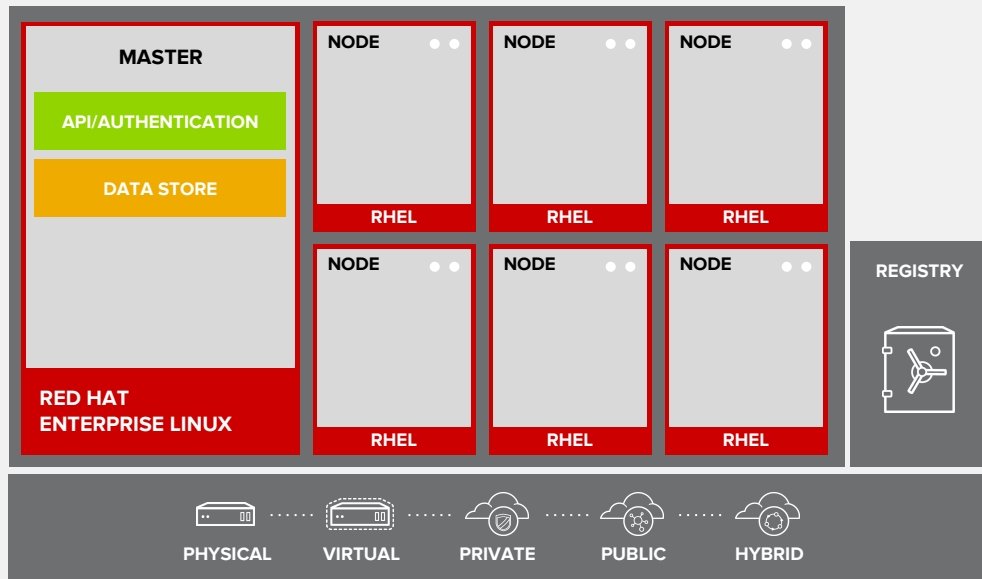
API AND AUTHENTICATION



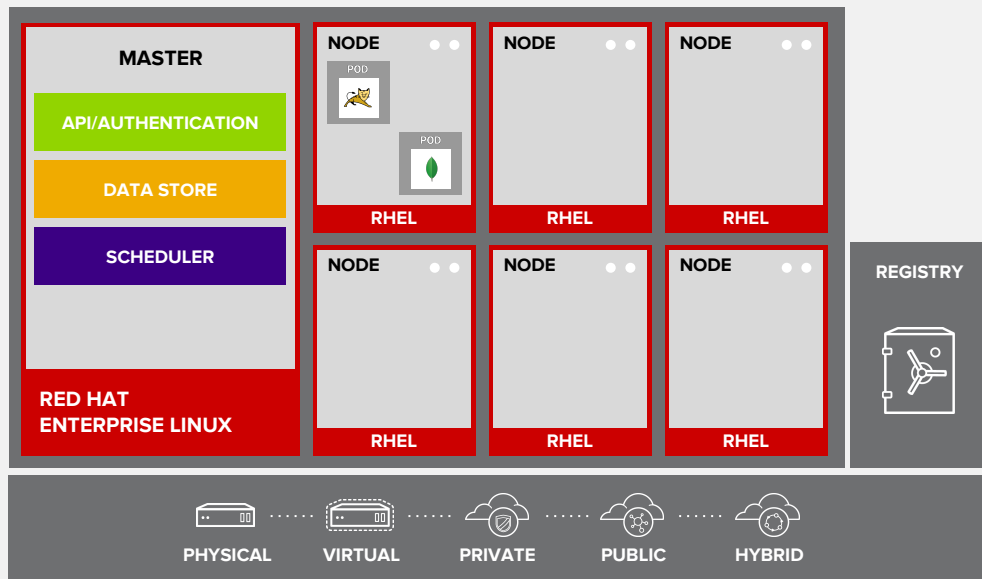
DESIRED AND CURRENT STATE



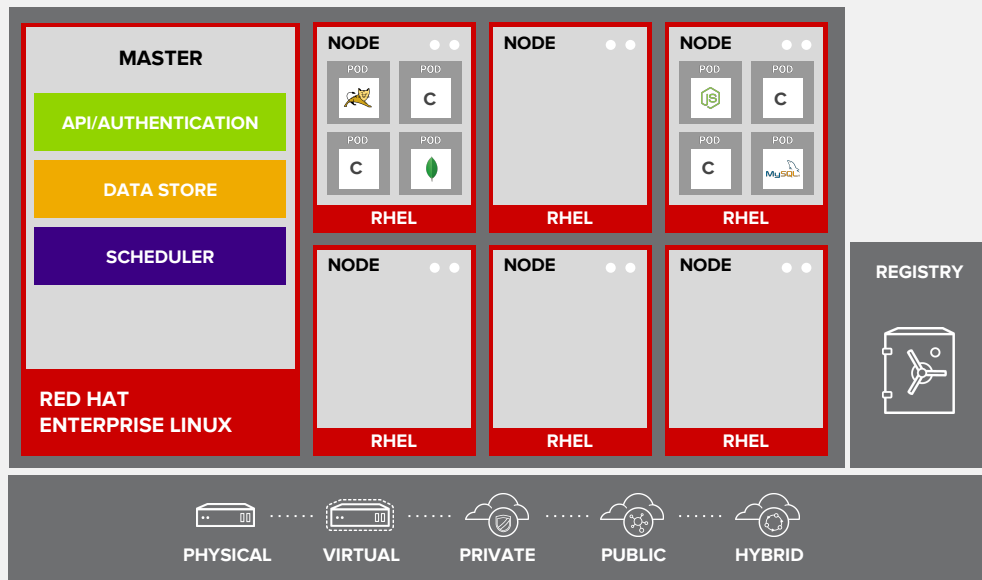
INTEGRATED CONTAINER REGISTRY



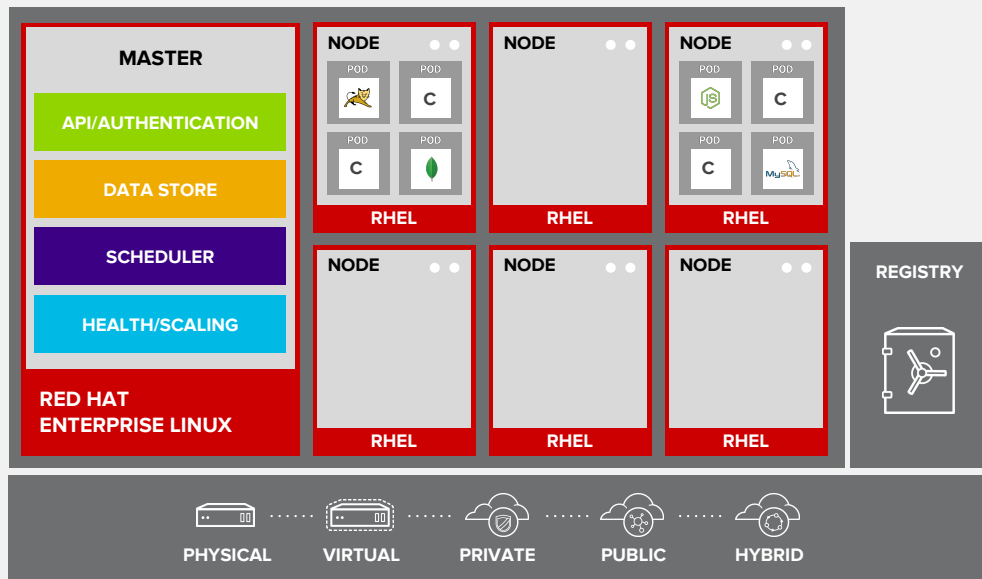
ORCHESTRATION AND SCHEDULING



PLACEMENT BY POLICY

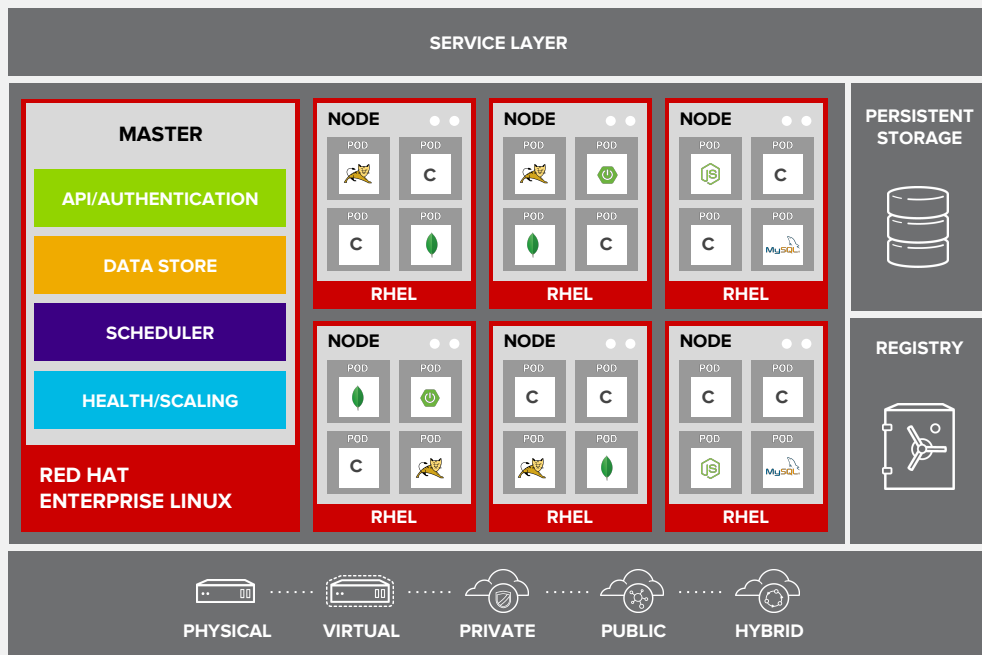


AUTOSCALING PODS

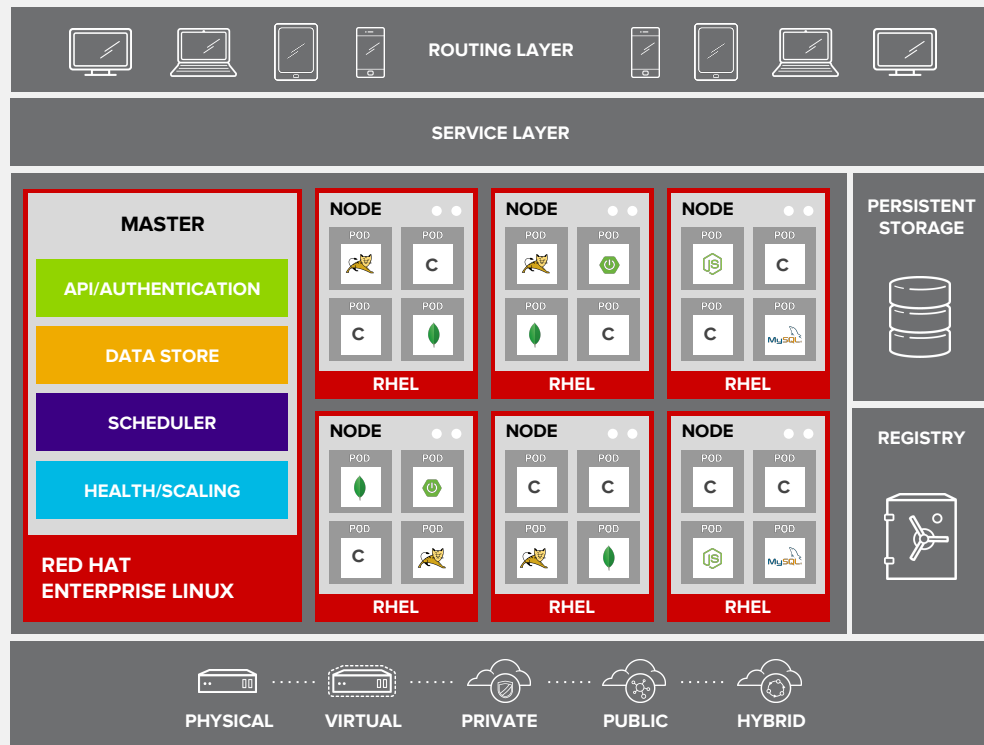




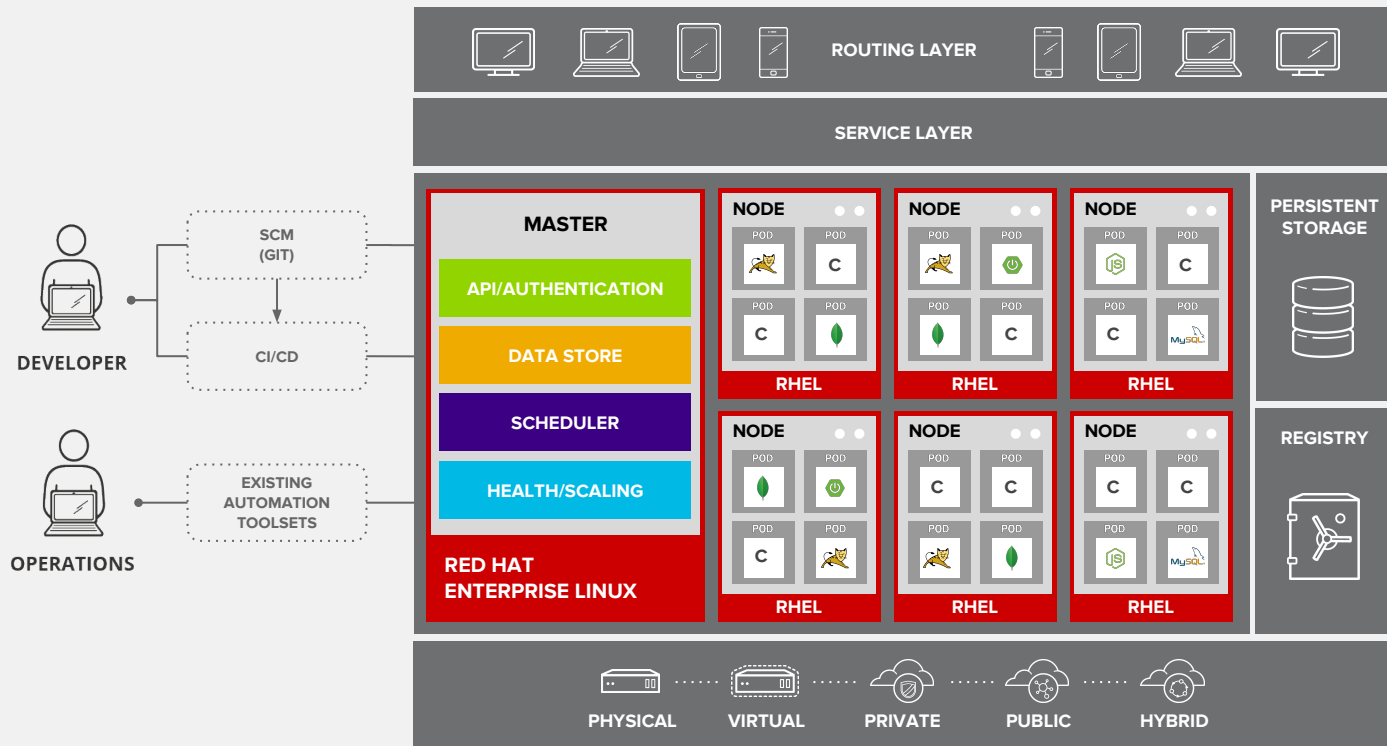
PERSISTENT DATA IN CONTAINERS



ROUTING AND LOAD-BALANCING



ACCESS VIA WEB, CLI, IDE AND API



OPENSIFT SDN

FLAT NETWORK (Default)

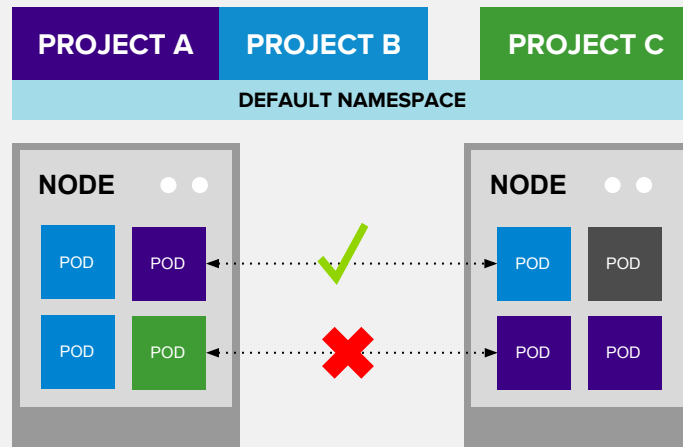
- All pods can communicate with each other across projects

MULTI-TENANT NETWORK

- Project-level network isolation
- Multicast support
- Egress network policies

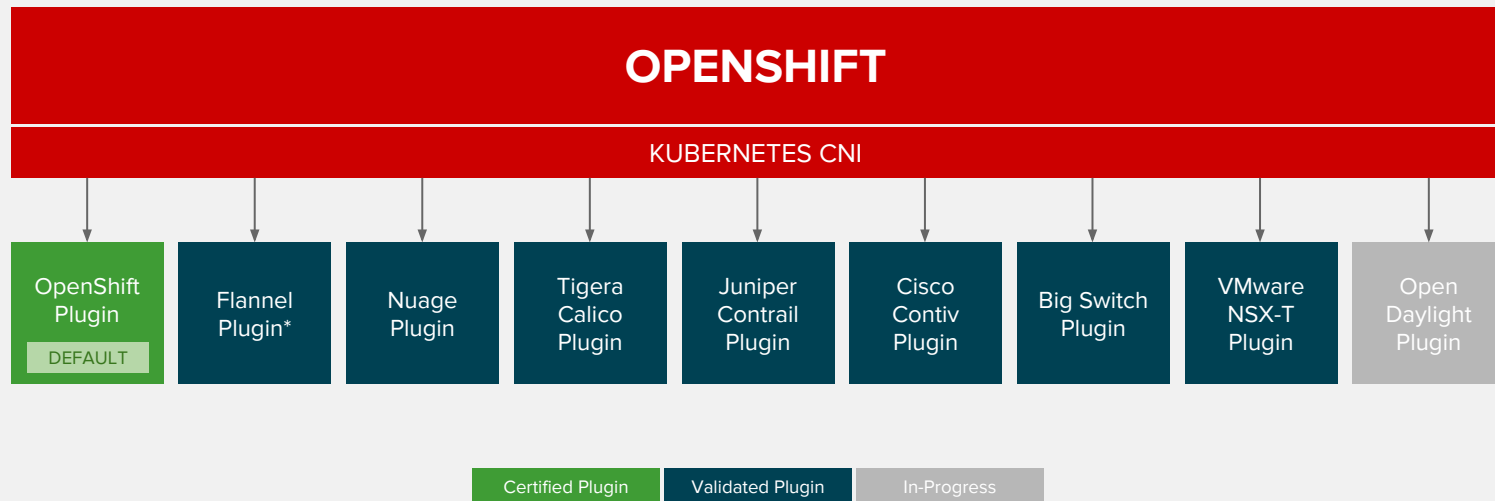
NETWORK POLICY (Tech Preview)

- Granular policy-based isolation



Multi-Tenant Network

OPENSHIFT NETWORK PLUGINS



For a Complete List of Certified Plugins refer to [OpenShift Third-Party SDN FAQ](#)

* Flannel is minimally verified and is supported only and exactly as deployed in the OpenShift on OpenStack reference architecture

PERSISTENT STORAGE

- Persistent Volume (PV) is tied to a piece of network storage
- Provisioned by an administrator (static or dynamically)
- Allows admins to describe storage and users to request storage



REFERENCE ARCHITECTURES

REFERENCE ARCHITECTURES

[OpenShift on VMware vCenter](#)

[OpenShift on Red Hat OpenStack Platform](#)

[OpenShift on Amazon Web Services](#)

[OpenShift on Google Cloud Platform](#)

[OpenShift on Microsoft Azure](#)

[OpenShift on Red Hat Virtualization](#)

[OpenShift on HPE Servers with Ansible Tower](#)

[OpenShift on VMware vCenter 6 with Gluster](#)

[Deploying an OpenShift Distributed Architecture](#)

[OpenShift Architecture and Deployment Guide](#)

[OpenShift Scaling, Performance, and Capacity Planning](#)

[Application Release Strategies with OpenShift](#)

[Building Polyglot Microservices on OpenShift](#)

[Building JBoss EAP 6 Microservices on OpenShift](#)

[Building JBoss EAP 7 Microservices on OpenShift](#)

[Business Process Management with JBoss BPMS on OpenShift](#)

[Build and Deployment of Java Applications on OpenShift](#)

[Building Microservices on OpenShift with Fuse Integration...](#)

[JFrog Artifactory on OpenShift Container Platform](#)

[Spring Boot Microservices on Red Hat OpenShift](#)

[API Management with Red Hat 3scale on OpenShift](#)



THANK YOU



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