Andreas Neeb
aneeb@redhat.com

AGENDA

08:30 Uhr	**Anmeldung / Networking** **Aufteilung in Ops und Dev Tracks**	
09:00 Uhr	**Einführung und Überblick: Was erwartet die Teilnehmer?**	
	Developer Track	**Operations Track**
	• Einführung in Cloud-native Anwendungen • Erstellen von Microservices mit Wildfly Swarm, Spring Boot und Eclipse Vert.x • Steigerung der Entwicklungsproduktivität mit Containern • Continuous Integration und Continuous Delivery für robuste, fehlertolerante Microservices	• Grundlagen von OpenShift und Container-native Storage • Einführung in die Verwaltung der OpenShift-Plattform • Einführung in das Application Management mit OpenShift • Application Storage Management mit Container-native Storage
09:30 Uhr	**Hands-on Lab**	**Hands-on Lab**
10:30 Uhr	Pause	Pause
10:45 Uhr	**Hands-on Lab**	**Hands-on Lab**
12:00 Uhr	Mittagspause	Mittagspause
13:00 Uhr	**Hands-on Lab**	**Hands-on Lab**
14:30 Uhr	**Schlussbemerkungen und Fragen**	
15:00 Uhr	**Get together**	

CLOUD-NATIVE ROADSHOW

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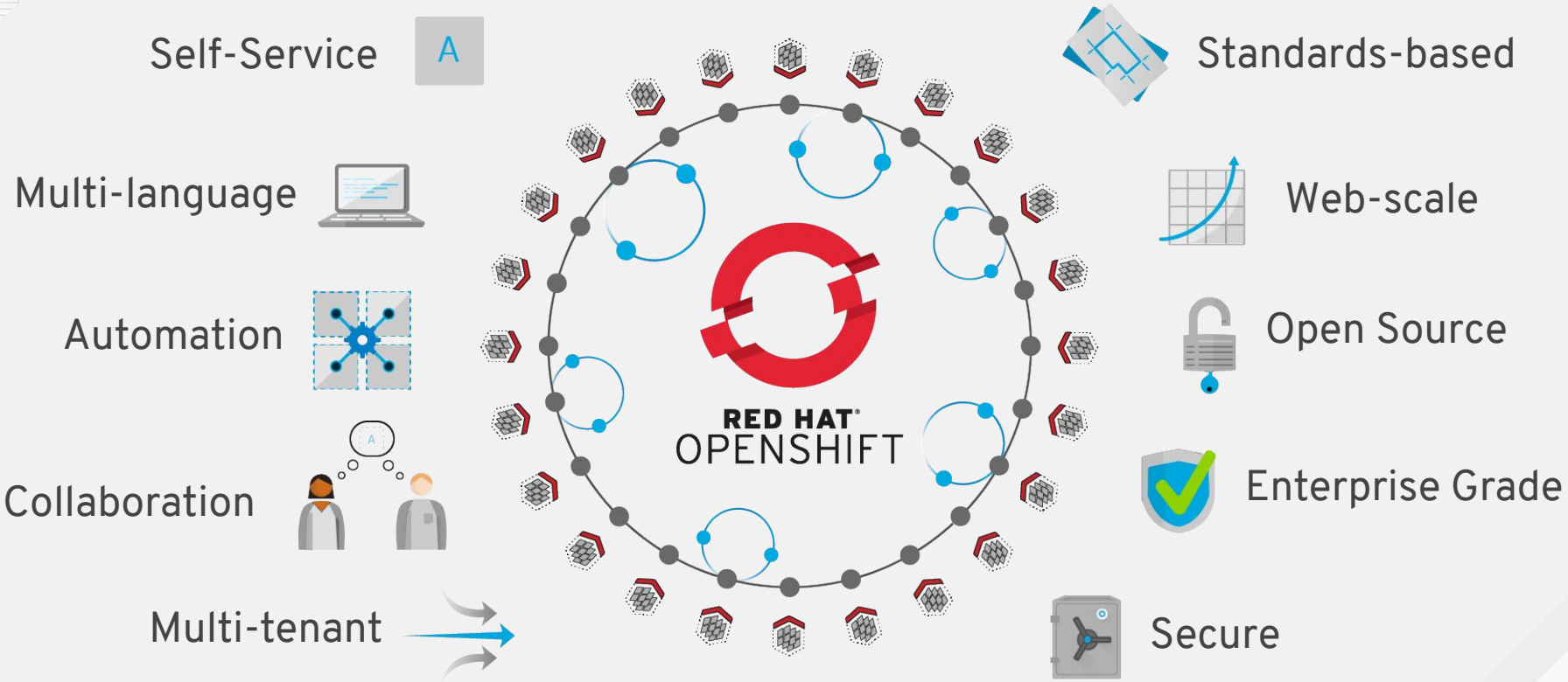
Self-Service
Multi-language
Automation
Collaboration
Multi-tenant
RED HAT
OPENSHIFT
Standards-based
Web-scale
Open Source
Enterprise Grade
Secure

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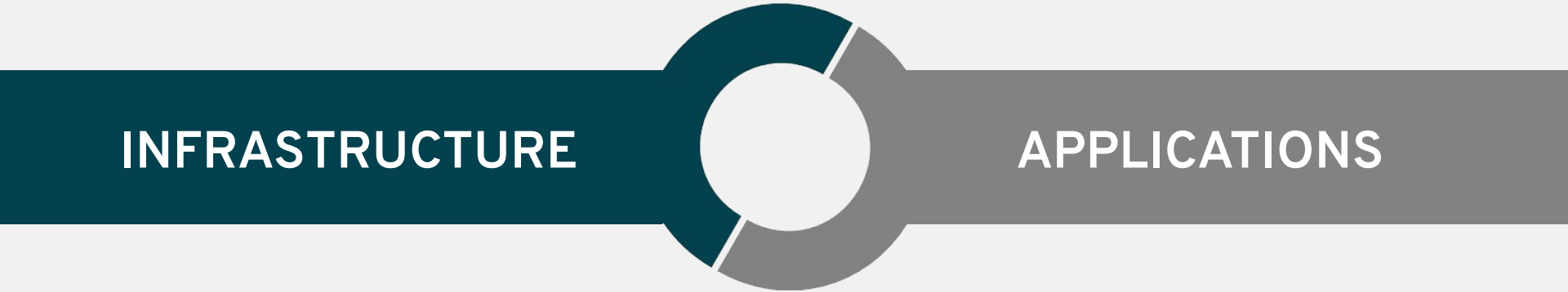
Agenda

- Introductions
- Linux Containers (review)
- OpenShift Architecture
- Container Native Storage / Gluster Architecture
- Labs!

LINUX CONTAINERS

WHAT ARE CONTAINERS?

It Depends Who You Ask

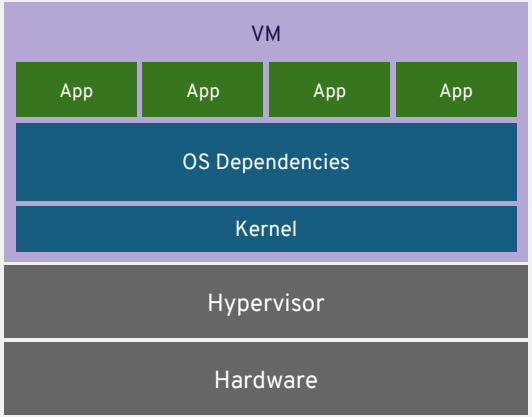


- Application processes on a shared kernel
- Simpler, lighter, and denser than VMs
- Portable across different environments

- Package apps with all dependencies
- Deploy to any environment in seconds
- Easily accessed and shared

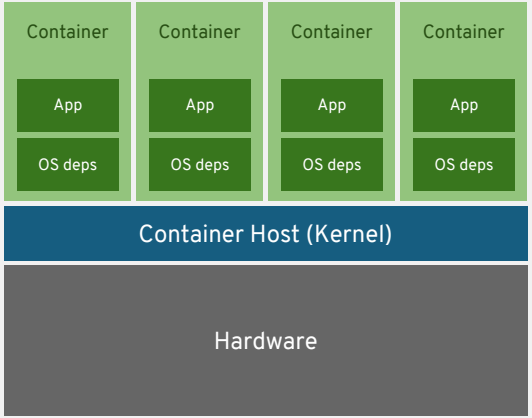
VIRTUAL MACHINES AND CONTAINERS

VIRTUAL MACHINES



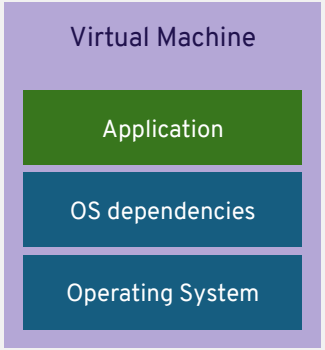
virtual machines are isolated
apps are not

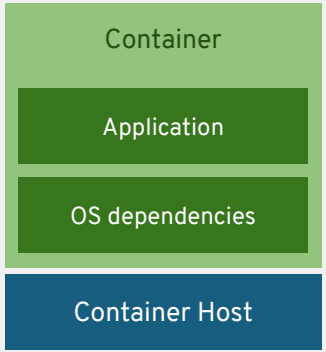
CONTAINERS



containers are isolated
so are the apps

VIRTUAL MACHINES AND CONTAINERS





- ✚ VM Isolation
- ▬ Complete OS
- ▬ Static Compute
- ▬ Static Memory
- ▬ High Resource Usage

- ✚ Container Isolation
- ✚ Shared Kernel
- ✚ Burstable Compute
- ✚ Burstable Memory
- ✚ Low Resource Usage

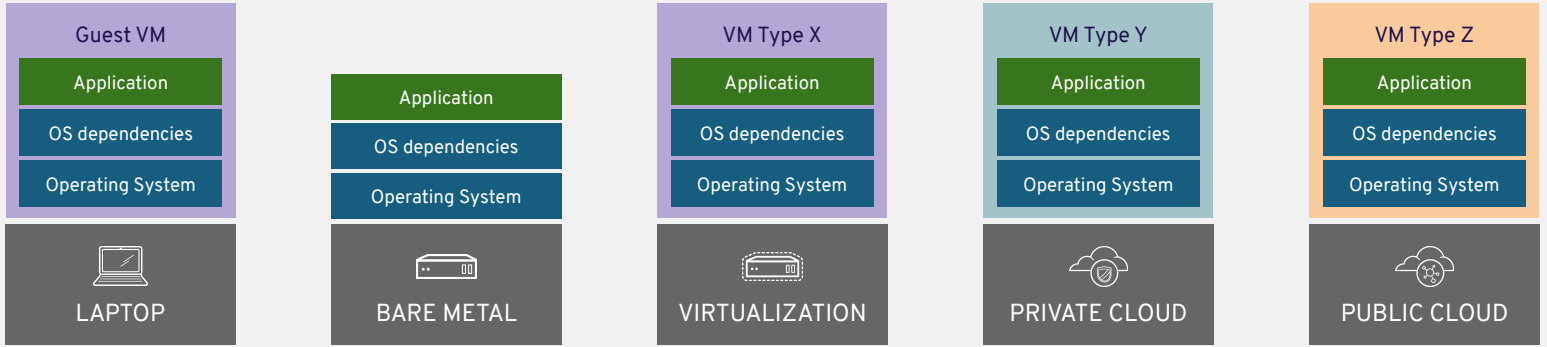
VIRTUAL MACHINES AND CONTAINERS

Optimized for stability

Optimized for agility

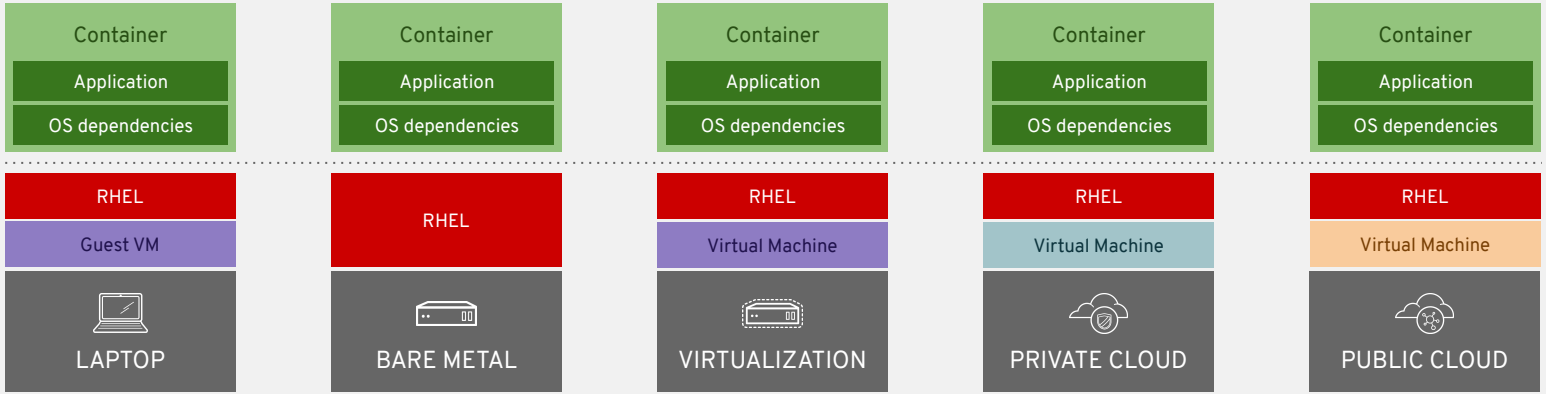
APPLICATION PORTABILITY WITH VM

Virtual machines are NOT portable across hypervisor and do NOT provide portable packaging for applications



APPLICATION PORTABILITY WITH CONTAINERS

RHEL Containers + RHEL Host = Guaranteed Portability
Across Any Infrastructure



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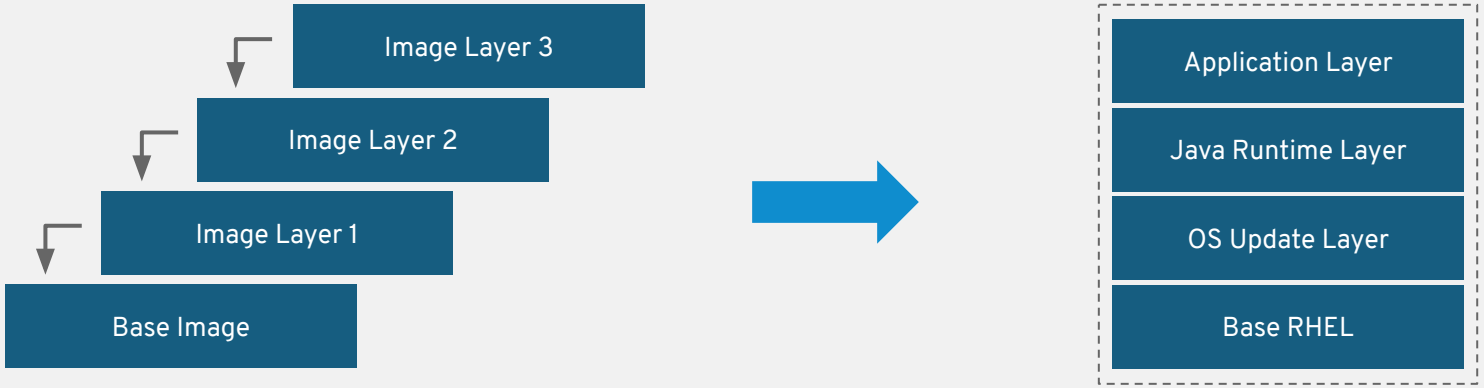
RAPID SECURITY PATCHING USING CONTAINER IMAGE LAYERING



Container Image Layers

Example Container Image

cri-o

A lightweight, OCI-compliant container runtime

Optimized for Kubernetes	Any OCI-compliant container from any OCI registry (including docker)	Improve Security and Performance at scale

Available in OpenShift Online (soon)
Tech Preview in OCP 3.7, GA in OCP 3.8

OPENSHIFT ARCHITECTURE

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YOUR CHOICE OF INFRASTRUCTURE

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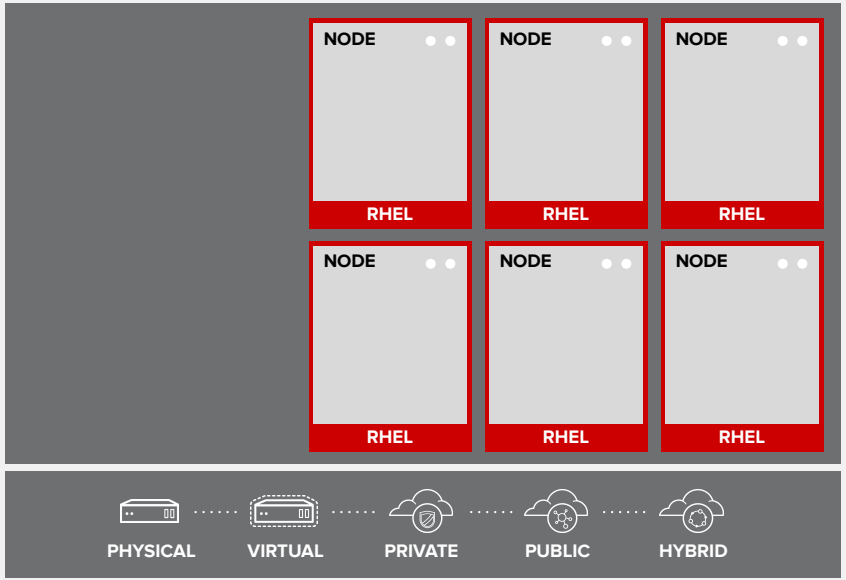
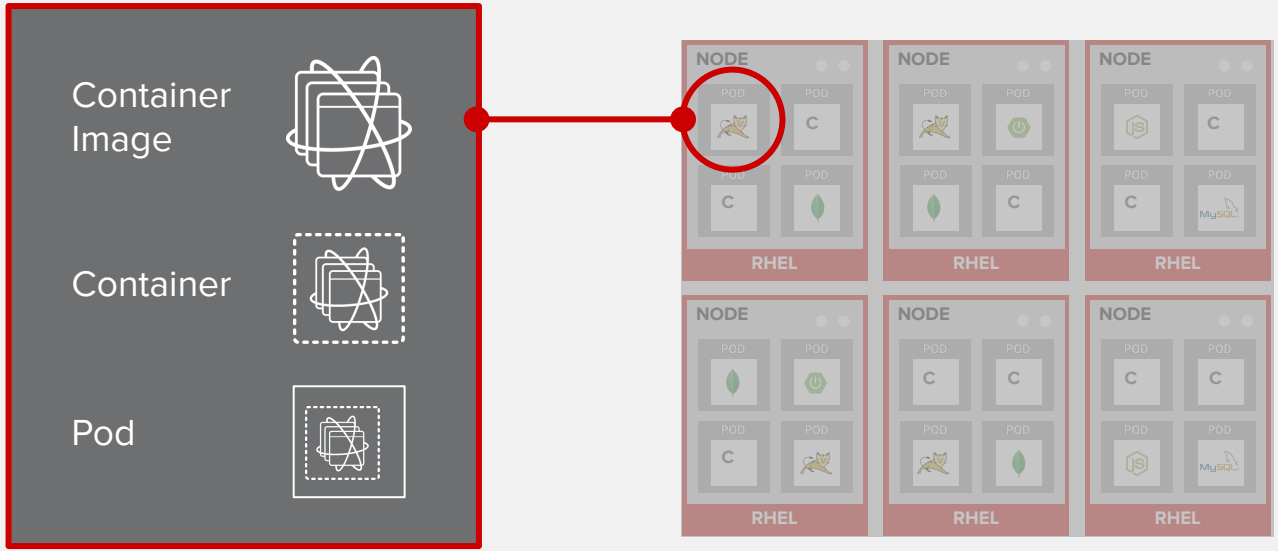
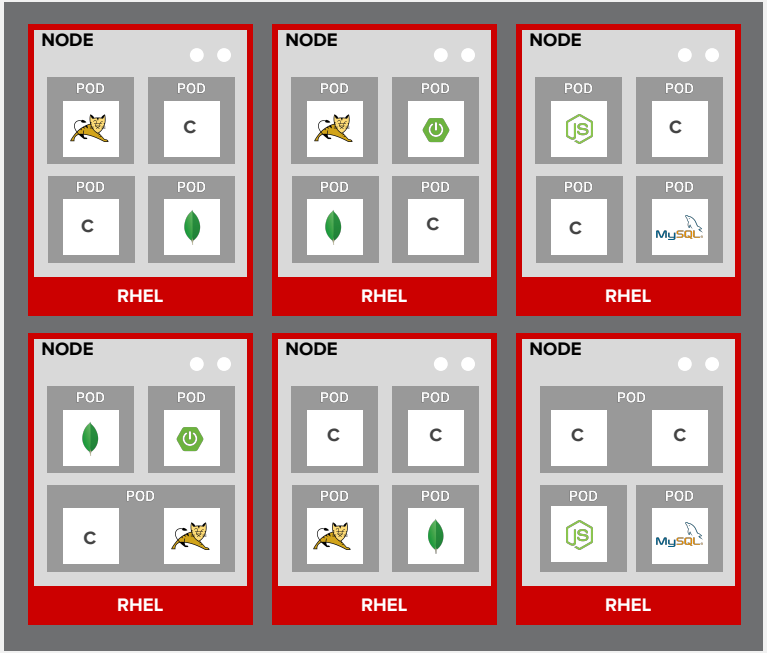
NODES RHEL INSTANCES WHERE APPS RUN



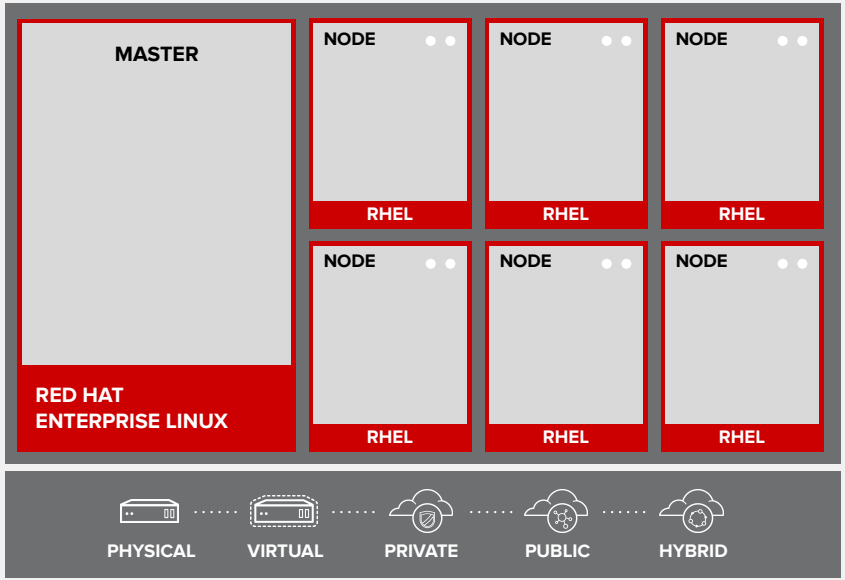
APPS RUN IN CONTAINERS



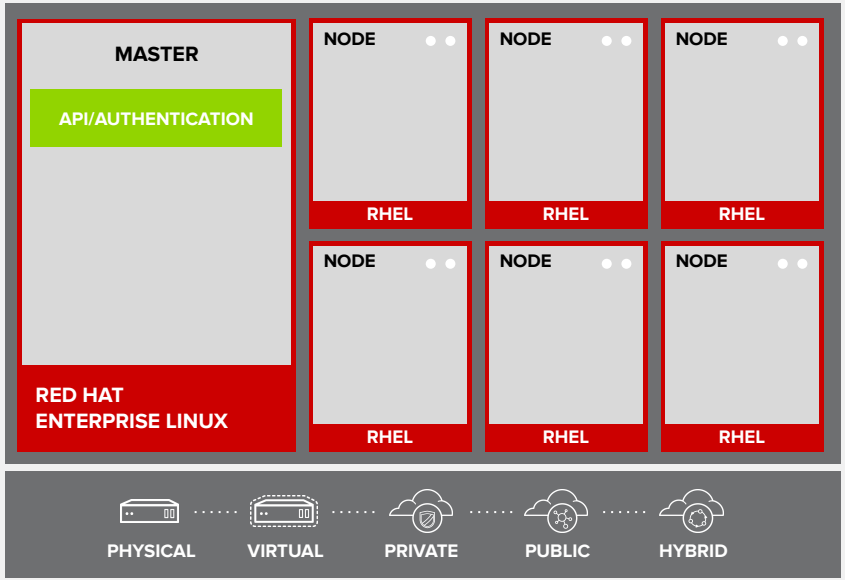
PODS ARE THE UNIT OF ORCHESTRATION



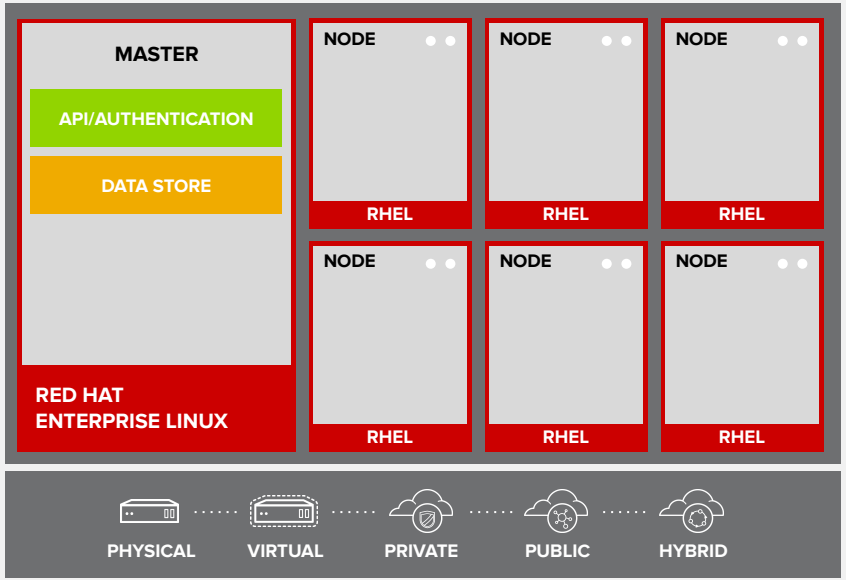
MASTERS ARE THE CONTROL PLANE



API AND AUTHENTICATION



DESIRED AND CURRENT STATE



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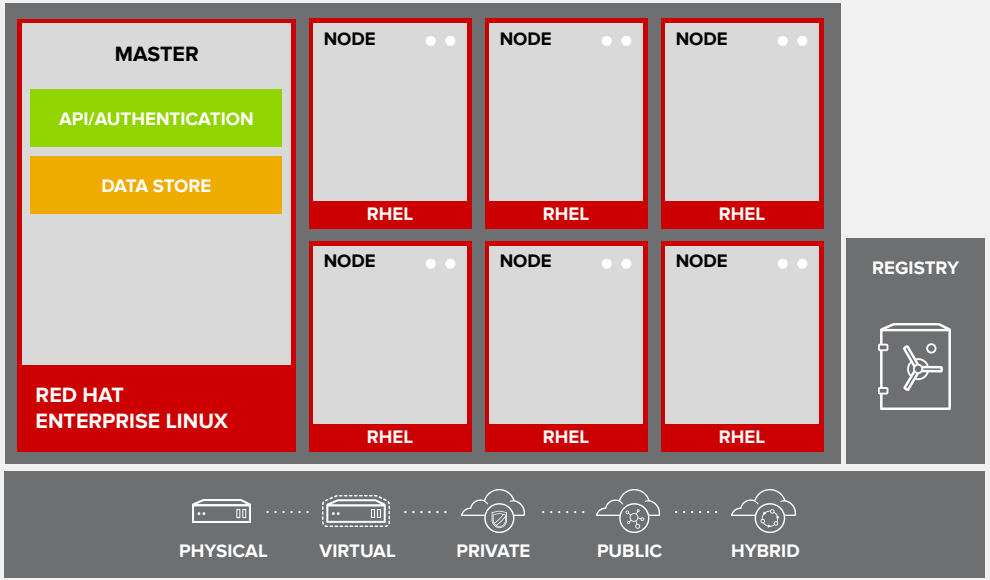
INTEGRATED CONTAINER REGISTRY



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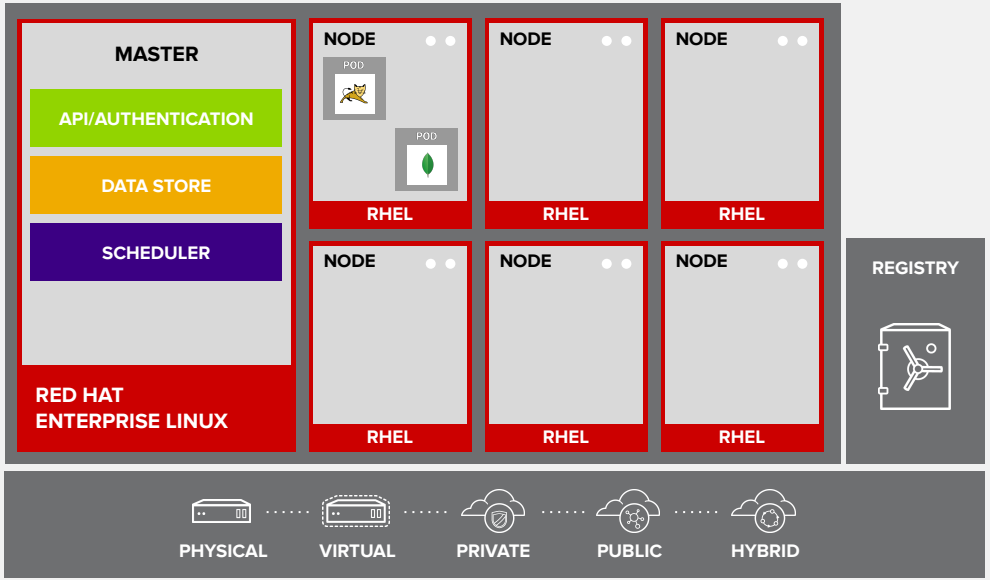
ORCHESTRATION AND SCHEDULING



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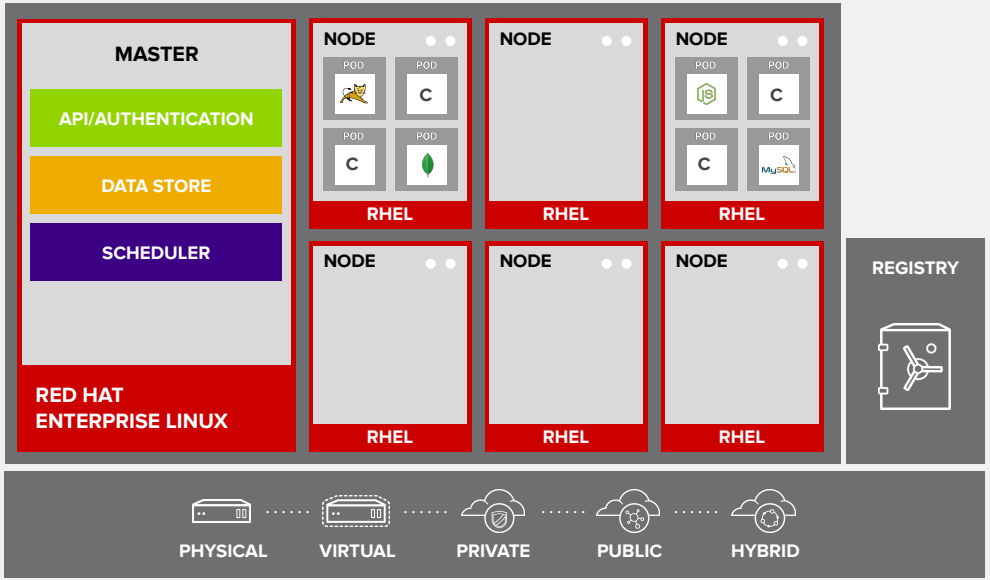
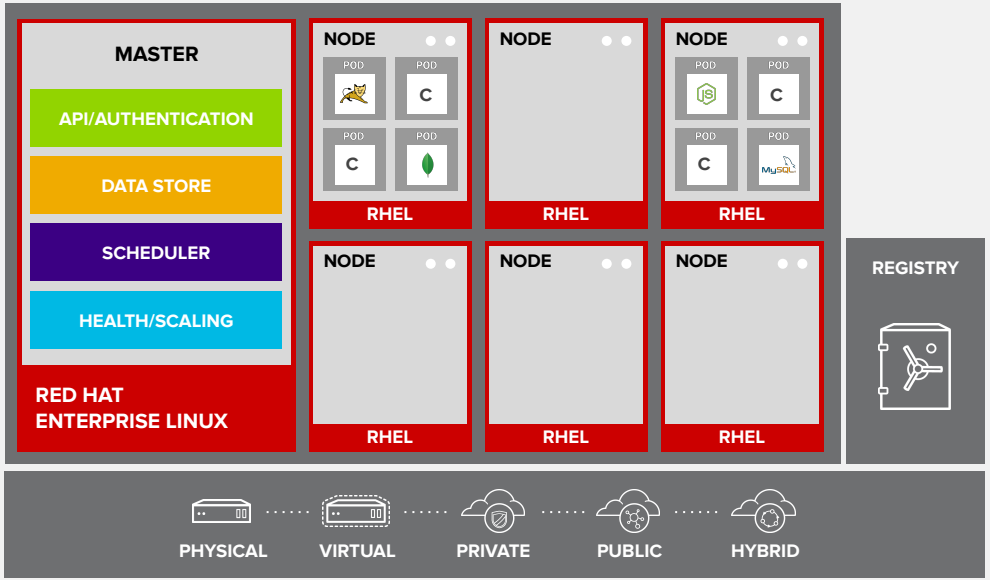
PLACEMENT BY POLICY



AUTOSCALING PODS



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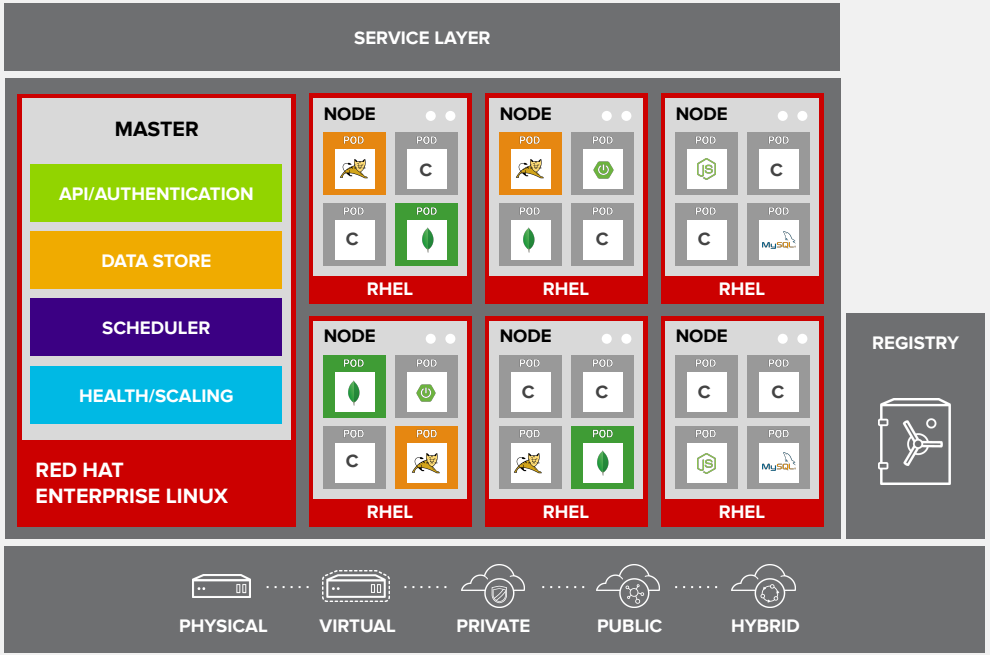
SERVICE DISCOVERY



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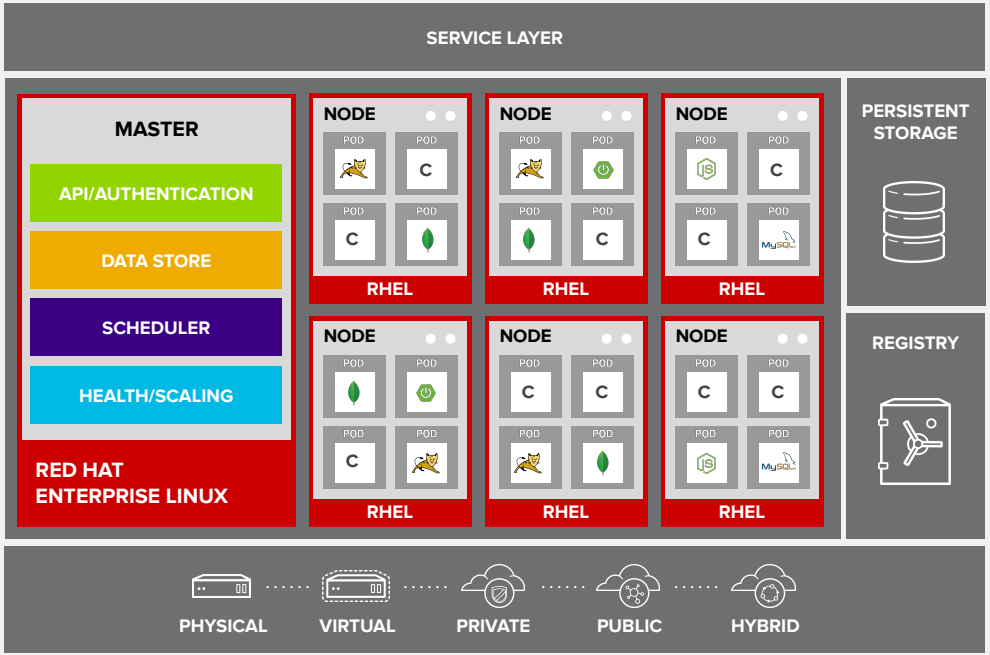
PERSISTENT DATA IN CONTAINERS



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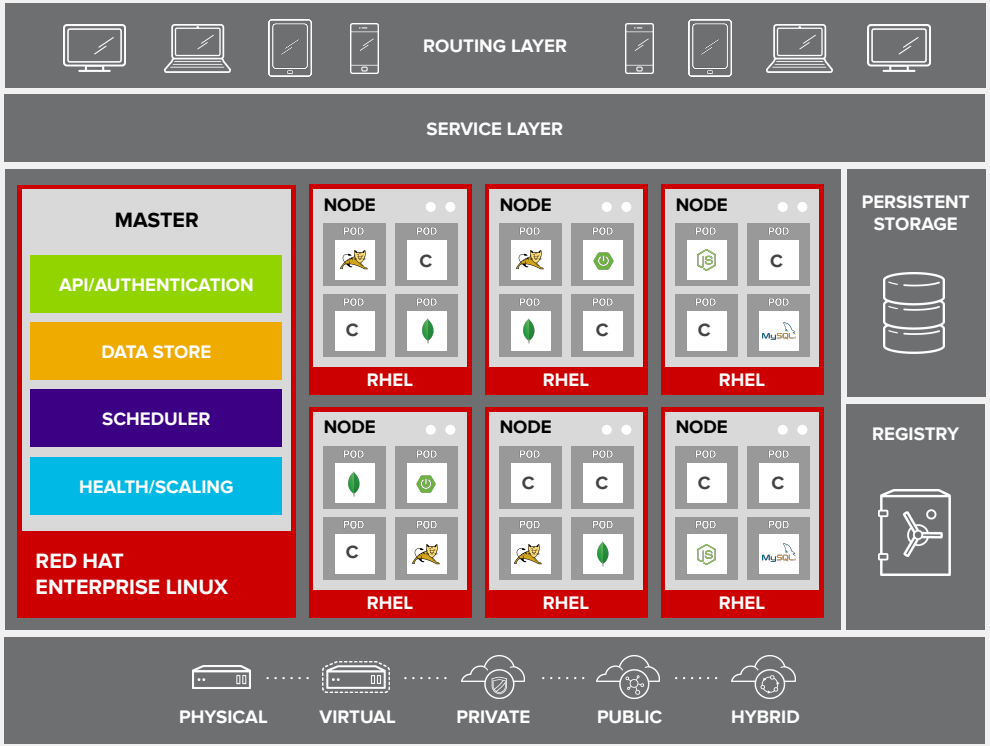
ROUTING AND LOAD-BALANCING



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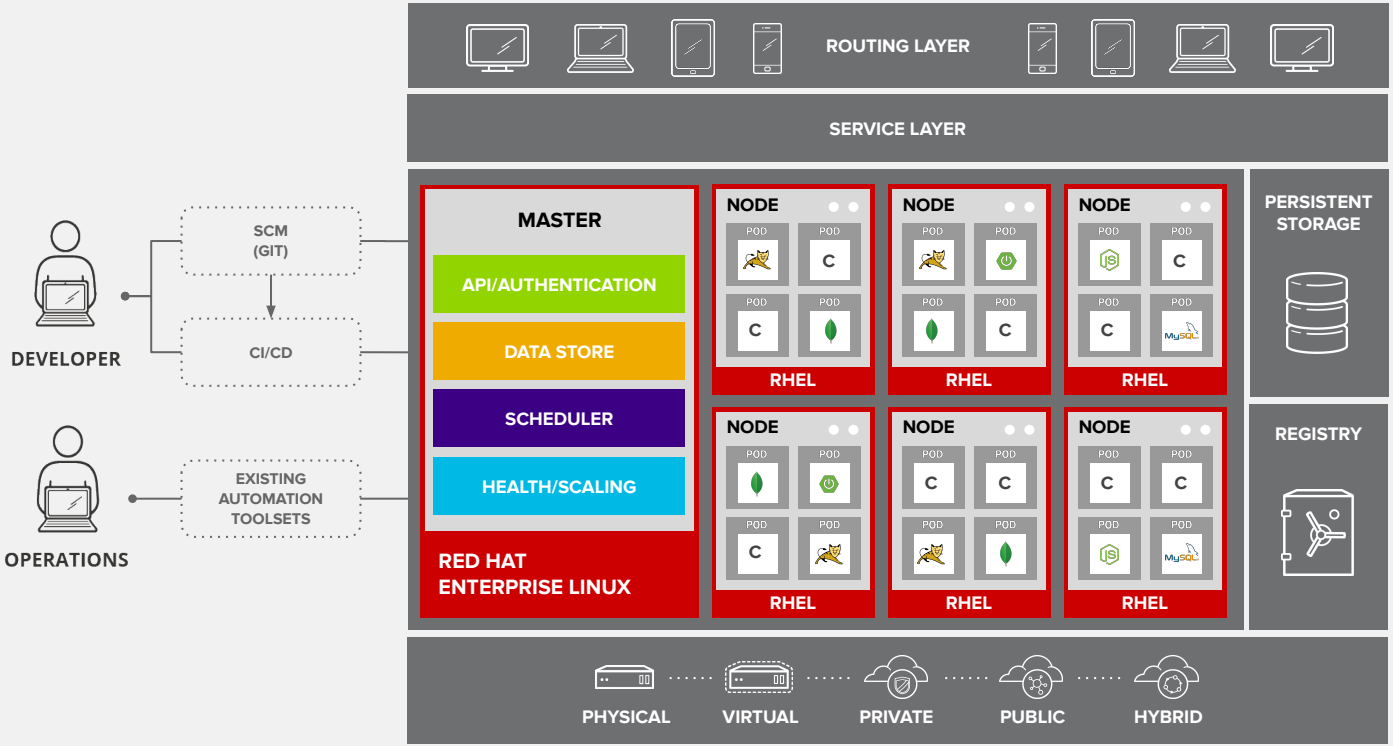
ACCESS VIA WEB, CLI, IDE AND API



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CONTAINER NATIVE STORAGE

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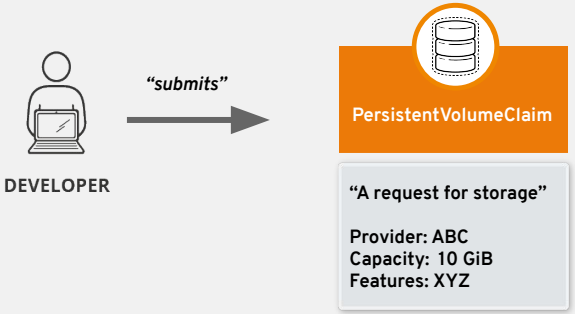
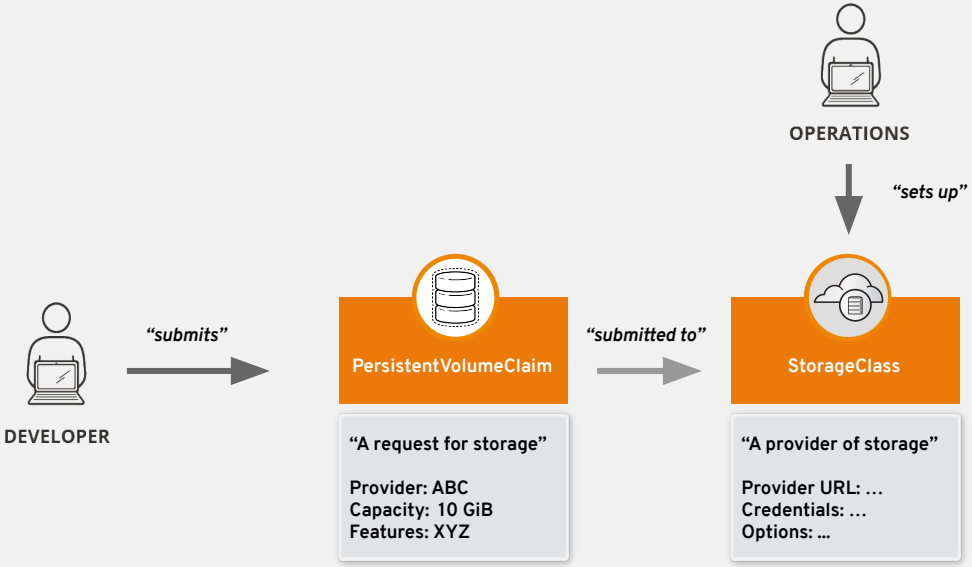
OPENSHIFT PERSISTENT STORAGE FRAMEWORK

OPENSHIFT PERSISTENT STORAGE FRAMEWORK



OPENSHIFT PERSISTENT STORAGE FRAMEWORK



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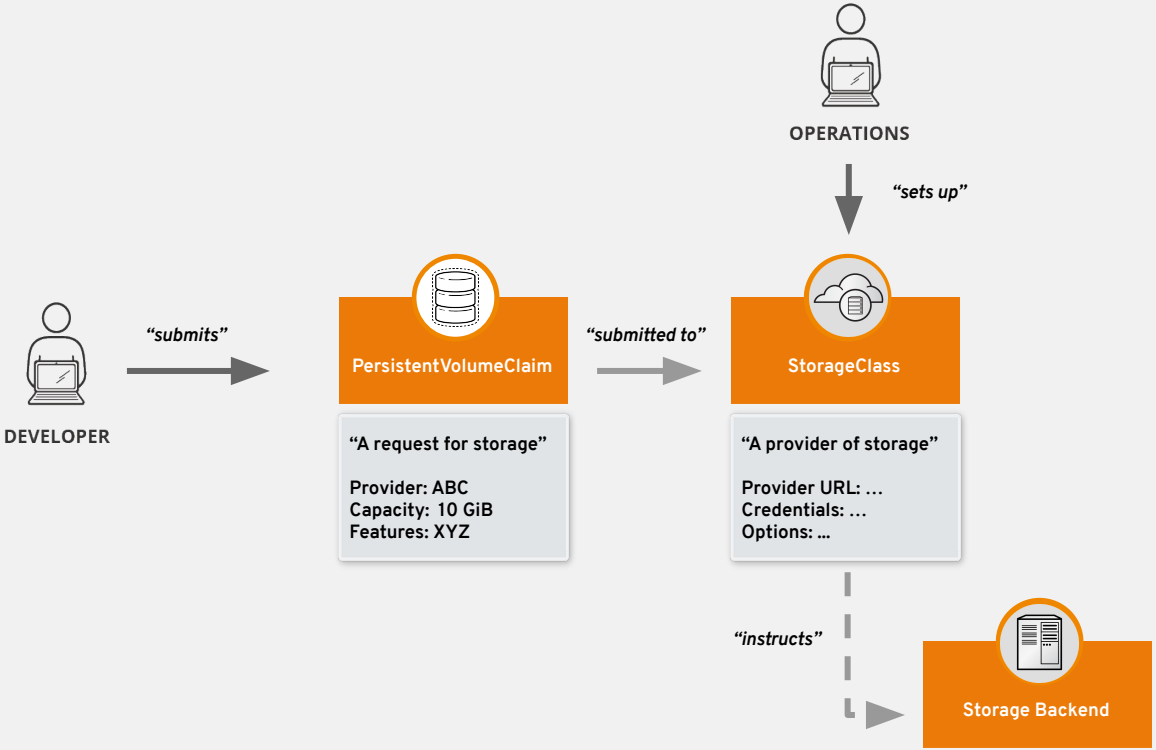

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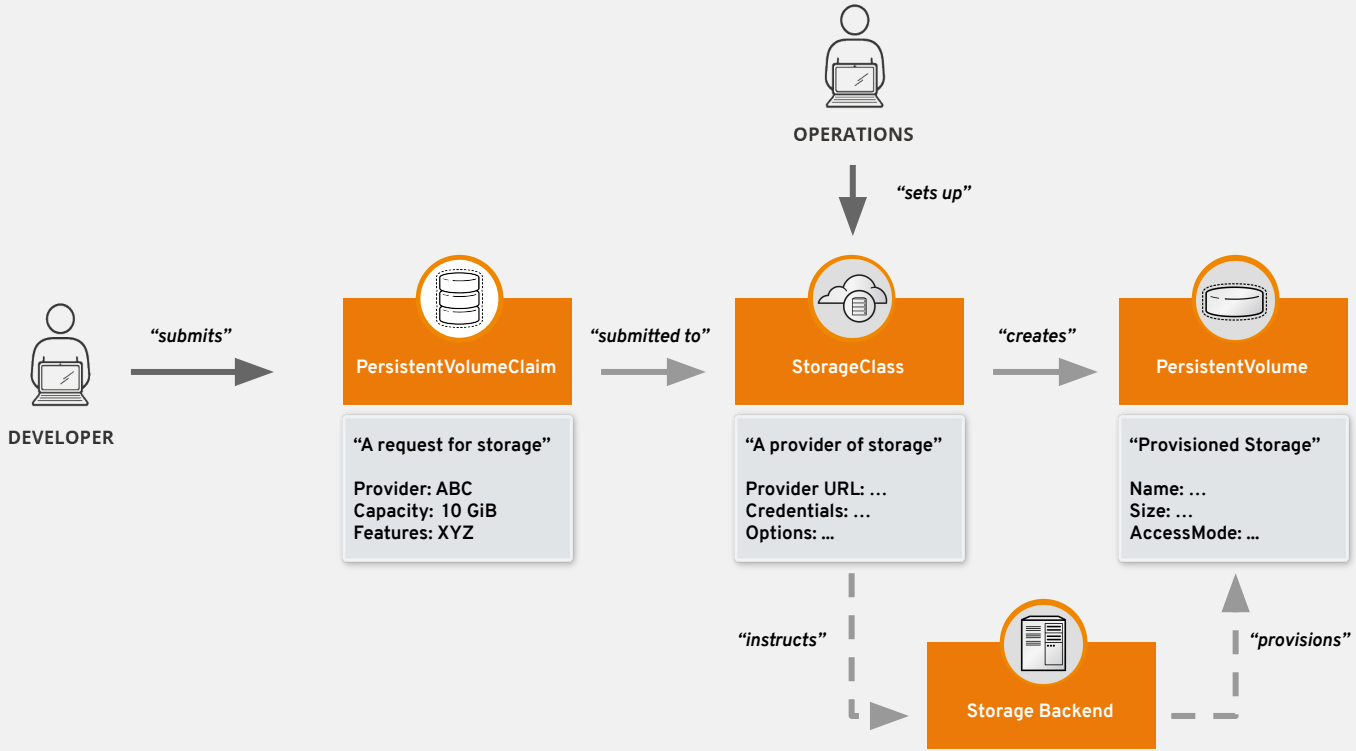
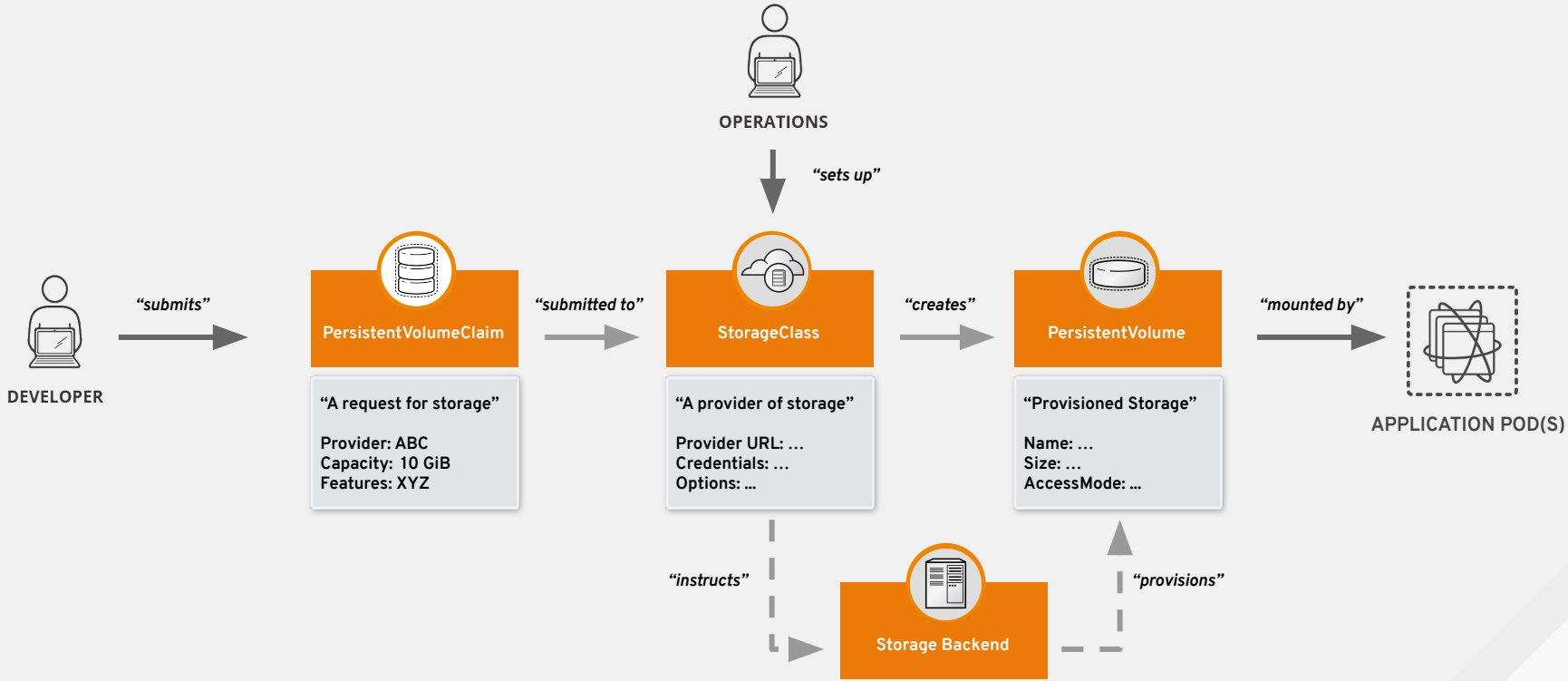


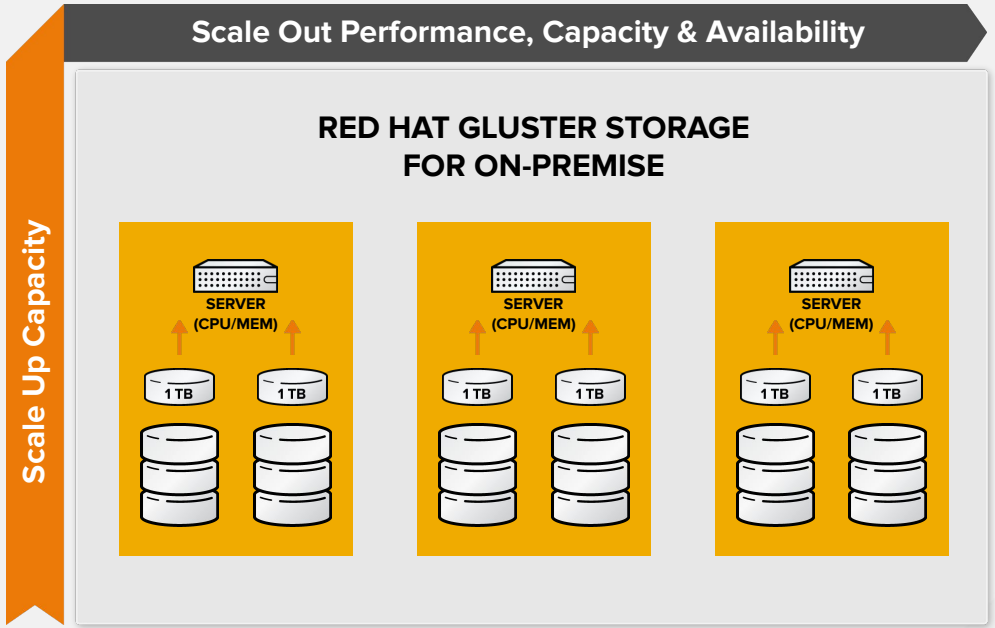
OPENSHIFT PERSISTENT STORAGE FRAMEWORK



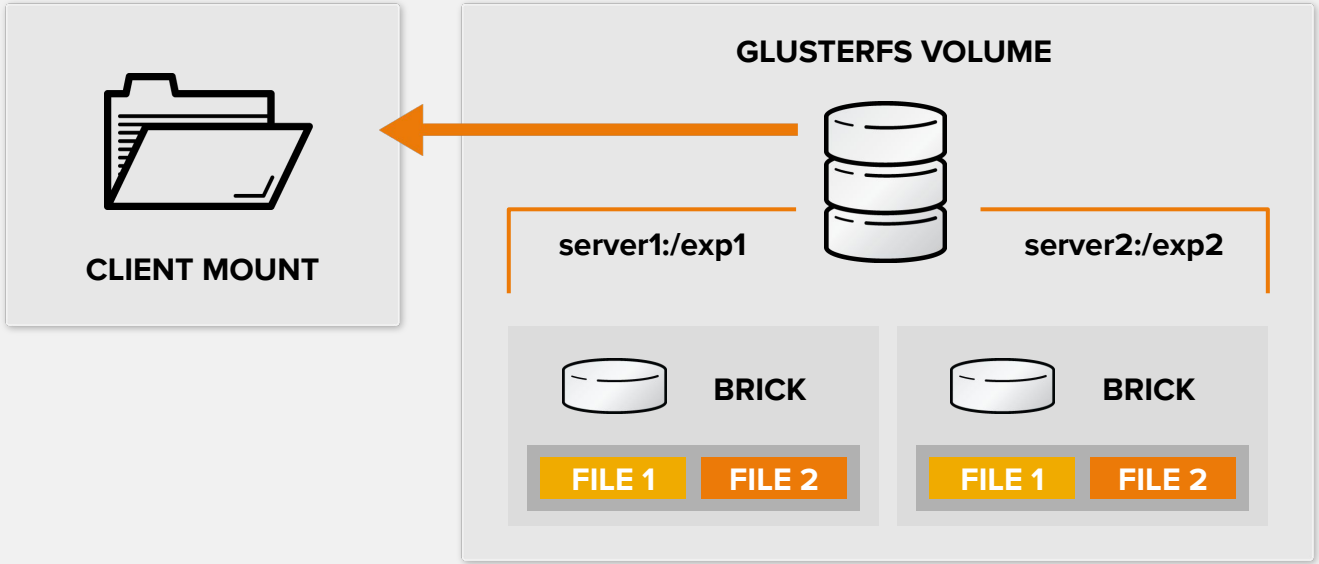
GLUSTERFS - DISTRIBUTED FILE STORAGE

Single, Global namespace

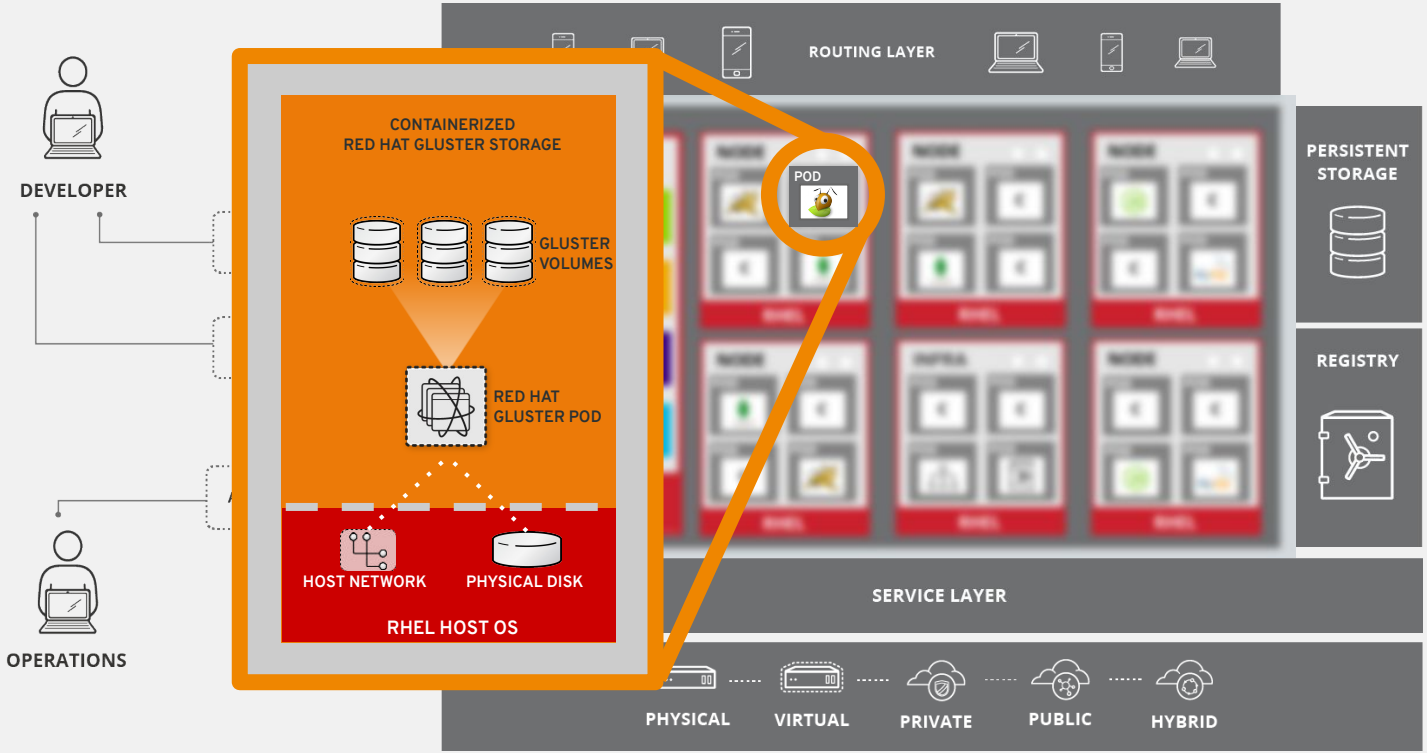
- Deploys on Red Hat-supported servers and underlying storage: DAS, JBOD
- Scale-out linearly
- Replicate synchronously and asynchronous



FEDERATING LOCAL STORAGE



CONTAINER-NATIVE STORAGE ON OPENSHIFT



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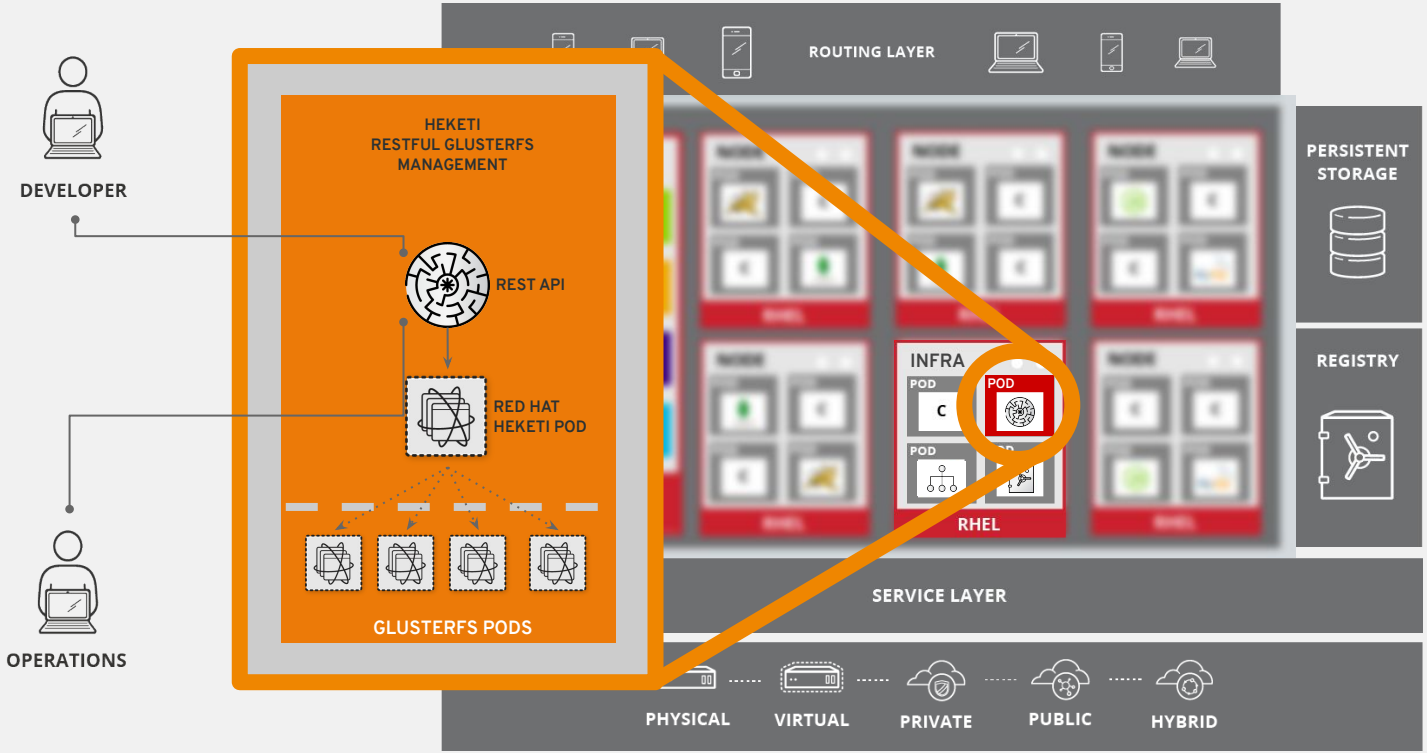

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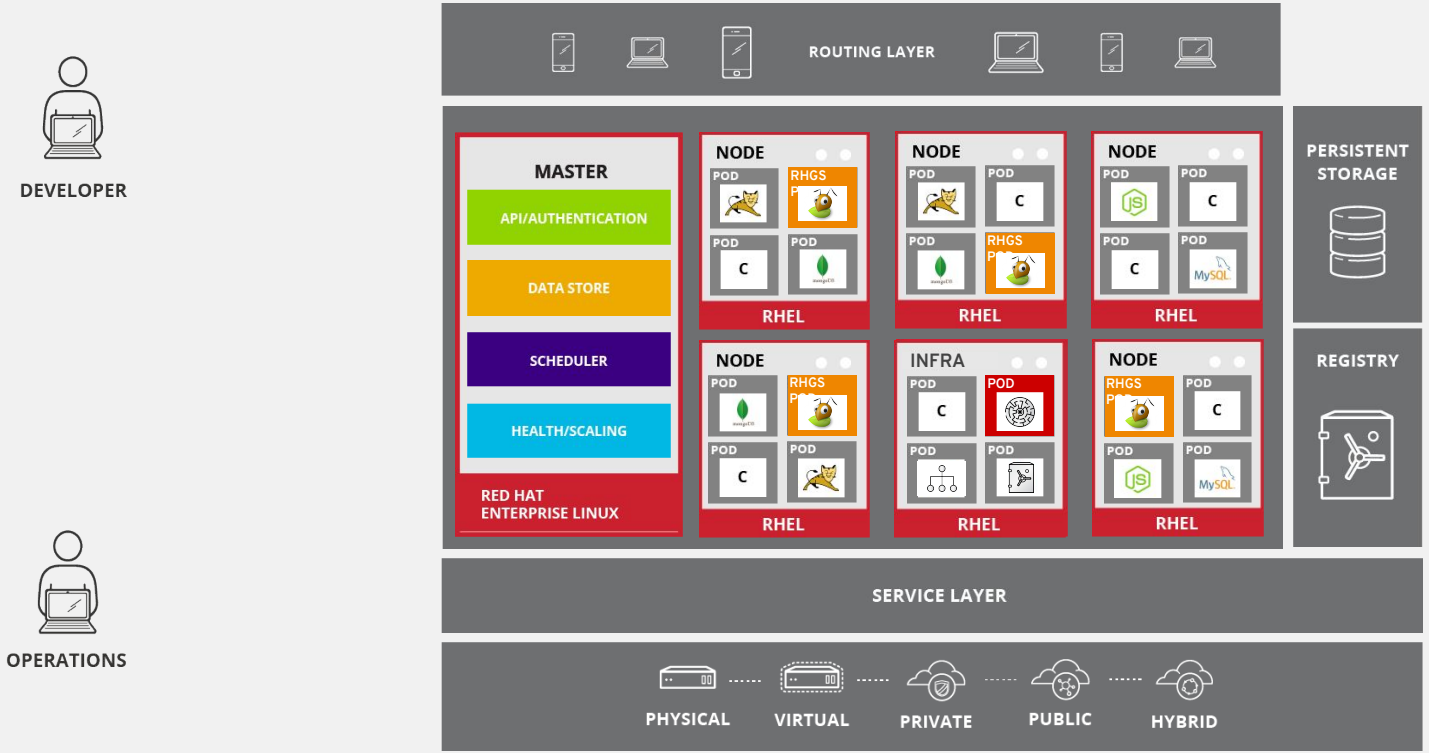

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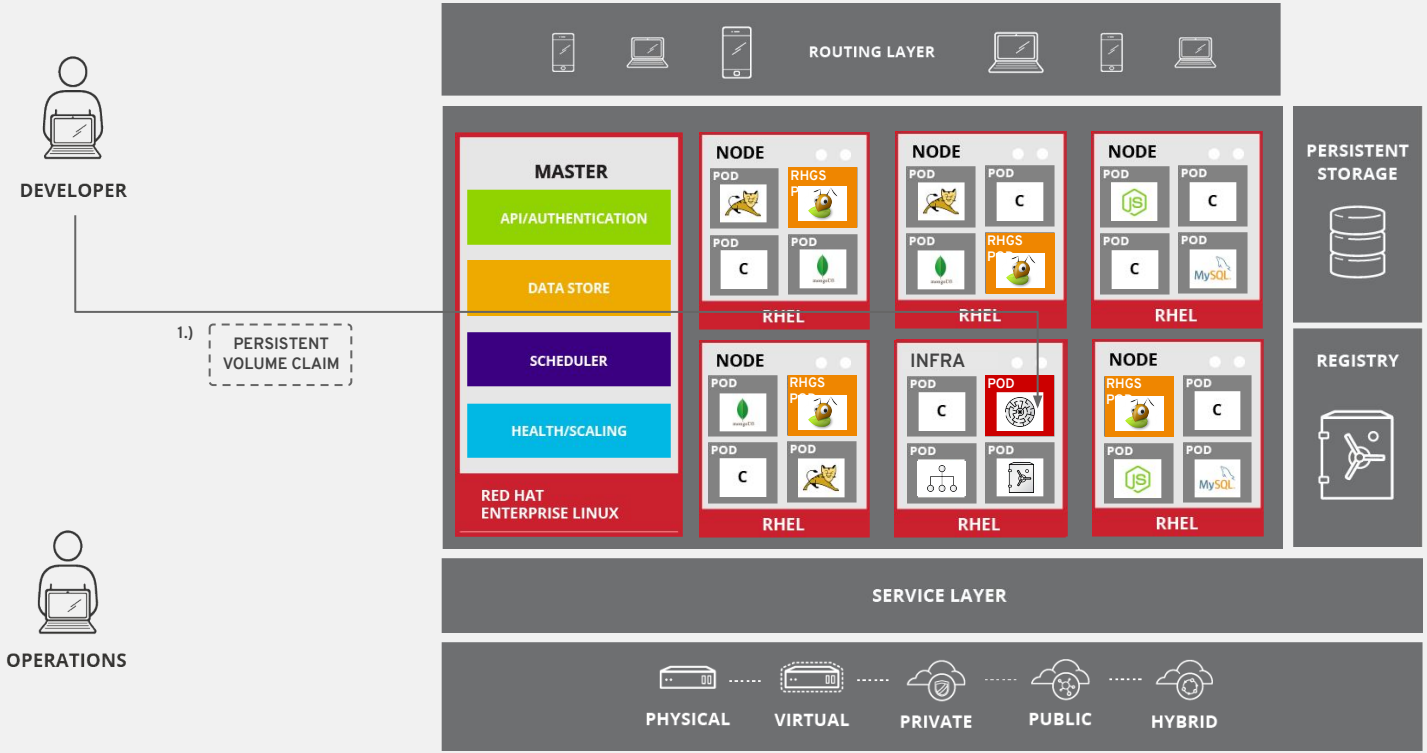

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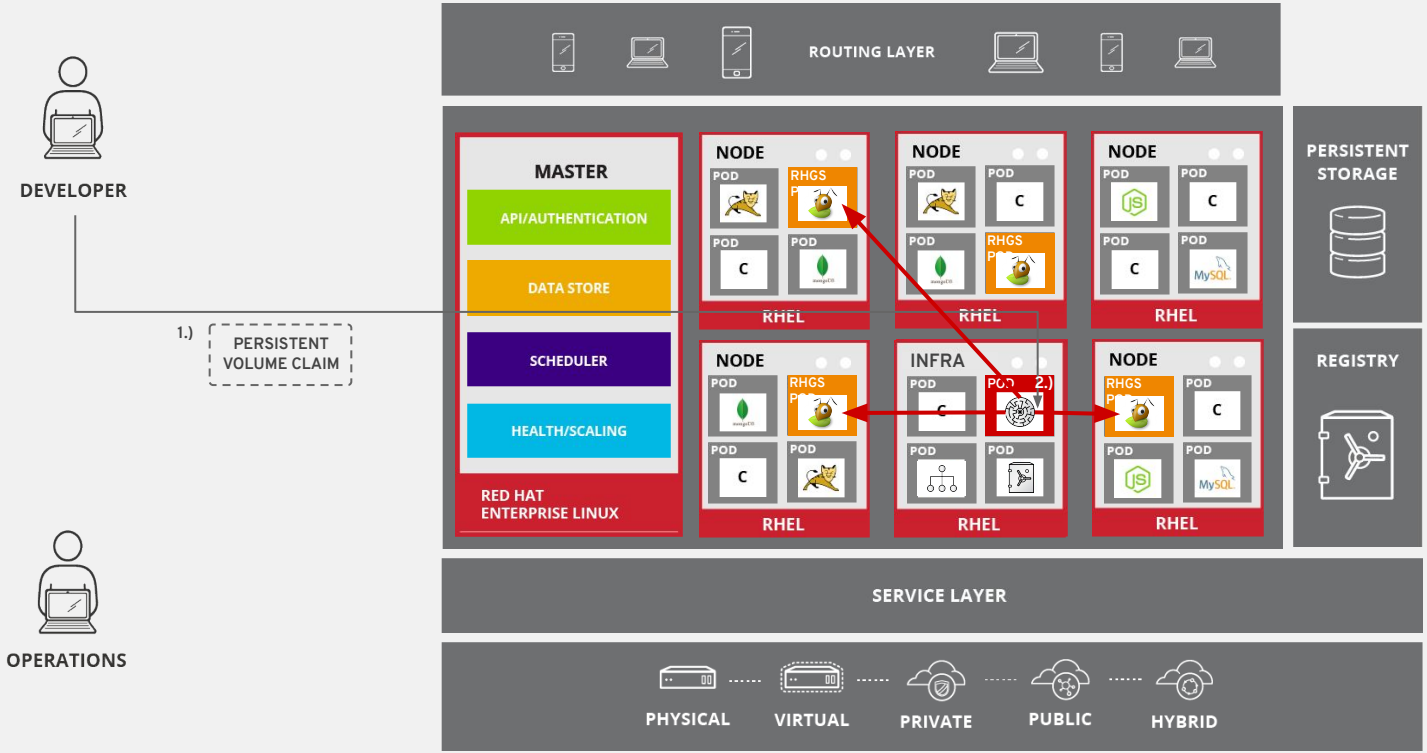

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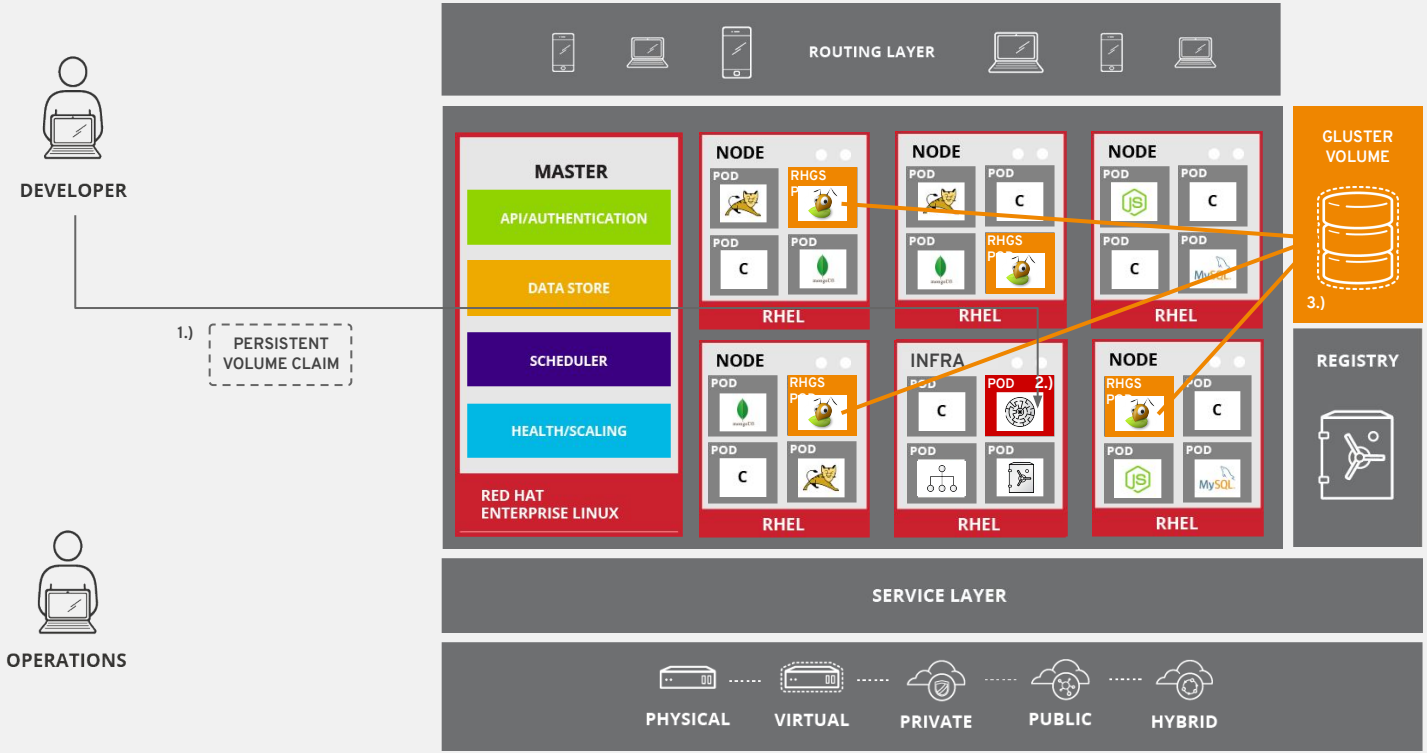

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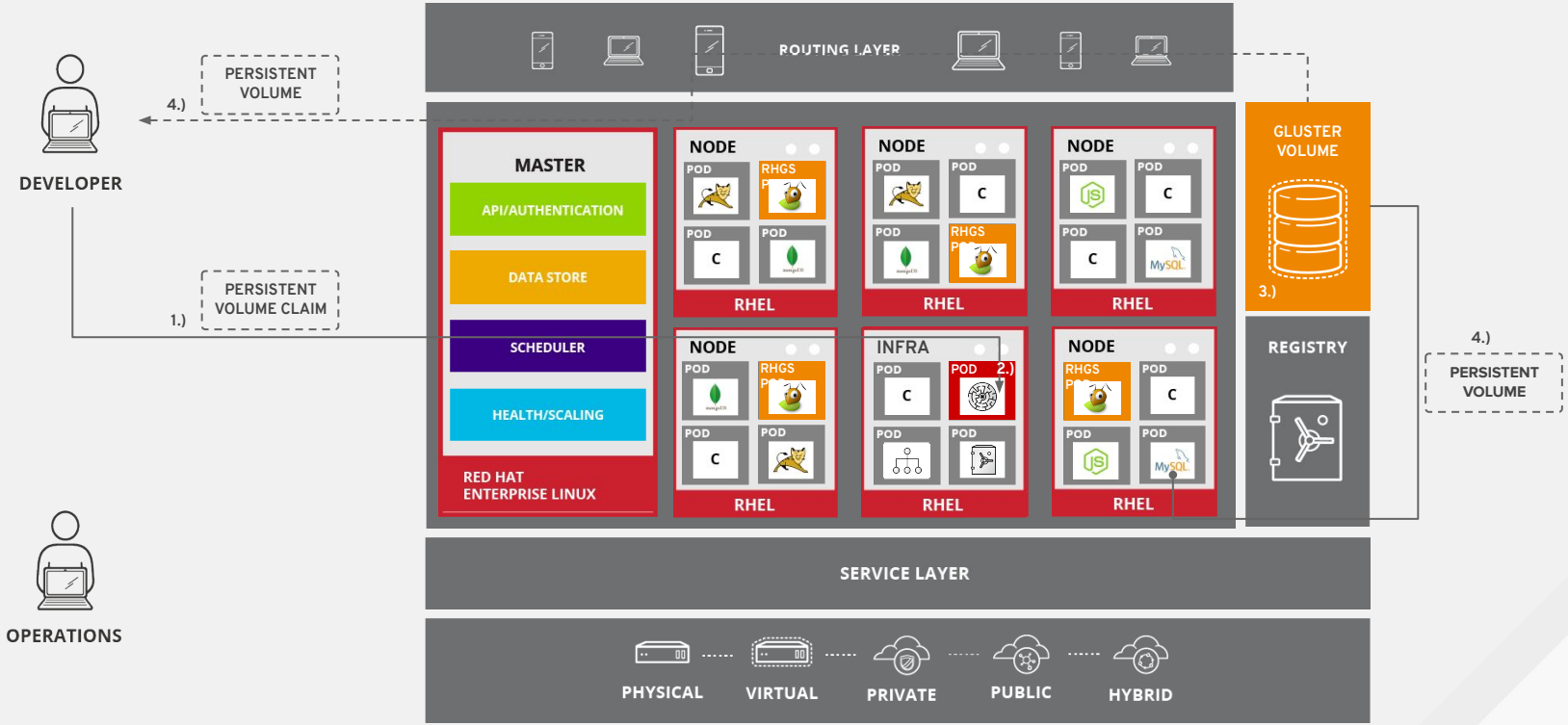

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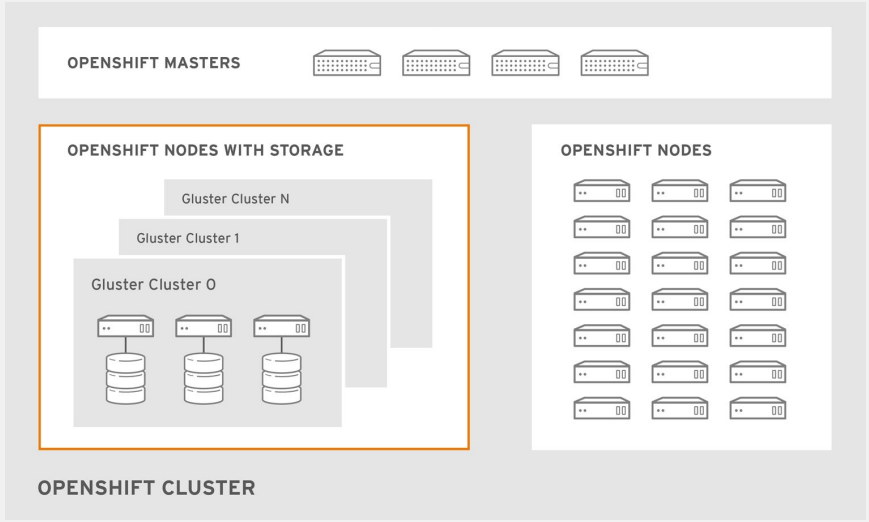


RED HAT® ENTERPRISE LINUX®

RED HAT® VIRTUALIZATION

vmware

RED HAT® OPENSTACK® PLATFORM

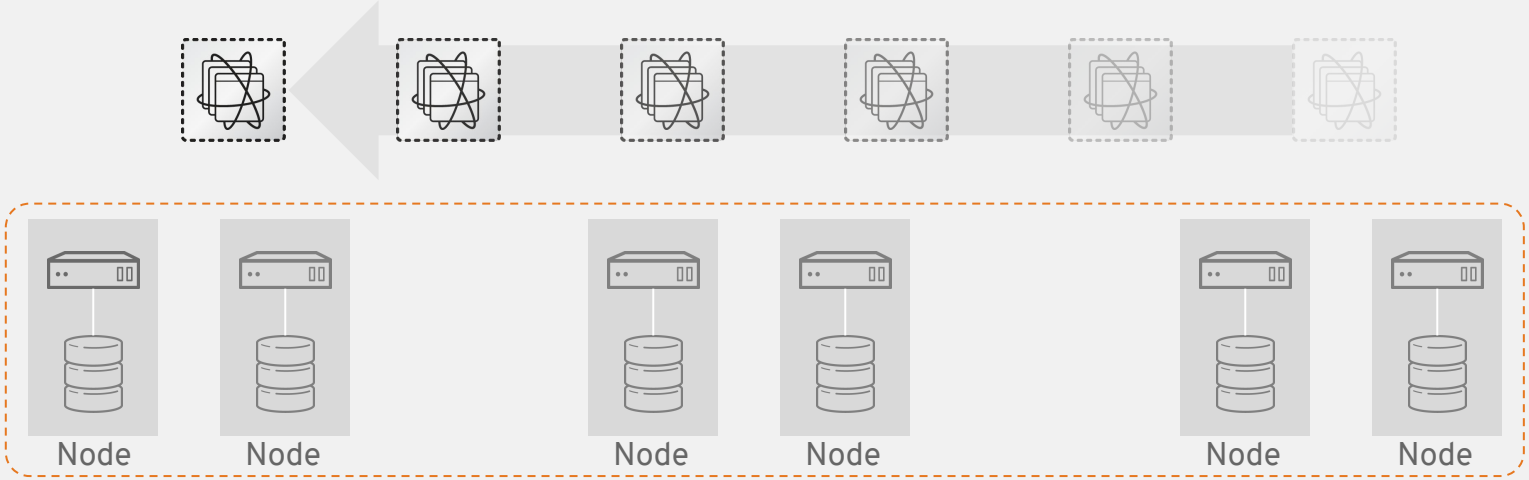
amazon web services

Microsoft Azure

Google Cloud Platform

redhat.

CONTAINER NATIVE STORAGE ON OPENSHIFT



AVAILABILITY ZONE A

AVAILABILITY ZONE B

AVAILABILITY ZONE C

OpenShift Operations and Container Native Storage Test Drive

http://red.ht/openshift-ops-testdrive

Try it and see!

Get hands on!

redhat

LABS!

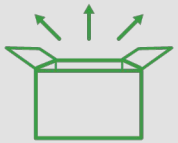
DELIVER MODERN, HIGH-PERFORMANCE APPLICATIONS WITH RED HAT AND INTEL

redhat

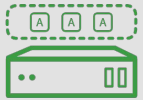
RED HAT AND INTEL: DELIVERING CONTAINERIZATION

Red Hat OpenShift Container Platform offers:

Fast, flexible app delivery



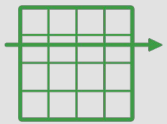
Accelerated delivery of new features and services



Standard app components and configurations

Automated app build, test, and deployment

DevOps adoption



Continuous integration/continuous delivery (CI/CD) pipeline

INTEL XEON SCALABLE PROCESSORS

Optimize performance

for advanced analytics, HPC, and data compression.

Accelerate critical workloads

with faster data compression and cryptography.

Operate more efficiently

with lower system and power costs and improved block and virtual machine transfers.

Improve security

without compromising performance.