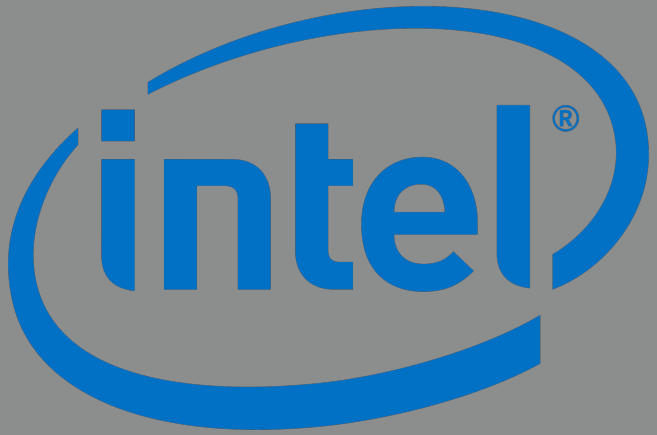


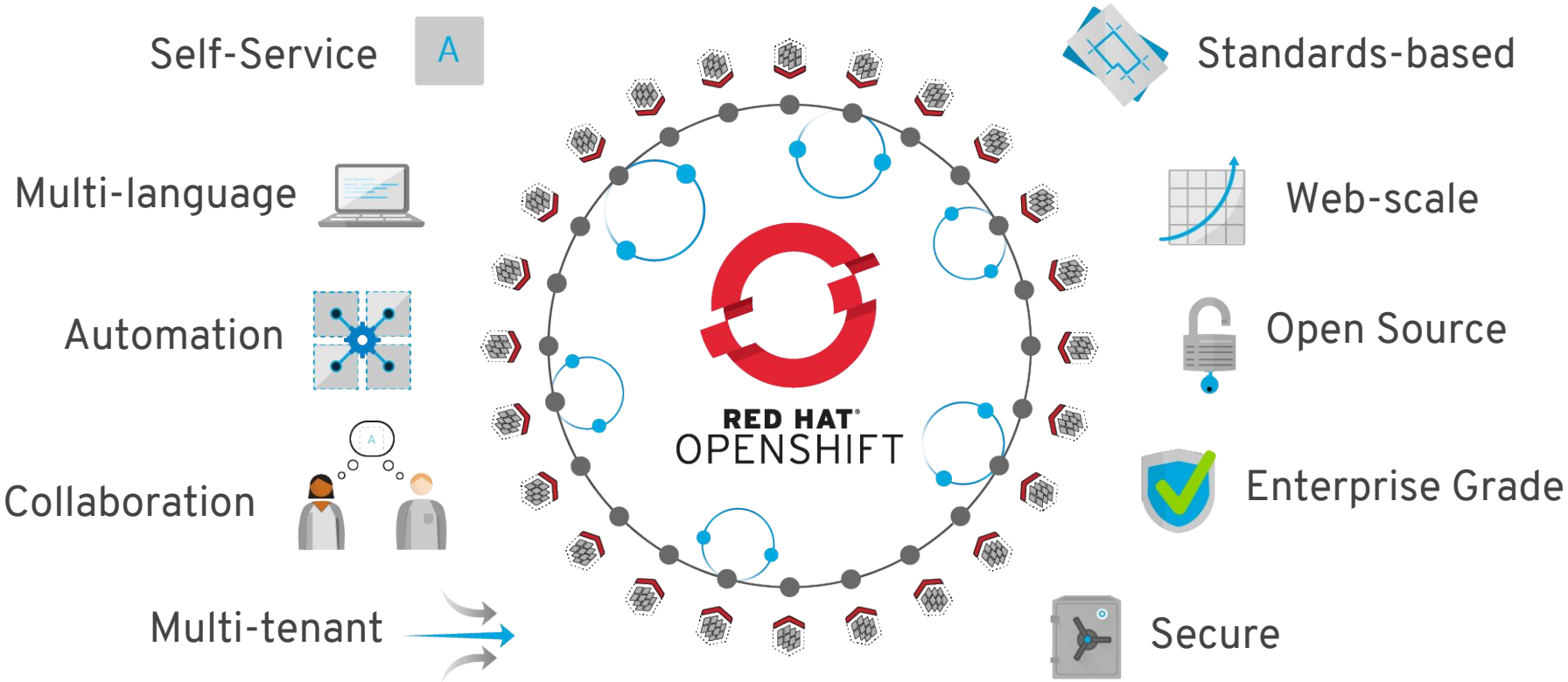
CLOUD-NATIVE ROADSHOW

OpenShift Operations and Container Native Storage Test Drive

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

Try it and see!

Get hands on!


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

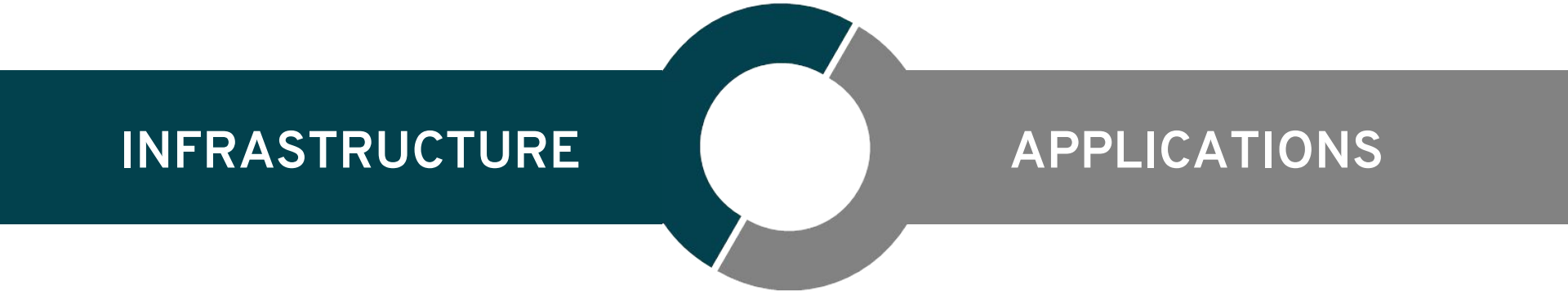
Agenda

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

LINUX CONTAINERS

WHAT ARE CONTAINERS?

It Depends Who You Ask

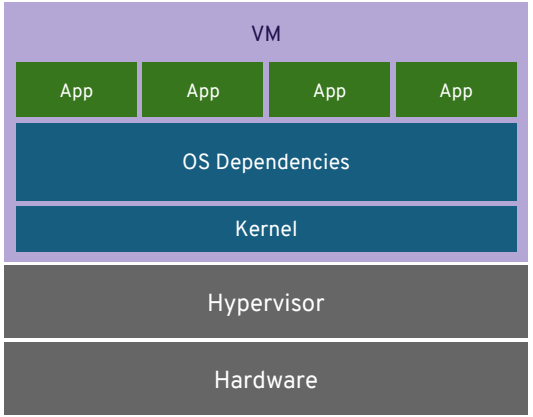


- Application processes on a shared kernel
- Simpler, lighter, and denser than VMs
- Portable across different environments

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

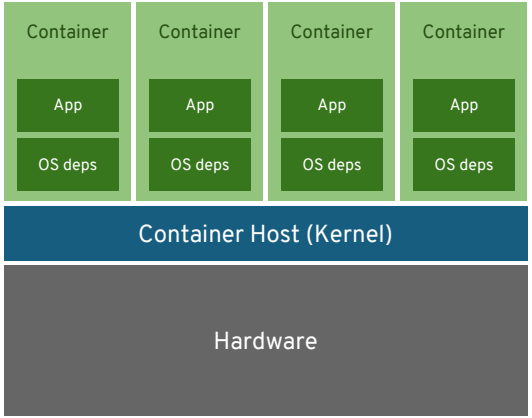
VIRTUAL MACHINES AND CONTAINERS

VIRTUAL MACHINES



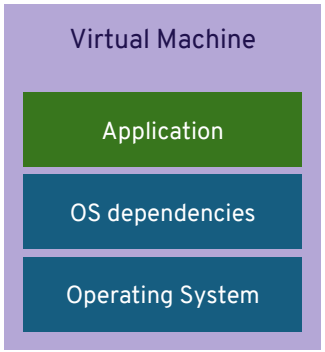
virtual machines are isolated
apps are not

CONTAINERS

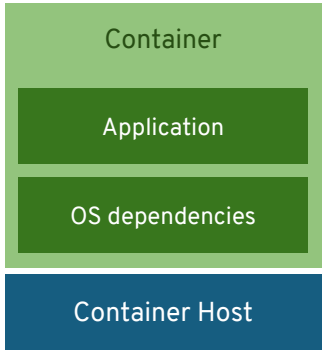


containers are isolated
so are the apps

VIRTUAL MACHINES AND CONTAINERS



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

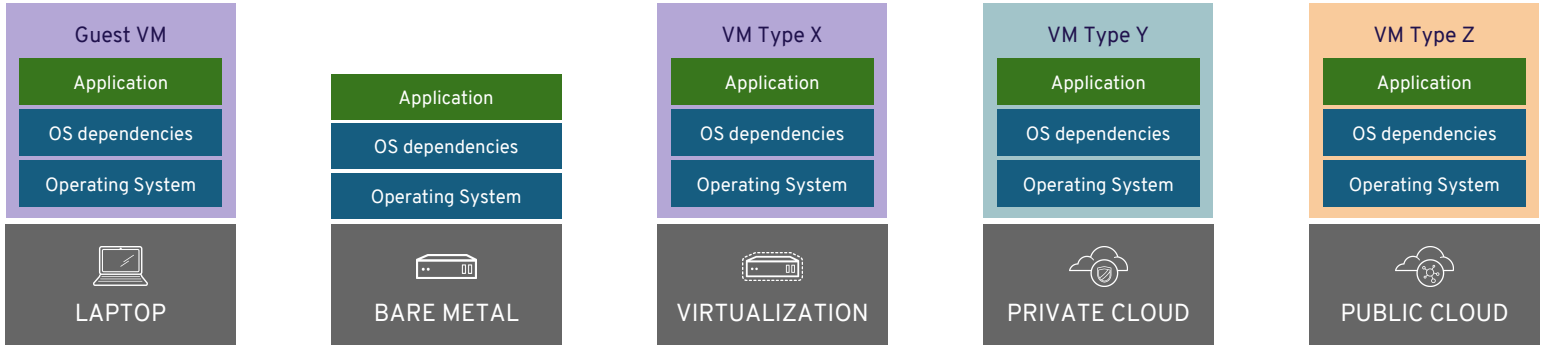


- ✚ Container Isolation
- ✚ Shared Kernel
- ✚ Burstable Compute
- ✚ Burstable Memory
- ✚ Low Resource Usage

VIRTUAL MACHINES AND CONTAINERS

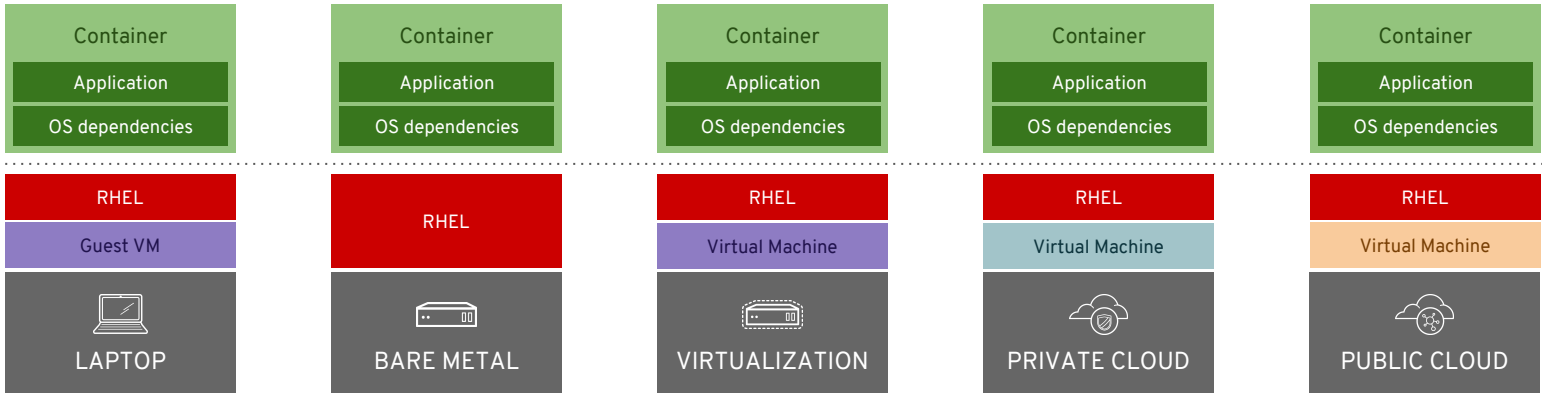
APPLICATION PORTABILITY WITH VM

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

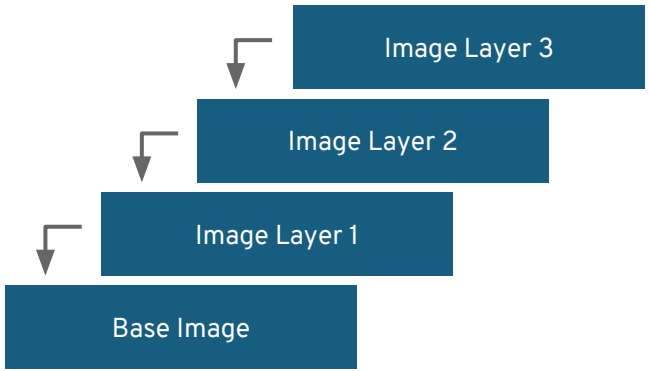


APPLICATION PORTABILITY WITH CONTAINERS

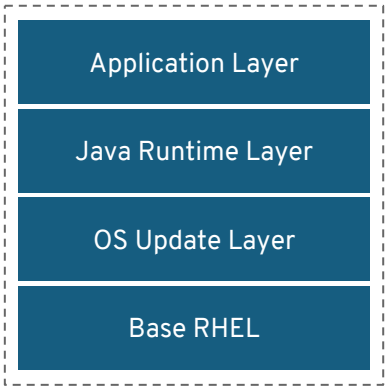
RHEL Containers + RHEL Host = Guaranteed Portability
Across Any Infrastructure



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

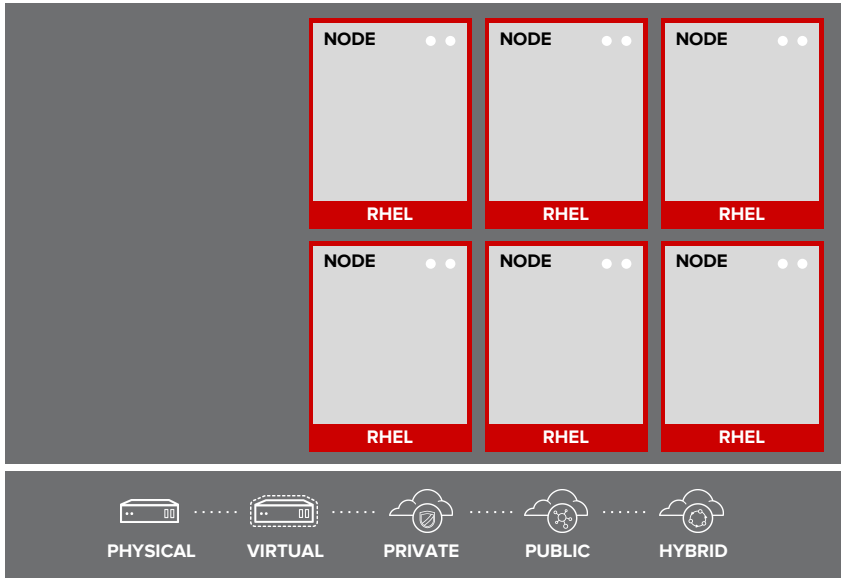
Available in OpenShift Online (soon)

Tech Preview in OCP 3.7, GA in OCP 3.8

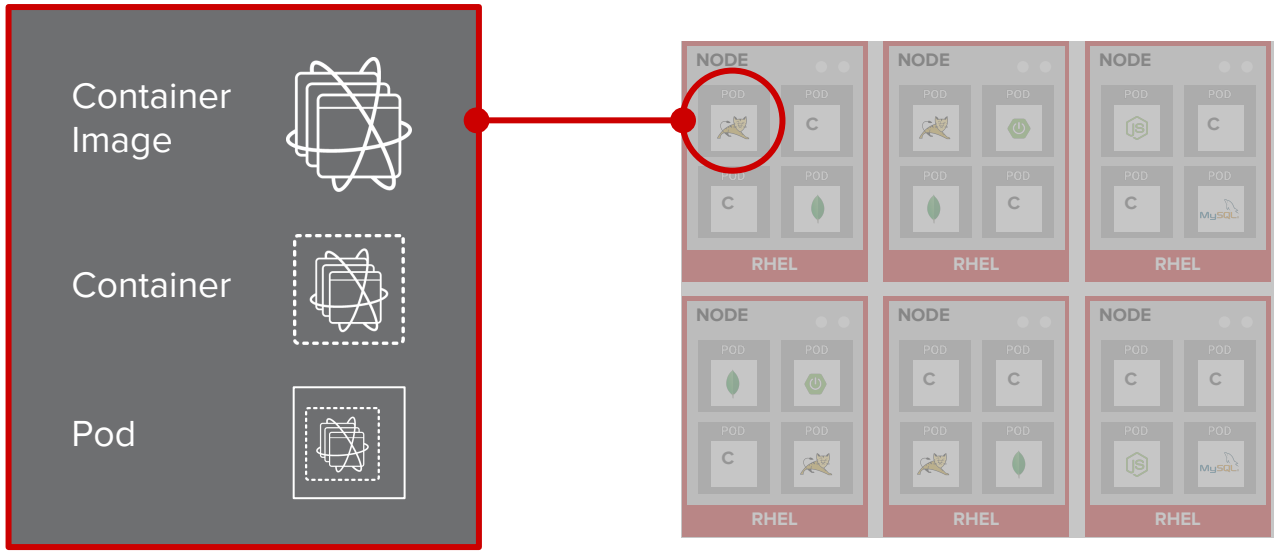
OPENSHIFT ARCHITECTURE

YOUR CHOICE OF INFRASTRUCTURE

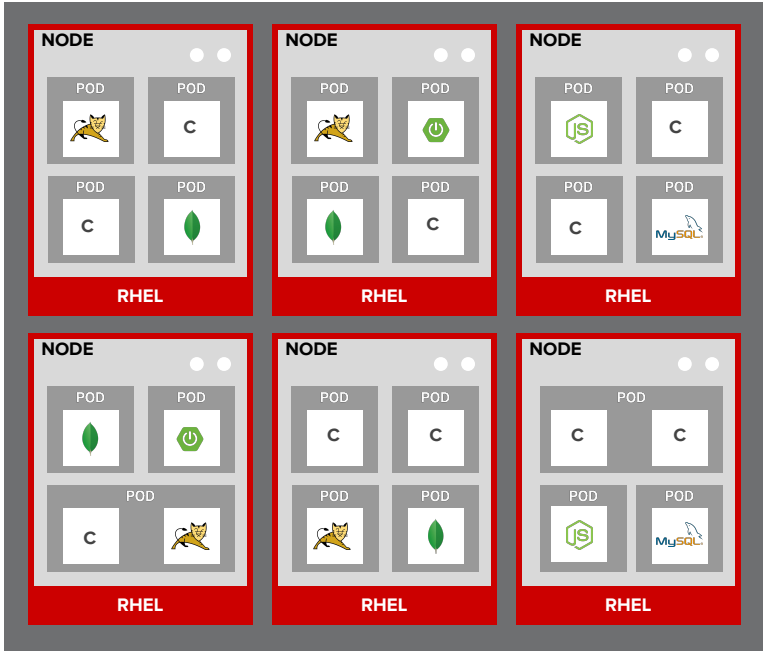
NODES RHEL INSTANCES WHERE APPS RUN



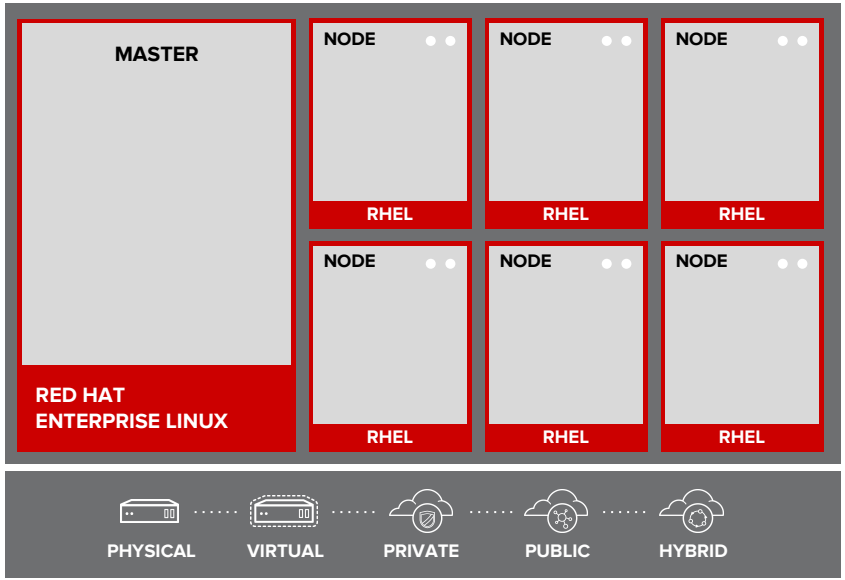
APPS RUN IN CONTAINERS



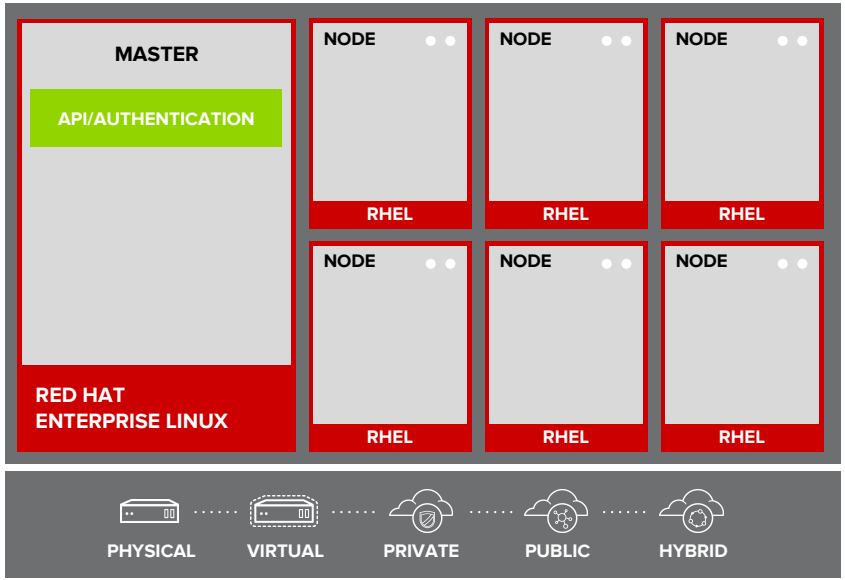
PODS ARE THE UNIT OF ORCHESTRATION



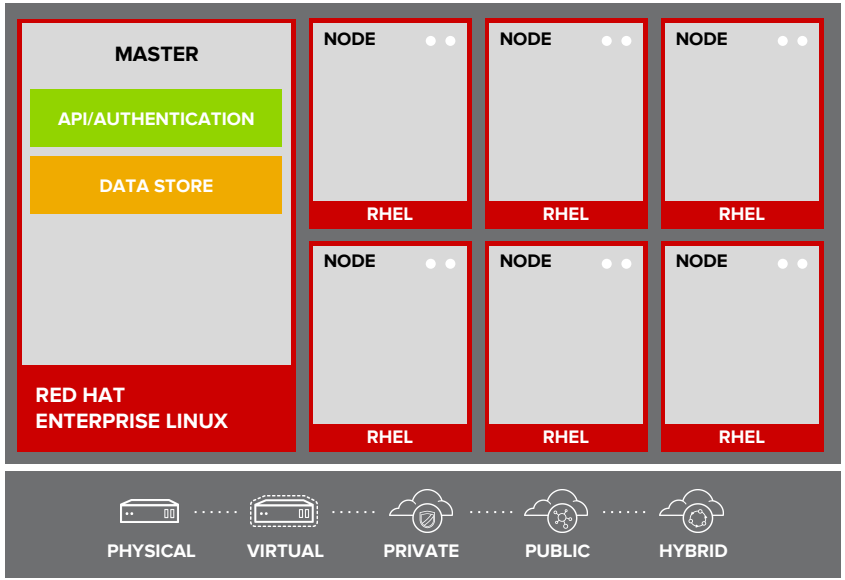
MASTERS ARE THE CONTROL PLANE



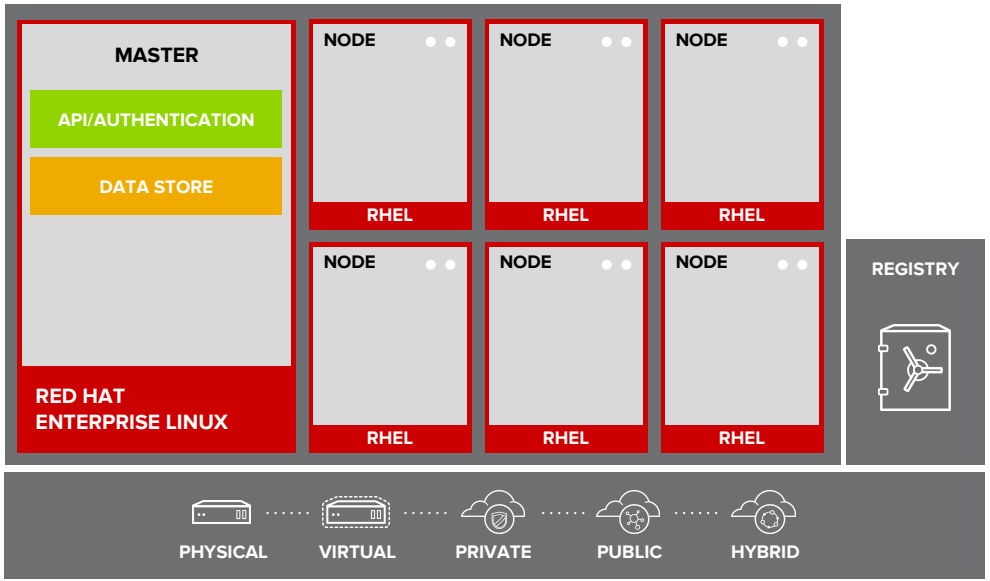
API AND AUTHENTICATION



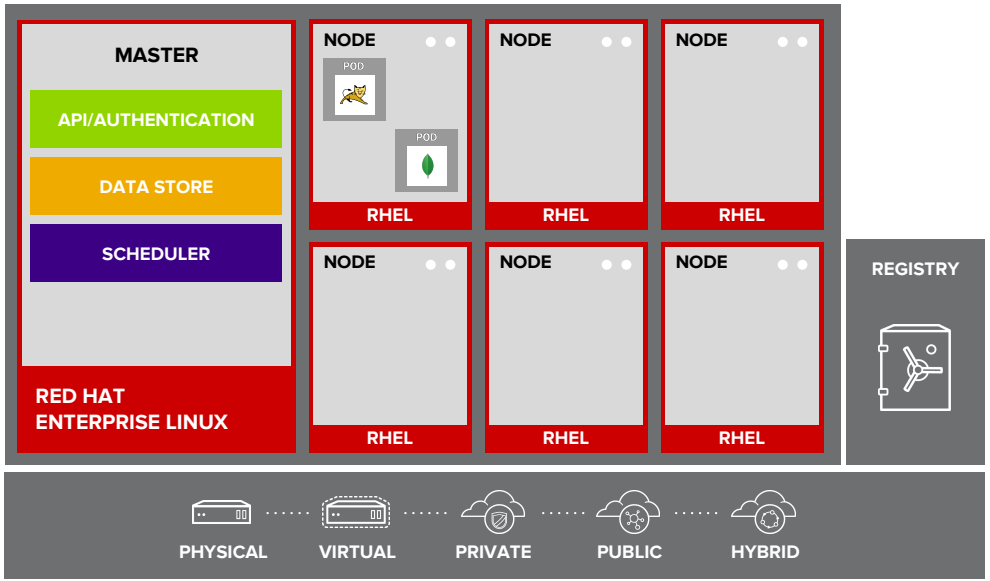
DESIRED AND CURRENT STATE



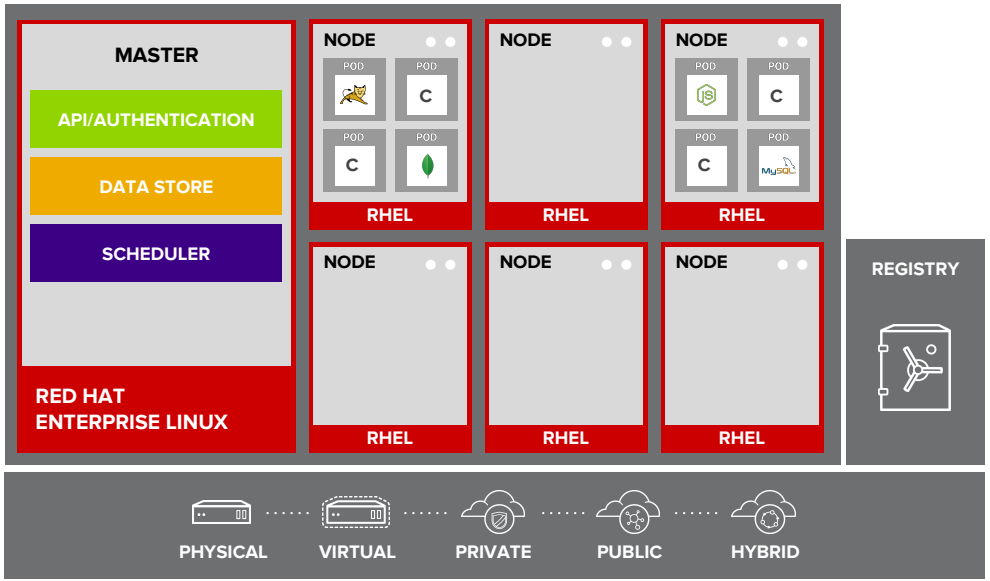
INTEGRATED CONTAINER REGISTRY



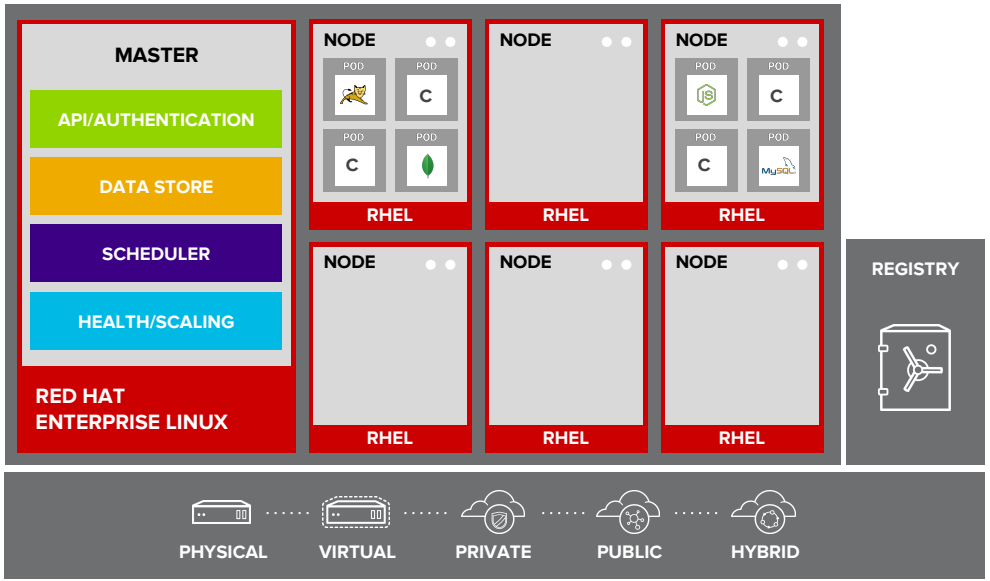
ORCHESTRATION AND SCHEDULING



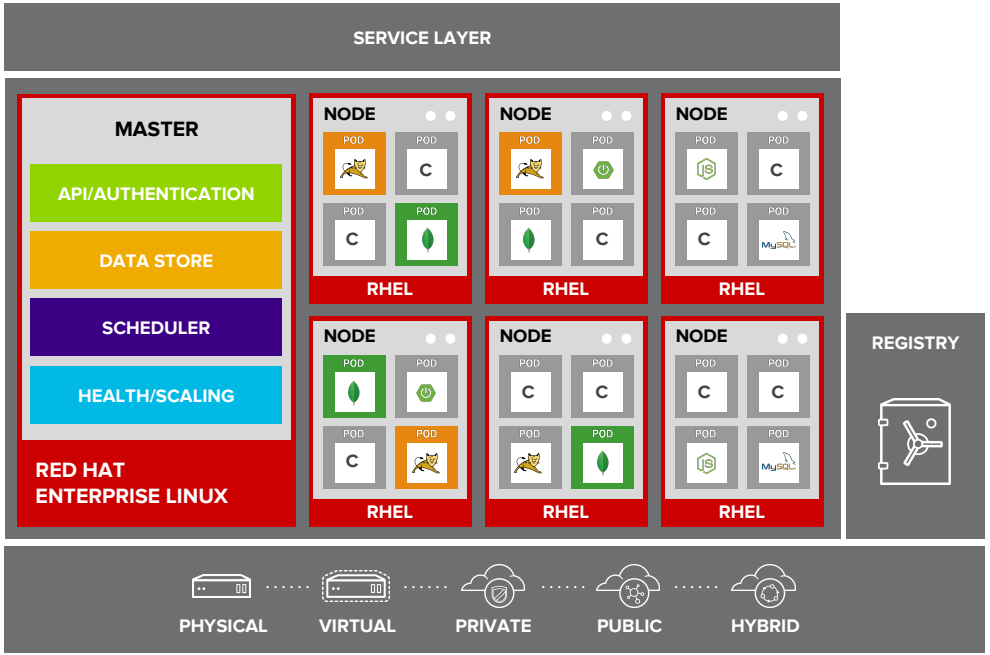
PLACEMENT BY POLICY



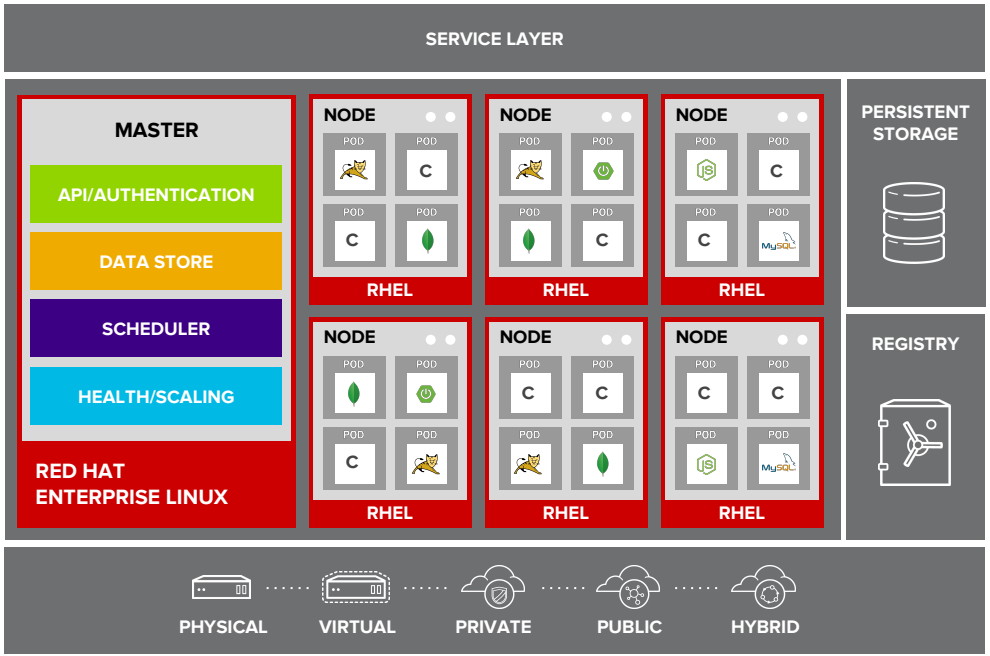
AUTOSCALING PODS



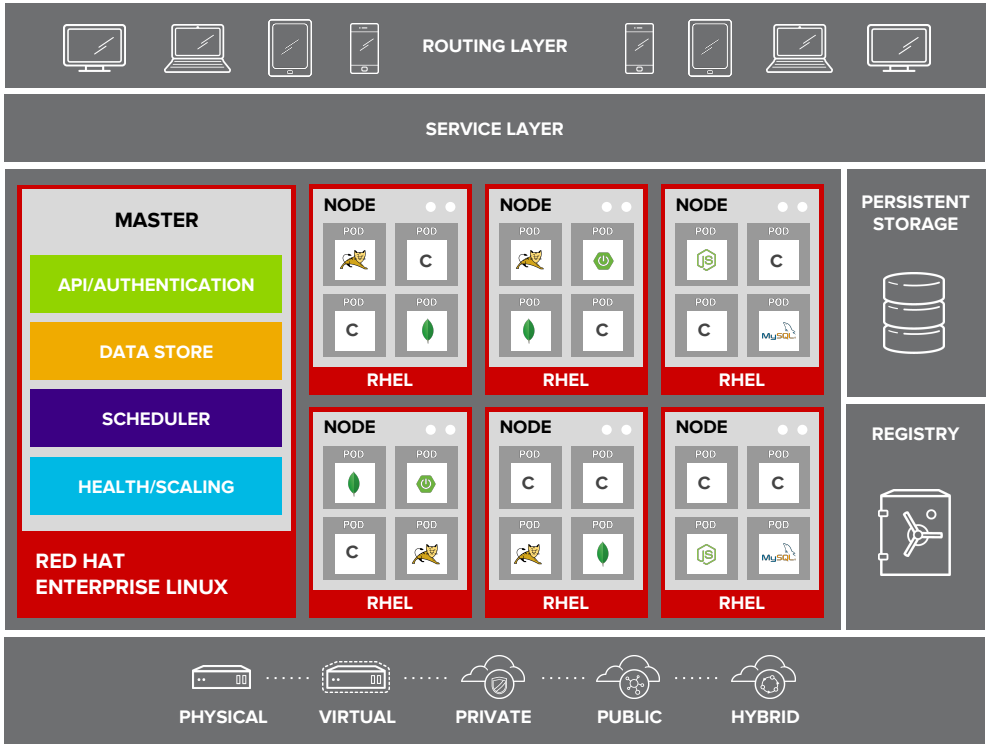
SERVICE DISCOVERY



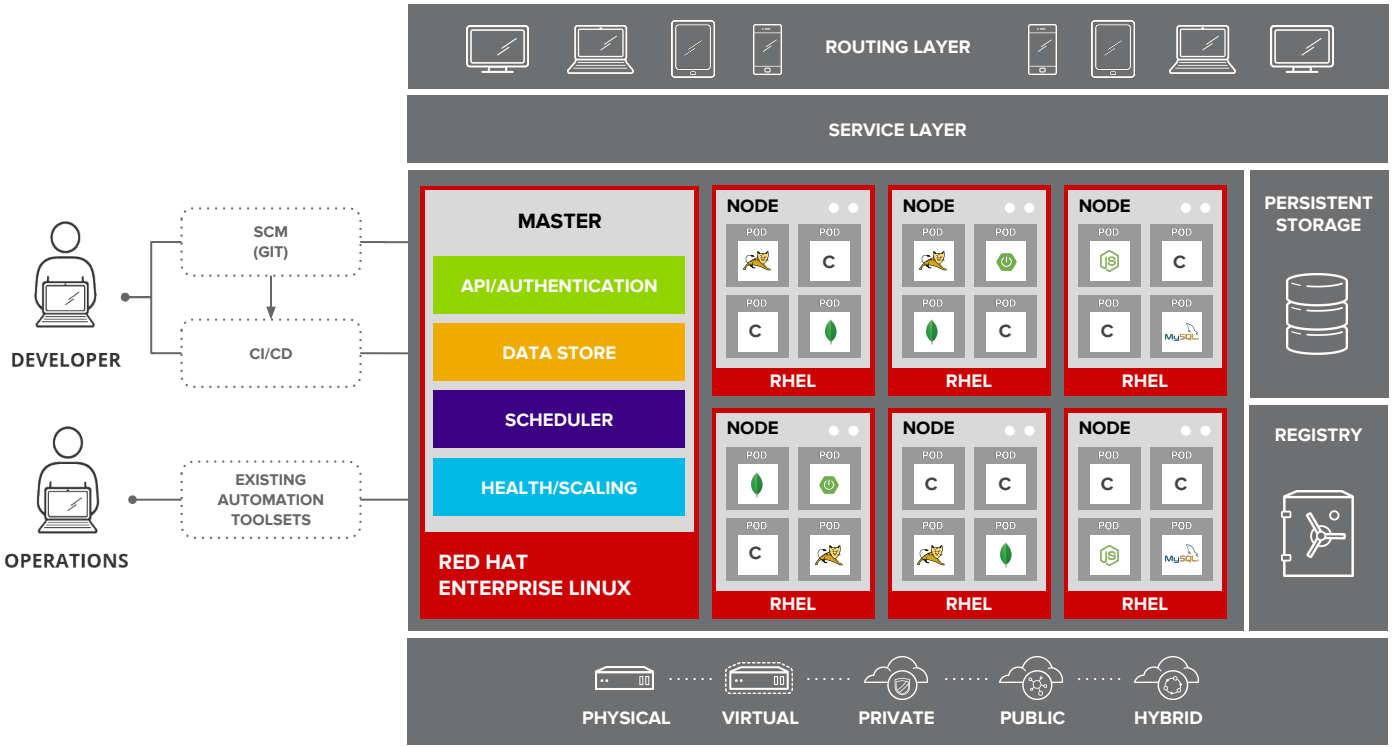
PERSISTENT DATA IN CONTAINERS



ROUTING AND LOAD-BALANCING



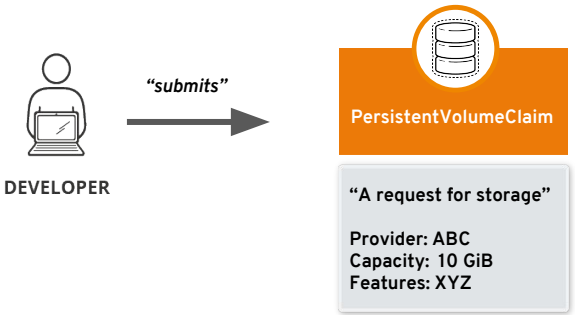
ACCESS VIA WEB, CLI, IDE AND API



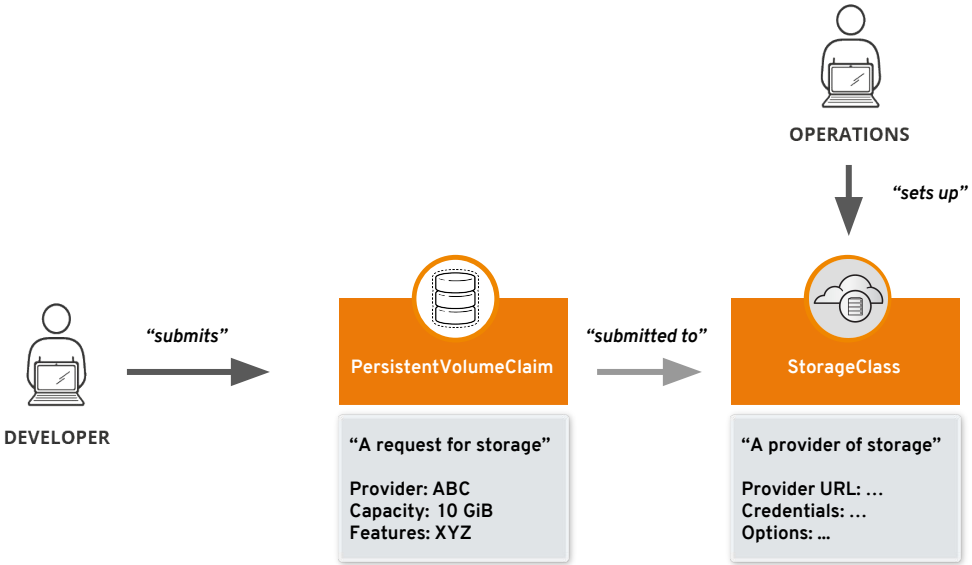
CONTAINER NATIVE STORAGE

OPENSHIFT PERSISTENT STORAGE FRAMEWORK

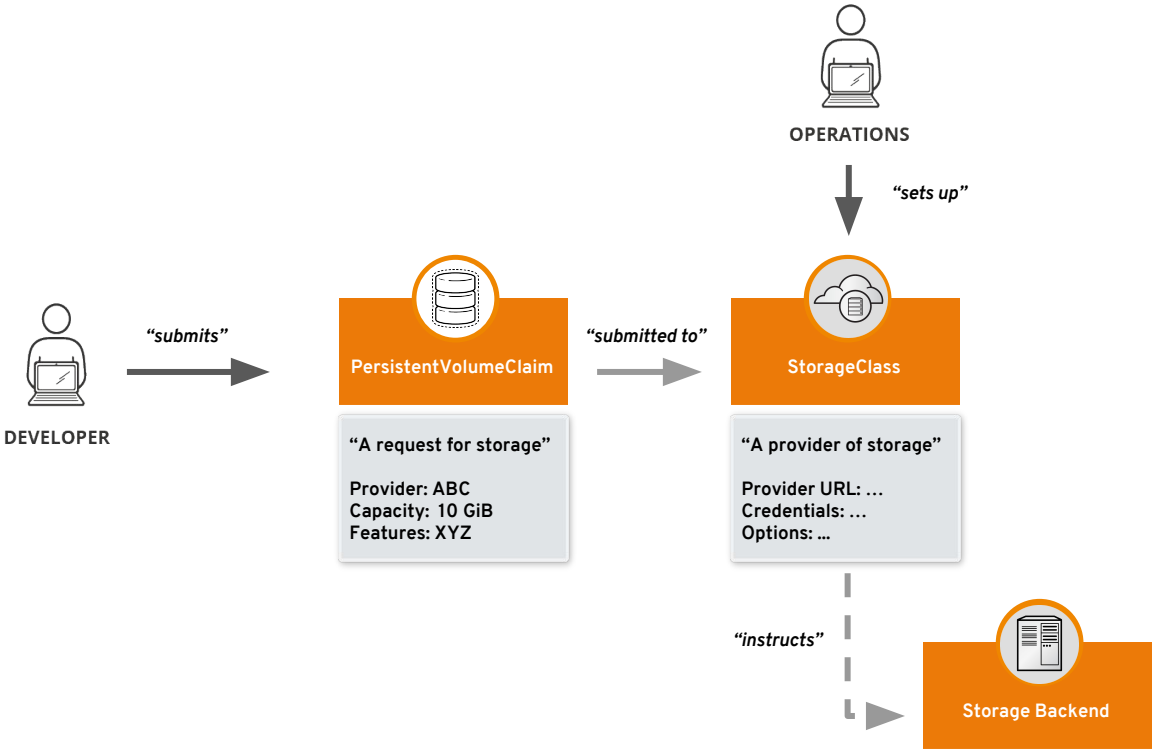
OPENSHIFT PERSISTENT STORAGE FRAMEWORK



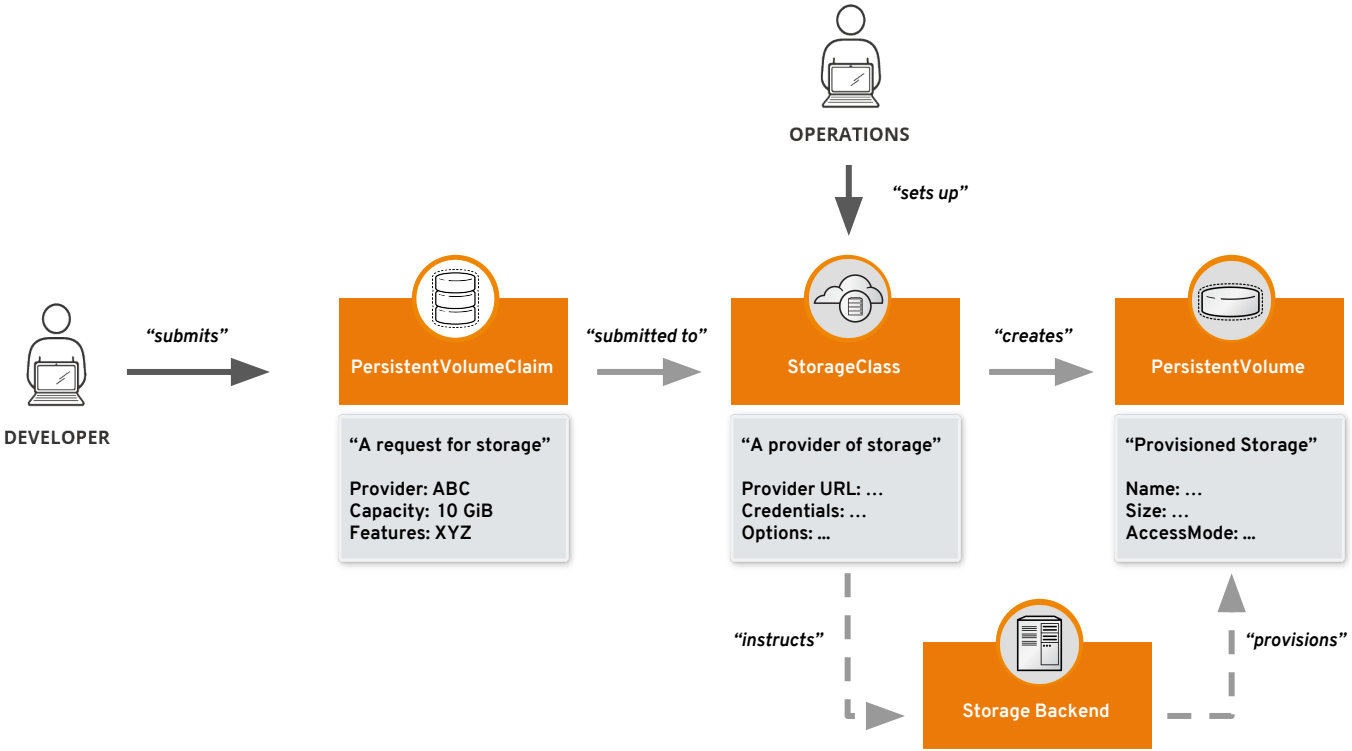
OPENSHIFT PERSISTENT STORAGE FRAMEWORK



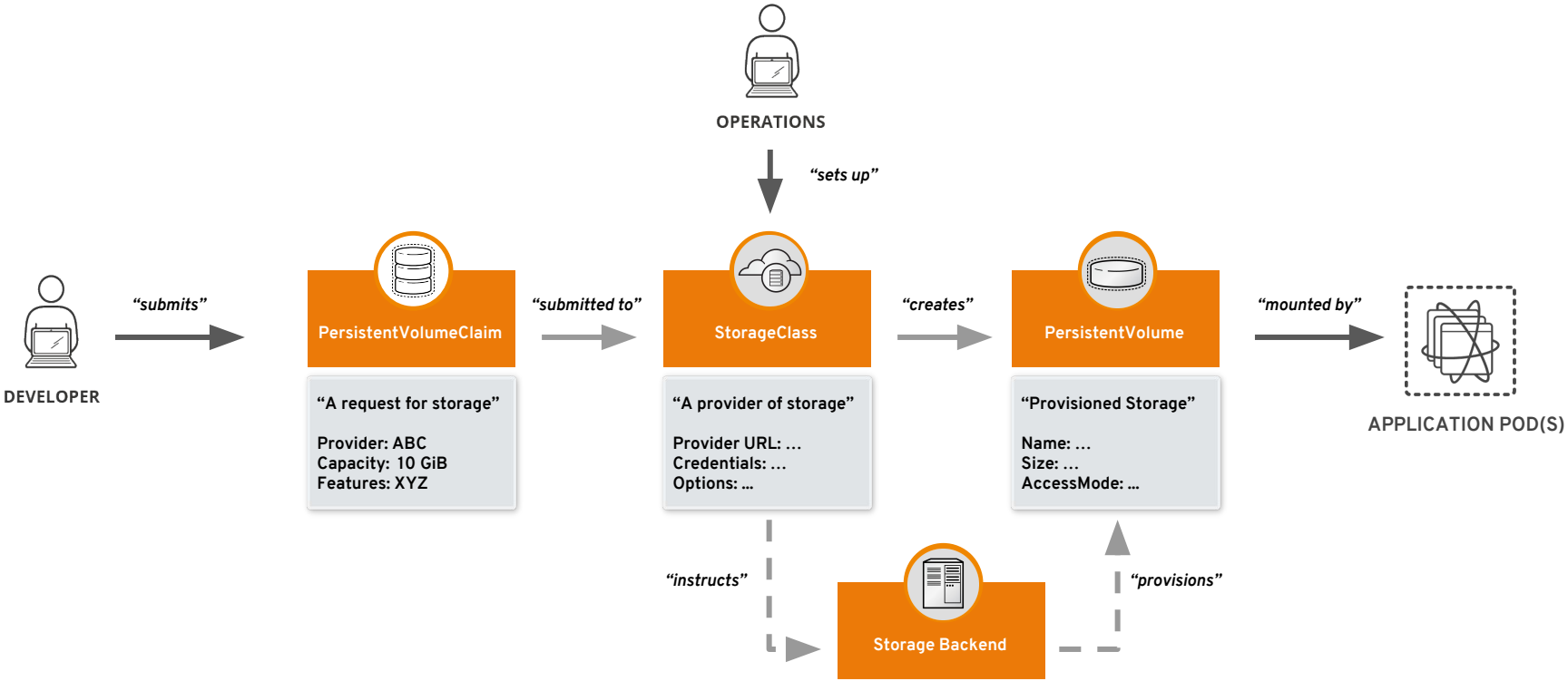
OPENSHIFT PERSISTENT STORAGE FRAMEWORK



OPENSHIFT PERSISTENT STORAGE FRAMEWORK



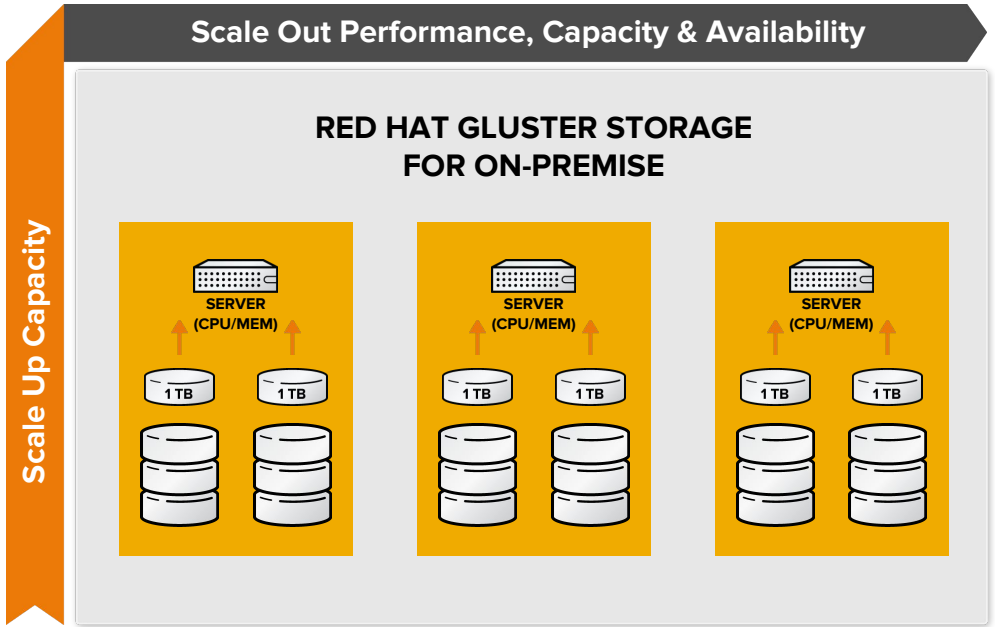
OPENSHIFT PERSISTENT STORAGE FRAMEWORK



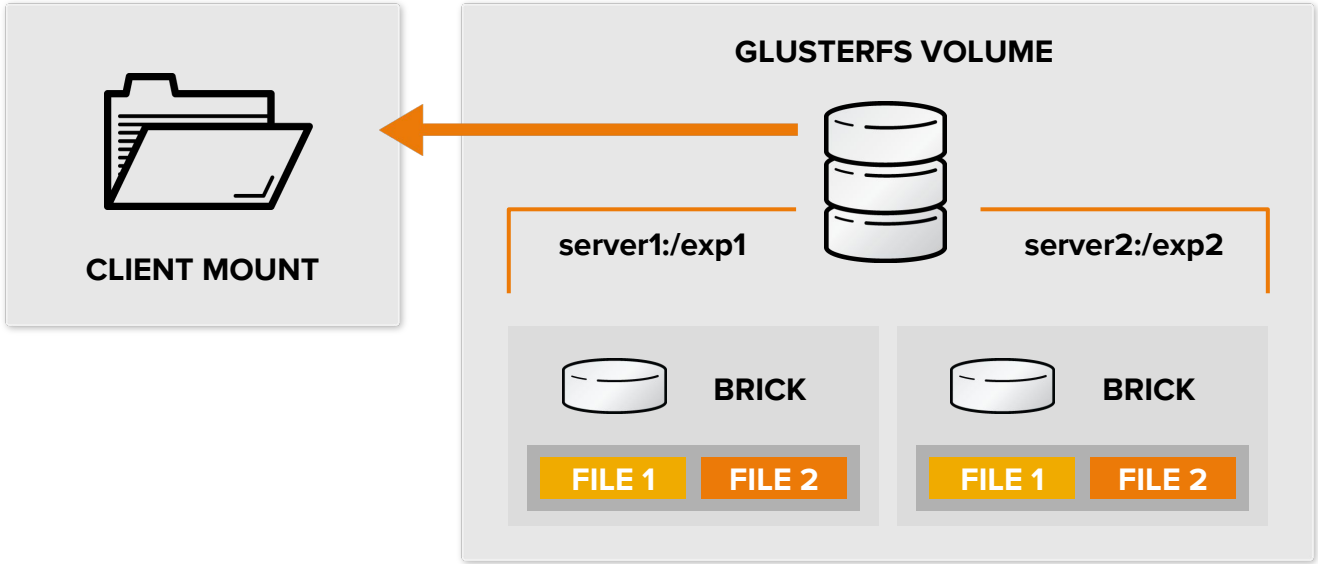
GLUSTERFS - DISTRIBUTED FILE STORAGE

Single, Global namespace

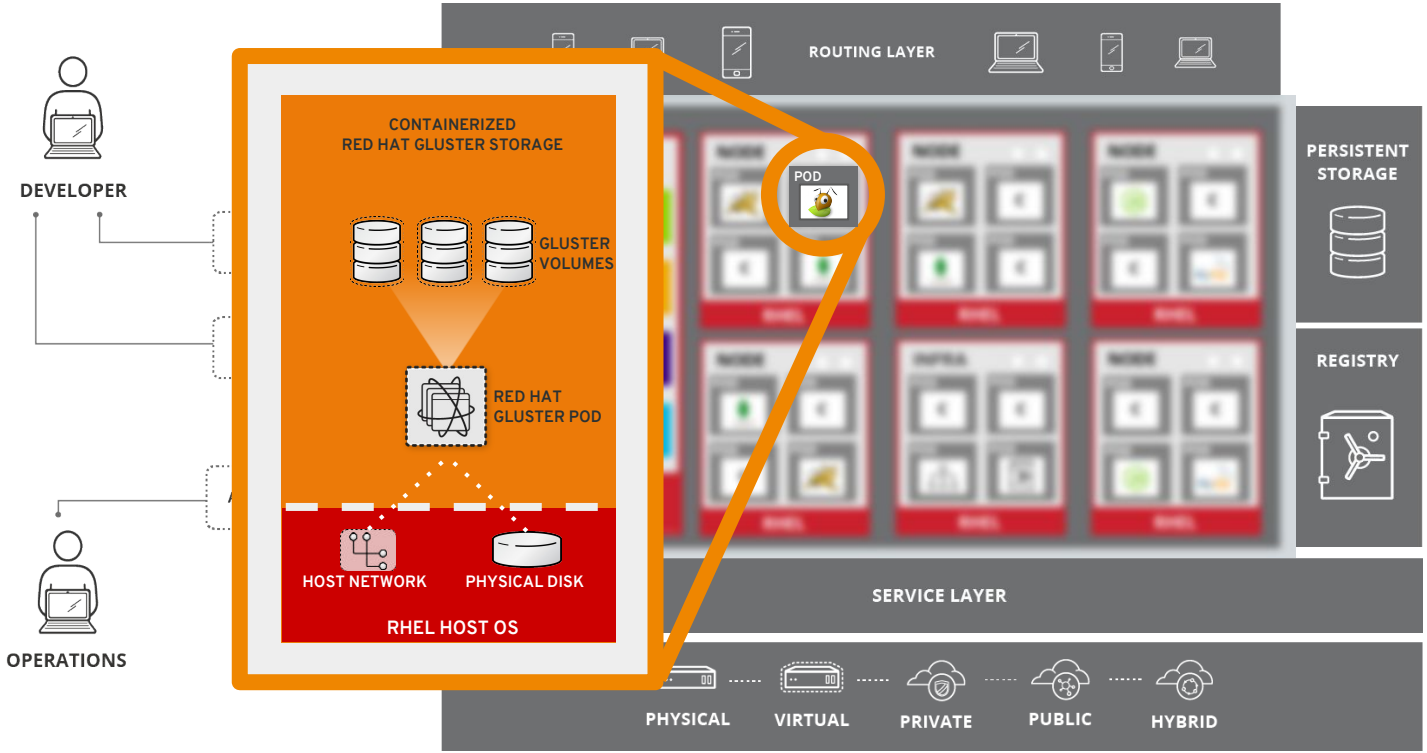
- Deploys on Red Hat-supported servers and underlying storage: DAS, JBOD
- Scale-out linearly
- Replicate synchronously and asynchronous



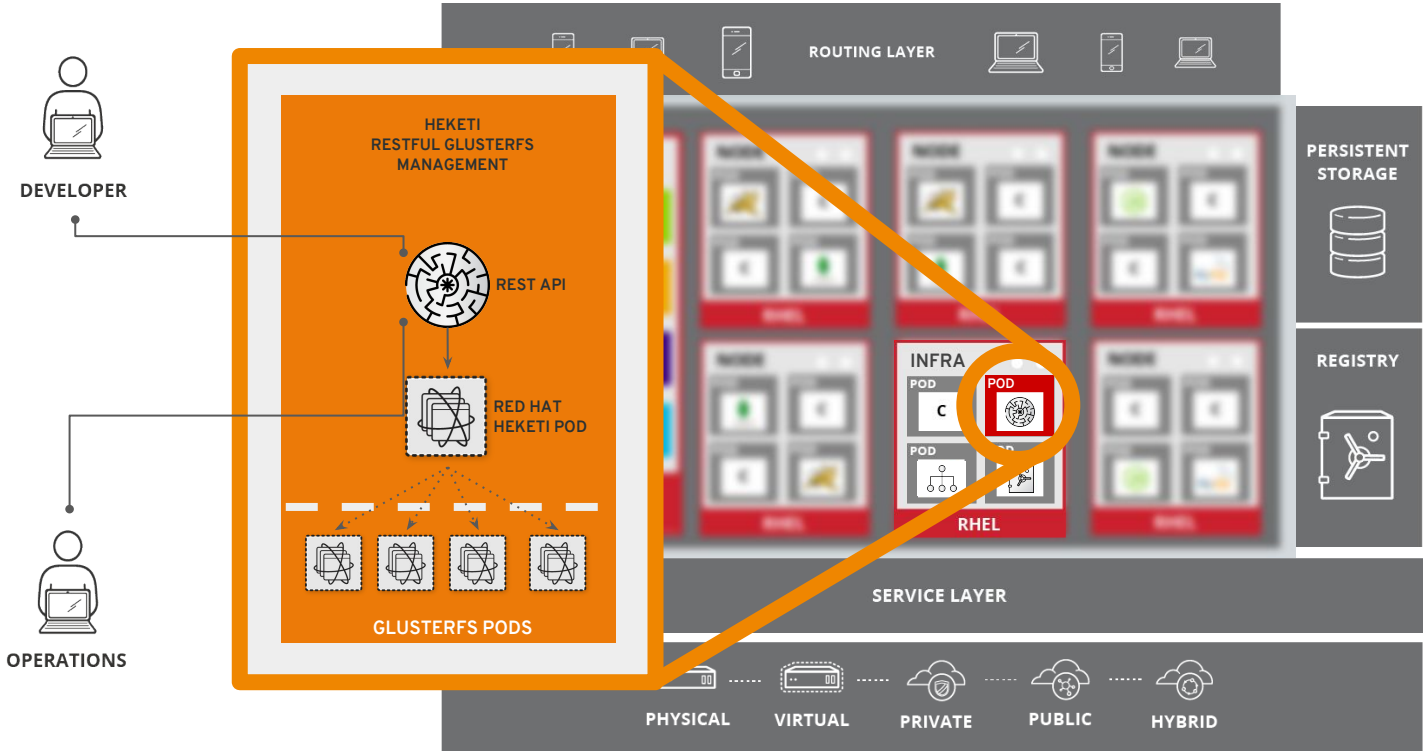
FEDERATING LOCAL STORAGE



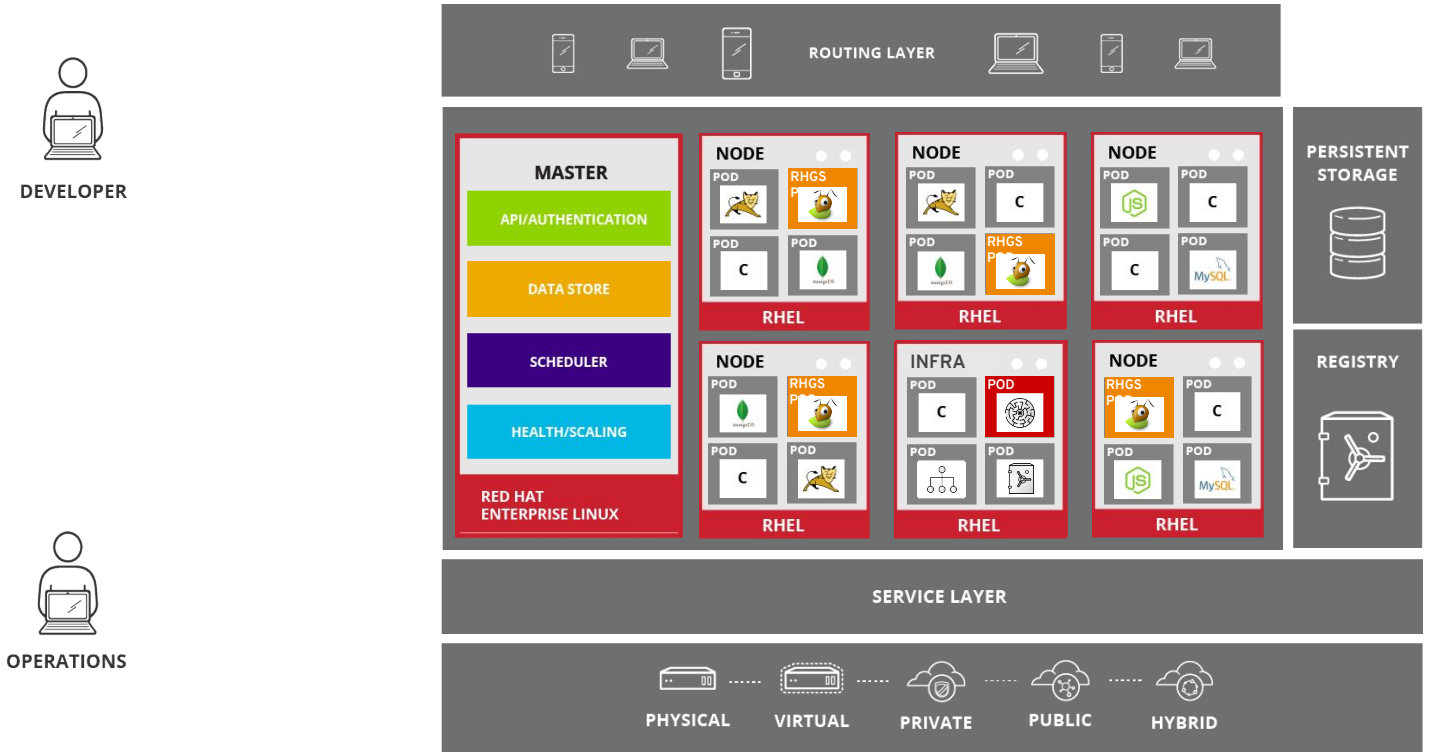
CONTAINER-NATIVE STORAGE ON OPENSHIFT



CONTAINER-NATIVE STORAGE ON OPENSHIFT



CONTAINER NATIVE STORAGE ON OPENSHIFT



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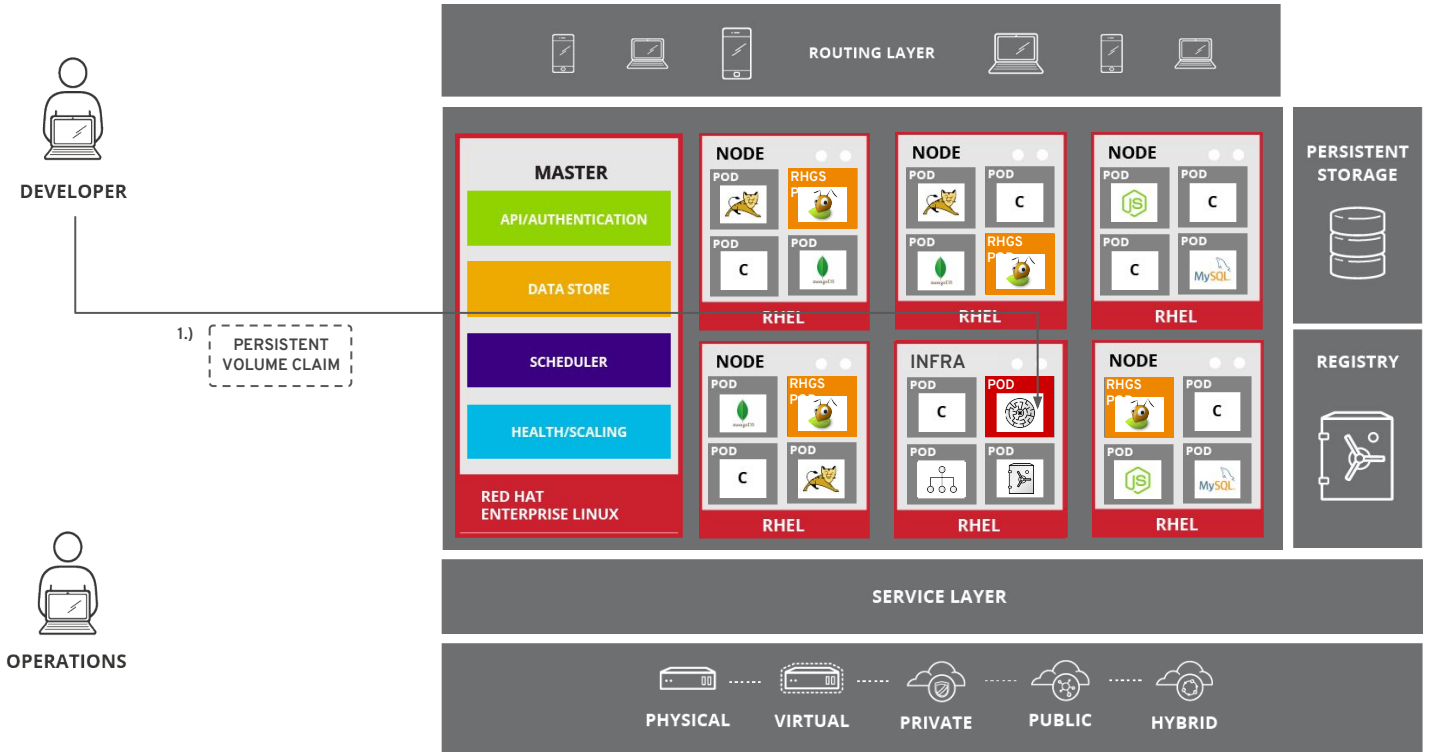
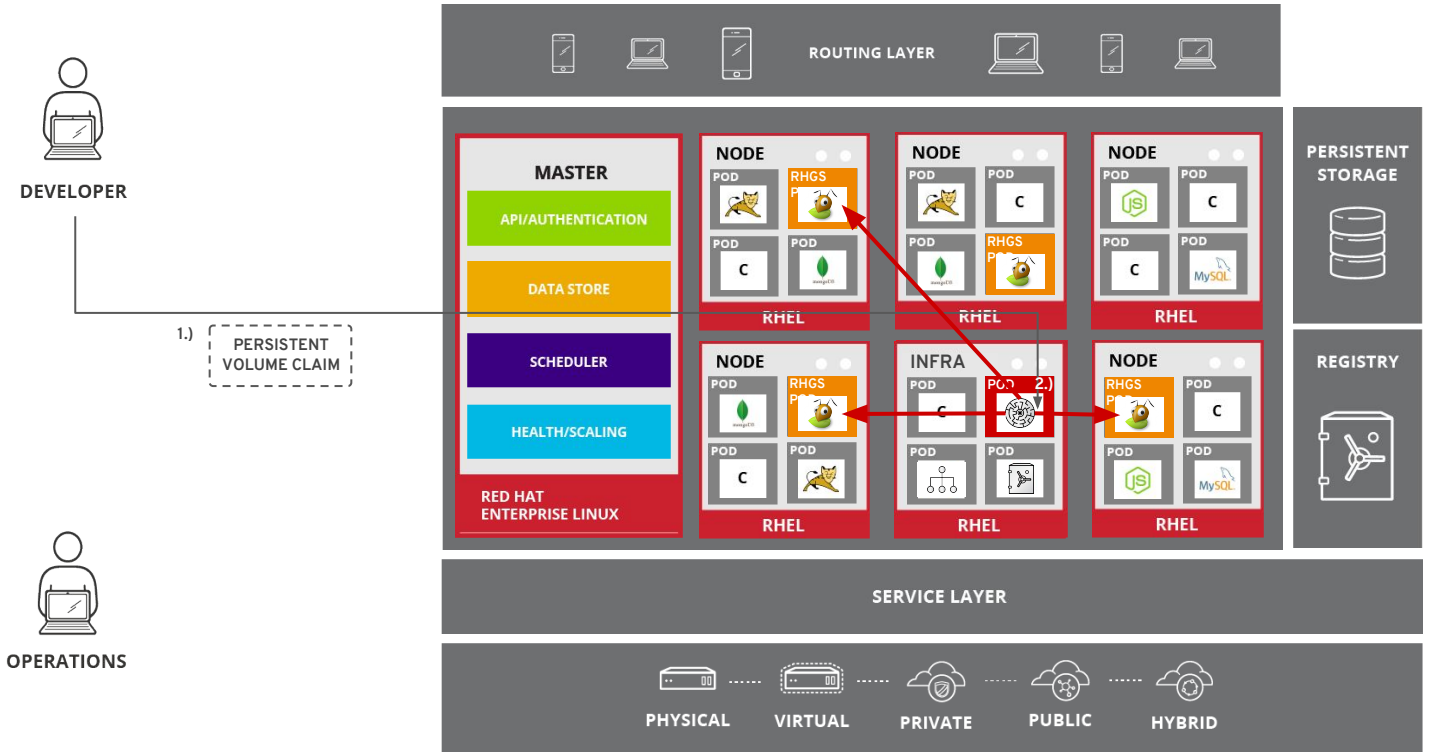
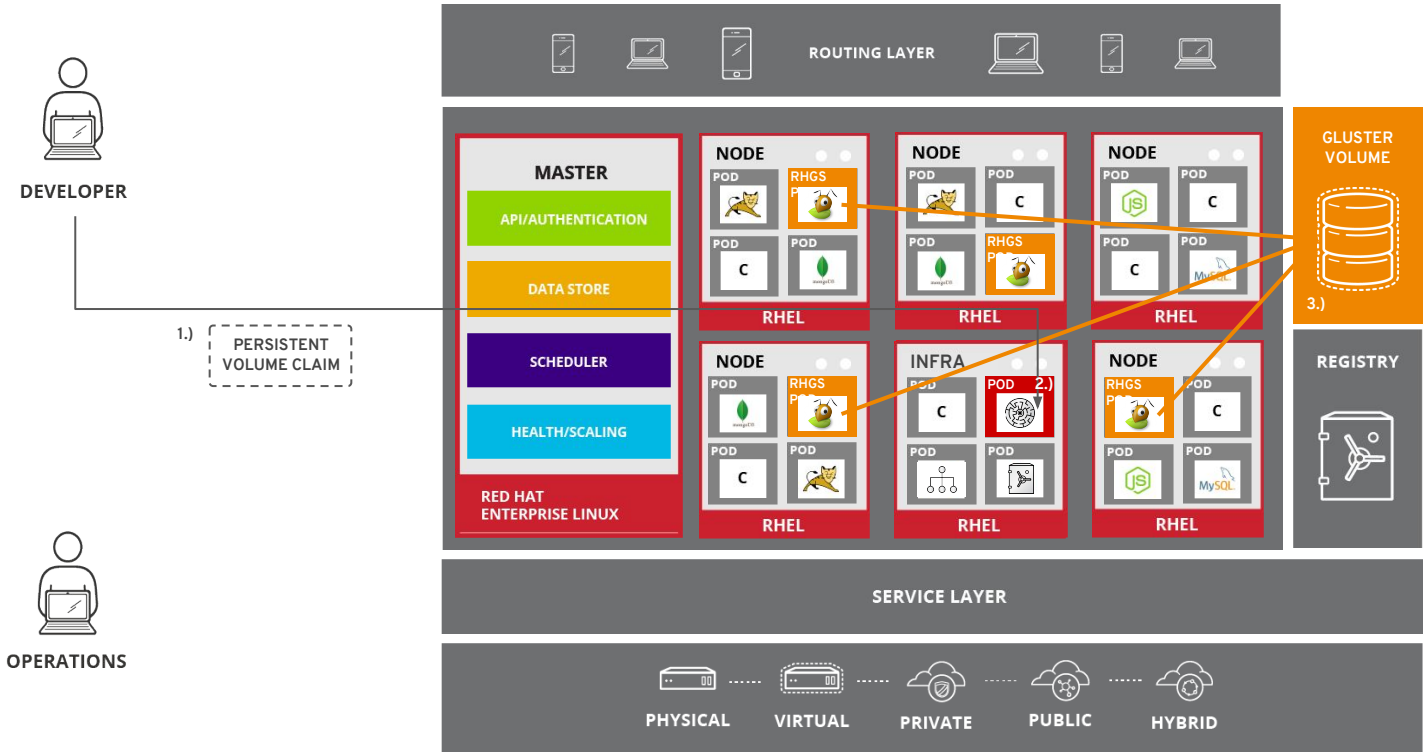


CONTAINER NATIVE STORAGE ON OPENSHIFT



CONTAINER NATIVE STORAGE ON OPENSHIFT



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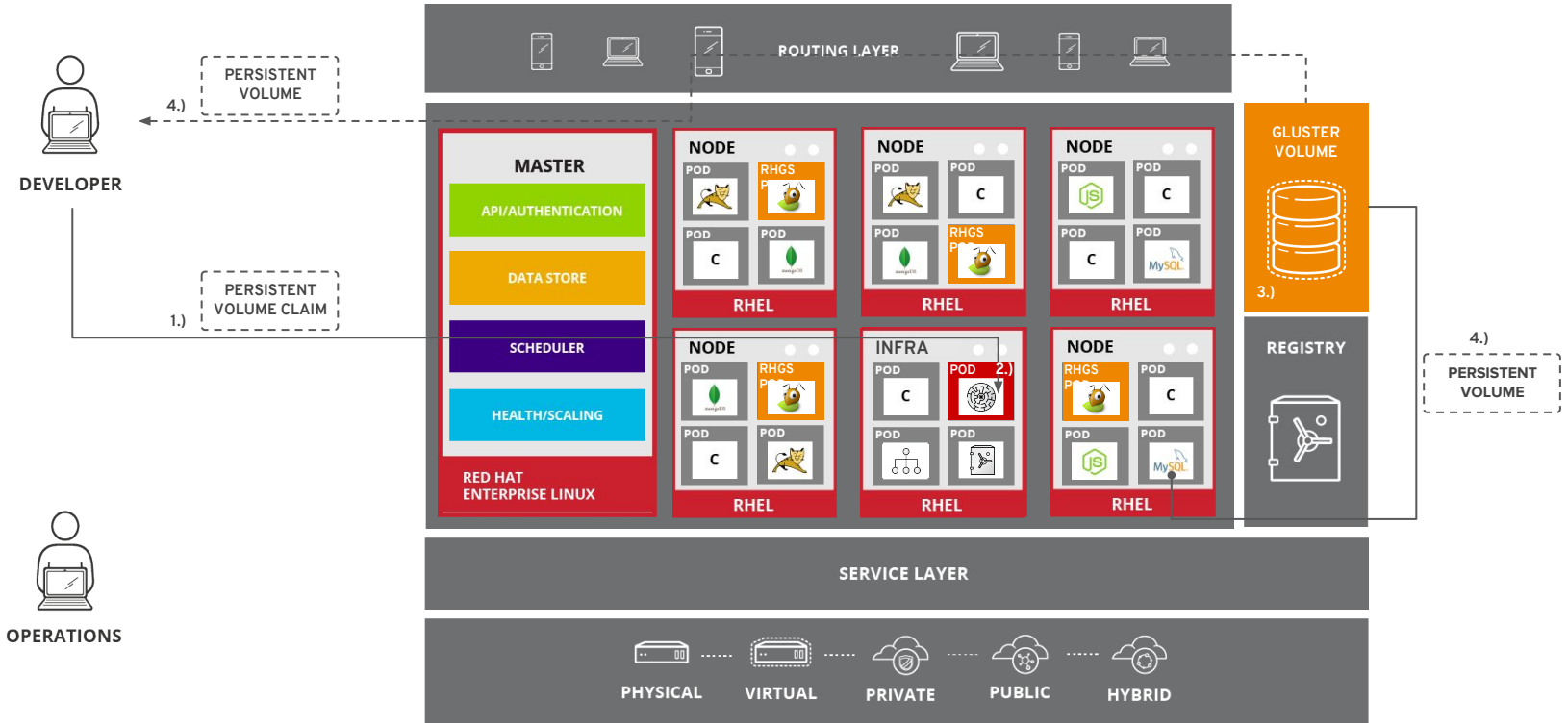

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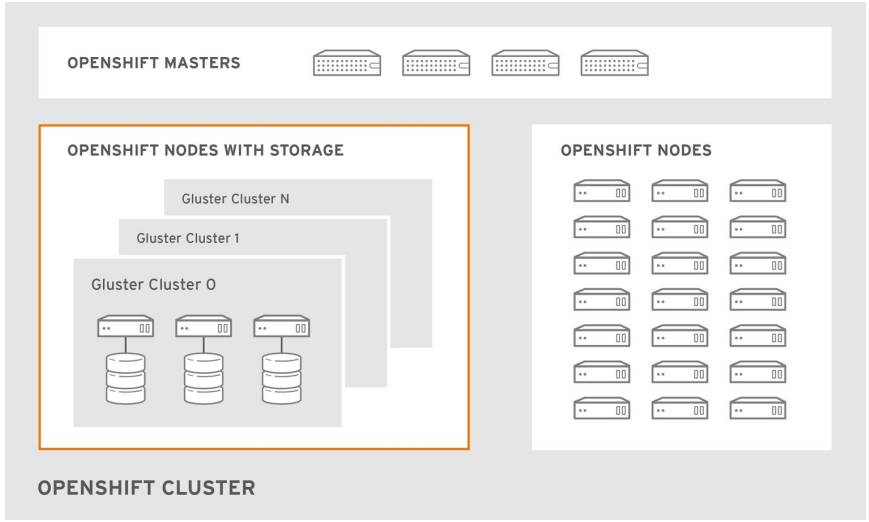


RED HAT® ENTERPRISE LINUX®

RED HAT® VIRTUALIZATION

vmware

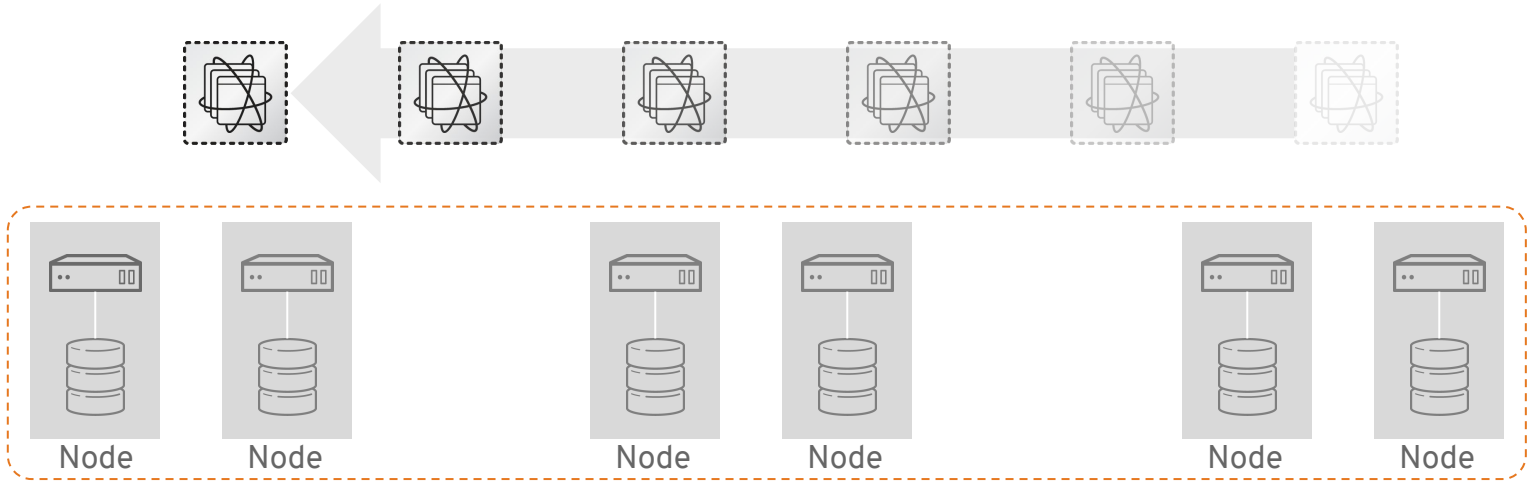
RED HAT® OPENSTACK® PLATFORM

amazon web services

Microsoft Azure

Google Cloud Platform

CONTAINER NATIVE STORAGE ON OPENSHIFT



LABS!

https://github.com/openshift/openshift-cns-testdrive