

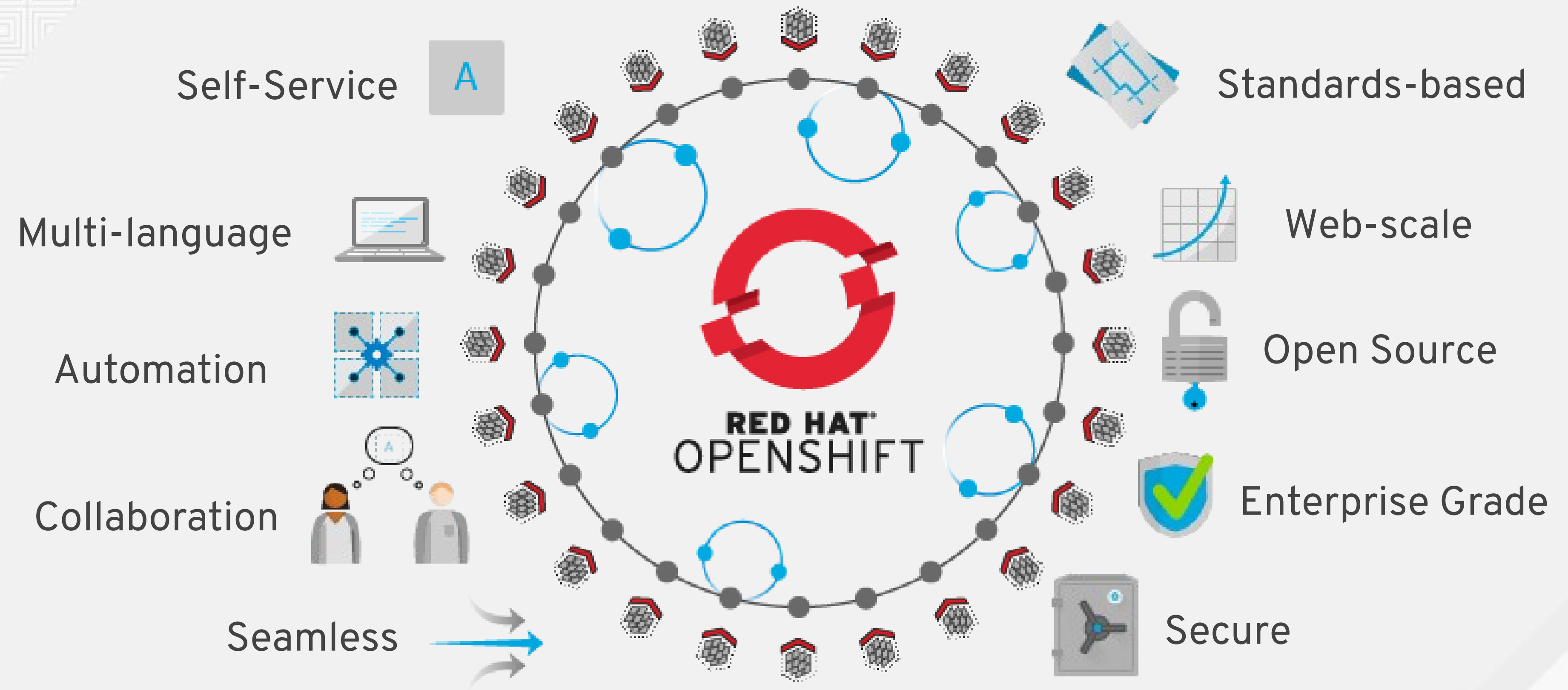


Backup strategies for Stateful Containers in OpenShift

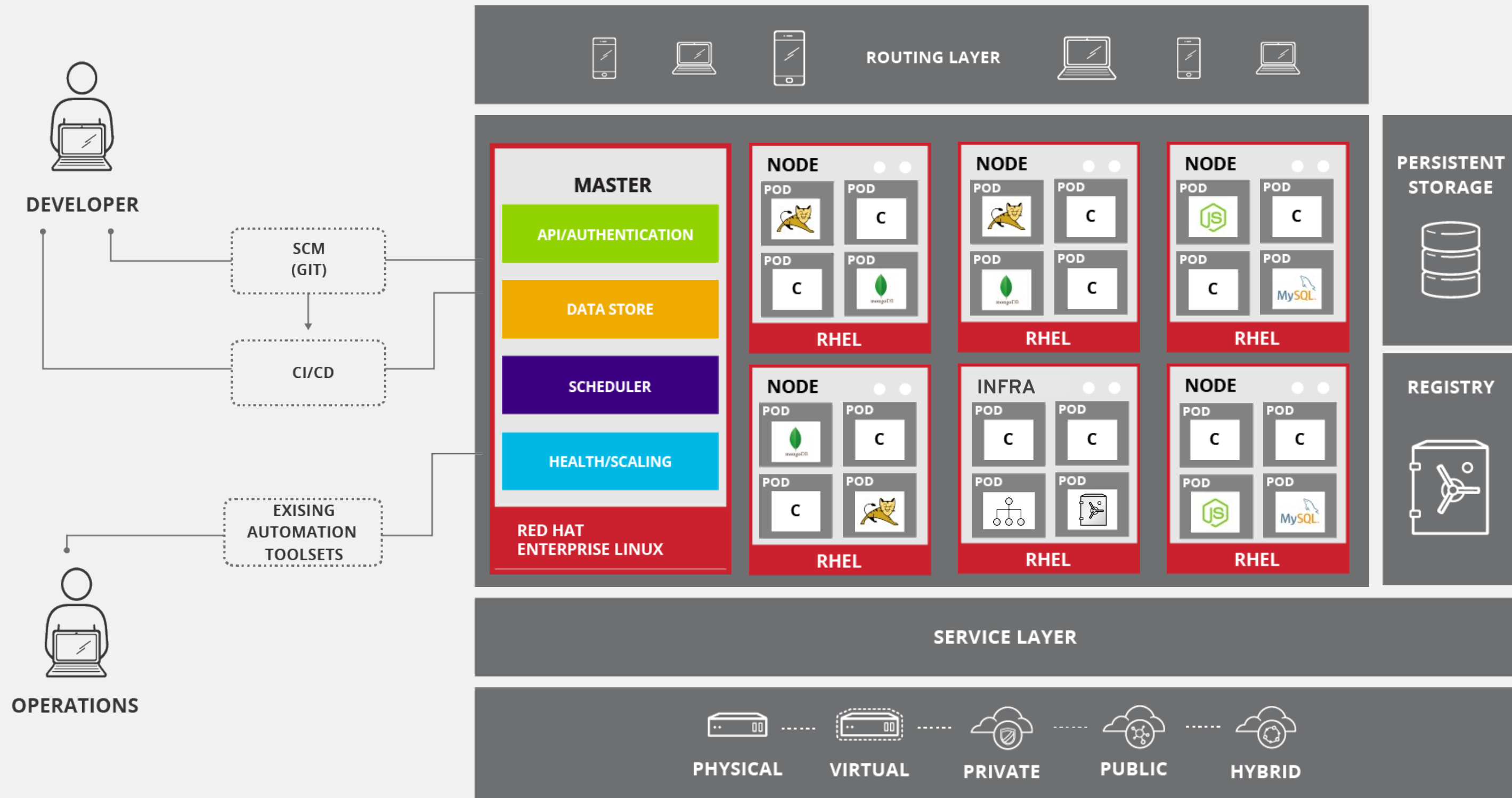
Using Gluster based Container-Native Storage

Niels de Vos
Senior Software Engineer
Red Hat Storage

Critical features for both Dev and Ops



10,000 foot overview



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

Storage

Registry

Logs &
Metrics

Security

Infrastructure Automation & Cockpit



Enterprise Container Host

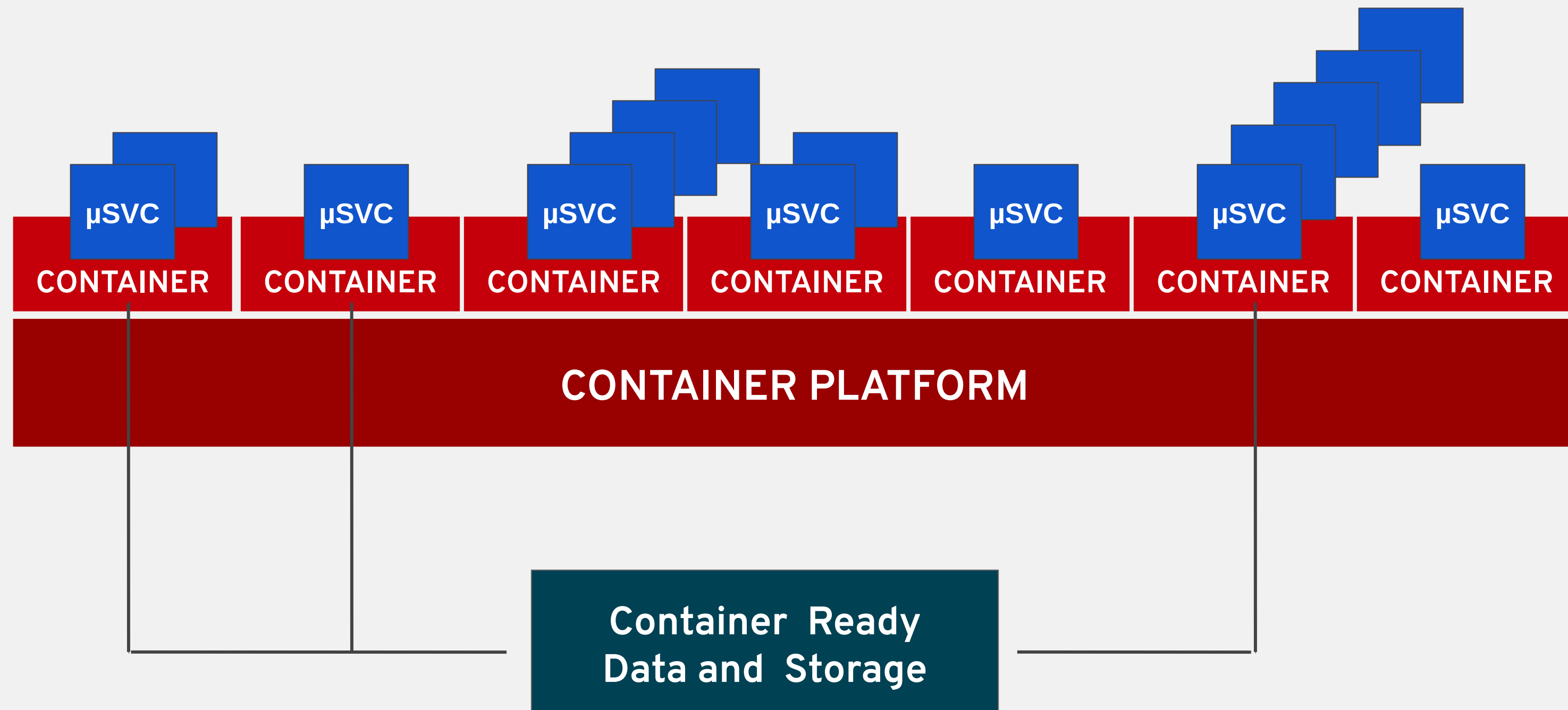
Container Runtime & Packaging
(Docker)

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

MODERN APPLICATIONS DRIVE A MODERN DATA ARCHITECTURE



STORAGE INNOVATION FOR CONTAINERIZED APPLICATIONS



RED HAT ATOMIC



OPENSIFT[®]
by Red Hat[®]

RED HAT[®]
ENTERPRISE LINUX[®] 7

Ceph RBD

Amazon EBS

Azure Disk

GCE Disk

iSCSI

NFS

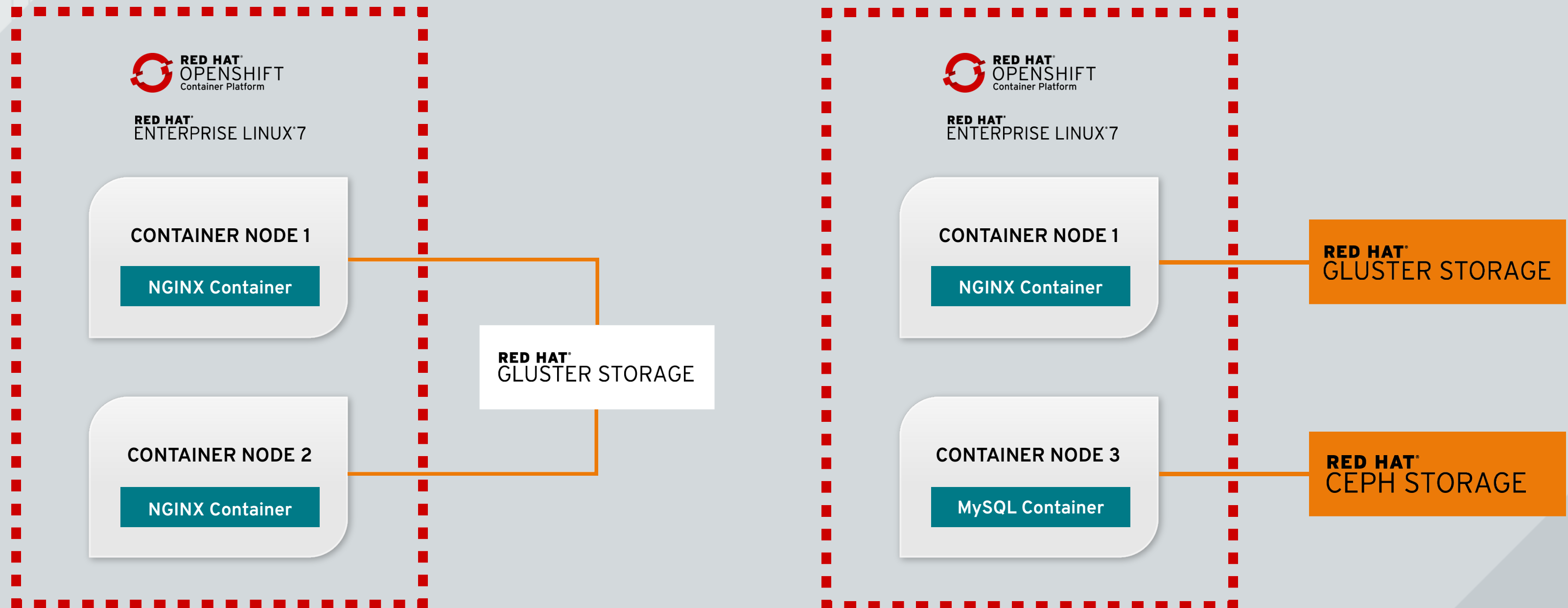
GlusterFS

AUTOMATED CONFIGURATION

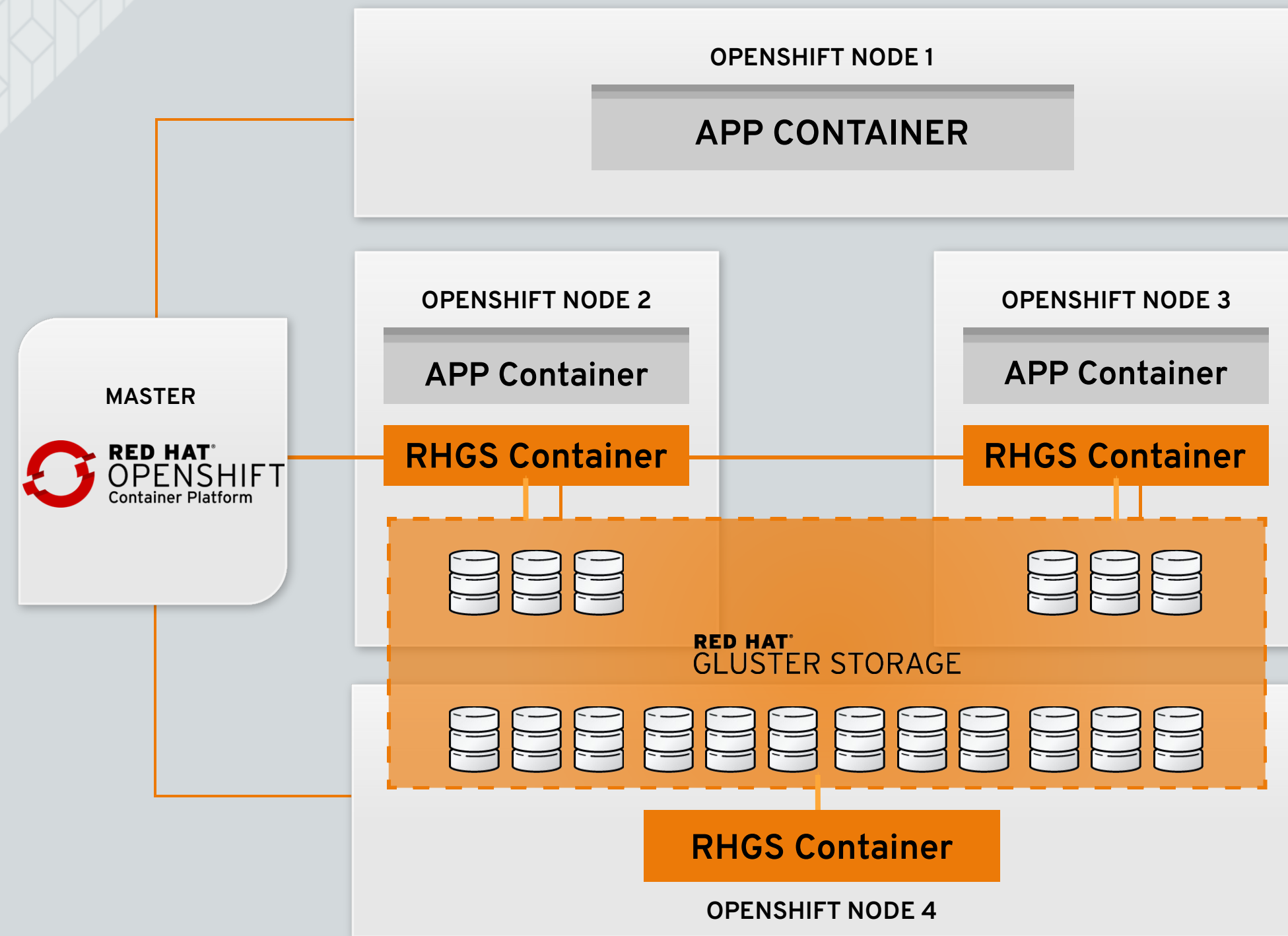
SINGLE CONTROL PANEL

CHOICE OF PERSISTENT STORAGE

CONTAINER READY STORAGE



CONTAINER-NATIVE STORAGE



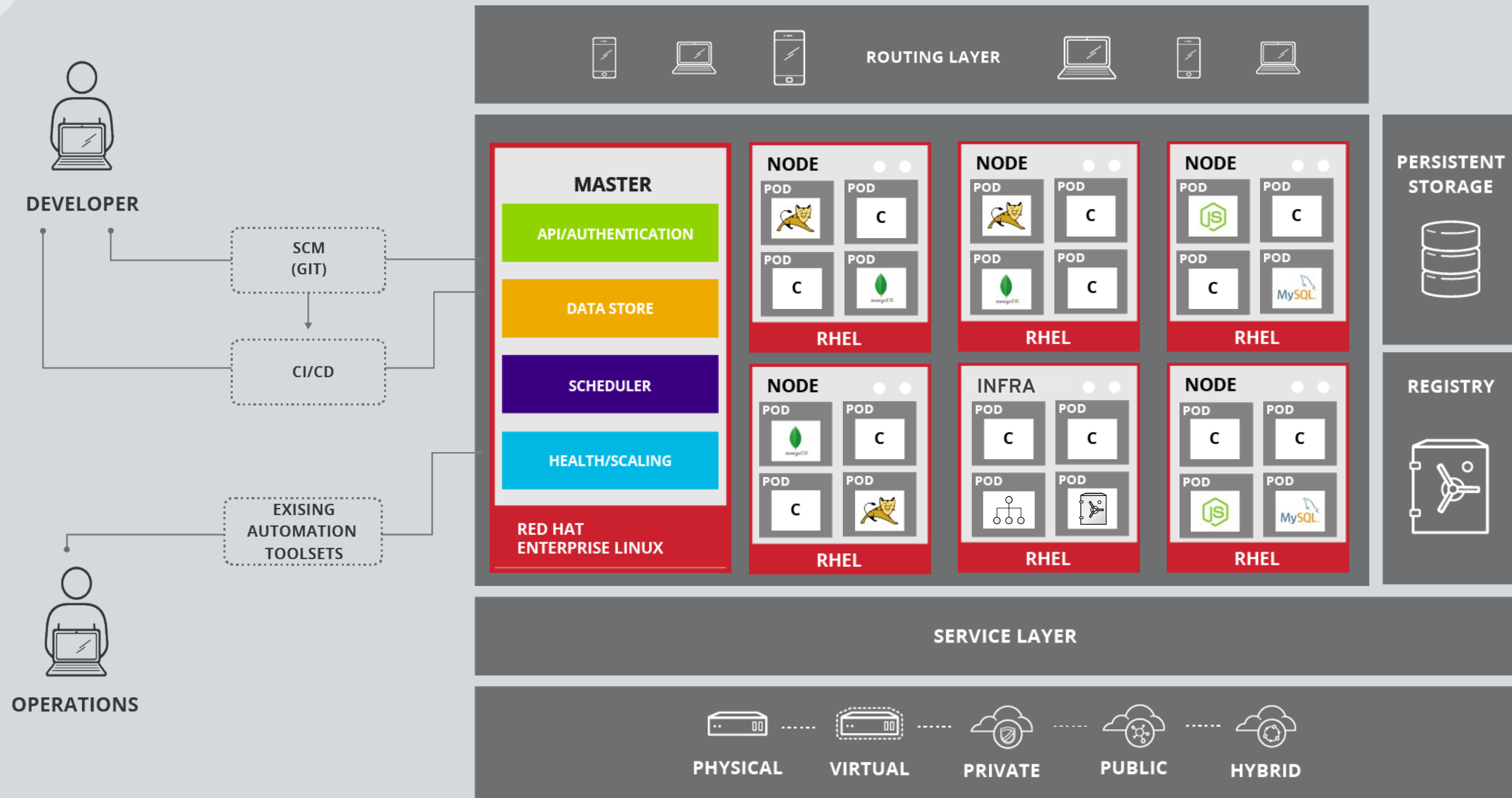
Co-Locate Storage and Apps

Dynamic Provisioning

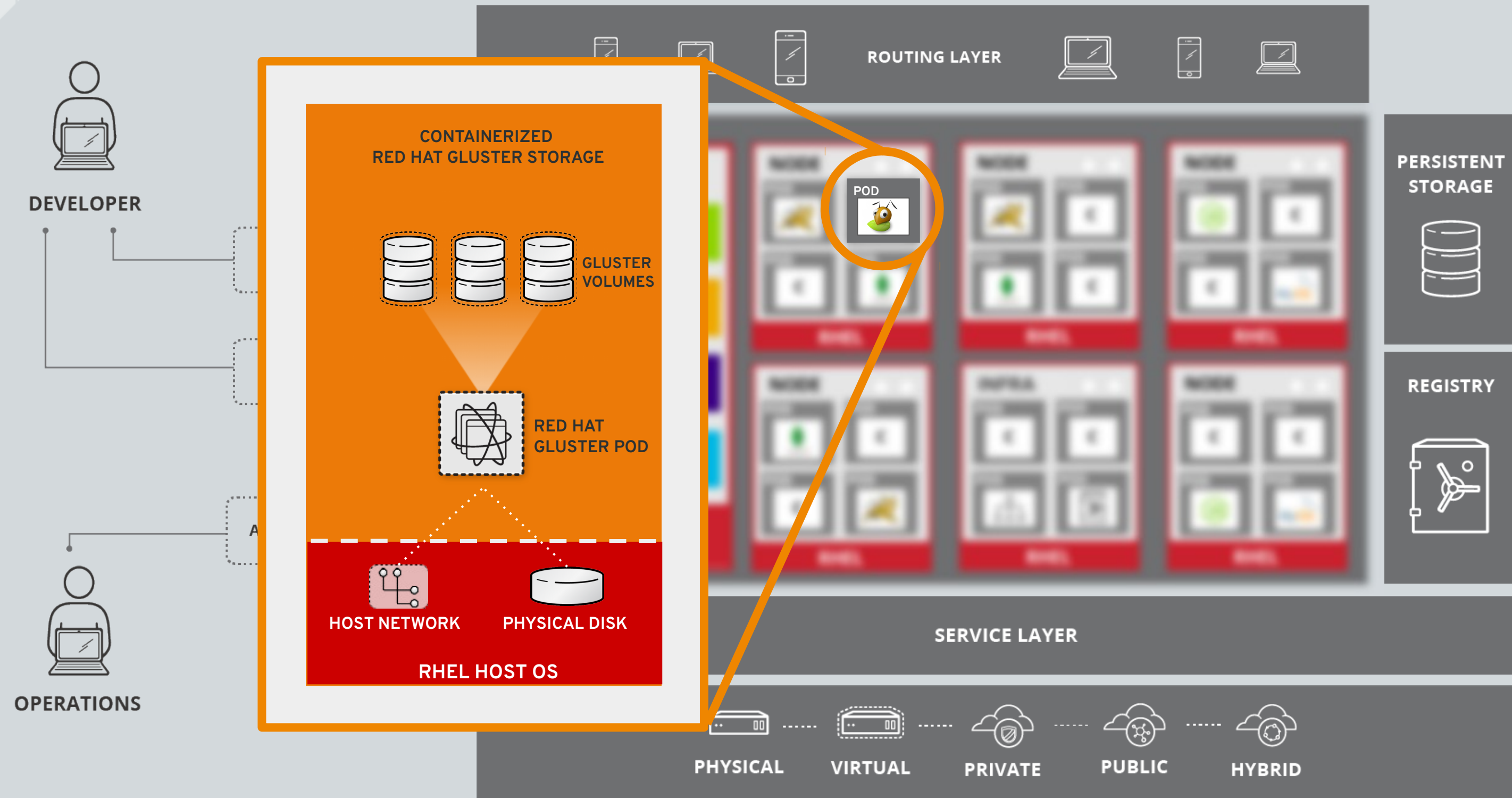
Managed by OpenShift

Infrastructure-Agnostic

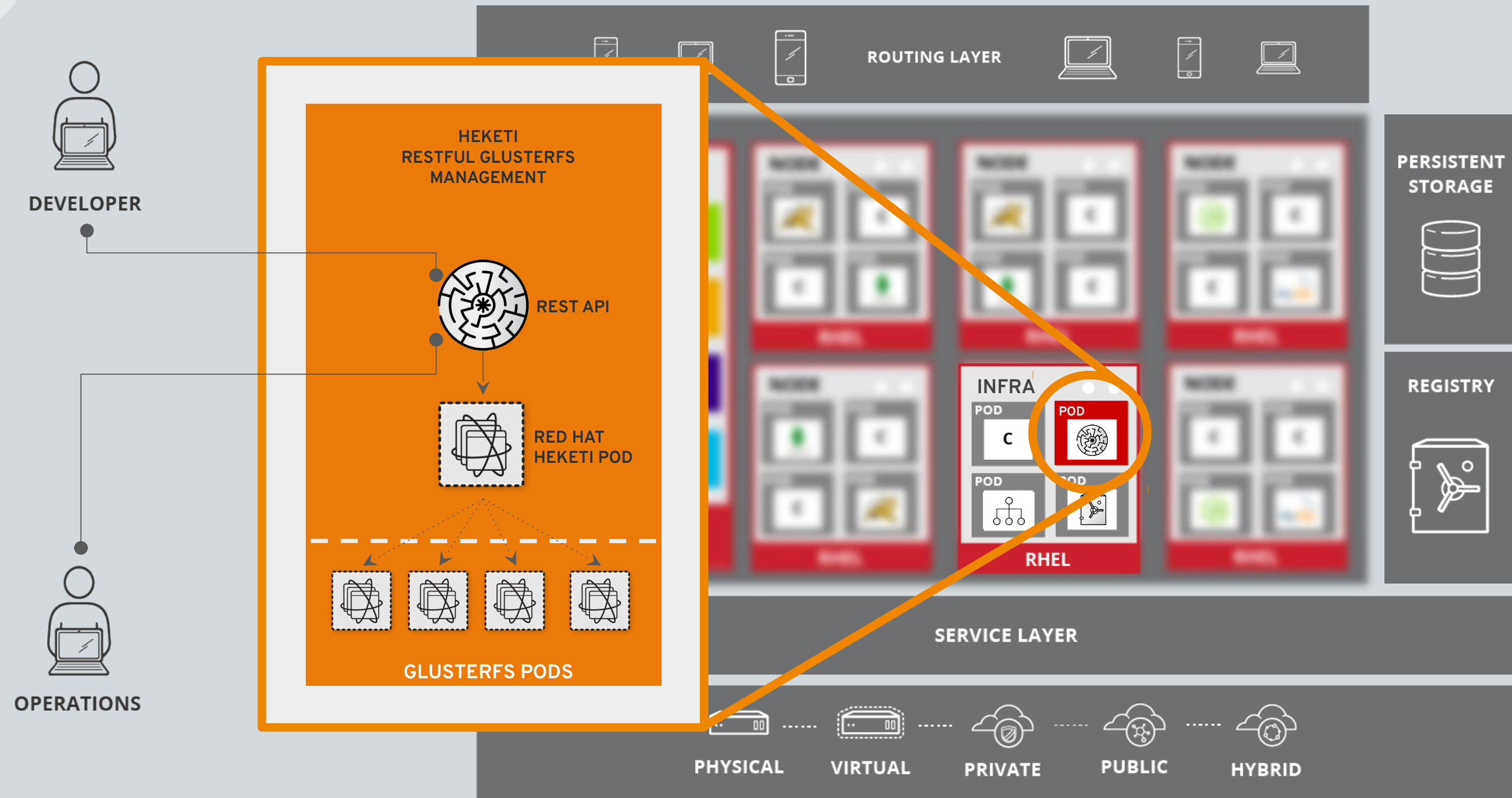
CONTAINER-NATIVE STORAGE ON OPENSSHIFT



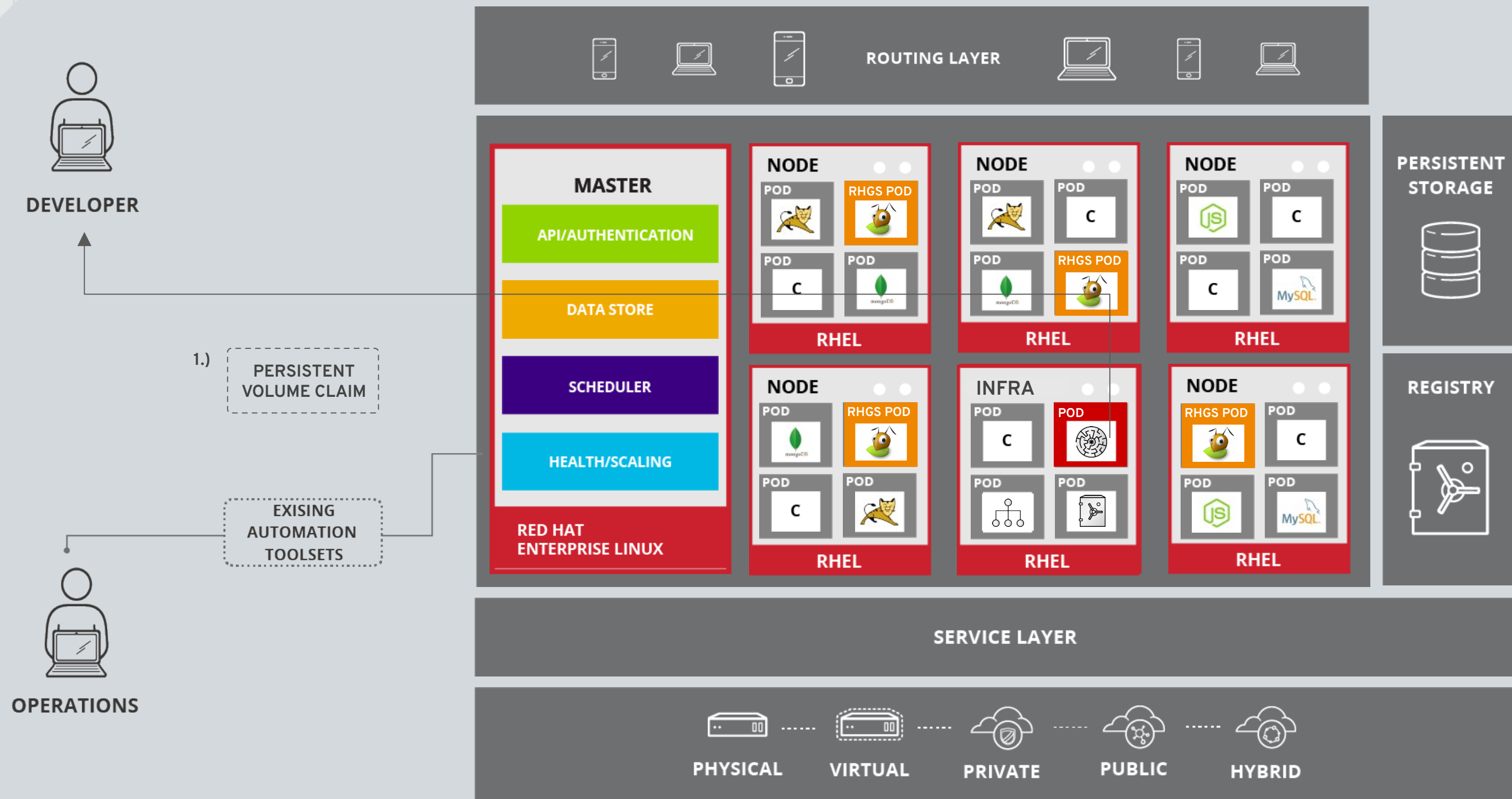
CONTAINER-NATIVE STORAGE ON OPENSSHIFT



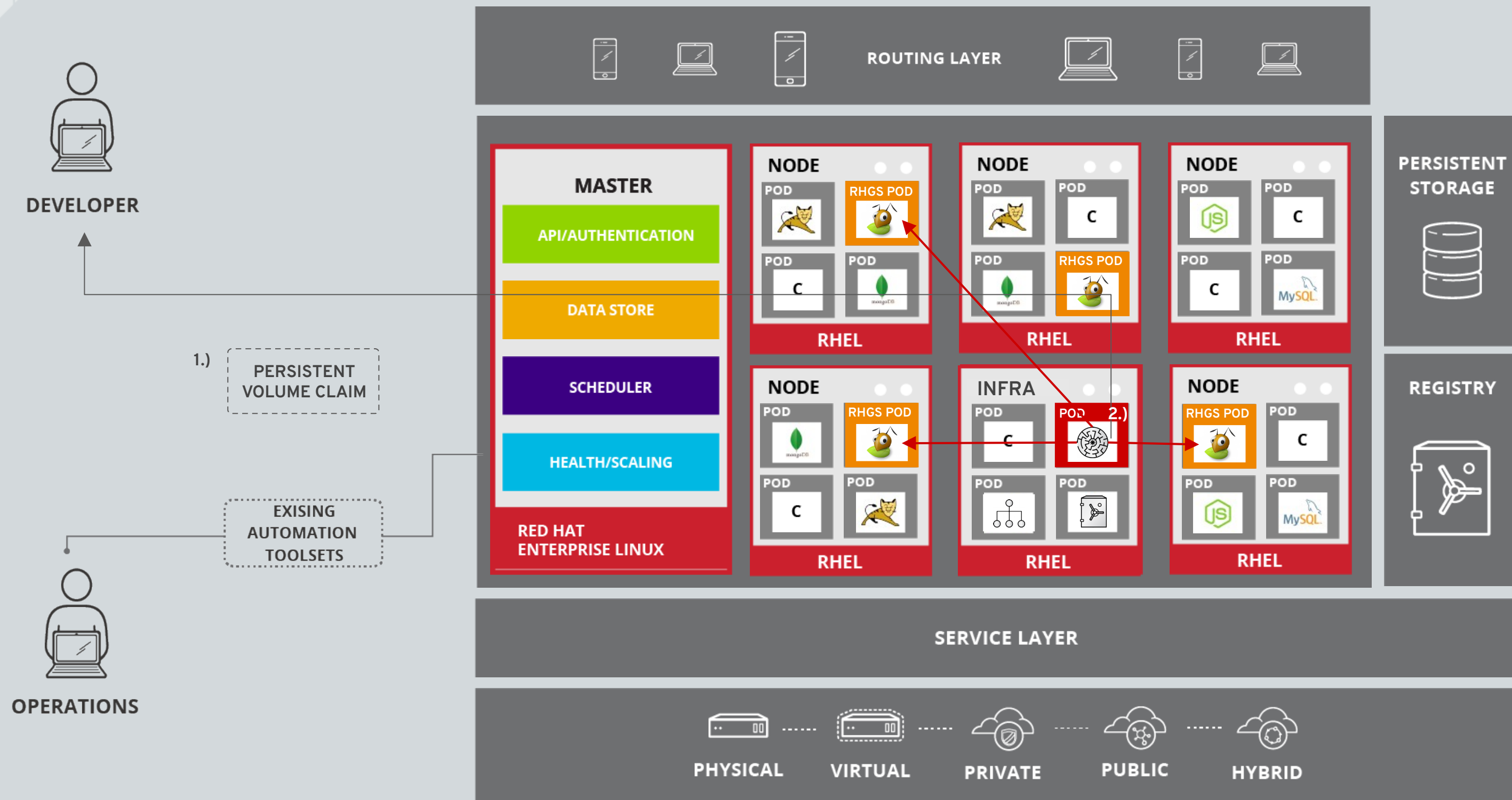
CONTAINER-NATIVE STORAGE ON OPENSSHIFT



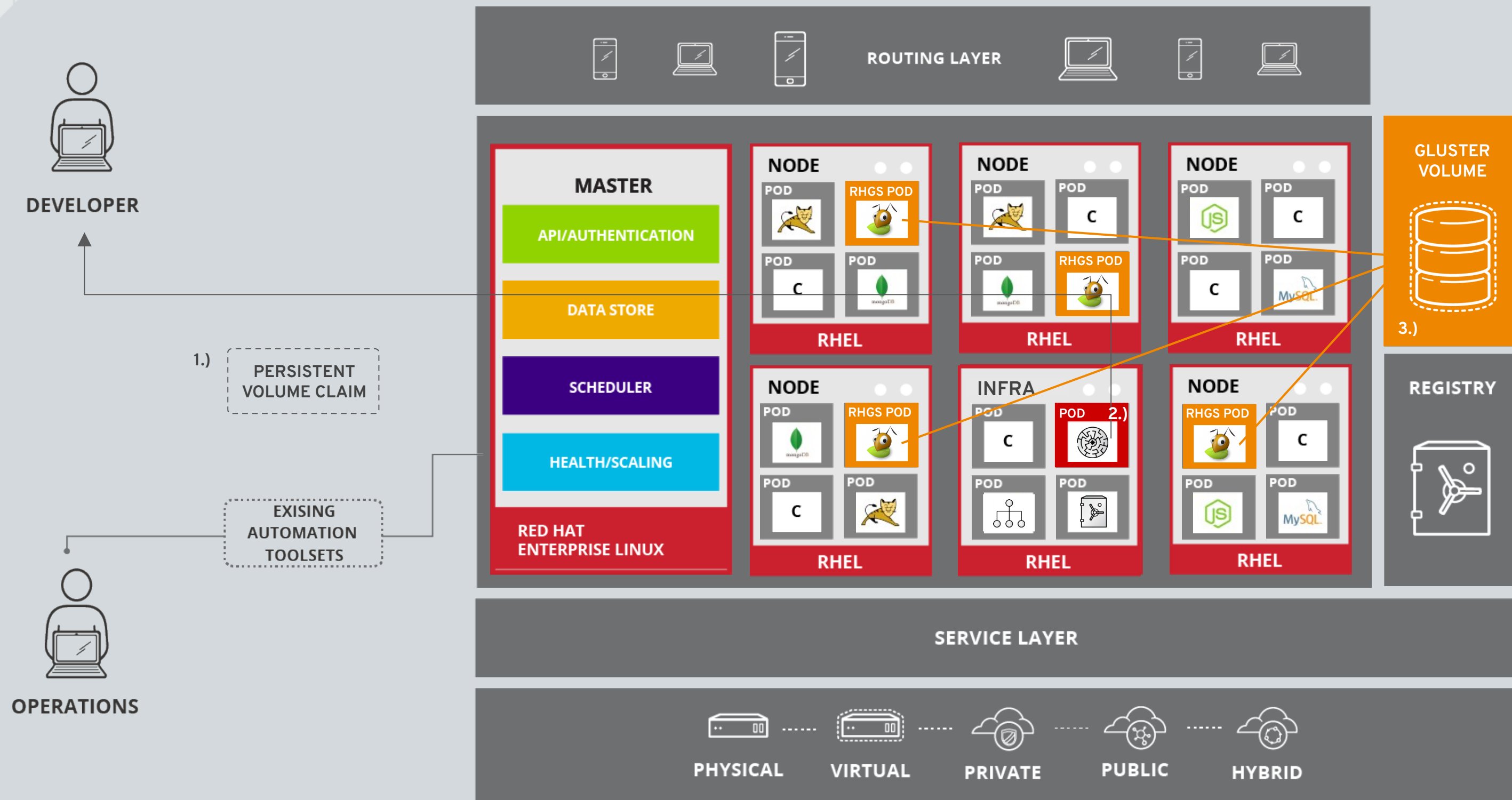
CONTAINER-NATIVE STORAGE ON OPENSSHIFT



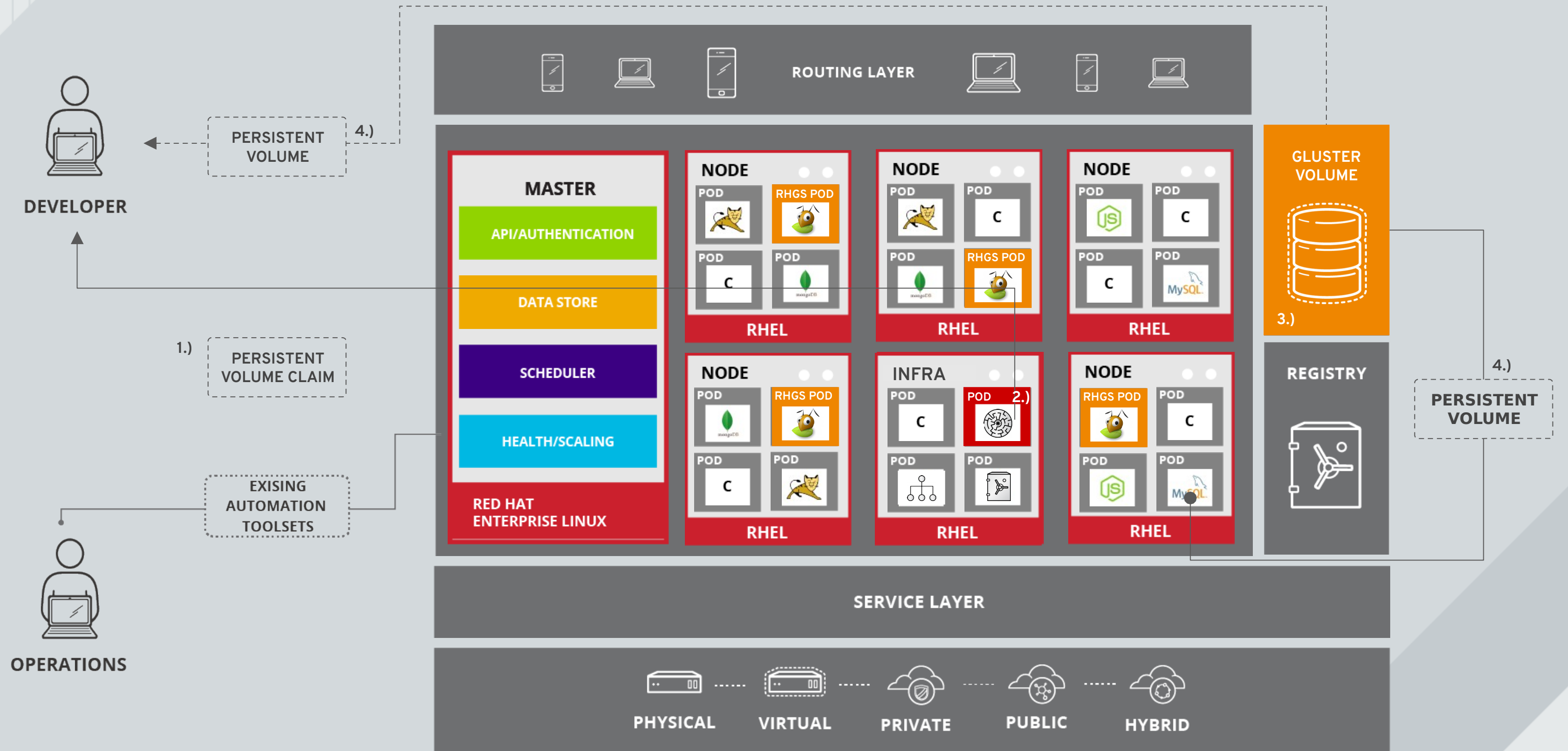
CONTAINER-NATIVE STORAGE ON OPENSSHIFT



CONTAINER-NATIVE STORAGE ON OPENSSHIFT



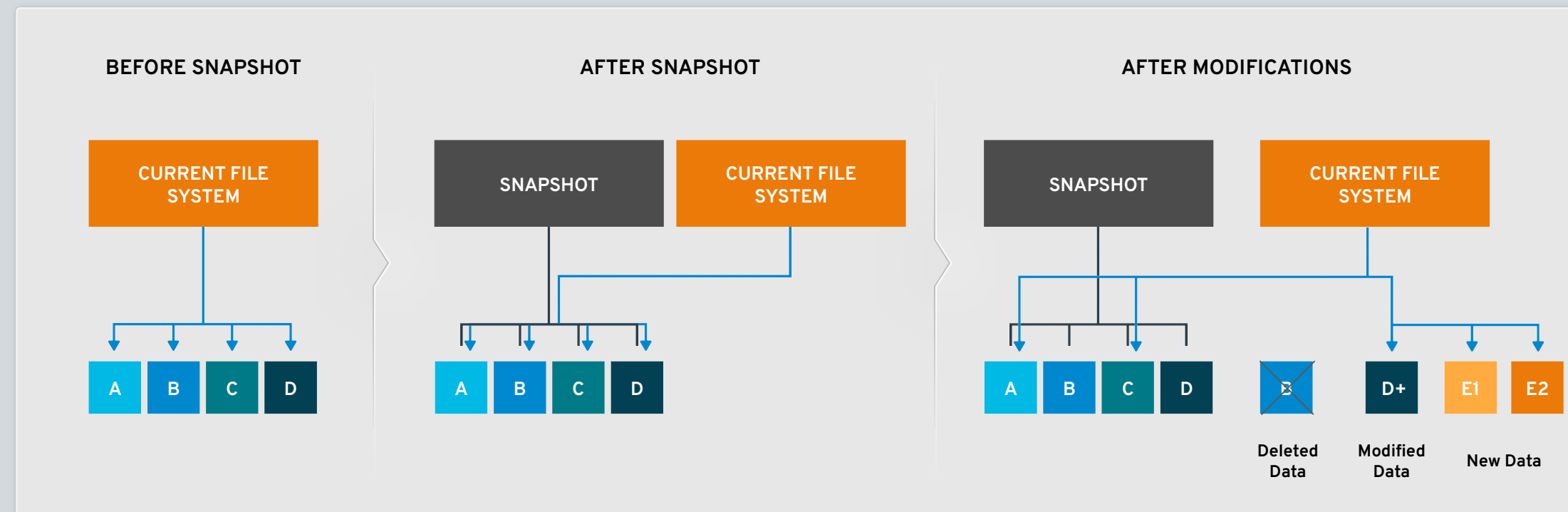
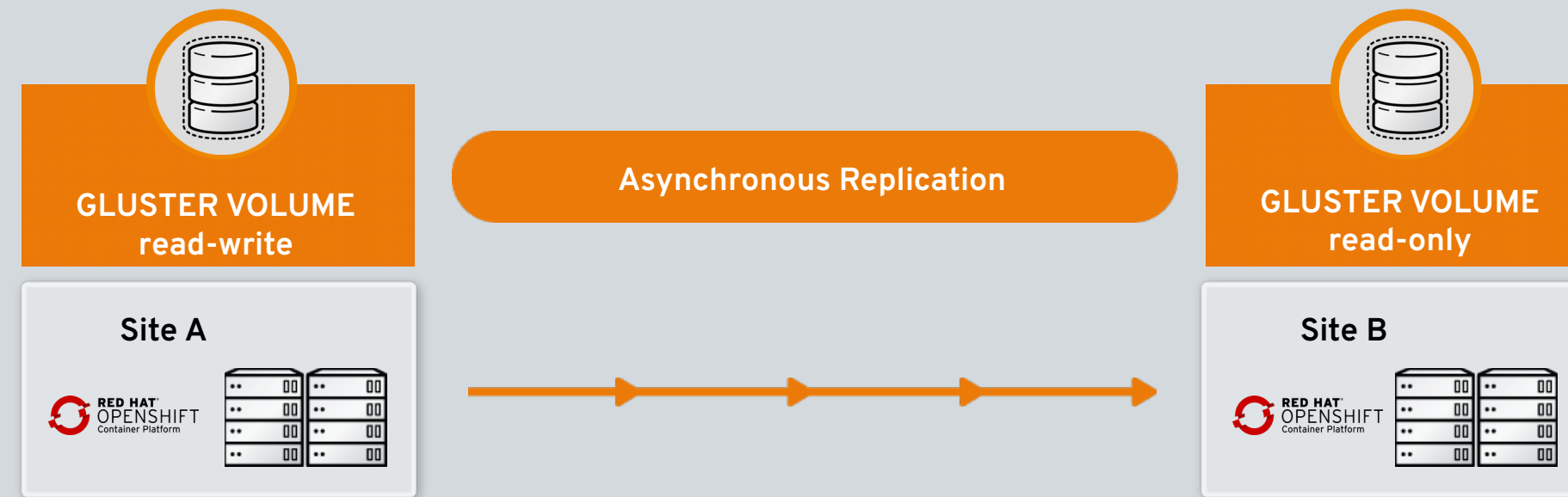
CONTAINER-NATIVE STORAGE ON OPENSSHIFT



Current available Backup Strategies

- ❖ Not integrated in the admin or user view of OpenShift
- ❖ Runs separately (most often) outside of OpenShift
- ❖ Might need special precautions for maintaining application data consistency
- ❖ Configuration and interactions directly on the storage environment

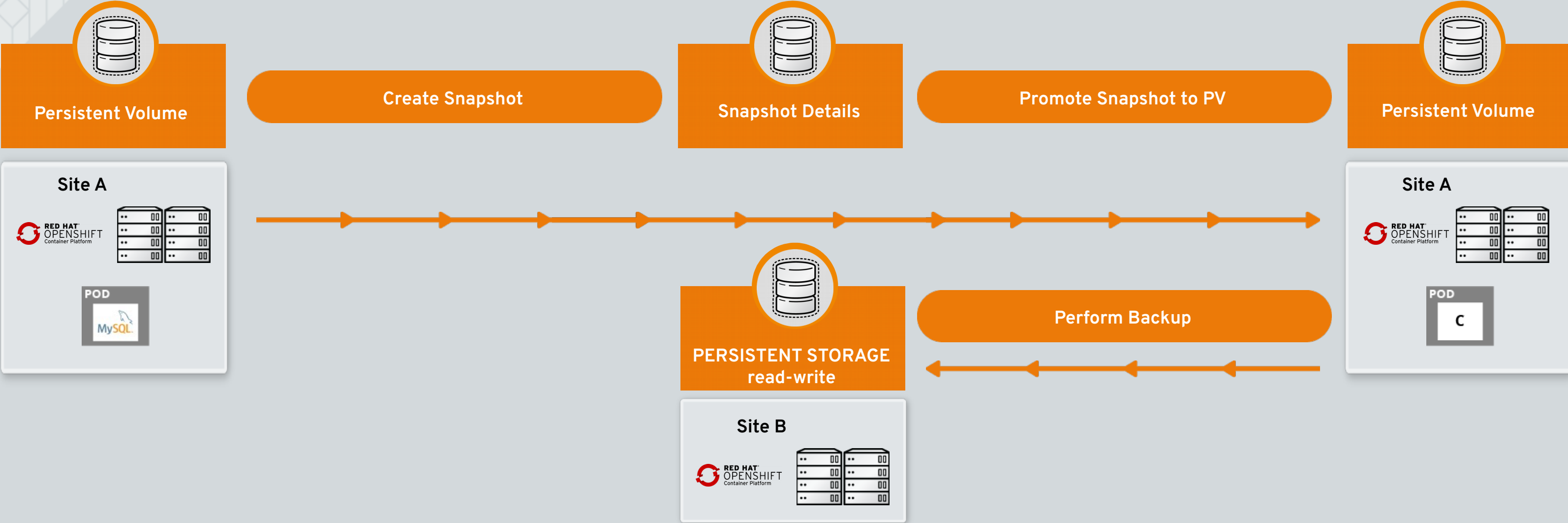
GLUSTER SNAPSHOTS AND GEO-REPLICATION



Potential future backup enhancements

- ❖ Snapshots of Persistent Volumes through Kubernetes
- ❖ Promotion of snapshots to new Persistent Volumes
- ❖ Container with backup application binds the Persistent Volume
- ❖ Opens the road for User-Self-Service to do backup and restores
- ❖ Can run completely inside OpenShift

PERSISTENT VOLUME SNAPSHOTS





THANK YOU



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