THE CEPH POWER SHOW

Episode 2 : The Jewel Story

Karan Singh
Sr. Storage Architect
Red Hat Storage

Daniel Messer
Technical Marketing
Red Hat Storage

Kyle Bader
Sr. Storage Architect
Red Hat Storage

AGENDA

Ceph Intro

What is it?
What is it used for?
Performance Guides
CoE Labs

Ceph Architecture

Ceph
Building Blocks

Hands On Ceph Lab

Deploying and
Consuming Ceph
Cluster

RED HAT DOES SOFTWARE-DEFINED STORAGE?

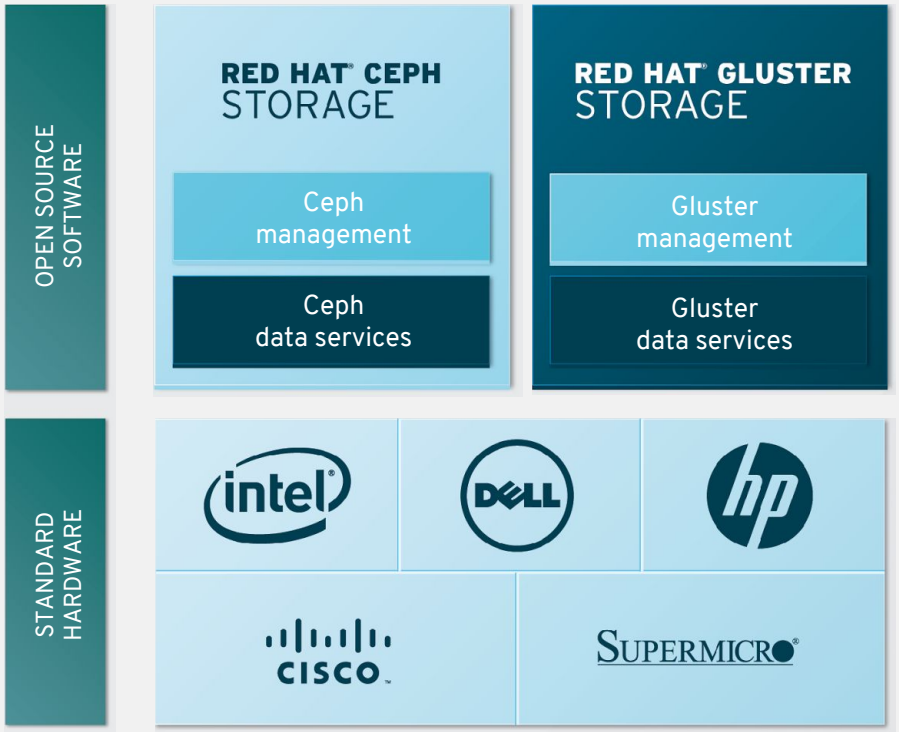
HOW WE DEFINE SDS

SERVER-BASED

CENTRALIZED CONTROL

OPEN ECOSYSTEM

RED HAT STORAGE ECOSYSTEM



- Shared-nothing, scale-out architecture provides durability and adapts to changing demands
- Self-managing and self-healing features reduce operational overhead
- Standards-based interfaces and full APIs ease integration with applications and systems
- Supported by the experts at Red Hat

RED HAT CEPH REF. ARCH. & PERF. GUIDES

RHCS and RHOSP HCI Ref. Arch
★ http://bit.ly/RHCS-RHOSP-HCI

RHCS Hardware Selection Guide
★ http://bit.ly/RHCS-hardware-selection-guide

RHCS Hardware Configuration Guide
★ http://bit.ly/RHCS-hw-configuration-guide

MySQL on RHCS Reference Architecture
★ http://bit.ly/MySQL_DB-on-RHCS

RHCS on Intel CPUs and SSDs Config Guide
★ http://bit.ly/RHCS-on-Intel

RHCS Ready Supermicro Server SKUs
★ http://bit.ly/RHCS-SuperMicro-SKU

RHCS on CISCO UCS Servers
★ http://bit.ly/RHCS-on-Cisco-UCS

RHCS on QCT Servers Perf & Sizing Guide
★ http://bit.ly/RHCS-on-QCT

RHCS on Supermicro Servers Perf & Sizing Guide
★ http://bit.ly/RHCS-on-SuperMicro

RHCS on DELL EMC PE 730xd Servers Perf & Sizing Guide
★ http://bit.ly/RHCS-on-DellEMC-PE730xd

RHCS on DELL EMC DSS 7000 Servers Perf & Sizing Guide
★ http://bit.ly/RHCS-on-DellEMC-DSS7000

RHCS on Samsung Sierra Flash Array Perf & Sizing Guide
★ http://bit.ly/RHCS-on-Samsung-flash-array

RHCS Ready QCT Server SKUs
★ http://bit.ly/RHCS-QCT-SKU

RHCS on SanDisk Infiniflash
★ http://bit.ly/RHCS-on-Sandisk-Infiniflash

WHY CEPH IS COOL ?

- Open Source Software Defined Storage
- Unified Storage Platform (Block , Object and File Storage)
- Runs on Commodity Hardware
- Self Managing, Self Healing
- Massively Scalable
- No Single Point of failure
- Designed for cloud infrastructure and emerging workloads

BASIC CLOUD STORAGE SERVICES

RDS EMR

EC2 EBS S3 EFS

MySQL Hadoop

KVM (Nova) RBD (Cinder) RGW (Swift/S3) CephFS (Shared Filesystem)

ceph ceph ceph ceph

RED HAT SDS CENTRE OF EXCELLENCE

Telecom SDS
Center of Excellence

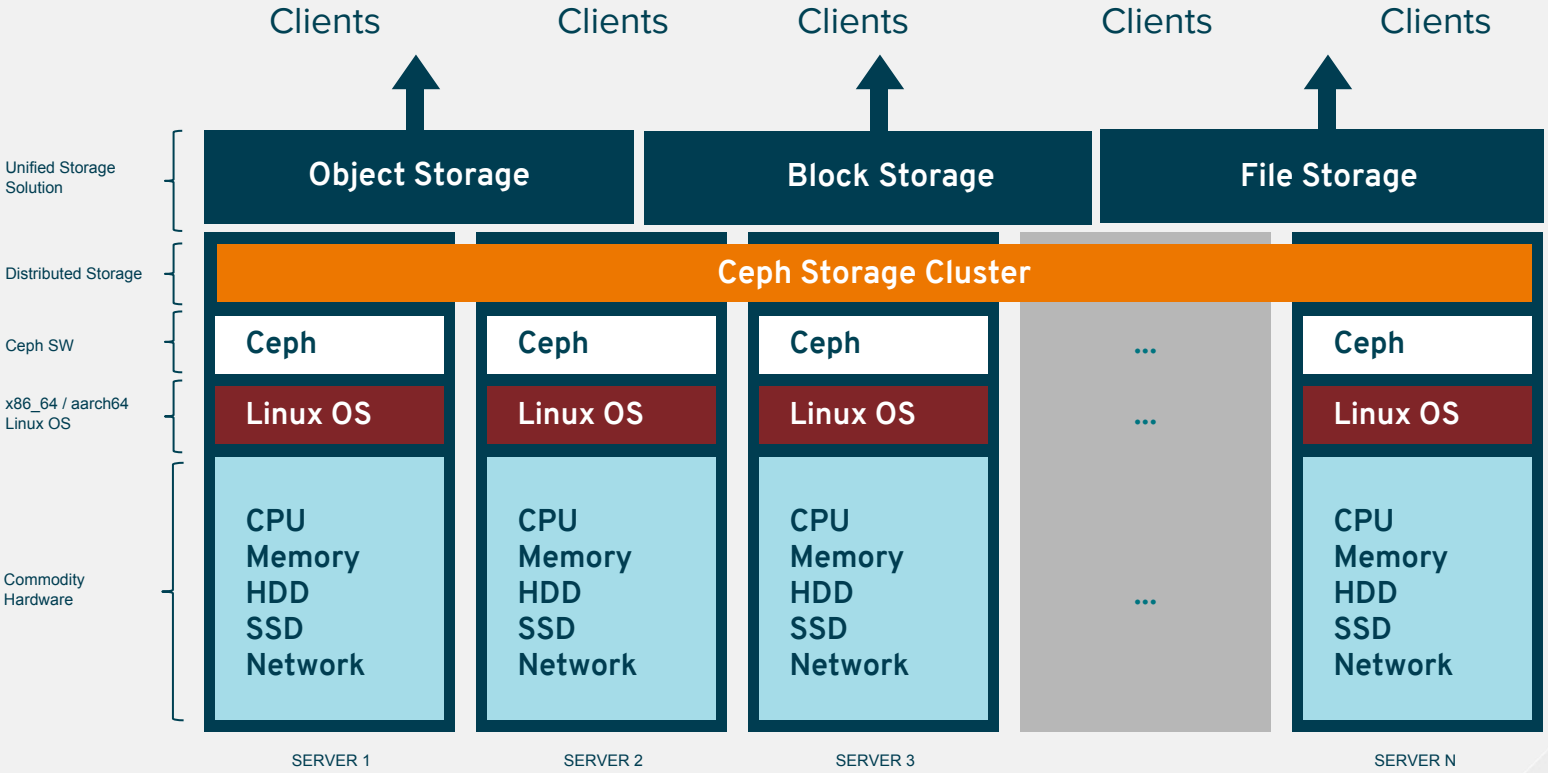
Object Storage
Center of Excellence

Container Storage
Center of Excellence

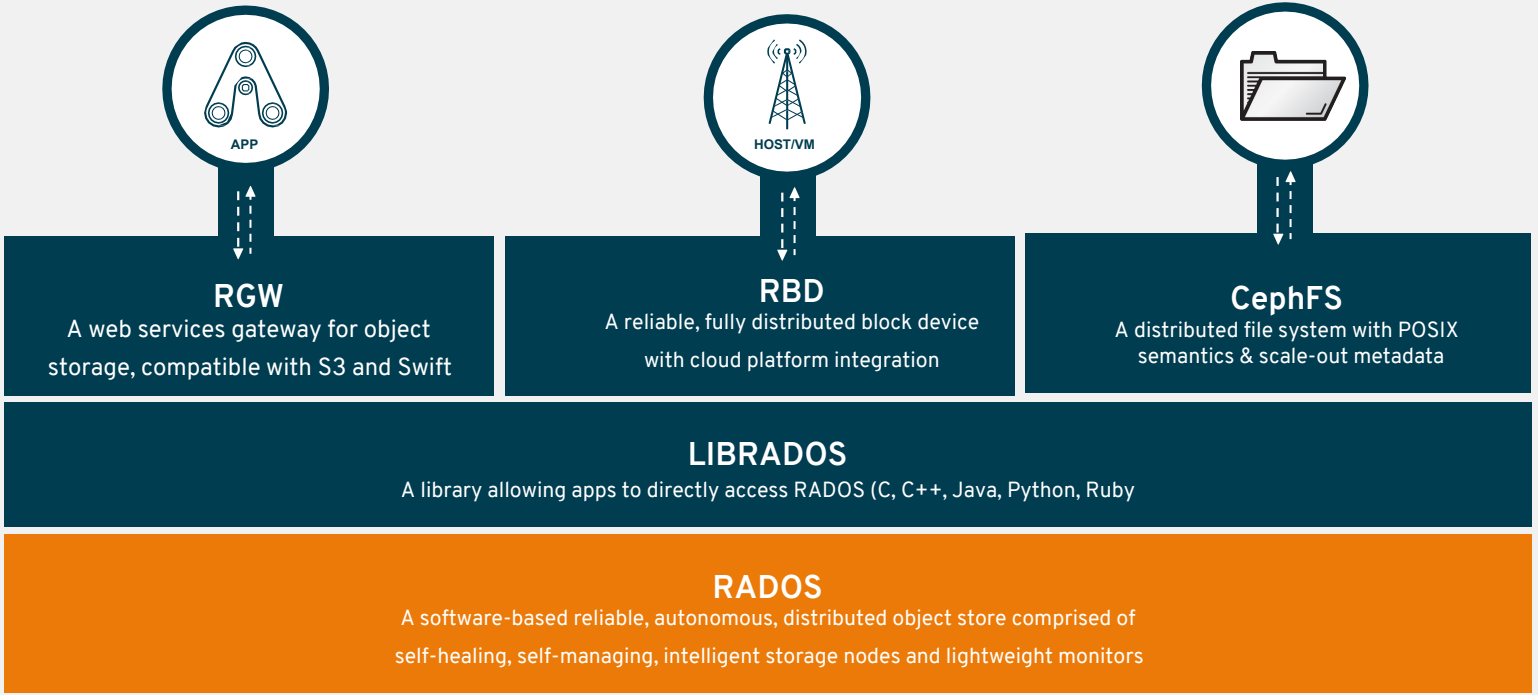
Collaboration on emerging Ceph use cases
on continuously refreshed, leading-edge hardware
in a visible virtual/physical location

CEPH ARCHITECTURE

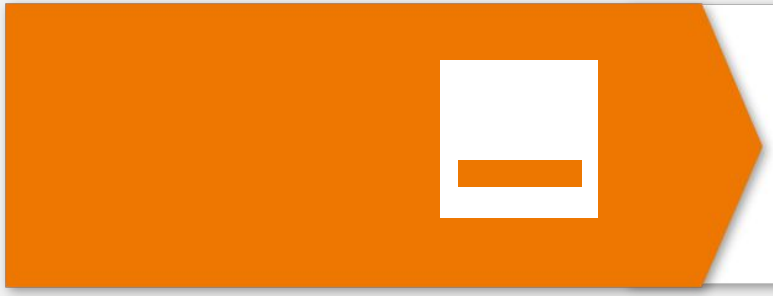
CEPH ARCHITECTURE



CEPH ARCHITECTURE



CEPH CORE COMPONENTS



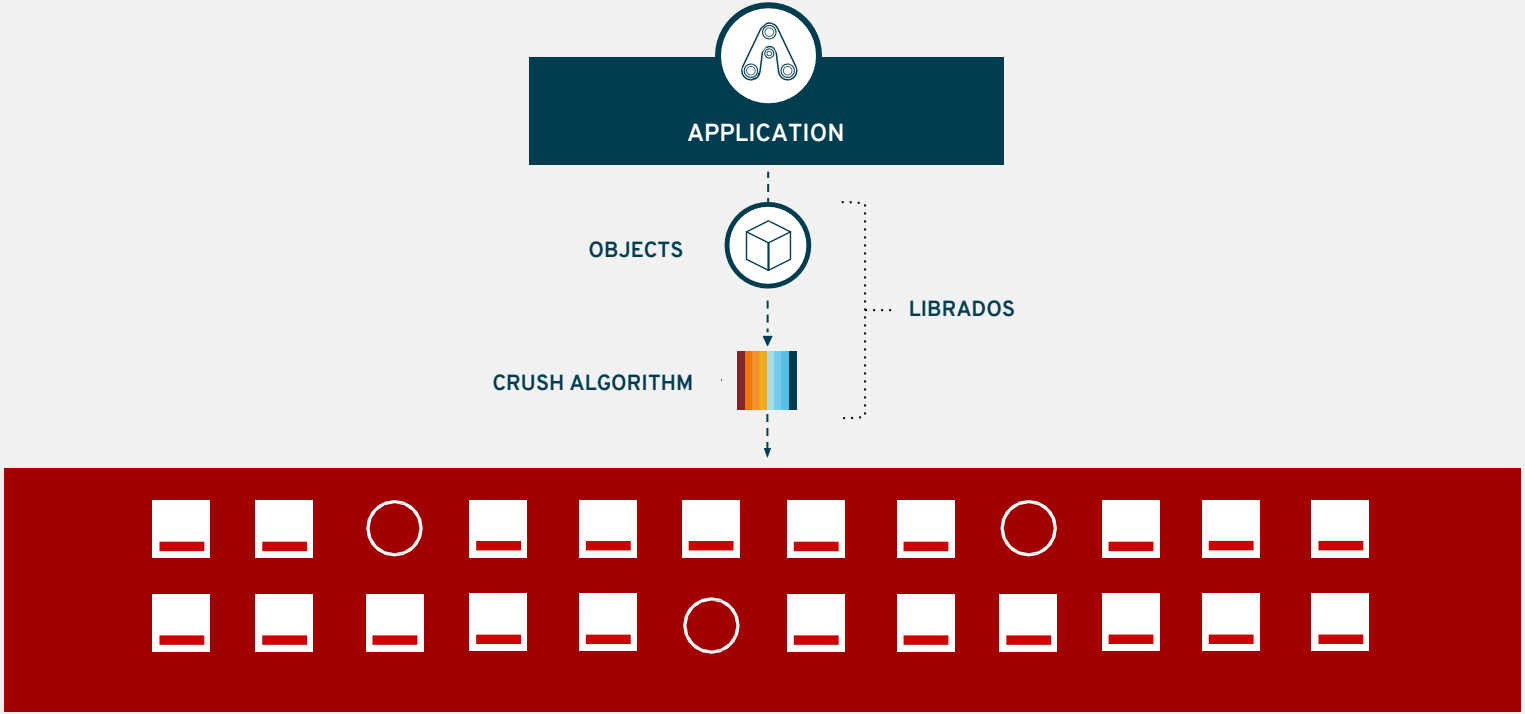
OSDs (Object Storage Daemon)

- 10s to 10000s in a cluster
- Typically one daemon per physical HDD
- Serve stored data to clients
- Intelligently peer for replication & recovery

Monitors

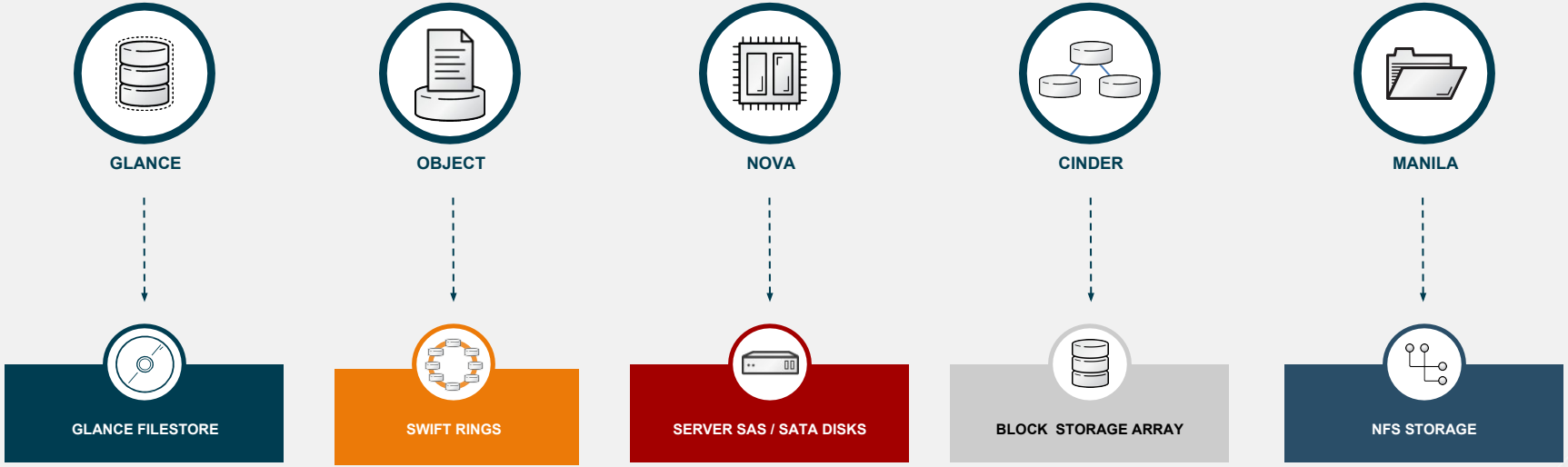
- Maintain cluster membership and state
- Provide consensus for distributed decision-making
- Small, odd number
- Do not store data

CEPH CORE COMPONENTS

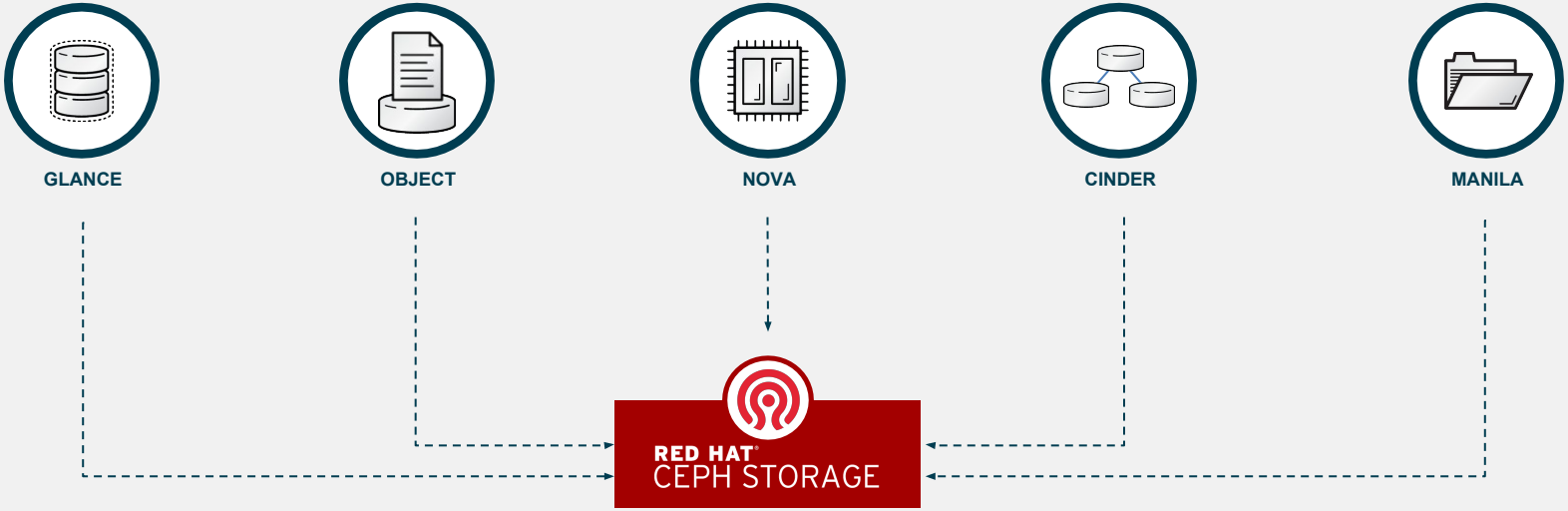


CEPH USE CASES

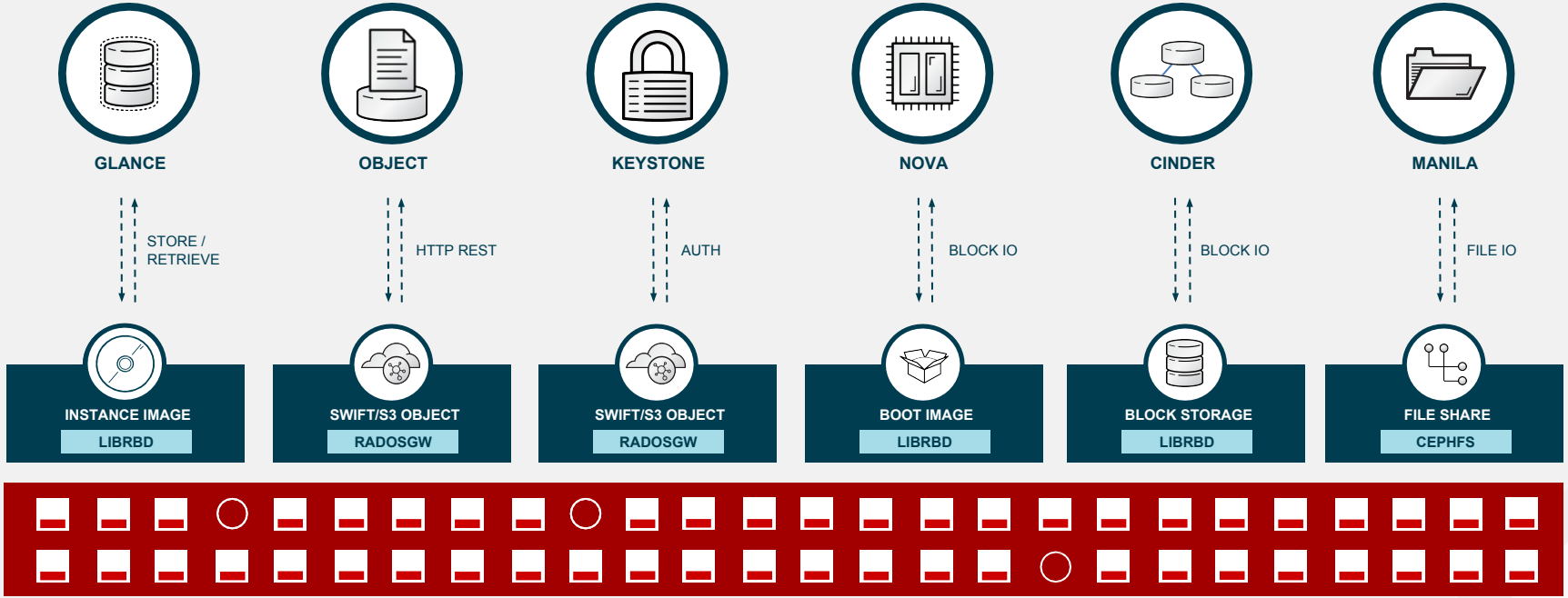
OPENSTACK WITHOUT CEPH



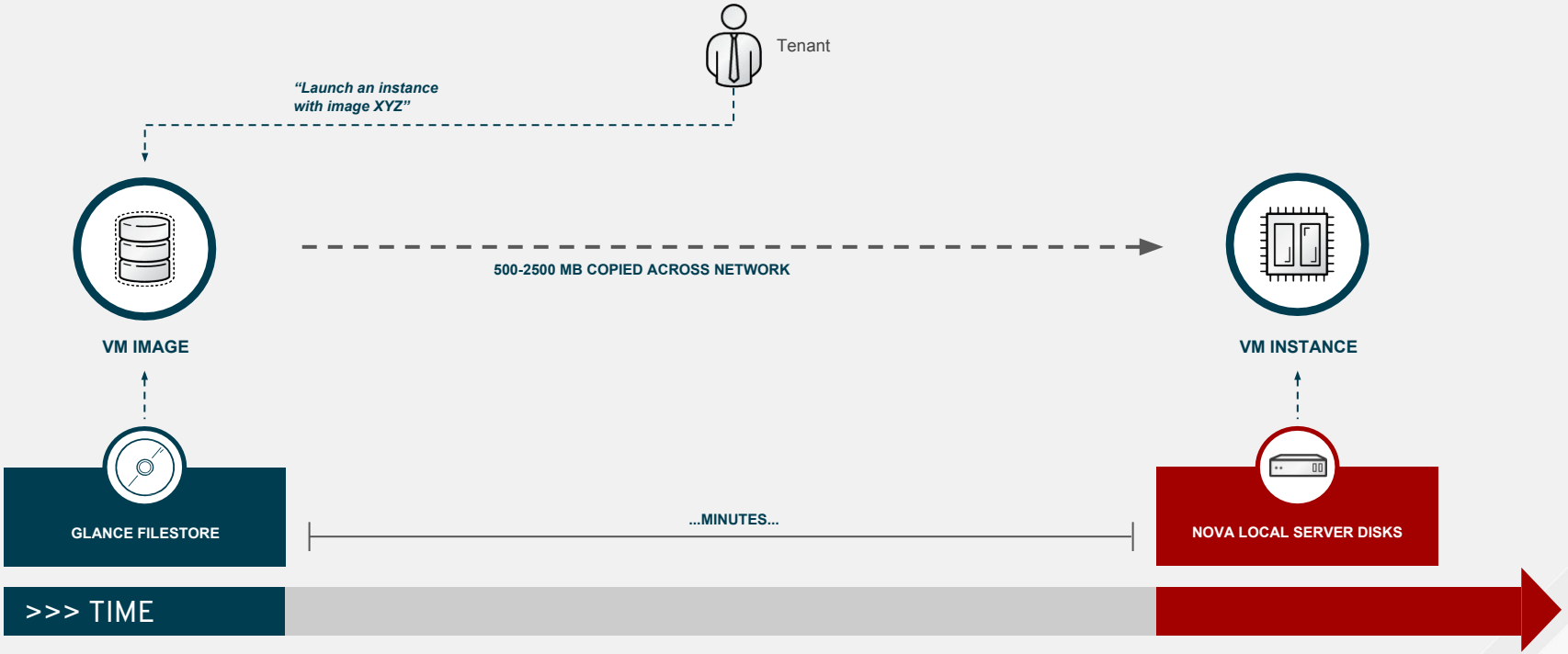
OPENSTACK WITH CEPH



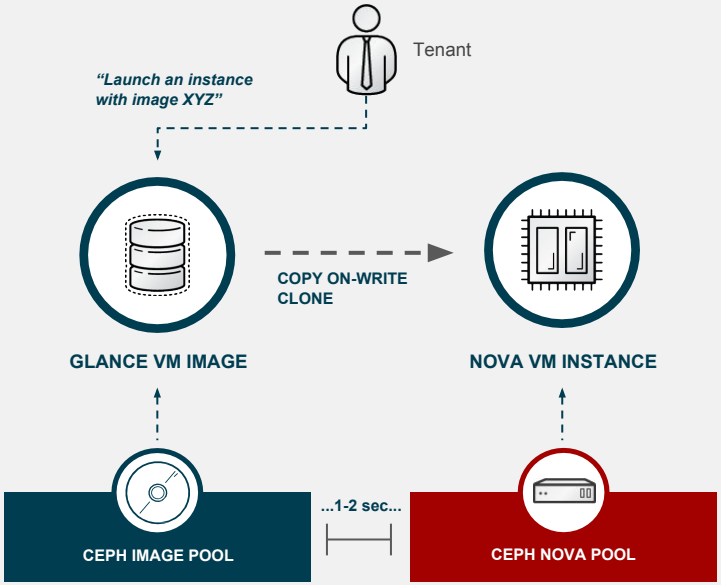
OPENSTACK INTEGRATED WITH CEPH

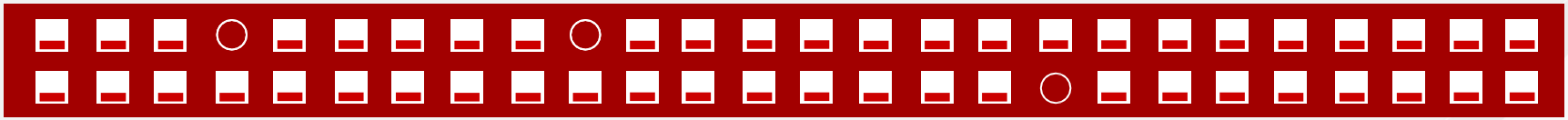


SLOW INSTANCE BOOT WITHOUT CEPH

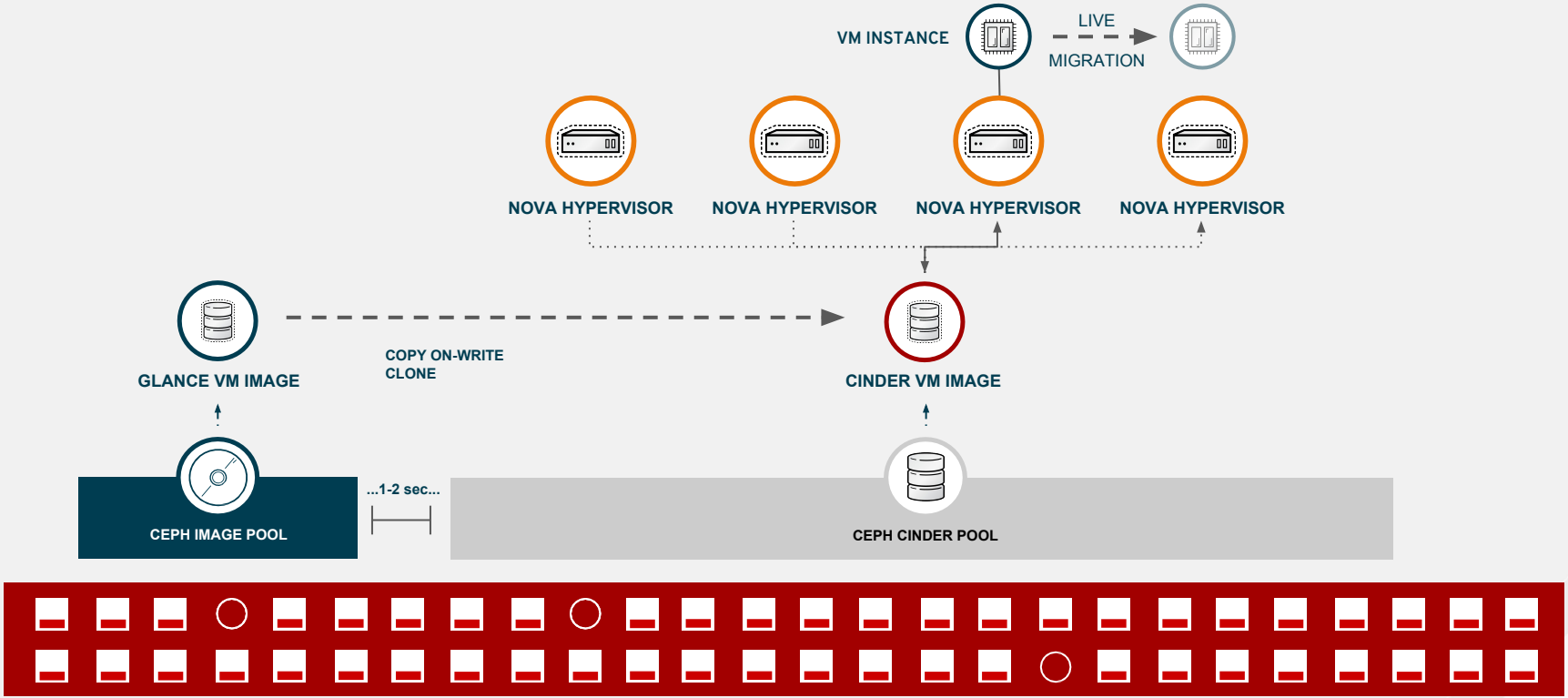


FAST INSTANCE BOOT WITH CEPH

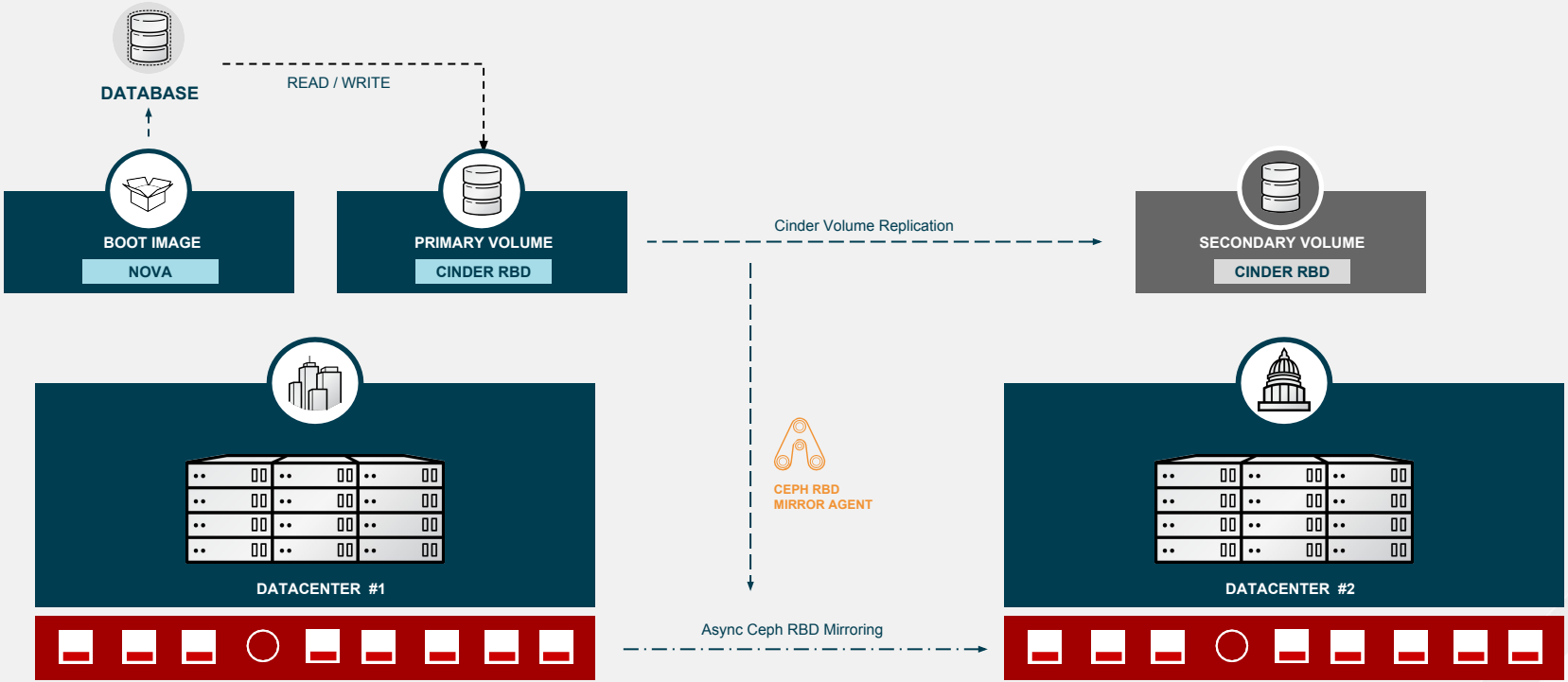




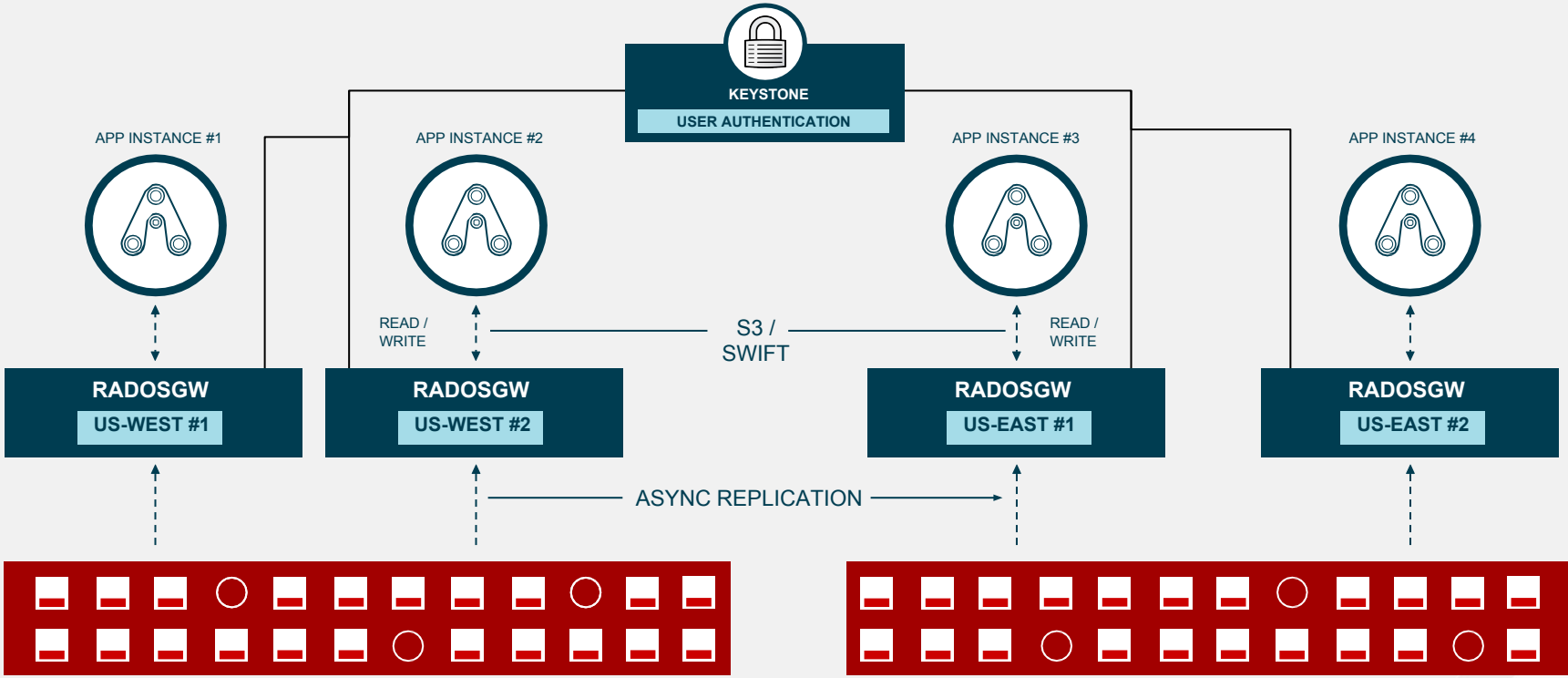
VM HIGH-AVAILABILITY WITH CEPH AND CINDER



GEO-REPLICATED VM STORAGE WITH CEPH



MULTI-SITE S3 STORAGE WITH CEPH RGW



CEPH HANDS-ON LAB

CEPH HANDS-ON LAB : MODULES

- 10 Nodes Ceph Cluster Test Lab
- Free to use NOW and LATER
- Self paced
- Module 1 : Deploying RHCS with ceph-Ansible
- Module 2 : Ceph block storage with MySQL DB
- Module 3 : Configuring and Accessing Ceph Object Storage
  - Using S3 API
  - Using Swift API
- Module 4 : Scaling up Ceph cluster

CEPH HANDS-ON LAB : SETUP

Step 1 : Register for Test Drive here http://bit.ly/ceph-test-drive
Step 2 : Create a New Account here https://redhat.qwiklab.com/
Step 3 : Check your mailbox for email from noreply@qwiklab.com
Step 4 : Reset your password from the link provided in the email
Step 5 : Login to your QwikLab account
Step 6 : Select "RHCS 2.2 Test Drive : Summit Edition" from In-Session Classes drop down
Step 7 : Select "RHCS 2.2 Test Drive : Red Hat Summit Edition" below “Class Details”
Step 8 : Click "Start Lab" and wait for the resources to get provisioned
Step 9 : Grab LAB IP from "Addl. Info" Tab on Right Hand Side
Step 10 : ***ssh ceph@<Your_Lab_IP_Address>***
- Password : ***Redhat16***

Step 11 : Follow the Lab Modules

RED HAT SUMMIT

THANK YOU

plus.google.com/+RedHat

facebook.com/redhatinc

linkedin.com/company/red-hat

twitter.com/RedHatNews

youtube.com/user/RedHatVideos

LEARN. NETWORK.
EXPERIENCE
OPEN SOURCE.