

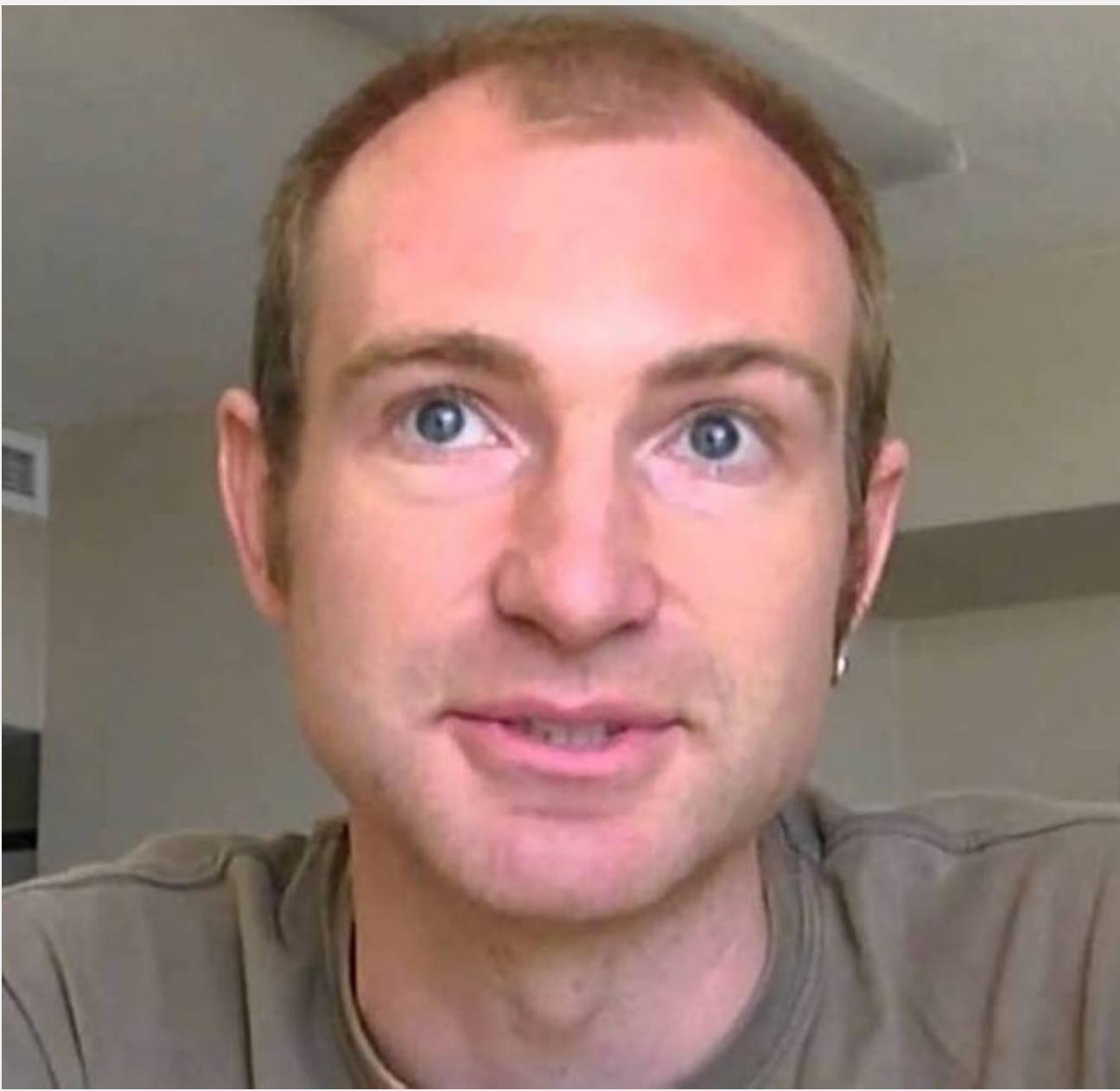
Red Hat Storage Console 2

Jeff Applewhite

Dad and Principal Product Manager

June 30, 2016

Sage Weil



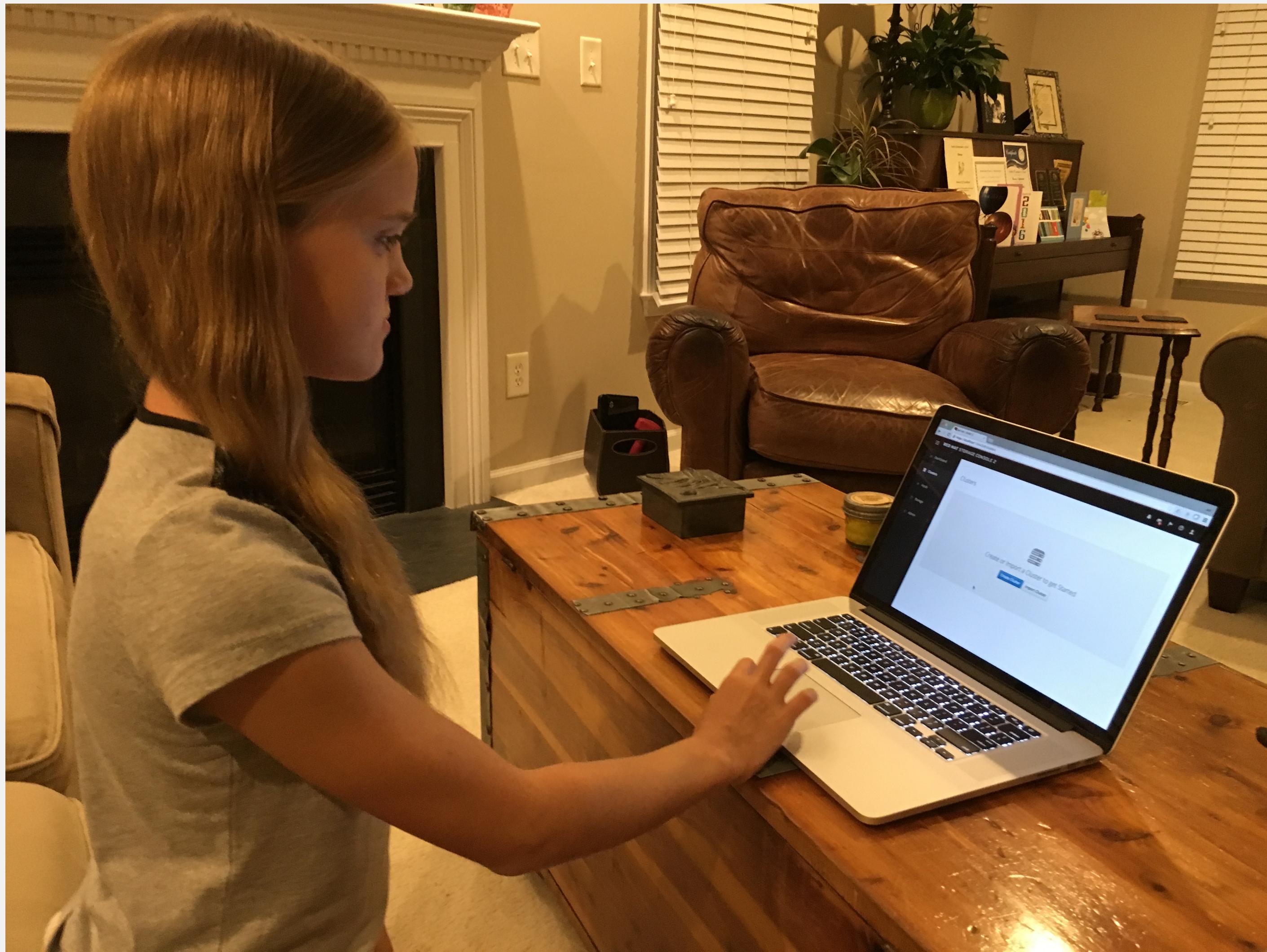
38 Years Old
Creator of Webring
Co-founder of DreamHost
Created Ceph
Founder and CTO of Inktank
PhD from Univ. of California, Santa Cruz
Can successfully install Ceph

Livia Applewhite



10 Years Old
4th Grade Student at Easley Elementary
My daughter <3
Can successfully install Ceph!

User Acceptance Testing...



RED HAT STORAGE CONSOLE 2



Create Cluster: squidward is completed sucessfully



Dashboard

Clusters

Hosts

Storage >

Admin >

Sub Tasks

#	Execution Steps	Result
1	Started ceph provider task for cluster creation: c001021f-ed5a-4ff9-bc72-3575e73f5afe	Jun 26 2016, 10:28:56 PM
2	Persisting cluster details	Jun 26 2016, 10:28:56 PM
3	Configuring the mons	Jun 26 2016, 10:28:56 PM
4	Added mon node: RHCS4	Jun 26 2016, 10:29:16 PM
5	Added mon node: RHCS5	Jun 26 2016, 10:29:46 PM
6	Added mon node: rhcs1	Jun 26 2016, 10:30:36 PM
7	Persisting mons	Jun 26 2016, 10:30:36 PM
8	Starting calamari on: RHCS4	Jun 26 2016, 10:30:36 PM
9	Started calamari on node: RHCS4	Jun 26 2016, 10:30:45 PM
10	Configuring the OSDs	Jun 26 2016, 10:30:45 PM
11	Added (rhcs2 /dev/sdb)	Jun 26 2016, 10:31:55 PM
12	Added (rhcs3 /dev/sdb)	Jun 26 2016, 10:32:56 PM
13	Syncing the OSD status	Jun 26 2016, 10:32:56 PM
14	Updating the status of the cluster	Jun 26 2016, 10:33:56 PM
15	Removing default created pool "rbd"	Jun 26 2016, 10:34:05 PM
16	Creating default EC profiles	Jun 26 2016, 10:34:08 PM
17	Updating the CRUSH Map	Jun 26 2016, 10:34:39 PM
18	Success	Jun 26 2016, 10:34:39 PM

Results: Success!

1-2 Minutes of Instruction

1-2 Minutes to get through the wizard

15 Minutes to install a small 6 node Ceph 2.0 Cluster

AGENDA

June 30, 2016

Red Hat Summit

- Introduction
- Business value of RHSC2
- Architectural Overview
- Features and Value Proposition
- Demo
- How to get it
- Roadmap
- QA

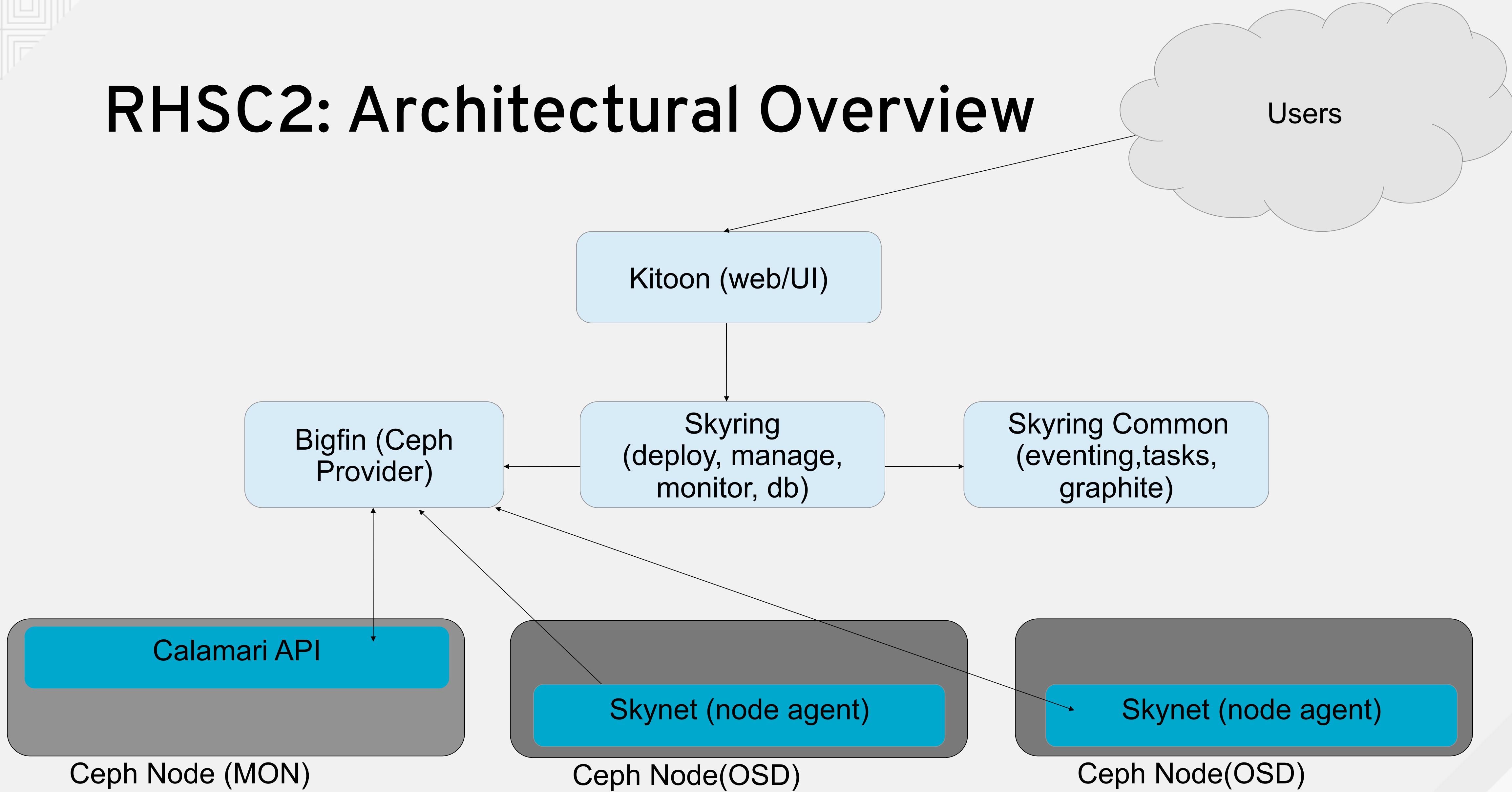
Business Value

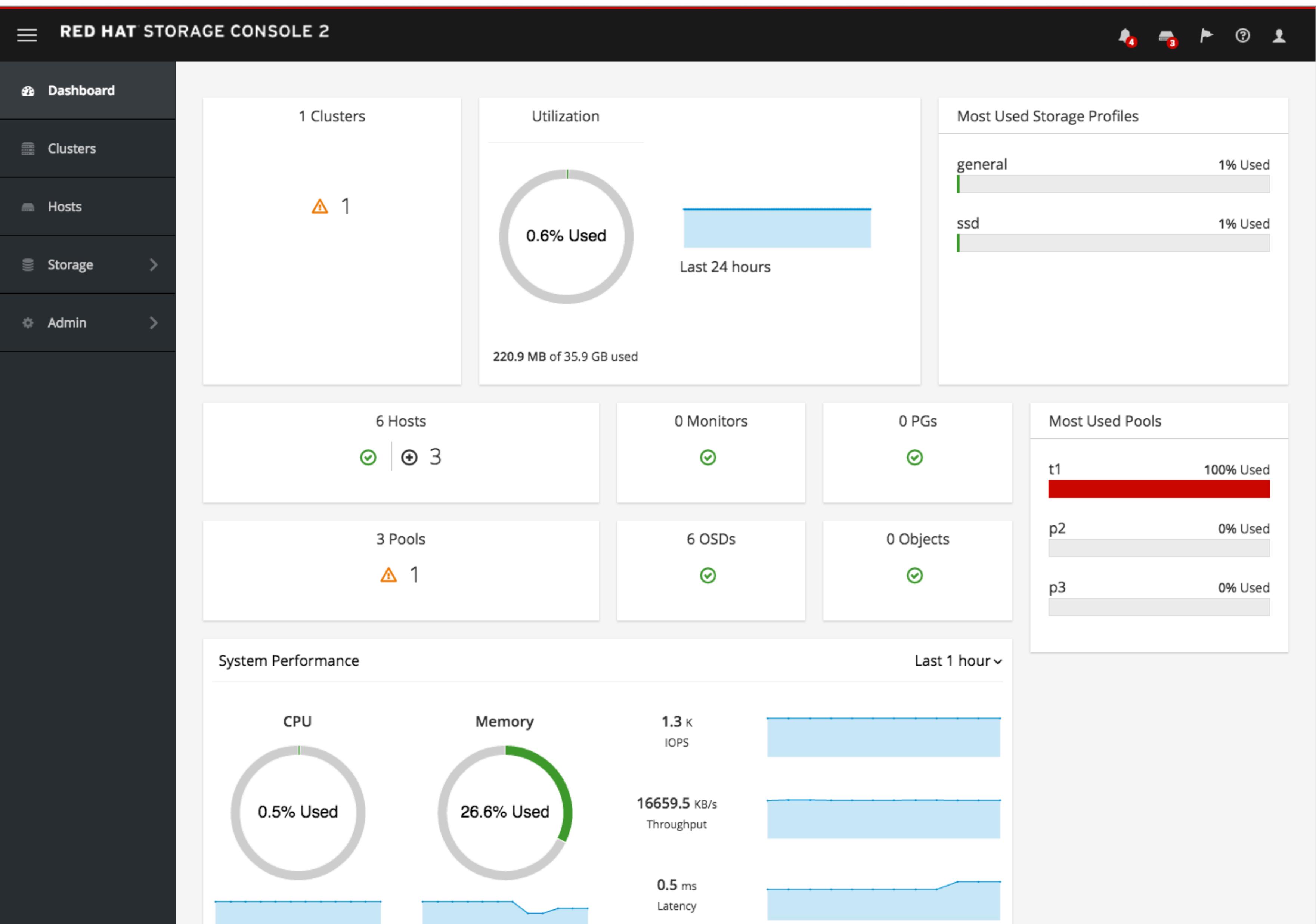
- Easily install Ceph 2.0 storage infrastructure in less than an hour.
 - ✓ Reduce schedule risk, ensure best practices
- Provision usable Ceph storage in seconds, auto-expand Ceph when disks are added, easily add nodes
 - ✓ Increase efficiency of operations

Business Value

- Proactively monitor and manage health, performance, and capacity utilization and gain operational intelligence.
 - ✓ Improve hardware projections
- Receive alerts for operational issues requiring intervention.
 - ✓ Meet SLOs

RHSC2: Architectural Overview





Red Hat Storage Console 2

Feature Overview

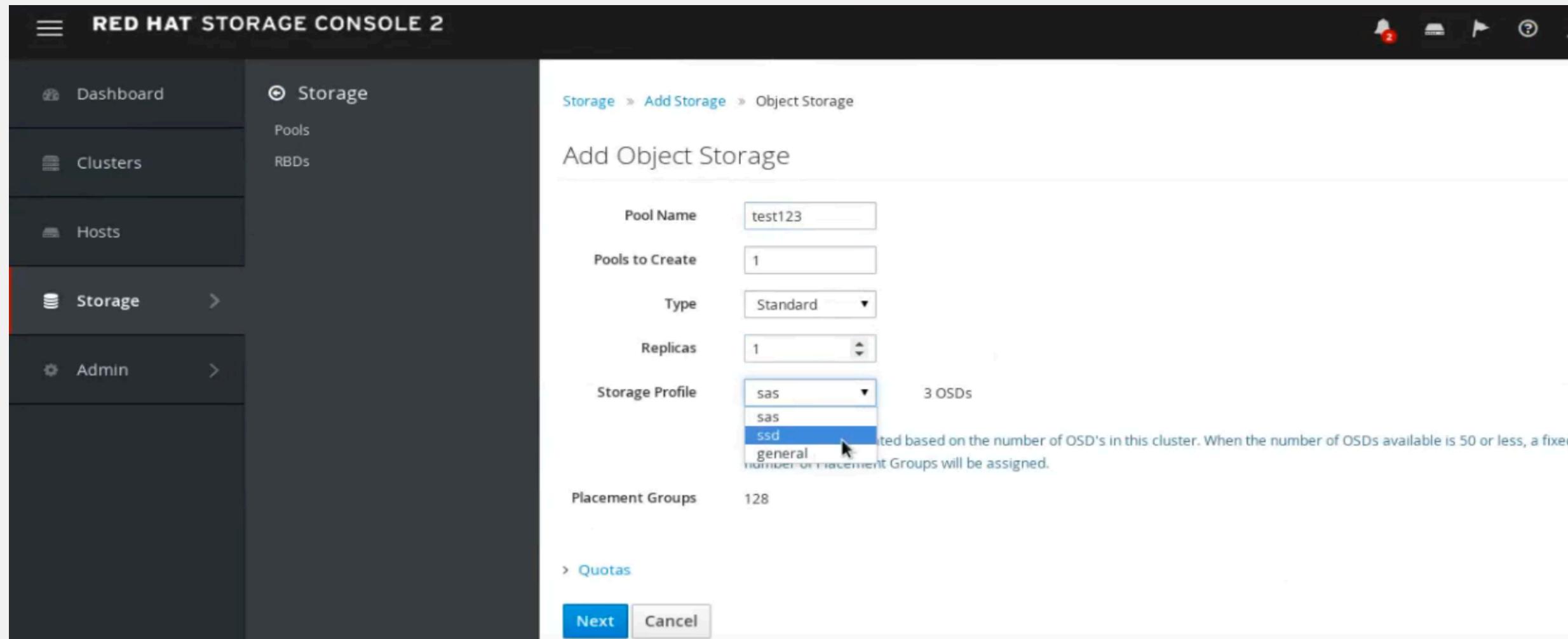
- Install Ceph 2.0 Storage
- Manage & monitor health, performance and capacity
- Provision RADOS and RBD storage
- Provide alerting on operational issues through email or API
- Integrate into enterprise authentication schemes (LDAP/AD)
- Cluster and per node usage, performance, IO statistics

Features

In detail

- Graphical installation of Ceph via Ansible
- Import existing Ceph 2.0 clusters
- Discover and add hosts
- Create cluster, remove / un-manage a cluster
- Expand cluster (add mon's/osd's)
- OSD add/remove/set state
- Create / resize storage pool
- Storage Profiles (SSD, SAS, General):
- System will automatically create CRUSH Map rules per class of disk

Hardware Profiles



On creation the pool is mapped to a specific underlying set of OSDs via CRUSH rules created on the fly.

The value to the customer is that they can choose media types for different workloads and use this “storage catalog” to map workloads to the appropriate media type.

Example: Expensive flash storage in a pool for apps with low latency tolerance vs. dense storage for archival.

Features

- Provision volume (with pool if chosen)
- Create Standard & Erasure coded pools
- Set quotas on pools
- Create/resize/delete RBD's
- View RBD's (list view)
- Create and update local users
- Authenticate Active Directory & LDAP users

Features

- Event engine - put events into DB, categorize/filter/dismiss
- List and detail viewing of events in cluster
- Cluster wide monitoring thresholds
- Cluster and node status
- Alert states on nodes and cluster
- Manage/kill running tasks

Features

- Logging framework
- Email alerting
- Storage profile utilization
- Capacity utilization, IOPS, throughput and latency, cpu
- Storage Profiles

DEMO

Installation

RED HAT STORAGE CONSOLE 2

- Dashboard
- Clusters
- Hosts
- Storage >
- Admin >

Clusters



Create or Import a Cluster to get Started

[Create Cluster](#) [Import Cluster](#)

RADOS Provisioning

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- Dashboard
- Clusters
- Hosts
- Storage >
- Admin >

Storage » Pools

Pools



Add Storage Pools

There are no storage pools currently defined. Click Add Storage to create RADOS object storage.

Add Storage

RBD Provisioning

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Storage > Add Storage

Add Storage

Where do you want to add storage?

Cluster

What type of storage do you want to add?

Object Storage
Select to create regular RADOS object storage.

Block Storage (RBD) 
Select for traditional applications that require kernel (block) storage

 **Next** **Cancel**

Task Management

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Admin > Tasks

Tasks

Search | From | To | Inprogress Completed Failed

14 Results Active filters: [Clear All Filters](#)

		Start time	Last update time	
<input checked="" type="checkbox"/>	Create Storage: rados1 08e06ca6-e332-4791-a65e-1ededad19c9b7	Jun 1, 2016 1:57:00 PM	Jun 1, 2016 1:58:00 PM	Details
<input checked="" type="checkbox"/>	Create Cluster: ceph f0288825-217d-41df-8423-aab584c281e4	Jun 1, 2016 1:19:55 PM	Jun 1, 2016 1:40:53 PM	Details
<input checked="" type="checkbox"/>	Initialize Node: rhcs6 0d665d8b-39ac-46bc-8949-92b302ff67f5	Jun 1, 2016 1:18:51 PM	Jun 1, 2016 1:19:19 PM	Details

Events
Dashboard
Cluster View
Admin

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Storage > RBDs

RBDs

Search

Add

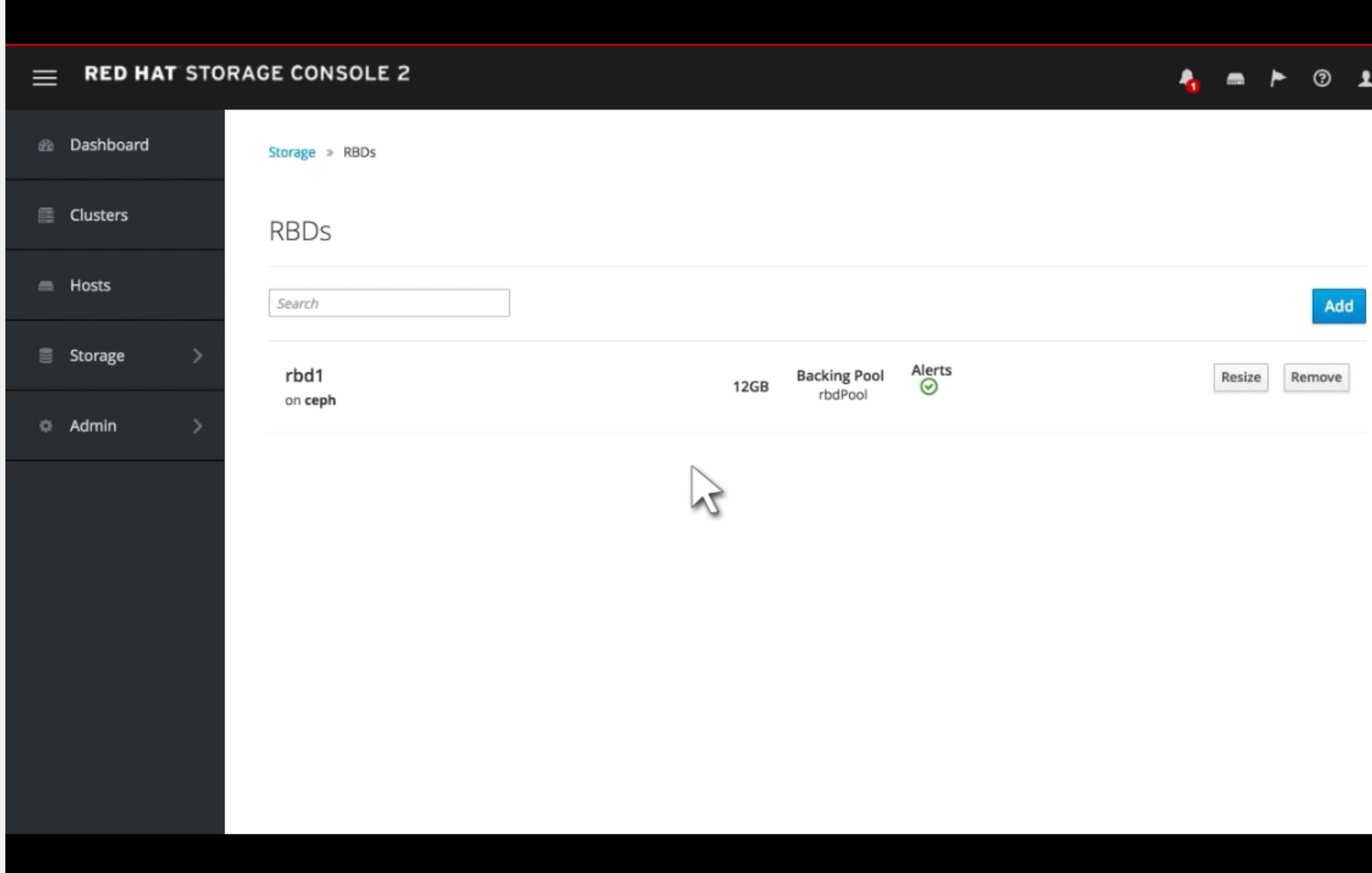
rbd1
on ceph

12GB

Backing Pool
rbdPool

Alerts

Resize Remove



How to get it?

Available at no charge for all Ceph 2.0 Customers

Can be consumed via:

Layered install on RHEL 7.2

Prebuilt QCOW image for RHEV or OpenStack

Road Map Towards Unified Storage Management

#redhat #rhsummit

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Next: Unified Storage Manager or “USM3”

Will release in Feb 2017 timeframe

Themes:

- Enablement for Gluster 3.2 (replace Storage Console 1)
- Ceph UI unchanged from RHSC2 with few new features
- Technical enhancements

Stateless model

High Availability

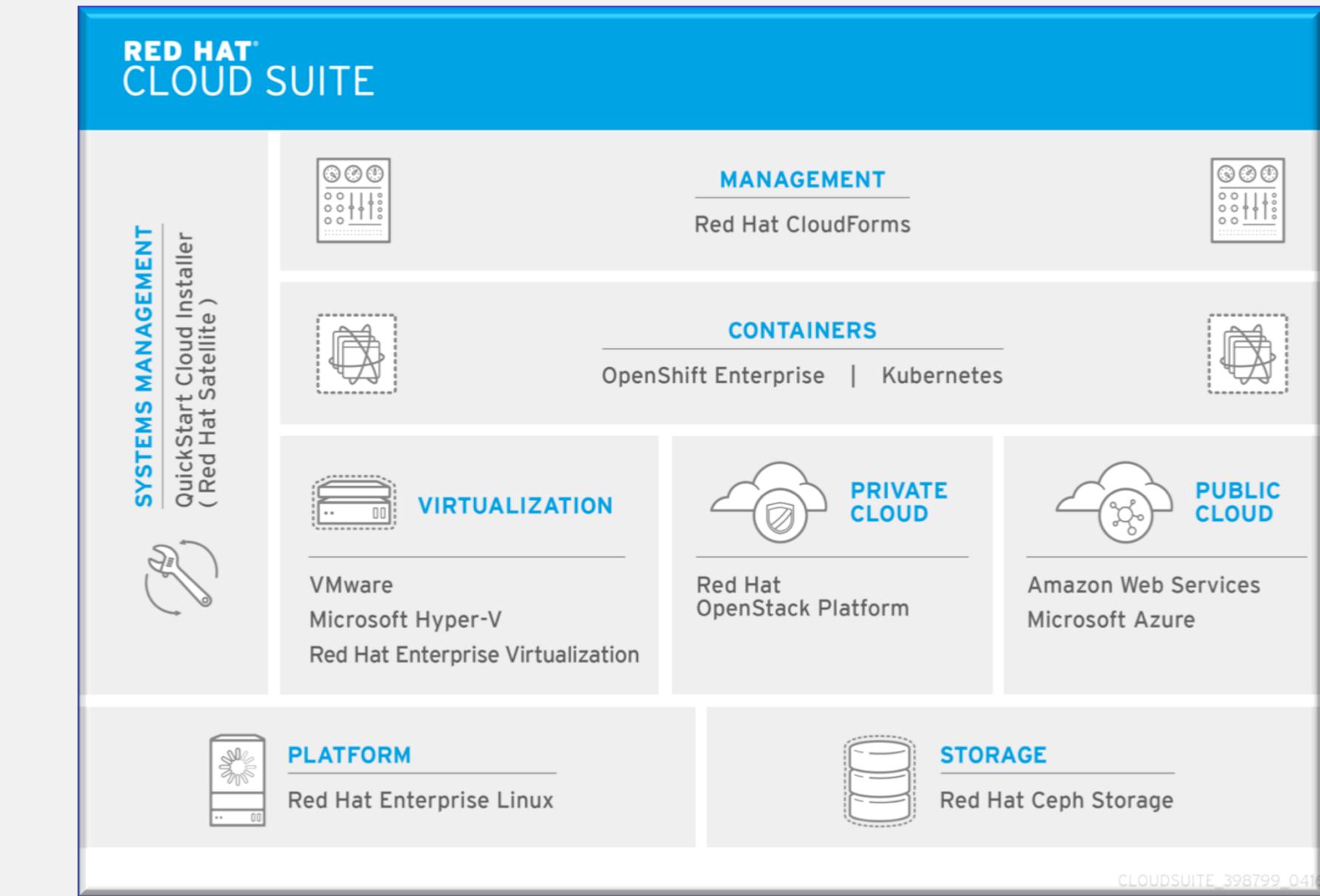
Containerization

Refinement of actions/events

USM 3 Stance

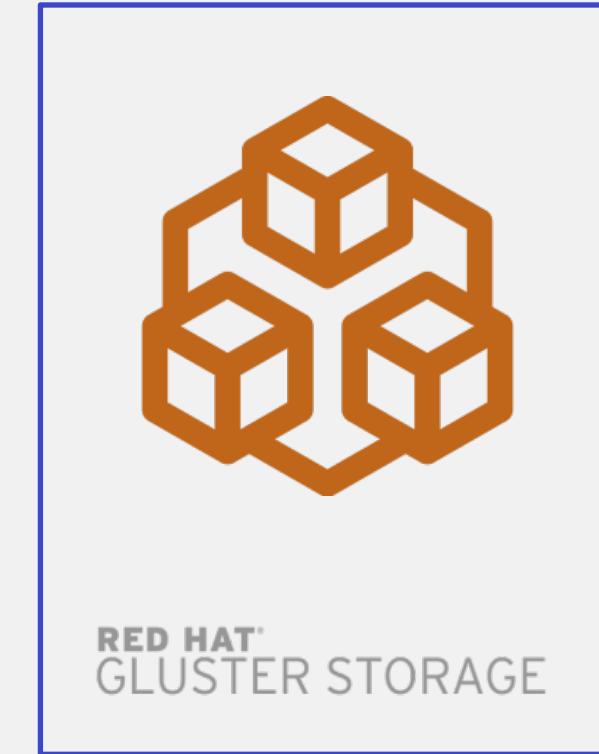
- Pivoting to stateless HA service oriented focus to integrate with other components
 - OSP-D
 - CloudForms
 - Red Hat Insights
- The primary change from present Gluster console will be a workflow model to enhance time to value.

Integration into the Red Hat Portfolio



- SDS is of course a natural component of the broader Red Hat infrastructure stack
- USM will be part of the Cloud Suite along with the SDS components integration
- Integrated storage with Unified Management delivers the Full Power of Red Hat's comprehensive product portfolio
- Swagger framework: auto-generated API docs for efficient integration

Theme: Gluster Support



- Full support for Gluster 3.2 release in the next release of USM (early 2017)
- A single Unified Management interface for Ceph, Gluster:
 - Installation (enhanced Gdeploy)
 - Provisioning, monitoring, and alerting
 - Reduces cost, complexity, and time to value

Theme: Gluster Support



- Work flows to produce usable storage for defined use cases:
- Example:
 - 1) Create bricks from devices
 - 2) Create Distributed Replicated volume
 - 3) Start the volume,
 - 4) Setup NFS access
 - 5) Provide mount cmd string to complete the provisioning on client nodes.

Theme: Ceph 2.1 Support



- Full support for Ceph 2.1 release in the next release of USM (early 2017)
- Replication enhancements

Theme: OpenStack Director Support

- Support for OSP in the next release of USM (early 2017)
- Integrated installation and day 2 management for larger clusters
- Will first intersect when OSP supports Ceph 2.0 via cluster import

Theme: Technical Enhancements

- Stateless Operations / High Availability
- Improved out of band awareness
- Refinement of actions/events model for monitoring externally
- Performance enhancements for larger clusters

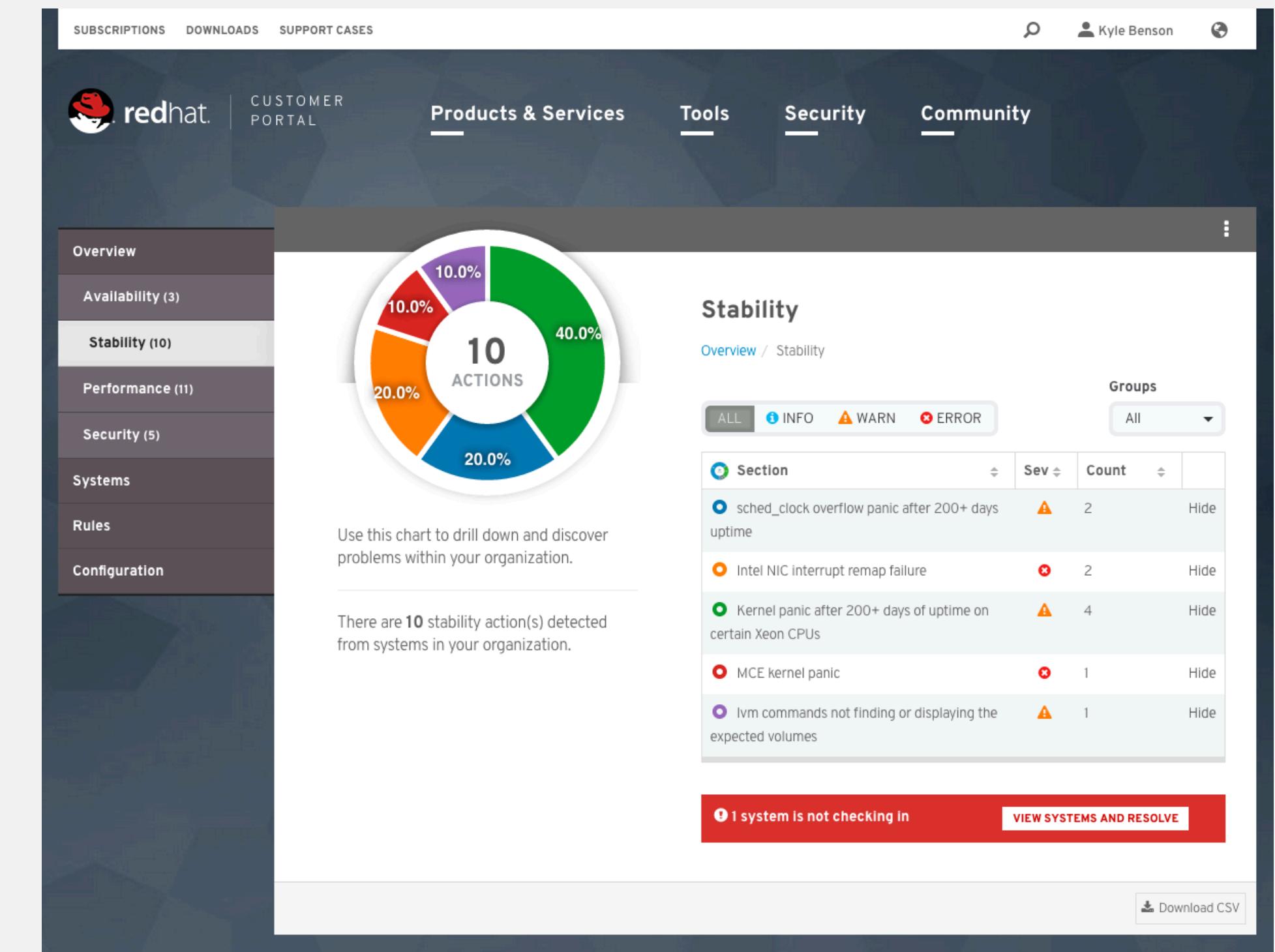
Roadmap Guidance

Theme: Cloud Forms 4.2 Support

- Inventory - View Red Hat Storage including Ceph and Gluster technologies.
- Metrics - Support for Storage metrics, such as I/O throughput.
- Events - Support for generated Events to drive orchestration and operations.
- Topology & Crosslinking - Visualization of the Storage infrastructure in relation to the applications running upon it.
- Life Cycle Management - Manage day 2 consumer operations for storage such as add share or retire volume

Theme: Red Hat Insights

- Best practices validation for storage
- Real-Time Risk Assessment based on the proven RHEL foundation
 - Availability
 - Stability
 - Performance
 - Security
- Predictive Alerts for Ceph/Gluster/RHEL
- Consumed directly in the storage console



Theme: Common Logging

- Centralized logging via rsyslog, Fluentd
- Explore and Visualize patterns via Kibana/Elasticsearch
- Enhance the ability to analyze and troubleshoot issues

Upstream Community Plan



Current Github site

<https://github.com/skyrings>

EOL after 2.0 release in August

Future Github site

<https://github.com/Tendrl/tendrl>

September 2017

Community Manager

Patrick McGarry

Community URL (domain registered)

<http://tendrl.org>

September 2017



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Questions?

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