Red Hat Storage Console 2

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

Users

Kitoon (web/UI)

Bigfin (Ceph Provider)

Skyring (deploy, manage, monitor, db)

Skyring Common (eventing, tasks, graphite)

Calamari API

Ceph Node (MON)

Skynet (node agent)

Skynet (node agent)

Ceph Node (OSD)

Ceph Node (OSD)
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

* 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
Installation

Create or Import a Cluster to get Started

Create Cluster  Import Cluster
RADOS Provisioning

Add Storage Pools

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

Add Storage
RBD Provisioning
Task Management
Events
Dashboard
Cluster View
Admin
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
Next: Unified Storage Manager or “USM3”

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

Will release in Feb 2017 timeframe
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
Questions?