

## RHCEPH125 Red Hat Ceph 3 Storage Architecture and Administration

### Course Summary

#### Description

Red Hat Ceph Storage Architecture and Administration (CEPH125) helps you provide unified storage for enterprise servers and Red Hat® OpenStack Platform with Red Hat Ceph Storage. Learn to use a Ceph storage cluster to provide servers and cloud resources with object storage compatible with the Amazon S3 or OpenStack Swift APIs, Ceph-native or iSCSI-based block storage, and file storage using CephFS.

#### Objectives

At the end of this course, students will be able to:

- Deploying and managing a Red Hat Ceph Storage cluster on commodity servers using Ansible.
- Creating, expanding, and controlling access to storage pools provided by the Ceph cluster.
- Accessing Red Hat Ceph Storage from clients using object, block, and file-based methods.
- Analyzing and tuning Red Hat Ceph Storage performance.
- Integrating OpenStack image, object, block, and file storage with a Red Hat Ceph Storage cluster.

#### Topics

- Prepare for Red Hat Ceph Storage
- Deploy Red Hat Ceph Storage
- Configure Red Hat Ceph Storage
- Provide block storage with RBD
- Provide object storage with RADOSGW
- Provide file storage with CephFS
- Configure the CRUSH map
- Manage and update the cluster maps
- Manage a Red Hat Ceph Storage cluster
- Tune and troubleshoot Red Hat Ceph Storage
- Integrate Red Hat Ceph Storage with OpenStack

#### Audience

This course is intended for storage administrators, cloud operators, and cloud developers who want to learn how to deploy and manage Red Hat Ceph Storage within or outside the Red Hat Enterprise Linux OpenStack Platform environment.

#### Prerequisites

- Be certified as a Red Hat Certified System Administrator (RHCSA), or demonstrate equivalent experience
- Some experience with storage administration is recommended, but not required

#### Duration

Four days

## RHCEPH125 Red Hat Ceph 3 Storage Architecture and Administration

---

### Course Outline

- I. *Prepare for Red Hat Ceph Storage*
  - A. Identify challenges faced by traditional storage and explain how Ceph addresses them.
- II. *Deploy Red Hat Ceph Storage*
  - A. Deploy and expand the storage capacity of a new Red Hat Ceph Storage cluster.
- III. *Configure Red Hat Ceph Storage*
  - A. Manage how Ceph stores data with pools, configure Red Hat Ceph Storage using its configuration file, and configure users for Ceph clients that may access the Ceph storage cluster.
- IV. *Provide block storage with RBD*
  - A. Configure Ceph to provide block storage for clients by using RADOS block devices (RBDs).
- V. *Provide object storage with RADOSGW*
  - A. Configure Ceph to provide object storage for clients by using a RADOS gateway (RADOSGW or RGW).
- VI. *Provide file storage with CephFS*
  - A. Configure Ceph to provide file storage for clients using the Ceph Filesystem (CephFS).
- VII. *Configure the CRUSH map*
  - A. Adjust the CRUSH map—which controls how data is stored, replicated, and distributed across OSDs in the Ceph cluster—in order to optimize resiliency and performance.
- VIII. *Manage and update the cluster maps*
  - A. Explain how the monitor and OSD maps are managed in order to maintain cluster operation, quorum, and consistency.
- IX. *Manage a Red Hat Ceph Storage cluster*
  - A. Check Ceph cluster status, troubleshoot Ceph daemon problems, and upgrade Ceph software.
- X. *Tune and troubleshoot Red Hat Ceph Storage*
  - A. Identify the key performance metrics for a Ceph cluster and use them to help tune and troubleshoot the operating system and Ceph software for optimal performance.
- XI. *Integrate Red Hat Ceph Storage with OpenStack*
  - A. Configure an OpenStack cloud to use Ceph to provide image, block, object, and file storage.