

## [CL260]: Cloud Storage with Red Hat Ceph Storage

Length : 5 Days  
Delivery Method : Instructor-led (Classroom)

### Course Overview

**Build skills to manage hybrid cloud Red Hat Ceph Storage for medium and cloud-scale enterprise applications and for Red Hat OpenStack Platform.**

Cloud Storage with Red Hat Ceph Storage (CL260) is designed for storage administrators and cloud operators who deploy Red Hat Ceph Storage in a production data center environment or as a component of a Red Hat OpenStack Platform infrastructure. Learn how to deploy, manage, and scale a Ceph storage cluster to provide hybrid storage resources, including Amazon S3 and OpenStack Swift-compatible object storage, Ceph-native and iSCSI-based block storage, and shared file storage. This course is based on Red Hat Ceph Storage version 4.2.

### 5-10 Course Topics

- Deploy and manage a Red Hat Ceph Storage cluster on commodity servers using Red Hat Ansible Automation Platform.
- Create, expand, and control access to storage pools provided by the Ceph cluster.
- Access Red Hat Ceph Storage from clients using object, block, and file-based methods.
- Analyze and tune Red Hat Ceph Storage performance.
- Integrate Red Hat OpenStack Platform image, object, block, and file storage with a Red Hat Ceph Storage cluster.

### Audience Profile

This course is geared toward Windows system administrators, network administrators, and other system administrators who are interested in supplementing current skills or backstopping other team members, in addition to Linux system administrators who are responsible for these tasks:

- This course is intended for storage administrators and cloud operators who want to learn how to deploy and manage Red Hat Ceph Storage for use by servers in an enterprise data center or within a Red Hat OpenStack Platform environment.
- Developers writing applications who use cloud-based storage will learn the distinctions of various storage types and client access methods.

### At Course Completion

- Red Hat Certified System Administrator in Red Hat OpenStack exam (EX210)
- Red Hat OpenStack Administration III: Networking & Foundations of NFV (CL310)
- Red Hat Certified Engineer in Red Hat OpenStack exam (EX310)

#### AVANTUS TRAINING PTE LTD

80 Jurong East Street 21 #04-04 Devan Nair Institute Singapore 609607

Main Line: +65 6661 0888 | Fax: +65 6661 0886

Email: [enquiries@AvantusTraining.com](mailto:enquiries@AvantusTraining.com)

[www.AvantusTraining.com](http://www.AvantusTraining.com)

- Red Hat Ceph Storage Architecture and Administration (CEPH125) and Red Hat Certified Specialist in Ceph Storage Administration exam (EX125)
  - For OpenStack administrators who want to learn more about Red Hat Ceph Storage and become a networking engineer.
- Red Hat CloudForms Hybrid Cloud Management (CL220) and Red Hat Certified Specialist in Hybrid Cloud Management exam (EX220)
  - For hybrid cloud engineers who want to learn more about Red Hat® CloudForms and become a cloud architect.

### **Business Outcome Statement**

Reliable and performant data storage is a critical component for enterprise application and infrastructure solutions. Software-defined storage offers organizations the flexibility to grow their data storage requirements while enabling applications to operate at cloud-scale. Red Hat Ceph Storage leverages commodity hardware to create distributed and scalable storage volumes that are both fault-tolerant and provide access via object, block, and file data levels. Successful planning, deployment and operation of a storage cluster can be achieved through completion of Cloud Storage with Red Hat Ceph Storage course.

### **Student Outcome Statement**

As a result of attending this course, students will be able to deploy, operate, and manage a Red Hat Ceph Storage cluster. Students will learn that Red Hat Ceph Storage is the standard, integrated cloud storage solution for Red Hat OpenStack Platform. Developer students will learn to implement each available storage type and method offered by Red Hat Ceph Storage, and be able to choose the correct type and method for their enterprise storage scenarios and applications. Administrators and operators will be able to perform Ceph cluster management, including configuration, daily operations, troubleshooting, performance tuning, and scaling.

### **Course Outline**

#### **Module 1: Introducing Red Hat Ceph Storage architecture**

##### **Lessons**

- Goal: Describe Red Hat Ceph Storage architecture, including data organization, distribution and client access methods.

#### **Module 2: Deploying Red Hat Ceph Storage**

##### **Lessons**

- Goal: Deploy a new Red Hat Ceph Storage cluster and expand the cluster capacity.

#### **Module 3: Configuring a Red Hat Ceph Storage cluster**

##### **Lessons**

- Goal: Manage the Red Hat Ceph Storage configuration, including the primary settings, the use of monitors, and the cluster network layout.

#### **Module 4: Managing object storage cluster components**

##### **Lessons**

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- Create and manage the components that comprise the object storage cluster, including OSDs, pools, and the cluster authorization method.

## **Module 5: Managing the storage maps**

### **Lessons**

- Manage and adjust the CRUSH and OSD maps to optimize data placement to meet the performance and redundancy requirements of cloud applications.

## **Module 6: Providing block storage with RBD**

### **Lessons**

- Goal: Configure Ceph to provide block storage for clients by using RADOS block devices (RBDs).

## **Module 7: Providing object storage with RGW**

### **Lessons**

- Goal: Configure Ceph to provide object storage for clients by using a RADOS gateway (RADOSGW or RGW).

## **Module 8: Providing file storage with CephFS**

### **Lessons**

- Goal: Configure Ceph to provide file storage for clients using the Ceph Filesystem (CephFS).

## **Module 9: Managing a Red Hat Ceph Storage cluster**

### **Lessons**

- Goal: Manage an operational Ceph cluster using tools to check status, monitor services, and properly start and stop all or part of the cluster. Perform cluster maintenance by replacing or repairing cluster components, including MONs, OSDs, and PGs.

## **Module 10: Tuning and troubleshooting Red Hat Ceph Storage**

### **Lessons**

- Goal: Identify the key Ceph cluster performance metrics and use them to tune and troubleshoot Ceph operations for optimal performance.

## **Module 11: Managing Red Hat OpenStack Platform storage with Red Hat Ceph Storage**

### **Lessons**

- Goal: Manage an OpenStack infrastructure to use Red Hat Ceph Storage to provide image, block, volume, object, and shared file storage.

## **Module 12: Comprehensive review**

### **Lessons**

- Goal: Review tasks from Cloud Storage with Red Hat Ceph Storage.

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