

# COMPLETE OPENSTACK STORAGE FROM RED HAT

TECHNOLOGY BRIEF

## INTRODUCTION

OpenStack® is the largest and fastest-growing open source cloud infrastructure project. Built by a broad community of contributors, OpenStack helps enterprises build and manage scalable, flexible services. But to achieve this, it must be supported by storage that is also scalable and flexible.

Red Hat® Storage consists of software-defined storage technologies that scale out—like OpenStack—with architectures that integrate more tightly with OpenStack than traditional, proprietary storage solutions. This comprehensive software-defined storage portfolio is engineered for modern cloud architectures, making Red Hat OpenStack Platform and Red Hat Ceph Storage an ideal combination for enterprises deploying OpenStack.

## ENTERPRISE-READY OPEN SOURCE TECHNOLOGY

Enterprises with successful OpenStack deployments tend to partner with organizations that have a history of open source expertise, a solid alliance with the OpenStack community, and expert services and support.

As an OpenStack Foundation Platinum Member, Red Hat is uniquely positioned to help enterprises successfully deploy and manage an OpenStack-based cloud through its extensive relationships with the OpenStack community. In addition, Red Hat is also an active contributor to the Ceph community project, which delivers a component that is critical for every OpenStack deployment: storage.

Red Hat's comprehensive, software-defined storage portfolio spans physical, virtual, and cloud environments to meet the needs of increasingly massive deployments. Red Hat Storage scales as OpenStack scales: quickly, reliably, and cost-effectively on industry standard servers and disks.

## RED HAT CEPH STORAGE

An open, software-defined storage solution, Red Hat Ceph Storage is based on Ceph, the storage system overwhelming preferred by OpenStack users.<sup>1</sup> It offers a single, efficient platform to support block storage—both persistent and ephemeral—object, and file storage. In addition, Red Hat Ceph Storage provides:

- Massive scalability and flexibility.
- Self-managing and self-healing capabilities.
- Support for Red Hat Enterprise Linux® and Ubuntu OpenStack.

Red Hat Ceph Storage is seamlessly integrated with OpenStack's modular architecture and components for storage of petabytes of data, as well as cloud and other workloads. It also provides crucial storage service for virtual machines, as well as a fully supported cloud platform.

In addition, Red Hat Ceph Storage is an effective storage back end for Red Hat OpenStack Platform, which provides an integrated, optimized foundation for private and public clouds. A Ceph block device (RBD) integrates tightly with OpenStack by providing a single back end for Manila, Cinder,

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<sup>1</sup> OpenStack user survey, October 2015.

Nova, and Glance to let users efficiently store images, volumes, and snapshots. A Ceph Object Gateway (RGW) provides a RESTful interface that is compatible with applications written for OpenStack Swift. Both of these data services are based on the underlying RADOS object store, letting users deploy and manage both within a single cluster.

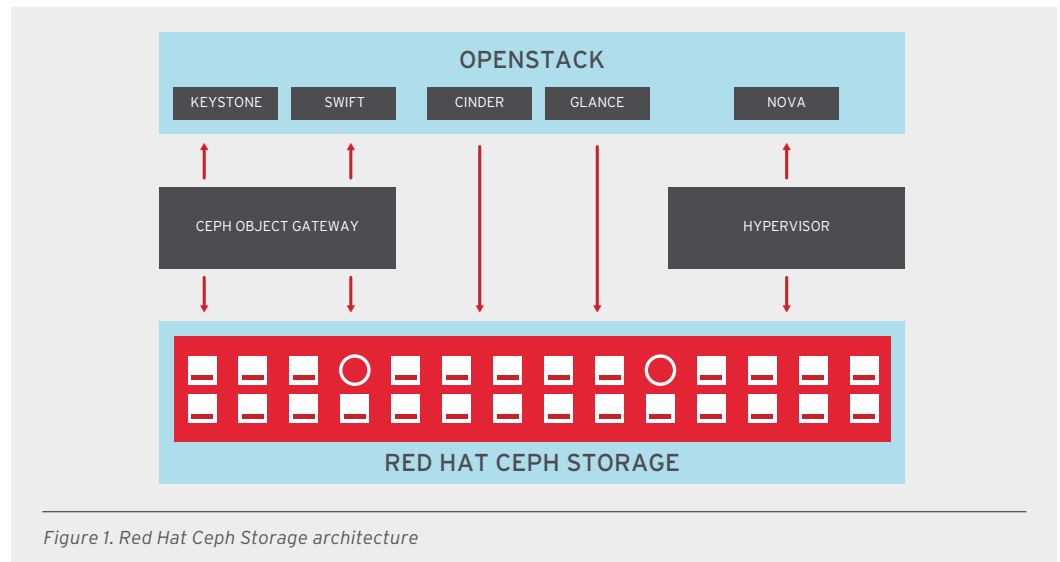


Figure 1. Red Hat Ceph Storage architecture

Red Hat Ceph Storage is now included with Red Hat OpenStack Platform, Red Hat Cloud Infrastructure, and Red Hat Cloud Suite. Paired with these solutions, Red Hat Ceph Storage delivers a supported end-to-end compute and storage solution with the agility and scalability to meet enterprise demands – without compromising availability or performance.

### RED HAT OPENSTACK PLATFORM

Red Hat OpenStack Platform is a production-ready, co-engineered cloud platform that combines a leading OpenStack technology with a trusted enterprise Linux operating system to help enterprises address customer demands quickly, without sacrificing security or performance.<sup>2</sup>

Because OpenStack depends on its underlying Linux operating system for everything from service operation and access to hardware resources, system performance, driver integration, and data security, tight integration of OpenStack and its underlying Linux platform is critical to deploying a stable, high-performing cloud.<sup>3</sup> Red Hat OpenStack Platform enhances the community version of OpenStack with advanced features needed for cloud environments to deliver the core Infrastructure-as-a-Service (IaaS) and secondary infrastructure needed for private or public clouds.

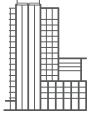
### RED HAT CLOUD INFRASTRUCTURE AND RED HAT CLOUD SUITE

Red Hat Cloud Infrastructure tightly integrates Red Hat OpenStack Platform with Red Hat Enterprise Virtualization, Red Hat CloudForms for cloud management, and Red Hat Satellite for life cycle management to help businesses successfully build and manage an open, private IaaS cloud.

Red Hat Cloud Suite offers the solutions included Red Hat Cloud Infrastructure with the addition of OpenShift Enterprise by Red Hat, a container-based application development platform.

<sup>2</sup> <http://www.redhat.com/en/technologies/linux-platforms/articles/engineered-for-enterprise>

<sup>3</sup> <http://www.redhat.com/en/technologies/linux-platforms/articles/critical-bug-fix-example2>



#### **ABOUT RED HAT**

Red Hat is the world's leading provider of open source software solutions, using a community-powered approach to reliable and high-performing cloud, Linux, middleware, storage, and virtualization technologies. Red Hat also offers award-winning support, training, and consulting services. As a connective hub in a global network of enterprises, partners, and open source communities, Red Hat helps create relevant, innovative technologies that liberate resources for growth and prepare customers for the future of IT.

#### **THE RED HAT ADVANTAGE**

Enterprises are struggling to keep up with the rapidly increasing growth of data and cloud computing environments. With years of enterprise customer experience, Red Hat combines its expertise as the leading Ceph authority with the thriving innovation of the OpenStack, Ceph, and Linux communities to provide an end-to-end, fully integrated set of solutions that is not only agile and reliable, but also cost-effective. In addition, Red Hat offers the production-level support, product and resource access, lifecycle management, consulting services, and security to help deployments succeed.

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