

# RED HAT CEPH STORAGE

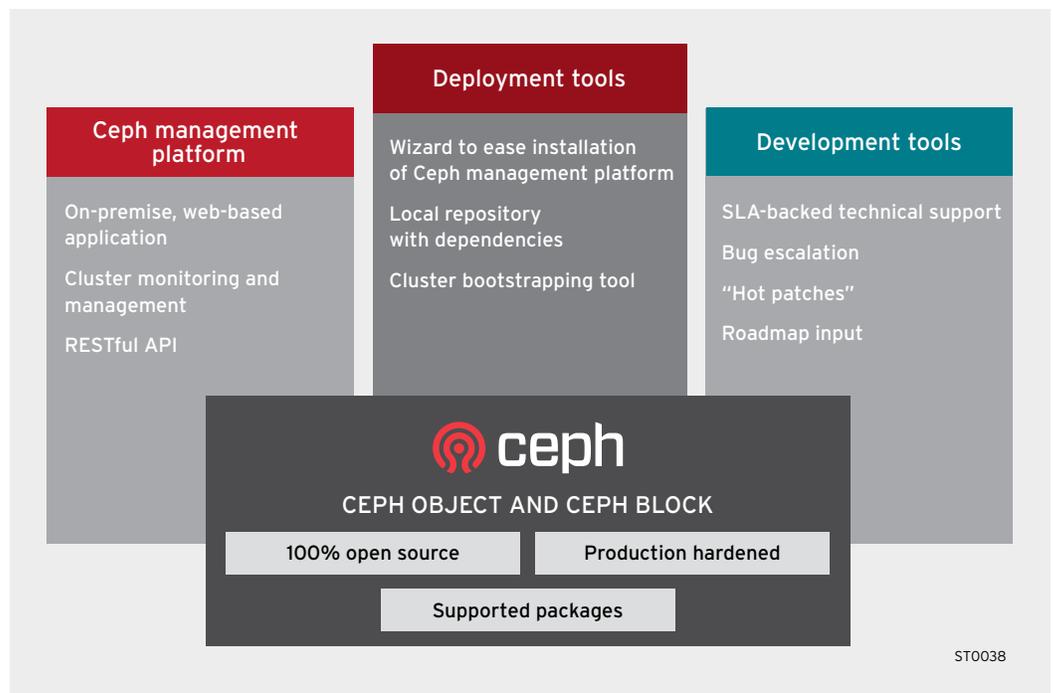
An open, software-defined storage platform for the cloud

DATASHEET

## OVERVIEW

Red Hat® Ceph Storage is a massively scalable, open, software-defined storage platform that:

- Is designed for cloud infrastructures and web-scale object storage.
- Combines the most stable version of Ceph with a Ceph management platform, deployment tools, and support services.
- Provides the tools to flexibly, automatically, and cost-effectively manage petabyte-scale data deployments in the enterprise.
- Manages cloud data so enterprises can focus on managing their businesses.



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**VALUE**

- Significantly lowers storage cost per gigabyte
- Provides a foundation for managing exponential growth in enterprise data

**ENTERPRISE READINESS**

- Integrates tightly with OpenStack®
- Provides advanced block storage capabilities

**LONGEVITY**

- Easily accommodates block or object storage
- Easily integrates with existing storage infrastructure

**EXPERT BACKING**

- Provides access to professional services and training from Ceph’s creators and primary sponsors

Specifically, Red Hat Ceph Storage 1.3 consists of:

Ceph 0.94 (Hammer)	<ul style="list-style-type: none"> <li>• Ceph object and block storage</li> <li>• Object storage via Amazon S3/Swift or native API protocols</li> <li>• Block storage integrated with OpenStack, Linux®, and open hypervisors</li> <li>• Multisite and disaster recovery options</li> <li>• Flexible storage policies</li> <li>• Data durability via erasure coding or replication</li> <li>• Cache tiering for hot/cold data management</li> </ul>
Ceph management platform	<ul style="list-style-type: none"> <li>• Integrated on-premise management platform</li> <li>• Deployment tools</li> <li>• Graphical user interface with cluster visualization</li> <li>• Advanced Ceph monitoring and diagnostic information</li> <li>• Cluster and per node usage and performance statistics</li> </ul>
Support services	<ul style="list-style-type: none"> <li>• SLA-backed technical support</li> <li>• Hot-fix patch access</li> <li>• Roadmap prioritization input</li> </ul>

**BENEFITS TO THE ENTERPRISE**

Enterprises today struggle to manage the explosive growth of data while remaining agile and cost effective. To manage petabytes of data at the speed required by today’s business, enterprises must use cloud technology to store their data.

**OPENSTACK**

OpenStack® is today’s largest and fastest-growing open source cloud infrastructure project, so it makes sense to adopt technologies designed to work the way OpenStack does. Engineered with modern cloud architectures in mind, Red Hat Ceph Storage and Red Hat Enterprise Linux® OpenStack Platform are a clear choice for enterprises deploying OpenStack.

**RED HAT CEPH STORAGE**

OpenStack must be powered by scalable, flexible, next-generation storage to succeed. Red Hat Ceph Storage scales the way OpenStack does—out, not up—and its extensible architecture allows it to integrate more tightly with OpenStack than traditional, proprietary solutions. Red Hat Ceph Storage significantly lowers the cost of storing enterprise data in the cloud and helps enterprises manage their exponential data growth—efficiently, automatically, and economically. Delivered in one self-healing, self-managing platform with no single point of failure, Red Hat Storage handles data management so enterprises deploying OpenStack can focus on data availability.

**RED HAT ENTERPRISE LINUX OPENSTACK PLATFORM**

Like storage, the tight integration of OpenStack and its underlying Linux platform is a critical factor in deploying a stable and high-performing cloud. Red Hat Enterprise Linux OpenStack Platform is a production-ready, co-engineered cloud platform that combines the leading OpenStack technology with the world’s most trusted enterprise Linux operating system. With Red Hat Enterprise Linux

OpenStack Platform, enterprises get all the benefits expected from Red Hat Enterprise Linux plus the fastest-growing cloud infrastructure platform from OpenStack. With Red Hat Enterprise Linux OpenStack Platform, enterprises can address their customers' demands in hours or minutes without sacrificing security or performance.

### THE CLEAR CHOICE FOR TODAY'S CLOUD

Together, Red Hat Enterprise Linux OpenStack Platform and Red Hat Ceph Storage offer the thriving innovation of the OpenStack and Ceph community projects while providing the stability, expertise, and enterprise-readiness of a platform built on Red Hat Enterprise Linux. For today's cloud, Red Hat's fully integrated and supported compute and storage solution – and end-to-end stack that is agile, responsive, reliable, and cost effective – is the clear choice.

## FEATURES

### EXABYTE SCALABILITY

- **Scale-out architecture.** Grow a cluster from one node to thousands.
- **Automatic rebalancing.** Use a peer-to-peer architecture to add capacity at any time with minimal operational effort. Say goodbye to forklift upgrades and data migration projects.
- **Hot or phased software upgrades.** Upgrade clusters in phases with no or minimal downtime.

### API

- **S3 and Swift API.** Supports object storage.
- **RESTful API.** Manages all cluster and object storage functions.

### STORAGE-AWARE WEBSCALE APPLICATIONS (OBJECT ONLY)

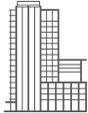
- **Development libraries for direct application integration.** Allows such advanced functions as triggers, message passing, and in-situ data transformations.
- **High-performance native protocol.** Removes the overhead of the RESTful interface for performance-sensitive software that needs low latency and high throughput I/O.

### SECURITY

- **Access control lists.** Exert granular control over object storage user and bucket-level permissions.
- **Quotas.** Prevent abuse with pool or object user storage limits.

### RELIABILITY AND AVAILABILITY

- **Dynamic block resizing.** Expand or shrink Ceph block devices with no or minimal downtime.
- **Striping, erasure coding, or replication across nodes.** Enjoy data durability, high availability, and high performance.
- **Storage policies.** Configure placement to reflect SLAs, performance requirements, and failure domains.
- **Data placement.** Use the CRUSH algorithm to allow every client to calculate where data is located without needing lookup tables and speed performance.
- **Automatic failover.** Prevent server or disk failures from impacting data integrity, availability, or performance.



### ABOUT RED HAT

Red Hat is the world's leading provider of open source solutions, using a community-powered approach to provide reliable and high-performing cloud, virtualization, storage, Linux, and middleware technologies. Red Hat also offers award-winning support, training, and consulting services.

Red Hat is an S&P company with more than 80 offices spanning the globe, empowering its customers' businesses.

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### PERFORMANCE

- **Copy-on-write cloning.** Provision virtual machine (VM) images quickly (block only).
- **In-memory client-side caching.** Cache both kernel and hypervisor (block only).
- **Improved parallelism for data I/O.** Leverage a client-cluster model, instead of a client-server one.
- **Cache tiering.** Promote hot data to SSDs with expiration policies.
- **Flash journals.** Enhance the write performance of data.
- **Customizable stripe sizes.** Configure optimal system performance, whether storing multi-gigabyte video files or small pictures.

### MULTI-DATACENTER SUPPORT AND DISASTER RECOVERY

- **Zones and region support.** Deploy topologies similar to Amazon Web Services S3, and others, with a global namespace (object only).
- **Read affinity.** Serve local copies of data to local users (object only).
- **Datacenter synchronization.** Back up full or partial sets of data between regions (object only).
- **Export snapshots to geographically dispersed datacenters.** Institute disaster recovery (block only).
- **Export incremental snapshots.** Minimize network bandwidth (block only).

### COST-EFFECTIVENESS

- **Thin provisioning.** Allow for over-provisioning (block only).
- **Commodity hardware.** Tailor the price/performance mix to the workload.
- **Heterogeneous hardware.** Avoid having to replace older nodes as newer ones are added.
- **Erasure coding.** Enjoy the value of a cost-effective data durability option.

### WEB-BASED MANAGEMENT

- **Ceph management platform.** Get a dashboard for cluster operations.
- **Per-disk and per-pool performance statistics.** Spot bottlenecks quickly and easily.
- **Diagnostics workbench.** Speed up troubleshooting.

### TECHNICAL SPECIFICATIONS

Red Hat Ceph Storage 1.3 is supported with:

- |                        |  |
|------------------------|--|
| Host operating systems | <ul style="list-style-type: none"> <li>• Red Hat Enterprise Linux 7.0</li> <li>• Ubuntu 14.04</li> </ul> |
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