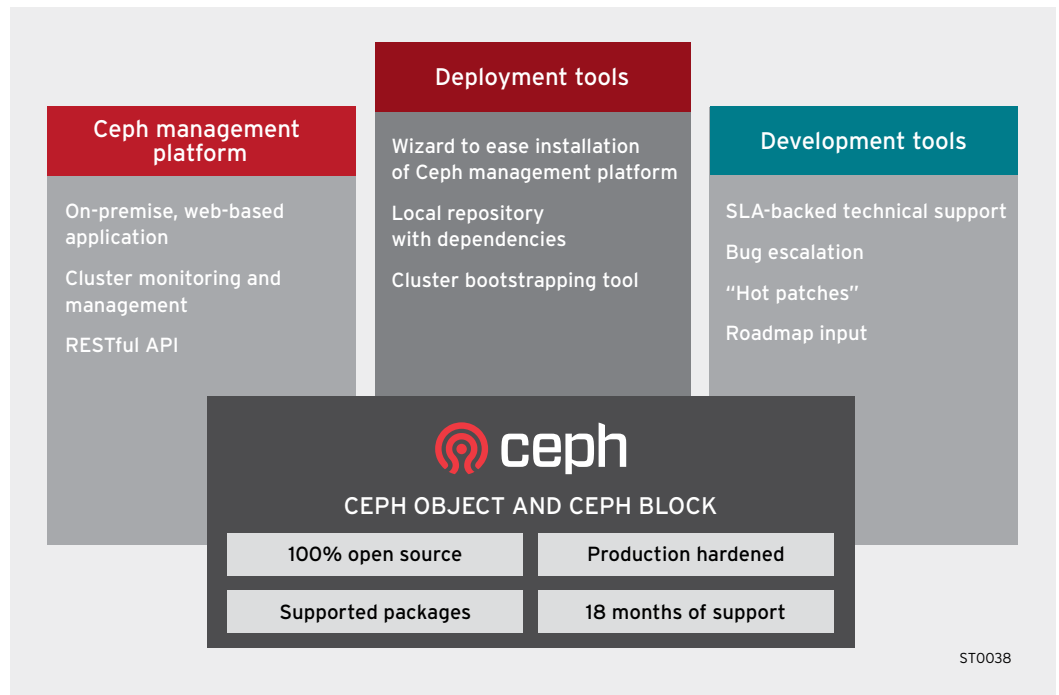# RED HAT CEPH STORAGE

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.

Deployment tools

Wizard to ease installation of Ceph management platform

Local repository with dependencies

Cluster bootstrapping tool

Ceph management platform

On-premise, web-based application

Cluster monitoring and management

RESTful API

Development tools

SLA-backed technical support

Bug escalation

"Hot patches"

Roadmap input

ceph

CEPH OBJECT AND CEPH BLOCK

| 100% open source | Production hardened |
| Supported packages | 18 months of support |

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Specifically, Red Hat Ceph Storage 1.3 consists of:

Ceph 0.80	• Ceph object and block storage
	• Object storage via Amazon S3/Swift or native API protocols
	• Block storage integrated with OpenStack, Linux®, and open hypervisors
	• Multisite and disaster recovery options
	• Flexible storage policies
	• Data durability via erasure coding or replication
	• Cache tiering for hot/cold data management
Ceph management platform	• Integrated on-premise management platform
	• Deployment tools
	• Graphical user interface with cluster visualization
	• Advanced Ceph monitoring and diagnostic information
	• Cluster and per node usage and performance statistics
Support services	• SLA-backed technical support
	• Hot-fix patch access
	• Roadmap prioritization input

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

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.

Designed for the cloud, Red Hat Ceph Storage significantly lowers the cost of storing enterprise data and helps manage 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 can focus on data availability.

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.

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	• Red Hat Enterprise Linux 6.5 or higher
	• Red Hat Enterprise Linux 7.0 or higher
	• Ubuntu 12.04
	• Ubuntu 14.04
	• CentOS 6.5
Cloud platforms	• Red Hat Enterprise Linux OpenStack Platform 4
	• Red Hat Enterprise Linux OpenStack Platform 5
	• Ubuntu OpenStack 12.04
	• Ubuntu OpenStack 14.04
Kernel module support	• Red Hat Enterprise Linux 7.1 or higher

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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