redhat.

RED HAT CEPH STORAGE
A massively scalable storage platform for the software-defined datacenter

DATASHEET

74% of IT decision makers are worried about their organization's ability to cope with an increasing volume of data, and **70%** believe that their current storage systems will not be able to handle next generation workloads.[1]

Inadequate storage infrastructure is considered fourth out of the top ten pain points that IT decision makers experience on a weekly basis. **98%** believe there are benefits in moving their organization to a more agile storage solution.[2]

OpenStack users consistently and overwhelmingly favor Ceph over storage alternatives.[3]

OVERVIEW

Red Hat® Ceph Storage is an open, cost-effective, software-defined storage solution that:

- Supports cloud infrastructure and web-scale object storage.

- Combines the most stable version of Ceph with a storage management console, deployment tools, and support services.

- Flexibly and automatically manages petabyte-scale data deployments so that the enterprise can focus on managing the business.

Specifically, Red Hat Ceph Storage 2 consists of:

Ceph 10.2 (Jewel)	• Object, block, and file storage
	• Object storage via Amazon S3/Swift or native application programming interface (API) protocols
	• Block storage integrated with OpenStack®, Linux®, and KVM hypervisor
	• Multisite and disaster recovery options
	• Flexible storage policies
	• Data durability via erasure coding or replication
Red Hat Storage Console 2	• Integrated on-premise management console
	• Ansible-based deployment tools
	• Graphical user interface (GUI) with cluster visualization
	• Advanced Ceph monitoring and diagnostic information
	• Cluster and per node usage and performance statistics
Support services	• Streamlined product and hot-fix patch access
	• Service level agreement (SLA)-backed technical support
	• Deployment resources and Red Hat subscription benefits
	• Numerous consulting, service, and training options from the company with the most Ceph experience in the industry

BENEFITS TO THE ENTERPRISE

Enterprises today struggle to manage the explosive growth of data while remaining agile and cost competitive. To manage petabytes of data at the speed required by today's business, enterprises are turning to cloud technology to store their data. As a self-healing, self-managing platform with no single point of failure, Red Hat Ceph Storage significantly lowers the cost of storing enterprise data in the cloud and helps enterprises manage their exponential data growth in an automated fashion.

OBJECT STORAGE

Red Hat Ceph Storage is a production-ready implementation of Ceph, the open source storage platform that manages data on a single distributed computer cluster and provides interfaces for object-, block-, and file-level storage. Red Hat Ceph Storage is ideal for object storage workloads because it is proven at web scale, flexible for demanding applications, and offers the data protection, reliability, and availability enterprises demand. It was designed from the ground up for web-scale object storage and cloud infrastructures. Industry-standard APIs allow seamless migration of, and integration with, your applications. It is accessible via Amazon S3, OpenStack Swift, or native API protocols. Unlike traditional storage, it is optimized for large installations—typically a petabyte or greater—and overcomes the shortcomings of traditional storage products based on file systems.

Red Hat Ceph Storage is based on Ceph from the open source community, with numerous options for award-winning support—both in person and online—and a concerted focus on overall user experience. These options continue throughout the life cycle, which includes a standardized and supported release schedule, upgrades, and deployment resources. Red Hat offers an immense Knowledgebase of materials, including reference architectures, performance and sizing guides, and technical briefs, all designed to help customers deploy Ceph with greater success. Users can also benefit from the security of various forms of technology certifications and quality assurance programs.

OPENSTACK AND CEPH

OpenStack is today's largest and fastest-growing open source cloud infrastructure project. Overwhelmingly preferred by OpenStack users, Ceph 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 serves as a single efficient platform to support all storage needs—block (persistent and ephemeral), object, and file—on standard servers and disks. It's tightly integrated with OpenStack services, including Nova, Cinder, Manila, Glance, Keystone, and Swift, and it offers user-driven storage life-cycle management with 100% API coverage.

RED HAT OPENSTACK PLATFORM INTEGRATION

Storage and high-performing cloud infrastructures rely significantly on the Linux environments beneath them. With Red Hat OpenStack Platform, users get all the enterprise benefits of Red Hat Enterprise Linux, the world's most trusted enterprise Linux operating system, along with a hardened and commercialized version of OpenStack. Every unique Red Hat OpenStack Platform account also receives, at no additional charge, 64TB of Red Hat Ceph Storage with their subscription—just enough for a small deployment.

RED HAT CEPH STORAGE FEATURES AND BENEFITS

EXABYTE SCALABILITY

- *Scale-out architecture*. Grow a cluster from one to thousands of nodes. Say goodbye to forklift upgrades and data migration projects.

- *Automatic rebalancing*. Benefit from a peer-to-peer architecture that seamlessly handles failures and ensures data distribution throughout the cluster.

- *Rolling software upgrades*. Upgrade clusters in phases with no or minimal downtime.

APIs

- *S3 and Swift*. Enjoy seamless cloud integration with protocols used by Amazon Web Services and the OpenStack Object Storage project.

- *RESTful*. Manage all cluster and object storage functions programmatically. Gain independence and speed by not having to manually provision storage.

SECURITY

- *Authentication and authorization*. Integrate with Active Directory, LDAP, and KeyStone v3.

- *Policies*. Limit access at the pool, user, bucket, or data level.

- *Encryption*. Implement cluster-level, at-rest encryption.

RELIABILITY AND AVAILABILITY

- *Striping, erasure coding, or replication across nodes*. Enjoy data durability, high availability, and high performance.

- *Dynamic block resizing*. Expand or shrink Ceph block devices with zero downtime.

- *Storage policies*. Configure placement of data to reflect SLAs, performance requirements, and failure domains using the CRUSH algorithm.

- *Snapshots*. Take snapshots of entire pool or individual block devices.

PERFORMANCE

- *Client-cluster data path*. Benefit from clients sharing their I/O model across the entire cluster.

- *Copy-on-write cloning*. Instantly provision tens or hundreds of virtual machine images.

- *In-memory client-side caching*. Enhance client I/O using a hypervisor cache.

- *Server-side journaling*. Accelerate the write performance of data by serializing writes.

MULTIDATACENTER SUPPORT AND DISASTER RECOVERY

- *Zones and region support*. Deploy the object storage topologies of Amazon Web Services S3.

- *Global clusters*. Create a global namespace for object users with read and write affinity to local clusters.

- *Disaster recovery*. Enable multisite replication for disaster recovery or archiving.

COST-EFFECTIVENESS

• *Commodity hardware*. Tailor the optimal price/performance mix of standard servers and disk to each workload.

• *Thin provisioning*. Create sparse block images to be able to over-provision the cluster.

• *Heterogeneity*. Avoid having to replace older hardware as newer nodes are added.

• *Erasure coding*. Enjoy the value of a cost-effective data durability option.

INTEGRATED MANAGEMENT WITH RED HAT STORAGE CONSOLE 2

• *Easy-to-use graphical interface*. Manage the entire storage cluster life cycle from the Red Hat Storage Console 2 GUI.

• *Ansible-based deployment tools*. Drive granular configuration options from command line interface (CLI) or GUI.

• *Monitoring and graphs*. Enable troubleshooting with statistics and information about every cluster component.

TECHNICAL SPECIFICATIONS

Red Hat Ceph Storage 2 is supported on:

Host operating systems	• Red Hat Enterprise Linux 7.2 and higher • Ubuntu 16.04
Hardware Requirements	• Minimum two core 64-bit x86 processors per host, minimum of 2GB of RAM per OSD process, 16GB RAM per monitor host
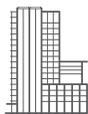
ABOUT RED HAT

Red Hat is the world's leading provider of open source software solutions, using a community-powered approach to provide 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.

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@redhatnews
linkedin.com/company/red-hat

NORTH AMERICA
1 888 REDHAT1

EUROPE, MIDDLE EAST, AND AFRICA
00800 7334 2835
europe@redhat.com

ASIA PACIFIC
+65 6490 4200
apac@redhat.com

LATIN AMERICA
+54 11 4329 7300
info-latam@redhat.com

redhat.com
INC0399312_0516