RED HAT GLUSTER STORAGE

Open, software-defined storage for physical, virtual, cloud, and container environments

DATASHEET

FEATURES

Container support
Persistent file-based storage from containerized Red Hat Gluster Storage can be used by containerized applications over the network.

Single global namespace
Aggregate disk and memory resources into a single trusted storage pool.

Object access to file storage
Filestore can be accessed using an object application programming interface (API).

Replication
Support synchronous replication within a datacenter and asynchronous replication for disaster recovery.

Erasure coding
Enhance data protection by using information stored in the system to reconstruct lost or corrupted data.

Bit-rot detection
Help preserve the integrity of data assets by detecting silent corruption.

DESCRIPTION

Red Hat® Gluster Storage is an open, software-defined scale-out storage platform to easily manage unstructured data for physical, virtual, cloud, and container-based environments. Red Hat Gluster Storage combines both file and object storage with a scale-out architecture, designed to cost-effectively store and manage petabyte-scale data growth.

Red Hat Gluster Storage delivers a continuous storage fabric across physical, virtual, and cloud resources so customers can transform their big, semistructured, and unstructured data from a burden to an asset.

Red Hat Gluster Storage is used for storing various kinds of unstructured data, including:

- Rich media content like videos, images, and audio files.
- Backup images and nearline archives.
- Big data—log files, radio frequency identification (RFID) data, and other machine-generated data.
- Virtual machine images.

Built on the industry-leading Red Hat Enterprise Linux® operating system, Red Hat Gluster Storage lets customers deploy cost-effective and highly available storage without compromising scale or performance. Red Hat Gluster Storage eliminates storage silos by allowing global access to data through multiple file and object protocols. It is also designed to work seamlessly with industry-standard x86 servers.

Red Hat Gluster Storage can easily be deployed on-premise, in public cloud infrastructures, in hybrid clouds, and container-based environments. It is optimized for storage-intensive enterprise workloads such as archiving and backup, rich media content delivery, enterprise drop-box, cloud and business applications, virtual and cloud infrastructure storage, as well as emerging workloads such as persistent storage for containerized applications and big data Hadoop workloads.

Today, enterprises are often faced with disparate storage silos, geographically dispersed among many datacenters around the globe. Red Hat Gluster Storage helps enterprises eliminate their silos and unify their data by provisioning and managing storage, regardless of whether it is on premise, virtualized, container application-based, or in a public cloud infrastructure.

Tiering
Automatically move data between fast (solid-state drive) and slow (hard disk drive) tiers based on access frequency.

Security
Support Security-Enhanced Linux (SELinux) enforcing mode with secure sockets layer (SSL)-based in-flight encryption.

Snapshots
Assure data protection through cluster-wide filesystem read-only and read-writable snapshots that are user accessible for easy recovery of files.

Elastic hashing algorithm
Eliminate performance bottlenecks and single points of failure with no metadata server layer.

Easy online management

- Web-based management console
- Powerful and intuitive command-line interface (CLI) for Linux admins
- Monitoring (Nagios-based)
- Expand and shrink storage capacity without downtime

A FOUNDATION FOR CONTAINER-NATIVE STORAGE

COMPREHENSIVE STORAGE FOR CLOUD-NATIVE APPLICATIONS

As container technology approaches mainstream adoption, system administrators will expect many enterprise features (such as persistent storage), that were available to them in virtualized environments. Given that ephemeral (or local) storage is not enough, stateful applications will require that application data be available beyond the life of the containers that house them.

Red Hat Gluster Storage offers two options for persisting data for applications running inside containers:

- The first option is to attach distributed software-defined storage as a network-attached storage cluster to the Red Hat OpenShift Container Platform cluster. This allows applications to persist data into an enterprise-grade storage repository that is also POSIX-compatible.
- The second option is to hyperconverge storage into specially assigned storage containers, allowing developers to manage and control storage more granularly than ever before, using OpenShift as a single control plane. In addition to lower cost through hyperconvergence, this option also has the advantage of freeing up datacenter operators from managing storage outside of containers.

IDEAL FOR PRIVATE, PUBLIC, AND HYBRID CLOUDS

AN OPEN, SOFTWARE-DEFINED, SCALE-OUT STORAGE PLATFORM THAT DEPLOYS ON INDUSTRY-STANDARD X86 HARDWARE IN MINUTES

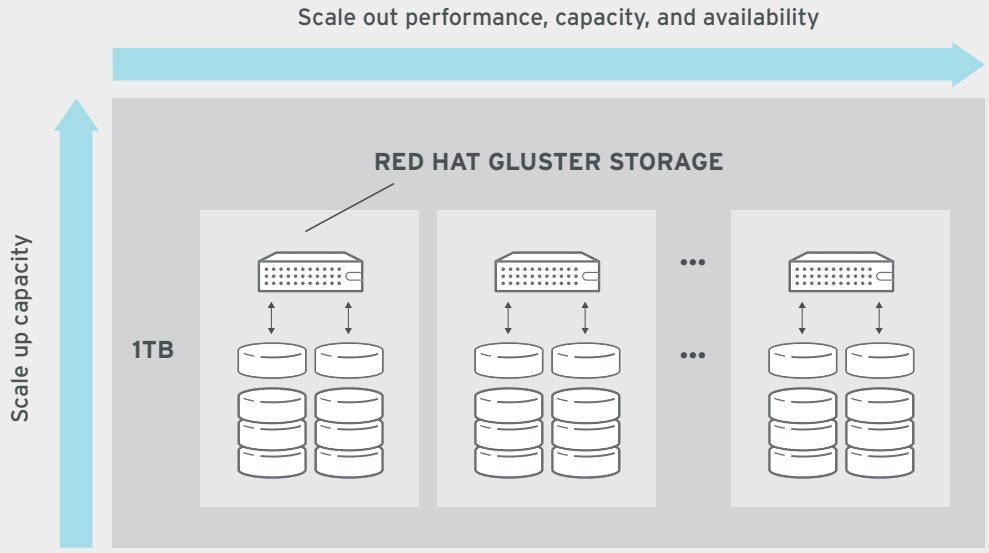

Figure 1. Use case for private cloud: Datacenter

Industry-standard client support

- Network file system (NFS), Server message block (SMB) protocols for file-based access
- NFSv4 multiheaded support for enhanced security and resilience
- OpenStack® Swift support for object access
- GlusterFS native client for highly parallel access

Integration with Red Hat OpenShift Container Platform

- Foundational element for container-native storage
- Container-native storage built with Red Hat Gluster Storage makes it easier to provision and manage persistent storage for containerized applications

Integration with Red Hat Virtualization

- Centralized visibility and unified management of storage and virtual infrastructures through Red Hat Virtualization manager console
- Foundational element of Red Hat Hyperconverged Infrastructure

SCALABILITY AND FLEXIBILITY WITHOUT DISRUPTION

Red Hat Gluster Storage is designed for unlimited scalability; storage can be added or removed while data continues to be available. Bit-rot detection helps ensure the integrity of that data. Additionally, the elastic, scale-out architecture of Red Hat Gluster Storage lets users seamlessly grow storage to meet the dynamic needs of virtual environments.

EASY TO DEPLOY

An International Standards Organization (ISO) image installs on a server or supported hypervisors (e.g., Red Hat Virtualization and VMware vSphere/ESXi) for quick deployment.

HIGH PERFORMANCE AT A LOWER COST

Red Hat Gluster Storage uses an elastic hashing algorithm to locate data in the storage pool (by calculating a hash on the file name), removing a common source of input/output (I/O) bottlenecks and vulnerability to failure. This, coupled with its large-capacity scalability, provides better performance at a lower cost. Also lowering costs is erasure coding, which reduces capacity requirements for archives and cold storage at a lower cost per gigabyte.

ELIMINATE COSTLY MONOLITHIC STORAGE

Enterprises can eliminate their dependence on costly, monolithic storage arrays that are difficult to scale. With Red Hat Gluster Storage, enterprises can easily deploy industry-standard hardware in minutes for scalable, high-performance storage in their datacenters or in hybrid cloud environments.

WITH MICROSOFT AZURE FOR PRIVATE CLOUD

Red Hat Gluster Storage offers Microsoft Azure users a scale-out, POSIX-compatible, massively scalable, elastic file storage solution with a global namespace. This brings existing users of Red Hat Gluster Storage another supported public cloud environment where they can they run their POSIX-compatible file storage workloads. Learn more about Red Hat and Microsoft's partnership.

Deep Hadoop integration

- Hadoop Distributed File System (HDFS)-compatible file system eliminates overhead of data movement
- No single point of failure
- NFS- and FUSE-based data use

Requirements

- Intel x86-64 Xeon CPU
- Minimum 16GB RAM
- Minimum 50GB disk for system software
- Minimum 1x 1GBE or 1x 10GBE NIC
- Up to 60 SAS or SATA disks per Red Hat Gluster Storage node for data
- Flash/battery-backed RAID controller that supports RAID-6 and RAID-1+0
- Includes all software to deploy on bare-metal physical and virtualized servers (e.g., Red Hat Virtualization or VMware vSphere/ESXi)

RED HAT GLUSTER STORAGE FOR PUBLIC CLOUD

A HIGHLY AVAILABLE, HIGH-PERFORMANCE STORAGE SOLUTION FOR AMAZON WEB SERVICES (AWS) AND GOOGLE CLOUD PLATFORM (GCP)

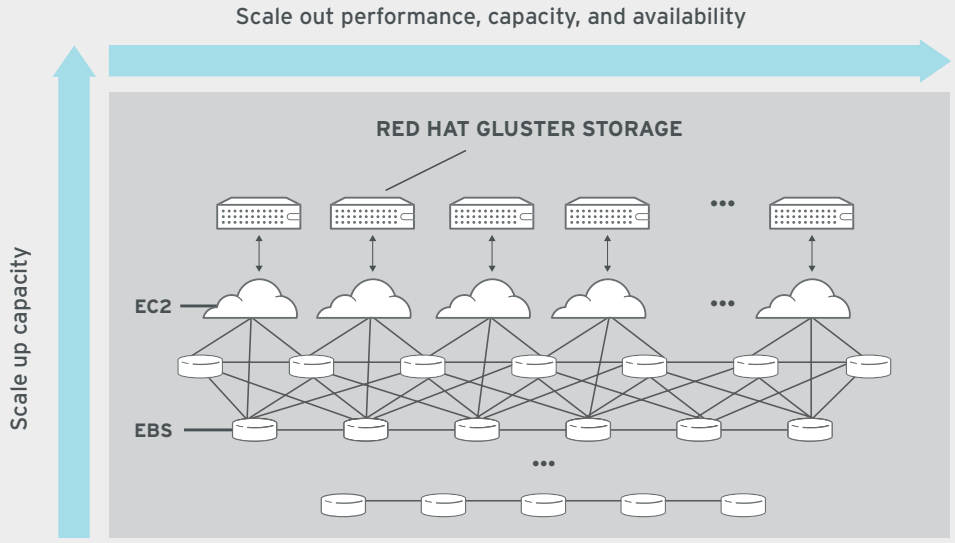

Figure 2. Use case for public cloud: Scale-out, network-attached storage (NAS) for Amazon Web Services

SINGLE GLOBAL NAMESPACE

AWS users can aggregate both Amazon Elastic Block Storage (EBS) and Amazon Elastic Compute Cloud (EC2) instances within AWS environments, creating a highly available, virtualized storage pool.

SUPERIOR AMAZON EC2 EXPERIENCE

Red Hat Gluster Storage for public cloud eliminates capacity limitations of a single device and levels out performance variations across the pool, so Amazon EC2 customers experience superior availability and performance.

HIGH AVAILABILITY

Red Hat Gluster Storage for public cloud provides synchronous replication and asynchronous geo-replication, so data is synchronously mirrored across availability zones and asynchronously across regions within AWS.

NO APPLICATION REWRITES

Migrate existing POSIX applications to the cloud without making modifications.

BENEFITS TO THE ENTERPRISE

As enterprises struggle with the explosive growth of unstructured data and the accelerating virtualization of computing environments, Red Hat Gluster Storage for public cloud provides an ideal solution for cloud storage. It simplifies the task of managing unstructured file data, whether users have a few terabytes of storage or multiple petabytes, without acquiring new hardware.

FOR HYBRID CLOUD

OPEN, SCALE-OUT STORAGE SOFTWARE FOR HYBRID CLOUD ENVIRONMENTS

Red Hat Gluster Storage for hybrid cloud brings enormous flexibility to enterprises considering deployment in both public and private clouds.

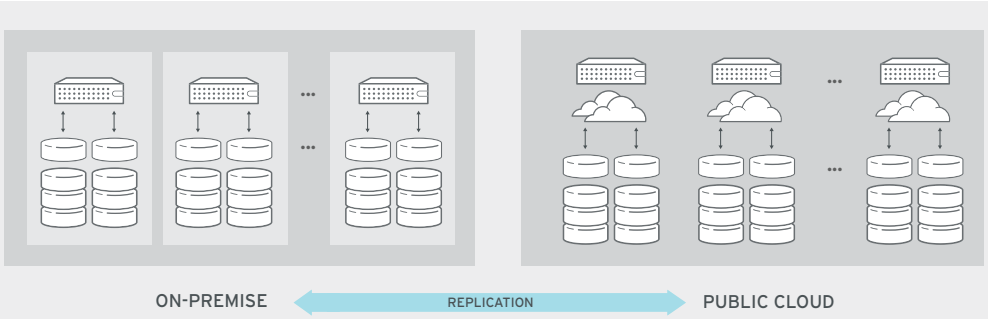

Figure 3. Use case for hybrid cloud deployment model

BUILT-IN REPLICATION FOR DATA PROTECTION

Red Hat Gluster Storage for hybrid cloud uses replication to provide high availability across the datacenter and public cloud. Synchronous file replication provides local data replication to support business continuity. Asynchronous replication provides long-distance data replication for disaster recovery.

EASY MIGRATION TO THE CLOUD

Red Hat Gluster Storage for hybrid cloud is POSIX-compatible, so there's no need to rewrite your applications when moving data or applications from your on-premise datacenter to the public cloud.

SIMPLE, COST-EFFECTIVE DATA ACCESS

With Red Hat Gluster Storage for hybrid cloud, files and objects can be created and extracted simultaneously by various application environments. Store as a file and instantly retrieve it as an object, and vice versa. This drastically reduces the cost for file and object storage and eliminates the need for separate storage silos. NFSv4 integration enhances data access with broad client support.

BENEFITS TO THE ENTERPRISE

More and more enterprises are embracing hybrid cloud environments, using external clouds to host noncritical IT services and internal clouds for business-critical applications. With Red Hat Gluster Storage for hybrid cloud, enterprises can easily extend their datacenters to the cloud and achieve increased flexibility, unified data accessibility, enhanced security, and simplified management—all while minimizing costs.

WITH GOOGLE CLOUD PLATFORM FOR HYBRID CLOUD

By deploying Red Hat Gluster Storage on-premise and in Google Cloud Platform, users can cohesively manage storage for data and applications—regardless of location—and easily migrate applications and workloads as they transition to the cloud. Unlike traditional, hardware-based storage, Red Hat Gluster Storage provides the compatibility and agility needed to quickly and easily adopt cloud technology by unifying storage across environments. Learn more about Red Hat and Google's partnership.

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.

facebook.com/redhatinc
@redhatnews
linkedin.com/company/red-hat

redhat.com
f9129_0917

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

The OpenStack® Word Mark and OpenStack Logo are either registered trademarks / service marks or trademarks / service marks of the OpenStack Foundation, in the United States and other countries and are used with the OpenStack Foundation's permission. We are not affiliated with, endorsed or sponsored by the OpenStack Foundation or the OpenStack community. Copyright © 2017 Red Hat, Inc. Red Hat, Red Hat Enterprise Linux, the Shadowman logo, and JBoss are trademarks or registered trademarks of Red Hat, Inc. or its subsidiaries in the United States and other countries. Linux® is the registered trademark of Linus Torvalds in the U.S. and other countries.