Red Hat Enterprise Linux Resilient Storage Add-On

Important notice:

Resilient Storage Add-On will be discontinued with Red Hat Enterprise Linux 10, but will continue to be supported with earlier versions of Red Hat Enterprise Linux (7, 8, 9) and throughout their respective maintenance support lifecycles.

Critical applications need reliable storage

Providing solid and reliable applications across the hybrid datacenter depends on a consistent and dependable operating system foundation. Resilient storage services are likewise essential, supporting application availability through access, robust data availability, and rapid recovery. Red Hat® Enterprise Linux® provides a consistent foundation for predictable, stable operations, and it can be augmented with high-availability and resilient storage add-ons that enhance availability.

The Red Hat Enterprise Linux Resilient Storage Add-On provides concurrent shared storage access to the members of a highly available cluster—either as a shared logical block device or a clustered file system. Each server in the cluster has direct access to a shared block device over a local storage area network (SAN) of up to 100 terabytes. The add-on includes:

- The Red Hat Global File System 2 (GFS2) to support concurrent access.
- A cluster-wide locking mechanism to arbitrate storage access.
- A Portable Operating System Interface (POSIX)-compliant file system across up to 16 nodes.
- Clustered Samba or Common Internet File System (CIFS) for Microsoft Windows environments.

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The Resilient Storage Add-On protects critical business data from software or system failures. It depends on the Red Hat Enterprise Linux High Availability Add-On to provide cluster management and automate application recovery. Both add-ons can be deployed on physical servers and in virtualized and cloud environments alike.

A stable and resilient cluster file system

As organizations modernize and scale application services, they need application availability and stability support at the file system layer. The Red Hat Global File System 2 is a 64-bit symmetric cluster file system that provides a shared namespace and manages coherency between multiple modes sharing a common block device. While the shared block device is usually a logical unit number (LUN) on a Fibre Channel or iSCSI SAN providing an appropriate RAID level, it can be any shared storage device that supports the appropriate coherency guarantees.

24x7 application and workload availability

With an emphasis on stability and reliability, GFS2[1] supports some of the most critical applications, including SAS, Tibco MQ, IBM Websphere MQ, Red Hat AMQ, and many others. In addition, web and file transfer protocol (FTP) servers have been successfully deployed on GFS2, as have many custom applications. Active/passive network file system (NFS) servers can also run on GFS2. The add-on includes CTDB, allowing deployment of active/active Samba (SMB) servers.

Highlights:

- Increase data storage reliability and availability across your IT environment.
- Deploy critical applications and workloads with access to clustered file system resources, rapid recovery, and uninterrupted application services.
- Deploy GFS2 for coherency between cluster nodes.

Rapid recovery

Organizations need to survive individual storage node failures, recovering quickly with no data loss. GFS2 provides a clustered file system with no single point of failure (SPOF). Hardware fencing allows the automatic reboot of failed or stuck nodes, bringing them back into the cluster. Journaling in GFS2 allows fast recovery while maintaining consistency when a node fails. Implementing dual-attached storage can provide additional redundancy in the storage network to protect against cable or switch failures.

More reliable virtual environments

Virtualized environments like Red Hat Virtualization and VMware must support high-availability functions, including virtual machine fencing and failover. The Resilient Storage Add-on works directly with the Red Hat Enterprise Linux kernel to increase reliability in virtualized environments. Virtualization is directly integrated using Kernel-based Virtual Machine (KVM) technology. Clusters can be created within virtual machines to permit application failover across Red Hat Virtualization nodes.

Performance monitoring

Organizations need to continuously monitor and analyze the performance of their applications and workloads to assure business continuity. Performance monitoring data from GFS2 works directly with Performance Co-Pilot (PCP). It is also integrated with the Red Hat Enterprise Linux management web-based interface, Cockpit.

About Red Hat

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