



SUSE Enterprise Storage

An intelligent software-defined storage management solution, powered by Ceph technology, that enables organizations to deliver a unified, highly scalable, resilient and enterprise-grade storage infrastructure that is able to seamlessly adapt to changing business and data demands.

Product Overview

SUSE Enterprise Storage enables IT teams to transform their enterprise storage infrastructure to deliver a unified and highly scalable storage solution that is cost-efficient and able to seamlessly adapt to changing business and data demands whether in your data center or in the cloud. As an intelligent software-defined storage solution, it delivers a self-healing and self-managed distributed storage cluster designed to scale from hundreds of terabytes to petabytes and beyond. Leveraging industry standard server and storage building blocks, you get the cost-efficient infrastructure you need with the unlimited scalability your business demands, with no vendor lock-in. Improve efficiency and automatically optimize operations with intelligent, self-healing, self-managing distributed storage enabling organizations to support more capacity per storage administrator and spend more time focused on delivering future innovations to the business.

Key Benefits

HIGHLY SCALABLE AND RESILIENT

SUSE Enterprise Storage delivers a single unified software-defined storage cluster that provides applications with object, block and file system storage. It is designed with no single points of failure to maximize

system resiliency and unlimited scalability from hundreds of terabytes to petabytes and beyond. As an enterprise-grade storage solution SUSE Enterprise Storage is the ideal solution for most storage use cases, and it provides all of the storage services expected of an enterprise-grade storage solution.

REDUCED IT COSTS

Traditional storage solutions are expensive to scale in capacity or performance. SUSE Enterprise Storage helps keep CAPEX costs down by leveraging industry standard, off-the-shelf hardware no matter where they are, in your data center or in the cloud. It helps reduce IT operational expense with a single tool for managing a storage cluster for your heterogeneous server environment. Also, SUSE Enterprise Storage helps optimize infrastructure without growing your IT staff by automatically rebalancing data placement without any manual intervention.

SEAMLESSLY ADAPT TO CHANGING DEMANDS

SUSE Enterprise Storage enables your IT teams to be highly responsive to emerging business and data needs with an intelligent solution that is self-managed and self-healing to optimize for system performance. It also enables you to easily provision and seamlessly deliver additional storage without disruption and provides

maximum flexibility by using off-the-shelf commodity hardware that you can re-purpose if business priorities change. This also means no need for forklift upgrades and because the solution is open source, you never have to worry about vendor lock-in.

Key Features

SUSE Enterprise Storage is built on the open source Ceph technology. Key features of the Ceph technology include:

- **Scalable:** *Designed as a distributed storage cluster to provide unlimited scalability from hundreds of terabytes to petabytes and beyond.*
- **Easy to manage:** *Self-healing and self-managed, that optimizes performance.*
- **Unified storage solution:** *Supports object, block and file storage within a single cluster.*
- **Enterprise-grade:** *Highly redundant and designed so there are no single points of failure, maximizing system resiliency and availability.*

Additionally, SUSE Enterprise Storage provides added industry-leading features including:

- *Enhanced manageability with the Ceph dashboard, event notification including SNMP traps and storage enclosure integration.*

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- Expanded availability and interoperability with CephFS snapshots, sync to external cloud using S3 interface and Elasticsearch sync module for RADOS gateway objects.
- Improved IT efficiency with QOS for Rados block device clients and background operation QOS.
- CPU recommendation
 - + 1x2 GHz CPU Thread per spinner
 - + 2x2 GHz CPU Thread per SSD
 - + 4x2 GHz CPU Thread per NVMe
- Separate 10 GbE networks (public/client and backend)
 - + Required 4x10 GbE, recommended 2x25 GbE
- OSD disks should be exclusively used by SUSE Enterprise Storage
- Dedicated disk/SSD for the operating system, preferably in a RAID 1 configuration
- Additional 4 GB of RAM if cache tiering is used

System Requirements

Minimum cluster configuration:

- Four Object Storage Nodes
 - + Ten GB Ethernet (four interfaces)
 - + Thirty-two OSDs per storage cluster
 - + Dedicated OS disk for each Object Storage Node
 - + Total RAM required = OSD count times (1 GB + OSD memory target [default 4 GB]) + 16 GB
 - + Ceph Monitors, gateway and Metadata Servers can reside on Object Storage Nodes if additional CPU & RAM requirements are accommodated
- Three Ceph Monitor nodes (requires SSD for dedicated OS drive)
- Object Gateways and Metadata Servers nodes require redundant deployment
- iSCSI Gateways, Object Gateways and Metadata Servers require minimum incremental 4 GB RAM and four cores
- Separate management node with 4 GB RAM, four cores and 1 TB HDD capacity

Minimum hardware requirements

Minimal recommendations per storage node:

- Total RAM required = OSD count times (1 GB + OSD memory target [default 4 GB]) + 16 GB

Minimal recommendations for monitor nodes:

- Three SUSE Enterprise Storage monitor nodes are required
- Two GB of RAM per monitor node, add 2 GB for a manager node running Ceph Dashboard
 - + Recommended 8 GB RAM per monitor with manager + OS
- SSD in a RAID 1 configuration
- Monitor nodes should be bare metal, not virtualized, for performance reasons
- Mixing OSDs or monitor nodes with the other workload is not supported
- Configurations may vary from and frequently exceed, these recommendations depending on individual sizing and performance needs
- Bonded network interfaces for redundancy