Software-Defined Storage Meets Cost-Effective Hardware

It's no exaggeration to say that today's businesses are having to manage massive amounts of data. The real question is, how do you balance the often-conflicting requirements of speed, scale and affordability? The answer is SUSE Enterprise Storage™ on price-friendly Lenovo hardware. The solution combines the power of Ceph, an open source software-defined storage system designed for scalability, reliability and performance—with advanced technical support, hardware certification, and an efficient licensing model that saves you time and money.

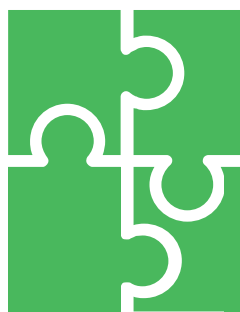### SUSE Enterprise Storage and Lenovo Hardware at a Glance:

The speed and reliability of disk-to-disk backup with an affordable blend of open source software and industry-standard hardware.

+ *Scale backup storage cost-effectively with Lenovo servers and SUSE's node-based subscription model.*
+ *Access data quickly and efficiently without the high costs or vendor lock-in of proprietary appliances and branded disk arrays.*
+ *Gain flexibility with SUSE's growing backup software ecosystem.*
+ *Get an enterprise-ready version of the software-defined storage solution Ceph.*

■ **Products:**
SUSE Enterprise Storage
Lenovo ThinkSystem SR550
Lenovo ThinkSystem SR530
Lenovo ThinkSystem SR630

With SUSE Enterprise Storage, you get a number of flexible blocks that allow easy scalability from terabytes to petabytes. Add in the flexibility of Lenovo servers plus additional storage enclosures and the ability to mix spinning, solid-state, and Non-Volatile Memory Express (NVMe) drives, and you have a solution uniquely tailored to your needs.

You also get the advantages of a highly scalable, resilient, self-healing and self-managing storage solution designed for massive-scale environments. Lenovo is number one in server reliability and customer satisfaction, and SUSE Enterprise Storage makes it easy to take advantage

of the hardware manufacturer's cost efficiencies and reliability—instead of having to get locked in with expensive proprietary hardware.

Even better, SUSE Enterprise Storage on Lenovo hardware is certified for use with commonly used backup and archive applications, including Veritas NetBackup, Commvault, Veeam, Micro Focus Data Protector and compliance solutions such as iTernity.

Open Source Software-Defined Storage Meets Today's Needs

Until recently, data backup and storage typically meant a large file server that saved data to an external storage device, such as magnetic tape or a hard drive. Cloud storage soon gained popularity

Block Storage

File Storage

Object Storage

when businesses began to realize the super-low upfront costs. But neither option seems ideal for today's storage and access needs because they can't satisfy modern demand for near real-time access to different kinds of data gathered from an ever-expanding number of sources. Traditional on-premises solutions are expensive to manage and don't scale easily. And cloud storage, while attractively priced on entry, can become cost-prohibitive really fast if you need that data at near real-time or need a lot of it at once.

Enter software-defined storage. SUSE Enterprise Storage is built on Ceph open source software-defined storage technology, which is today's best approach to backup and archiving. By separating the physical storage hardware from the data storage logic, or the control plane, you can eliminate the need for proprietary hardware and use more cost-effective hardware (such as Lenovo servers).

Vendor Lock-in   Flexibility

In addition to freeing yourself from hardware vendor lock-in, SUSE Enterprise Storage can handle any type of data you have. File share systems use file structure, client servers use block storage, and newer applications may use object storage. You can configure SUSE Enterprise Storage to work with all of these systems. Using Ceph technology, SUSE Enterprise Storage unifies block, object and file storage and manages it all as object storage behind the
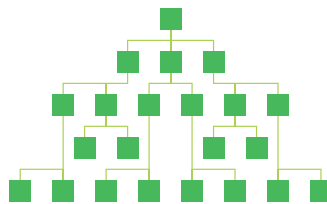
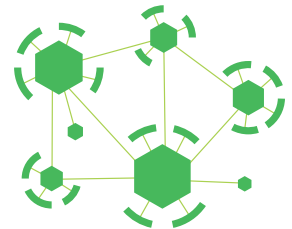scenes to take advantage of that method's speed and scalability.

To simplify the installation and configuration of a Ceph cluster, SUSE Enterprise Storage leverages Salt, along with Deep-Sea—a stack of components that help deploy and manage server infrastructure. It's fast, very scalable and relatively easy to get running.

All of this structuring is hidden, however, which means you have the flexibility to back up any and all of those types to one disk target. This allows your IT team to easily support the evolving storage requirements of your organization.
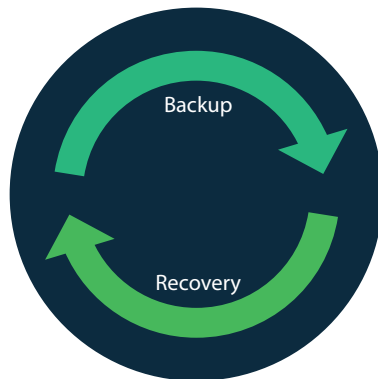

Seamlessly adapt to changing business and data

The SUSE Enterprise Storage solution is also self-healing and self-managing. That means it can automatically detect changing conditions and redistribute workloads if a node goes down. Built-in fault tolerance keeps the system working despite component failure and helps ensure that you don't lose any data.

Lower Cost of Ownership for Better Functionality

The foundation of the SUSE-Lenovo storage solution is industry-standard, cost-effective Lenovo servers, which cost much less than proprietary backup hardware. In addition to saving on hardware, the solution's node-based pricing model (as opposed to per-gigabyte models) makes it the lowest-priced option for enterprise disk-to-disk backup.[1] That means you don't pay more for saving more data.

The self-healing and self-managing nature of the solution can also save you time and money. With a lot of management tasks automated, a SUSE Enterprise Storage cluster allows a single person to manage

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1 *See exactly how SUSE Enterprise Storage stacked up against other options in IT Brand Pulse's 5 Year TCO Case Study at:* **www.suse.com/docrep/documents/ taz9nke6i8/5_year_tco_case_study.pdf**

3 to 4 PB of storage. That's more than six times what a person could manage in an equivalent block storage environment.
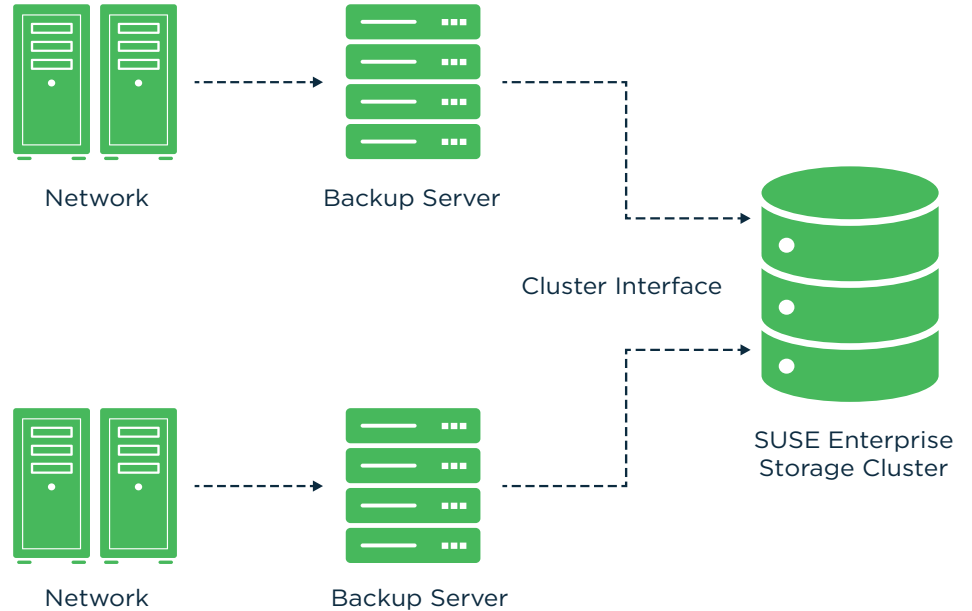
Traditional on-premises backup systems often required the use of a deduplication device to eliminate redundant data in a system. As software-defined storage, SUSE Enterprise Storage has that capability built in.

Network   **Backup Server**   Cluster Interface   **SUSE Enterprise Storage Cluster**

Network   **Backup Server**

Multiple backup servers can access the same cluster to increase throughput or optimize geographic constraints. Scaling up throughput can improve performance and eliminate bottlenecks.

Near-Linear Scaling Keeps Up with Your Growth

The flexible, clustered design of SUSE Enterprise Storage makes upgrades easy and cost-effective, and can scale quickly to massive proportions—making the solution a great choice for large data file applications such as data center backup, video archiving, disaster recovery, streaming media and backup data sets. Simply add more Lenovo hardware, and SUSE Enterprise Storage will automatically integrate the new hardware and redistribute workloads as necessary.

This near-linear scalability makes it easy to increase throughput (terabytes per hour). By adding server capacity to the cluster, you boost performance and reduce bottlenecks. And because the cluster includes simple and familiar interfaces, your IT team can concentrate on configuring and managing the backup process without having to know or oversee all the details of the solution's architecture.

Components of the Solution

SUSE Enterprise Storage runs as an extension on SUSE® Linux Enterprise Server, a secure, open source server operating system that helps you accelerate innovation, improve system reliability, comply with evolving security requirements and adopt new technologies. The overall solution combines the power and flexibility of Ceph technology with enterprise-grade hardware certification and end-to-end technical support. When you run it on Lenovo servers, you get cost-effective hardware from a provider that is number one in server reliability and customer satisfaction.

"SUSE Enterprise Storage stood out from all of the other vendors we considered and offered everything that we needed. As a software-defined storage solution, it enabled us to achieve the performance and availability we needed without requiring us to make large ongoing investments in specialized storage hardware."

HOWARD SAMM
Head of Infrastructure for Business Intelligence Experian

> "As SUSE Enterprise Storage is self-healing, if one component fails, another will take over automatically. This means that we only lose capacity, not performance, which helps us maintain very high levels of availability and ensure that end users can reliably access the information and applications they need."

MARC HERRUER
Founder and CEO
Phact

www.suse.com

Benefits of SUSE Enterprise Storage

- *Fast setup and deployment, usually requiring less than 2 hours' configuration time after hardware is unpacked and ready*
- *Adaptability to the evolving storage needs of the business*
- *Largely automated to save IT administrators time and effort*
- *Faster time to recovery in the event of disasters and unplanned downtime*
- *Ultimate scalability to handle massive data sets and virtually unlimited growth potential*

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Learn More

Learn more about how SUSE Enterprise Storage[2] and Lenovo hardware[3] can save your business time and money.

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2 **www.suse.com/products/suse-enterprise-storage/**
3 **https://www3.lenovo.com/us/en/data-center/servers/c/servers**

Contact your local SUSE Solutions Provider, or call SUSE at:

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