

Lenovo Object Storage powered by Clouidian

Solution Brief

Accommodate your most capacity-intensive workloads with Lenovo Object Storage powered by Clouidian software-defined storage. Get the scalable, S3-compatible storage you need for use cases such as big data, media archives, healthcare records, and video surveillance. Available with ready-node configurations, Lenovo Object Storage provides intuitive management tools and built-in data protection that make it easy to manage and grow.

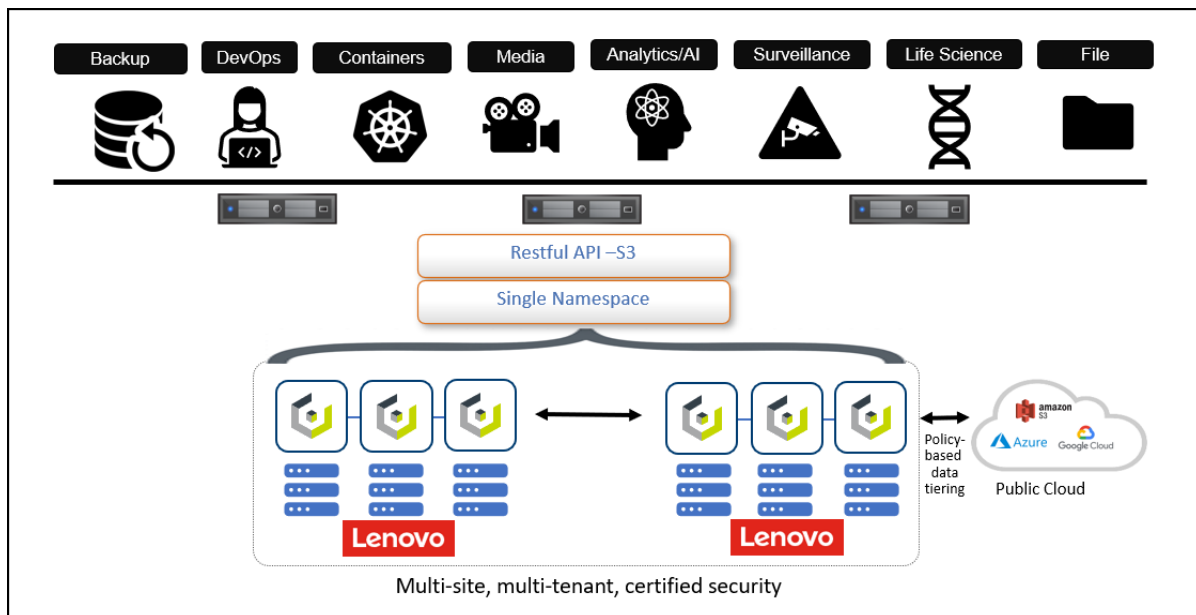


Figure 1. Scalable storage for hundreds of workloads. Lenovo Object Storage powered by Clouidian

Features

Lenovo Object Storage powered by Clouidian has the following features:

- **S3-Compatible and Hybrid/Multi-Cloud Ready**

Clouidian’s native S3 API implementation offers the industry’s highest level of S3 interoperability, letting you capitalize on the rapidly growing ecosystem of S3-enabled applications. It’s also compatible with public cloud platforms including AWS, Google, and Microsoft. Integrated data management tools make it easy to integrate your on prem and cloud storage environments.

- **Uncompromising Data Durability**

Get up to 14 nines data durability and configurable data protection. Only Lenovo Object Storage offers granular management that lets you customize data protection for various data types within a cluster. Select from multiple levels of data replication and erasure coding.

- Object Lock for Immutable**
 Data Object Lock prevents object version deletion during a user-defined retention period. Immutable S3 objects are protected using object- or bucket-level configuration of WORM and retention attributes. The retention policy is defined using the S3 API or bucket-level defaults. Objects are locked for the duration of the retention period, and legal hold scenarios are also supported. This functionality provides data protection from accidental or malicious deletion as well as ransomware. Regulatory compliance with SEC Rule 17a-4(f), FINRA Rule 4511, CFTC Regulation 1.31 is validated in an independent assessment.
- Integrated Multi-Site Capability**
 Extend your storage with the industry's most flexible geo-distribution architecture. Replicate data across regions to provide local access and resilience in the event of a data center failure. Configurable consistency levels let you select either synchronous or asynchronous replication. Or employ distributed erasure coding to stripe data across sites as a highly efficient disaster recovery option.
- Scalable Performance**
 Process multiple requests in parallel, across all nodes in Lenovo Object Storage's shared-nothing cluster. This eliminates bottlenecks and allows performance to grow as you add nodes. For large file transfers, multi-part upload lets you transfer files seamlessly between sites or to the public cloud.
- Security**
 Lenovo Object Storage supports KMIP standardized key management as a Server-Side Encryption (SSE) option. SSE supports AES-256 and FIPS-validated crypto-graphic modules, allowing enterprises and service providers to easily and securely encrypt data stored at rest. SSL encryption ensures data confidentiality for data in transit (HTTPS). And with S3-compatible ACLs, SAML, MFA, IAM, and secure trust policies, system administrators can better manage access to buckets and objects.
- Hybrid Storage Policies**
 Objects are automatically assigned the most appropriate storage policy associated with the bucket; where smaller-size objects utilize a replica factor (RF) policy for optimal performance and larger objects utilize an erasure coding (EC) policy for best capacity efficiency.
- Multi-Tenancy**
 Establish multiple user spaces with Lenovo Object Storage's multi-tenancy capabilities. Provide individual management domains and namespaces within a shared cluster. Cloudian offers QoS controls and billing features that let you manage bandwidth and chargebacks.
- Intuitive Management**
 Manage Cloudian via the intuitive GUI or automate tasks using the RESTful API. Cluster management tasks are simple as well. Add or remove nodes and update system software without disruption.
- Variable-size Metadata Tags**
 Record metadata along with user data to facilitate data management and data search. Elastic Search integration provides near real-time search capability. Variable metadata tag sizes give you flexibility not found in other object storage systems.

Use Cases

Data Protection / Ransomware Protection

Lenovo Object Storage powered by Cloudian, makes the perfect storage target for popular data protection applications like Veeam, Commvault, Rubrik, Vertias and any others that support the S3 API. It lets you retain a familiar workflow while ensuring a predictable backup window, and low RTO / RPO. The solution has the industry best implementation of S3-object lock for tamperproof data immutability, protecting customers data against the threat of Ransomware. Customers get a robust Data Protection solution with scalable storage, high data durability and fast recovery times at 70% of the cost of traditional storage solutions.

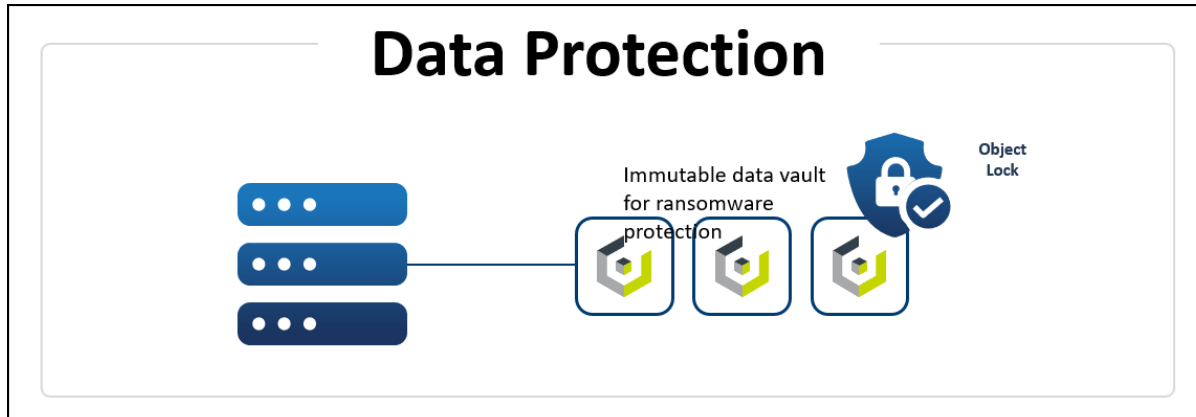


Figure 2. Data Protection

Data Lakehouse and Analytics

Lenovo Object Storage powered by Cloudian, is validated and certified with leading data analytics platforms, including Greenplum, Teradata, Vertica, Apache Druid, Microsoft SQL Server 2022, Dremio, Splunk, Elastic, and Cribl, amongst others. The solution allows customers to 'Cloudify' their analytics architecture, giving them the flexibility, elasticity and scalability of the cloud infrastructure while allowing for separation of compute and storage scalability to modernize data analytics architectures on-premises. With a robust Data LakeHouse solution within the security of your own firewall, customers can create data analytics solutions that comply with data privacy, residency and/or sovereignty regulations, all at a fraction of the total cost compared to traditional storage solutions.

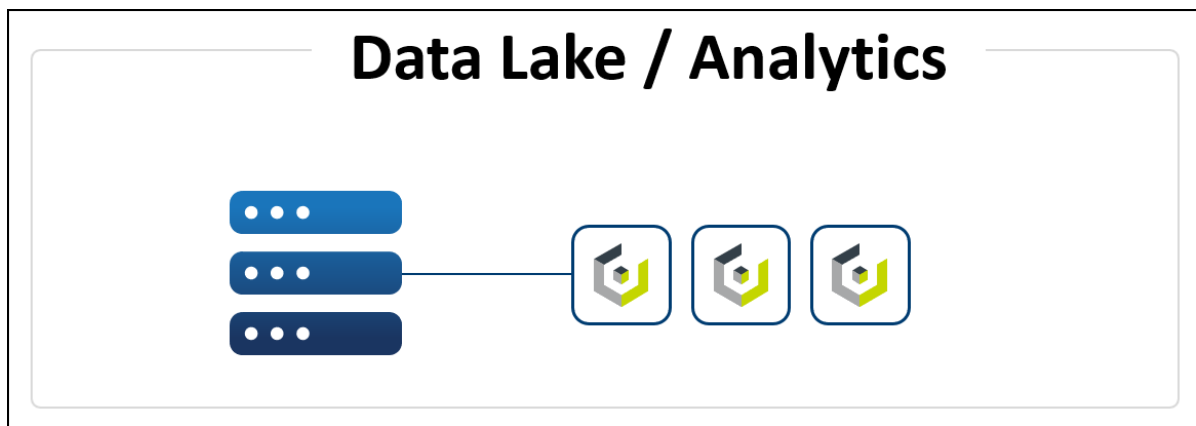


Figure 3. Data Lake Analytics

Healthcare

Designed to meet the need for large, secure, highly resilient and flexible storage infrastructure at a low cost, Lenovo Object Storage Powered by Cloudian comes HIPAA ready. It integrates with a host of healthcare application vendors as well as vendor neutral archive solutions and acts as a central storage repository for all health care data. The solution allows healthcare IT to consolidate storage, viewing and management of all content and medical images, assuring that clinical staff enjoys real-time access to a more complete view of the patient from anywhere and at any time.

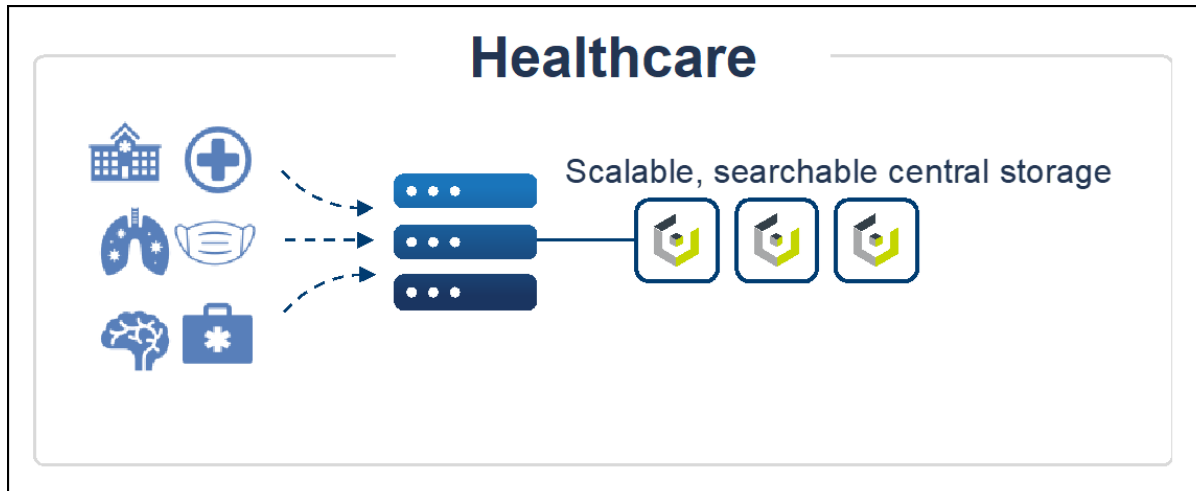


Figure 4. Healthcare

Service Providers

Lenovo Object Storage powered by Cloudian, comes ready with industry leading multi-tenancy, QoS, Billing, Quotas and Role-Based Access Controls (RBAC), making it an ideal solution for service providers of all sizes. Revenue-ready use cases for service providers range from Storage as a Service (STaaS), Backup as a Service (BUaaS), Ransomware Protection as a Service (RPaaS), DR as a Service (DRaaS), MS O365 Backup as a Service amongst others. Scalability goes from one to thousands of nodes to support 100s of petabytes (PBs), with flexibility on storage access via the Amazon S3 Restful API.

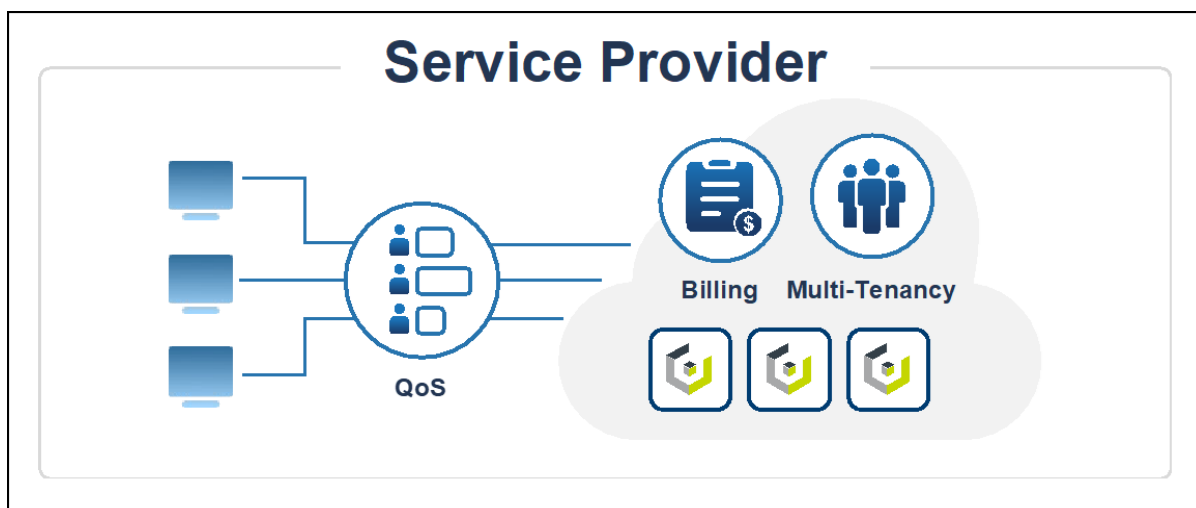


Figure 5. Service Provider

Minimum configuration

When sizing and configuring hardware systems for a VM or appliance-based Lenovo Object Storage powered by Cloudian, it is part of best practices (and a requirement) to engage in a sizing exercise to assess the workflow and workload and determine what resources between the minimum and recommended values (or even above them) may be required. As a guideline, below are some of the recommended and minimum supported configurations for a VM or Appliance based Lenovo Object Storage powered by Cloudian.

Table 1. Minimum supported configurations for a VM or Appliance

Component	Appliance		Recommended VM Spec		Minimum VM Spec*	
	Description	Qty	Description	Qty	Description	Qty
Processors	Intel Xeon 5218R	2	20 Core CPU	2	8 Core CPU	2
RAM	32 GB (128 GB)	4	128 GB	1	128 GB	1
Flash Metadata Tier	NVMe Storage 1920 GB	2	SSD/NVMe Storage 1920 GB	2	SSD Storage 960 GB	2
HDD Capacity Tier	7200 RPM SAS HDD - Up to 14 TB per disk**	12	7200 RPM SAS HDD - Up to 14 TB per disk**	4 to 12	7200 RPM SAS HDD - Up to 14 TB per disk**	4 to 12
Networking	10/25 GbE	2	10 GbE	2	10 GbE	2

* Minimum VM specs are for Lab/Dev/Test environment and not for production deployment

** Up to 16 TB/disk for larger 4U appliances is supported

ThinkSystem Ready Nodes for Cloudian

To make it easier, Lenovo and Cloudian have certified the following systems as Ready Nodes for the Lenovo Object Storage powered by Cloudian.

The following two Ready Nodes and attributes are as follows:

- [SR650 V2 Ready Node](#)
- [SR630 V2 Ready Node](#)

SR650 V2 Ready Node



Figure 6. SR650 V2 Ready Node powered by Cloudian

The following are the attributes of SR650 V2 Ready Node:

- 2U rack server
 - Intel Xeon Gold 5318Y 24C 165W 2.1GHz
 - Memory: 256GB minimum, 384GB recommended
- Networking
 - ThinkSystem Broadcom 57414 dual-port 25G, SFP28, PCIe4 x8
 - ThinkSystem Broadcom 57508 dual-port 100G, QSFP28, PCIe4 x16
 - Mellanox ConnectX-6 25Gb, SFP28
 - Mellanox ConnectX-6 100Gb QSFP28, PCIe4 x16
 - 10GBaseT options
- 2x 3.84TB NVMe / 2x 7.68TB NVMe
- Capacity:
 - 18x 18TB HDD; 324TB raw
 - 18x 20TB HDD; 360TB raw
 - 18x 22TB HDD; 396TB raw
- **Best for:**
 - HDD, mid-level capacity and performance workflows
 - Backup / Archives
 - Video surveillance
 - Media repository
 - Data lake

SR630 V2 Ready Node

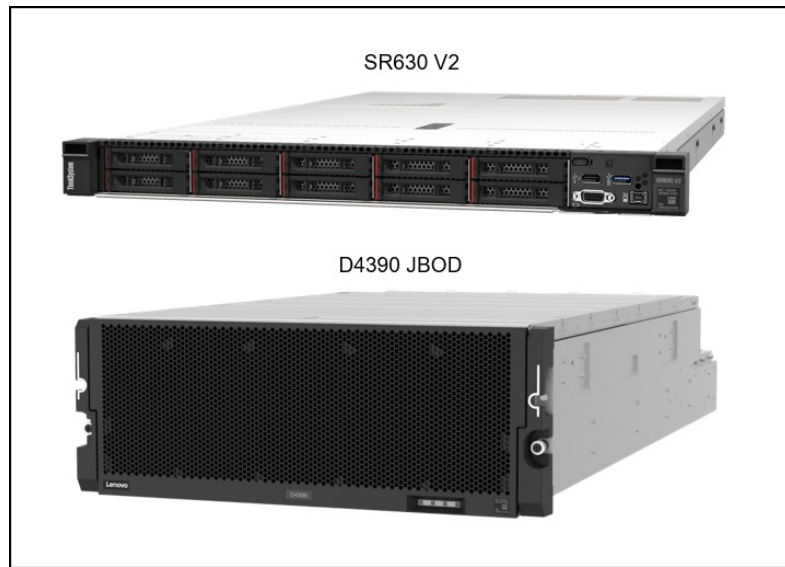


Figure 7. SR630 V2 Ready Node powered by Cloudian

The following are the attributes of SR630 V2 Ready Node:

- 1U rack server
 - Intel Xeon Gold 5318Y 24C 165W 2.1GHz
 - Memory: 384GB minimum; with 45 drives per zone
- Networking
 - Mellanox MCX512A-ADAT dual-port 25G, PCIe4 x8
 - Mellanox MCX516A-CDAT dual-port 100G, PCIe4 x16
 - 10GBaseT options 2x 3.84TB NVMe / 2x 7.68TB NVMe
- D4390 (JBOD) – 4U
- Capacity:
 - 90x 18TB HDD; 1.62PB raw/enclosure; up to 8.1PB raw
 - 90x 20TB HDD; 1.8PB raw/enclosure; up to 9PB raw
 - 90x 22TB HDD; 1.98PB raw/enclosure; up to 9.9PB raw
- **Best for:**
 - HDD, Dense-capacity centric workflows
 - Archive
 - Disaster recovery
 - Low cost Data lake

[Click here](#) to find the pre-configured, optimized server platforms for Lenovo's Object Storage powered by Cloudian. These provides flexible building blocks for unlimited growth ideal for large scale object workloads like backup, archive, and data lakes. It features Lenovo industry-leading reliability, XClarity management and end-to-end ThinkShield security.

Summary

Lenovo Object Storage powered by Cloudian makes it easy to build fully featured, Amazon S3-compliant cloud storage, on-premises. Available as either Software Defined Storage on the [DCSC](#), or as [Ready Node appliances](#). Either way, Lenovo Object Storage powered by Cloudian ensures unlimited scale, multi-datacenter storage, fully automated data tiering, and support for all S3 applications—all behind your firewall. It combines robust availability with system management control, monitoring capabilities and reporting.

A host of features, including hybrid cloud streaming, virtual nodes, configurable erasure coding, and data compression and encryption sets it apart with highly efficient storage and seamless data management that lets users store and access their data where they want it, when they want it.

Built on a robust object storage platform for effortless data sharing, cloud service providers around the world use Lenovo Object Storage to deploy and manage storage for both public and private clouds, while enterprises rely on it to store their backups, media and entertainment data, medical images and for 24-hour video surveillance data both in their private and hybrid clouds.

For more information

To learn more about Lenovo Object Storage Powered by Cloudian solutions, please visit our [Data Management solutions](#) web page. More details on the Cloudian Object Storage can be found at [cloudian.com](#). You can also contact your Lenovo sales representative or authorized channel partner starting with an email to lenovo@cloudian.com

Related product families

Product families related to this document are the following:

- [Software-Defined Storage](#)
- [ThinkSystem SD630 V2 Server](#)
- [ThinkSystem SR630 V3 Server](#)
- [ThinkSystem SR650 V2 Server](#)
- [ThinkSystem SR650 V3 Server](#)

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