

# Cloudian HyperStore & HyperStore Flash

Consolidate your unstructured data—both objects and files—to a single, limitlessly scalable storage pool with Cloudian® HyperStore® and HyperStore Flash. Available as either standalone software or fully integrated appliances, HyperStore enterprise object storage provides unlimited capacity scalability, intuitive management tools, uncompromising data protection and the industry’s most compatible S3 API implementation—all at 70% less cost than traditional disk-based storage systems.

## Start Small and Grow

Start small with initial deployments of just a few HyperStore nodes. As demand grows, expand capacity non-disruptively by adding nodes to your cluster. Unlike some systems that require all nodes to be identical, HyperStore lets you add nodes of any size. Flexibly grow from terabytes to petabytes with no down time.

## Works with Your Applications

Only HyperStore offers a 100% native S3 API for objects, plus SMB/NFS for files. Proven in over six years of deployments, HyperStore’s S3 API offers guaranteed compatibility with your S3-enabled applications. For files, select the optional SMB/NFS interface. Deploy with your applications, or leverage our growing partner ecosystem.

## Save 70% vs Conventional Storage

At costs down to ½ cent per GB per month, HyperStore’s efficient architecture and industry-standard components save you 70% on CAPEX. Massive scalability and lights-out management result in 95% less overhead. And you’ll save on rack space: up to 1.62PB in just 4U height.

## Uncompromising Data Durability

Get up to 14 nines data durability and configurable data protection. Only HyperStore lets you customize data protection for various data types within a cluster. Select from multiple levels of data replication and erasure coding.

## Integrated Disaster Recovery

Implement DR using HyperStore’s integrated tools. Deploy across multiple data centers or regions to provide redundancy and resilience in the event of a data center failure. Configurable consistency levels let you select either synchronous or asynchronous replication.

## Scalable Performance

Processes multiple requests in parallel, across all nodes in HyperStore’s sharednothing 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.

## Multi-Tenancy

Establish multiple user spaces with HyperStore’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 webbased 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.

## Features and Benefits

- Choose from HDD or all-flash versions
- Limitlessly scalable capacity
- Start with just three nodes and grow
- Non-disruptive capacity expansion
- 100% native S3 API for guaranteed compatibility
- Replication and erasure coding
- Bucket-level granularity for all storage policies
- Encryption for secure data storage
- Comprehensive multi-tenant services
- Quality of Service (QoS) controls
- Integrated billing, management, and software
- Geographically distributed replication

## Use Cases

- Backup and disaster recovery
- File consolidation
- Media active archive
- Collaboration
- File lifecycle management
- AI / Machine Learning
- Storage-as-a-Service (STaaS)
- Data analytics

## Public Cloud Integration

Cloudian offers integration with all major public cloud services: Amazon AWS, Google GCP, and Microsoft Azure Blob Storage. Use policy-based tiering to either migrate or replicate data from the Cloudian cluster. View both public cloud data and local data on a single screen. Bimodal access lets public cloud-based applications directly access cloud-resident data.

## 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.

## Unified File and Object Support

Proven in over nine years of deployments, HyperStore's native S3 API implementation eliminates gateways or access layers to give you guaranteed compatibility with your S3-enabled applications. Cloudian HyperStore File Services provides an optional SMB/NFS interface. With the unified file and object access and management from within the Cloudian Management Console (CMC), customers can quickly deploy and manage a cost-effective, cache accelerated and unified file and object solution.

## Security

HyperStore 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.

## 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.

## Software or Appliance: Your Choice

Available as either software or a fully-integrated appliance, Cloudian HyperStore lets you choose the deployment model that meets your business needs. Software can be deployed on either industry-standard servers or virtual machines.

## HyperStore 1600

HyperStore 1600 Specifications	
<b>Form Factor</b>	1U rack mount chassis
<b>Metadata Drives</b>	2x U.2 7mm NVMe Flash
<b>Metadata Drive Sizes</b>	1.92TB, 3.84TB, 7.68TB options
<b>Data Drives</b>	12x 3.5" SAS HDD (7200 RPM)
<b>Data Drive Sizes</b>	10TB, 12TB, 14TB, 16TB, 18TB
<b>Storage Capacity Raw</b>	120TB, 144TB, 168TB, 192TB, 216TB
<b>Data Protection</b>	Replication and Erasure coding via storage policies
<b>Redundancy</b>	Hot swappable disk drives 2x hot swappable power supplies No single point of failure Non-disruptive online software upgrades
<b>CPU</b>	2x Intel Xeon Gold 5218R 2.1G 27.5M Cache, 20C/40T
<b>Memory</b>	128GB
<b>Monitoring/Management</b>	CLI, GUI, API, IPMI
<b>Cooling</b>	2 system fan modules (total of 6 fans)
<b>Network Interfaces<sup>1,2</sup></b>	10GBaseT (RJ45), 10/25GbE SFP28, 40/100GbE QSFP28
<b>Power Supply<sup>2</sup></b>	1+1 redundancy Option 1: 700W, 100-127/200-240Vac, 50-60Hz, 9.5A/5A or 240Vdc, 5.5A Option 2: 800W, 100-127/200-240Vac, 50-60Hz, 7.5A/3.5A
<b>Thermal Rating (max)<sup>2</sup></b>	Option 1: 2388.4 BTU/hr Option 2: 2730 BTU/hr
<b>Dimensions (WxHxD)<sup>2</sup></b>	Option 1: 17.6" x 1.7" x 35.07" / 448mm x 43.2mm x 890.85mm Option 2: 17.6" x 1.7" x 37.4" / 448mm x 43.2mm x 950mm
<b>Weight<sup>2</sup></b>	Option 1: 66.14 lbs (30 kg max) Option 2: 65 lbs (29.5 kg max)
<b>IO Ports/Connectivity</b>	1x GbE RJ45 LAN Port (Dedicated IPMI Management port) 2x USB 3.0 ports 1x VGA port 1x Micro-USB (serial header port)
<b>Operating Environment</b>	Operating Temperature: 5°C to 35°C (41°F ~ 95°F) Non-operating Temperature: -40°C to 70°C (-40°F to 158°F) Operating Relative Humidity: 20% to 85% RH (non-condensing) Non-operating Relative Humidity: 10% to 95% RH (non-condensing)

1. SFP transceivers and network cabling not included and must be supplied by the customer.  
2. Alternate server models may be substituted with similar specs if supply chain challenges are experienced.

### HyperStore Appliances

HyperStore appliances are built for simplicity, density and cost effectiveness. Each model is fully integrated with Clouidian HyperStore software. Appliances are available with end-to-end support packages, including options for on-site support.



### HyperStore 1600 Appliance

HyperStore appliances are built for simplicity, density and cost effectiveness. Each model is fully integrated with Clouidian HyperStore software. Appliances are available with end-to-end support packages, including options for on-site support.

- Ultra-dense 1U platform
- 12x hot-swappable 3.5" disk drives
- Up to 4x hot swappable 2.5" 7mm NVMe drives (including 2x drives for metadata)
- 10GBaseT (RJ45), 10/25GbE, and 40/100GbE networking options

# HyperStore 4200

HyperStore 4200 Specifications	
<b>Form Factor</b>	2 nodes in a 4U rack mount chassis
<b>Metadata Drives</b>	4x U.2 7mm NVMe Flash (2x per node)
<b>Metadata Drive Sizes</b>	1.92TB, 3.84TB, 7.68TB options
<b>Data Drives</b>	60x 3.5" SAS HDD (30x per node, 7200 RPM)
<b>Data Drive Sizes</b>	12TB, 14TB, 16TB, 18TB
<b>Storage Capacity Raw</b>	720TB, 840TB, 960TB, 1080TB
<b>Data Protection</b>	Replication and Erasure coding via storage policies
<b>Redundancy</b>	Hot swappable disk drives 4x hot swappable power supplies No single point of failure Non-disruptive online software upgrades
<b>CPU</b>	4x Intel Xeon Gold 5218R 2.1G 27.5M Cache, 20C/40T (2x per node)
<b>Memory</b>	512GB (256GB per node)
<b>Monitoring/Management</b>	CLI, GUI, API, IPMI
<b>Cooling</b>	6x 10cm counter rotating rotor fan modules
<b>Network Interfaces*</b>	up to 4x dual port NIC (2x per node), dual port 10GBase-T RJ45, 10/25GbE, and 40/100GbE NIC options
<b>Power Supply</b>	2x 2600W Platinum, 1+1 redundancy 100-120/200-240Vac, 50/60Hz, 14/8A
<b>Thermal Rating (max)</b>	8871.6 BTU/hr (2600W)
<b>Dimensions (WxHxD)</b>	17.68" x 6.96" x 34.1" / 449mm x 177mm x 866.14mm
<b>Weight</b>	118 lbs (53.5kg) chassis without drives 215 lbs (97.52kg max) fully populated with drives
<b>IO Ports/Connectivity</b>	1x GbE RJ45 LAN Port (Dedicated IPMI 2.0 Management port) 2x USB 3.0 ports; 1x VGA port; 1x RS232 (serial header port)
<b>Operating Environment</b>	Operating Temperature: 10°C to 35°C (50°F to ~ 95°F) Non-operating Temperature: -40°C to 60°C (-40°F to 140°F) Operating Relative Humidity: 8% to 90% RH (non-condensing) Non-operating Relative Humidity: 5% to 95% RH (non-condensing)

\*SFP transceivers and network cabling not included and must be supplied by the customer.

## HyperStore 4200 Appliance

- Ultra-dense 4U platform
- 2 nodes in 1 chassis
- 60x hot-swappable 3.5" disk drives (30 drives per node)
- 4x hot swappable 2.5" 7mm NVMe drives (2x drives per node for metadata)
- 10GBaseT (RJ45), 10/25GbE, and 40/100GbE networking options



## HyperStore 4400

HyperStore 4400 Specifications	
<b>Form Factor</b>	2 nodes in a 4U rack mount chassis
<b>Metadata Drives</b>	4x U.2 7mm NVMe Flash (2x per node)
<b>Metadata Drive Sizes</b>	1.92TB, 3.84TB, 7.68TB options
<b>Data Drives</b>	90x 3.5" SAS HDD (45x per node, 7200 RPM)
<b>Data Drive Sizes</b>	18TB
<b>Storage Capacity Raw</b>	1620TB
<b>Data Protection</b>	Replication and Erasure coding via storage policies
<b>Redundancy</b>	Hot swappable disk drives 4x hot swappable power supplies No single point of failure Non-disruptive online software upgrades
<b>CPU</b>	4x Intel Xeon Gold 5218R 2.1G 27.5M Cache, 20C/40T (2x per node)
<b>Memory</b>	1024GB (512GB per node)
<b>Monitoring/Management</b>	CLI, GUI, API, IPMI
<b>Cooling</b>	6x 10cm counter rotating rotor fan modules
<b>Network Interfaces*</b>	up to 4x dual port NIC (2x per node), dual port 10GBase-T RJ45, 10/25GbE, and 40/100GbE NIC options
<b>Power Supply</b>	2x 2600W Platinum, 1+1 redundancy 100-120/200-240Vac, 50/60Hz, 14/8A
<b>Thermal Rating (max)</b>	8871.6 BTU/hr (2600W)
<b>Dimensions (WxHxD)</b>	17.68" x 6.96" x 42.9" / 449mm x 177mm x 1091mm
<b>Weight</b>	150 lbs (68.04kg) chassis without drives 240 lbs (108.86kg max) fully populated with drives
<b>IO Ports/Connectivity</b>	1x GbE RJ45 LAN Port (Dedicated IPMI 2.0 Management port) 2x USB 3.0 ports; 1x VGA port; 1x RS232 (serial header port)
<b>Operating Environment</b>	Operating Temperature: 10°C to 35°C (50°F to ~95°F) Non-operating Temperature: -40°C to 60°C (-40°F to 140°F) Operating Relative Humidity: 8% to 90% RH (non-condensing) Non-operating Relative Humidity: 5% to 95% RH (non-condensing)

\*SFP transceivers and network cabling not included and must be supplied by the customer.

### HyperStore 4400 Appliance

- Ultra-dense 4U platform
- 2 nodes in 1 chassis
- 90x hot-swappable 3.5" disk drives (45 drives per node)
- 4x hot swappable 2.5" 7mm NVMe drives (2x drives per node for metadata)
- 10GBaseT (RJ45), 10/25GbE, and 40/100GbE networking options



# HyperStore Flash 1000

HyperStore Flash 1000 Specifications	
<b>Form Factor</b>	1U rack mount chassis
<b>Metadata Drives</b>	2x U.2 15mm NVMe Flash
<b>Metadata Drive Sizes</b>	3.84TB and 7.68TB options
<b>Data Drives</b>	10x U.2 15mm NVMe Flash
<b>Data Drive Sizes</b>	7.68TB and 15.36TB options
<b>Storage Capacity Raw</b>	76.8TB or 153.6TB
<b>Data Protection</b>	Replication and erasure coding via storage policies
<b>Redundancy</b>	Hot swappable disk drives 2x hot swappable power supplies No single point of failure Non-disruptive online software upgrades
<b>CPU</b>	2x Intel Xeon Gold 6230R 2.1G, 35.75M Cache, 26C/52T
<b>Memory</b>	256GB
<b>Monitoring/Management</b>	CLI, GUI, API, IPMI, JMX
<b>Cooling</b>	8 heavy-duty fans w/ optimal fan speed control
<b>Network Interfaces*</b>	2x 10GBase-T (built-in and available as data ports) Additional network card options include up to 2x dual port 10/25GbE NIC, or 1x dual port 10/25GbE and 1x dual port 40/100GbE NIC
<b>Power Supply</b>	1200W Titanium PSU, 1+1 Redundancy, 100-200V AC
<b>Thermal Rating</b>	2700 BTU/hr
<b>Dimensions</b>	17.2" x 1.7" x 29.1" / 437mm x 43mm x 739mm
<b>Weight</b>	154 lbs (24.5 kg)
<b>IO Ports/Connectivity</b>	2x 10GBase-T RJ45 LAN Ports (built-in) 1x RJ45 LAN Port (Dedicated IPMI Management port) 2x USB 3.0 ports 1x VGA port 1x serial header port
<b>Operating Environment</b>	Operating Temperature: 10°C ~ 35°C (50°F ~ 95°F) Non-operating Temperature: -40°C to 70°C (-40°F to 158°F) Operating Relative Humidity: 8% to 90% (non-condensing) Non-operating Relative Humidity: 5% to 95% (non-condensing)

\*SFP transceivers and network cabling not included and must be supplied by the customer.  
Note: Alternate server models may be substituted with equivalent specs if supply chain challenges are experienced.

## HyperStore Flash Appliances

HyperStore all-flash appliances are built for demanding performance centric workflows where deterministic access times and lower latency is more critical. Each model is fully integrated with Cloudian HyperStore software. Appliances are available with several metadata drive, data capacity for object storage, networking connectivity, and end-end support packages including options for on-site service and support.



## HyperStore Flash 1000

- High-performance 1U platform
- 12x hot swappable 2.5" NVMe drives (including 2x drives for metadata)
- 76.8TB or 153.6TB raw storage capacity
- 10/25GbE and 40/100GbE networking options