

Commvault HyperScale™ X Appliance performance

Introduction to the Commvault HyperScale X Appliance

Commvault HyperScale X Appliance is an intuitive and easy to deploy scale-out appliance that is fully integrated with Commvault’s intelligent data management platform. Integrated with the power of Hedvig, it provides unmatched scalability, security, and resiliency to accelerate an organization’s digital transformation journey as they move to hybrid cloud, container, and virtualized environments. Its flexible architecture allows you to get up and running quickly and grow as your needs demand.

Commvault HyperScale X Appliance models

Commvault HyperScale X Appliances are available in two models – HS2300 and HS4300 – with usable capacities ranging from 25 TB to 264 TB in a three-node cluster. Single nodes can be added to either model to increase the storage pool usable capacity. The appliances integrate the Hedvig file system for optimized resiliency, scalability, and performance to easily grow as needed.

The two models are the following:

- **HS2300** – cluster of three 1U, 4xLFF HDD servers
- **HS4300** – cluster of three 2U, 12xLFF HDD servers

Commvault HyperScale X Appliance performance

Operation	HS2300	HS4300	Notes
Baseline backup	5 TB/hour	11.7 TB/hour	Baseline backup assumes there is no deduplication in the data stream. The only storage optimization is due to 50% data compression. First full backups are considered baseline.
Subsequent backup	35 TB/hour	64 TB/hour	Assumes 2% daily change rate, daily incremental backup and a weekly full. Most of the performance gain is due to deduplication, eliminating more than 90% of the writes.
Restore	3.8 TB/hour	8.2 TB/hour	Full restore of the system with overwrite option turned on, ensuring all data gets rewritten back to the source system.
Aux Copy	8.9TB/hour	12 TB/hour	Full copy of data from the appliance to an external target.
DASH Copy	16.2 TB/hour	26.7 TB/hour	Full copy of data from the appliance using deduplication.
Synthetic Full	24 TB/hour	26.1 TB/hour	Create a full backup from the latest full backup and subsequent incremental backups.

Commvault HyperScale X Appliance drive rebuild performance

Commvault HyperScale X with the Hedvig file system automatically performs data migration to a new storage pool when a disk failure in a storage pool is detected. The storage pool migration of an Erasure-Coded virtual disk happens at the backing container level. For all the backing containers present in the storage pool of a failed disk, a new destination pool is chosen. We call this many-to-many replication.

Every block of data belonging to the backing container is read and reconstructed and the desired fragment is extracted and written to a new destination storage pool in the cluster.

Operation	HS2300	HS4300	Notes
Drive rebuild	300GB/hour	300GB/hour	Rebuilds based on Erasure-Coded backing containers in the virtual disk

Test environment

	HS2300	HS4300
Number of clients	48	82
Maximum backup streams	192	328
Data size	10TB	16TB
Compression factor	50%	
Daily change rate	2% per incremental backup	
Job run order	Baseline full; 5 x Incremental; Subsequent Full; Restore	

Test environment details

The objective of the test environment is to simulate typical customer workloads in a production environment. Those workloads were applied across standard three-node configurations on the HS2300 and HS4300 appliances. While these results are representative and achievable, they are not intended to be performance guarantees. The testing was performed on the Commvault HyperScale X Appliances in a closed lab environment using source virtual machines running on SSD. These tests were not intended to illustrate peak performance but rather show a snapshot representative of a typical environment with multiple stream count.

Driving optimal performance

The Commvault HyperScale X architecture leverages the hyperconverged compute, networking, and storage resources to drive optimal performance for data management operations.

Parallelized operations

- Backup and restore data distributed across the maximum number of parallel streams
- Maximized parallel streams engage all available storage resources
- Jobs automatically distributed across all nodes

Linear scalability

- Performance will increase as nodes are added to the appliance, including single node expansion
- As storage pool grows I/O performance grows linearly

Network performance

- Bonded ports provide both redundancy and increased performance
- LACP reduces network latency and optimizes available bandwidth

Incremental forever

- Incremental forever, where supported, reads and processes only changed data sets and blocks
- Commvault intelligent indexing performs single pass restore even with many incremental backups
- Provides low RPO/RTO for extremely large workloads

Summary – Elevate performance with Commvault HyperScale X Appliances

Commvault HyperScale X Appliances provide a highly resilient and scalable software-defined storage system. Commvault HyperScale X, along with the portfolio of Commvault intelligent data management software, empower enterprises to create and maintain aggressive RPO/RTO SLAs.

Restore performance

- Full recovery from critical events (ransomware, data center loss, etc.) in a few hours
- Recover the most critical workloads in < 1 hour
- Recover using 100s of concurrent streams with consistently high performance

Backup Performance

- Create multiple recovery points per day with minimal production impact
- Set low RPOs for production environments without complicated infrastructure
- Built for higher performance as stream count increases

Linear Scalability

- Predictably increase performance by adding nodes to storage pool
- Workloads distributed automatically and evenly across all nodes in storage pool
- Minimize management with simplified expansion and automated load balancing

Learn more

Additional information on Commvault support is available at commvault.com/support.



To learn more about HyperScale X Appliance, visit commvault.com/hyperscale/appliance >