

# File, Block, and Object Storage with Seagate and OSNEXUS

Seagate and OSNEXUS enable unified file, block, and object storage management for on-premise and hybrid deployment.

## Challenge Summary

Managing storage in a hybrid cloud environment can be complex—consuming time and money as the number of clusters and deployments grow across sites, co-locations, and the cloud.

## Benefits Summary

- Supports unified file, block, and object storage.
- Unified management across systems with Storage Grid technology.
- Extensive security features including Active Directory integration, SSO, and FIPS 140-2 certification.
- Scale-up and scale-out storage architecture options to fit the needs of a broad spectrum of workloads.
- Seagate systems provide scalable storage options for both scale-up and scale-out configurations from 100TB to over 100PB per Storage Grid technology.
- Backup and archive on-premise data to Seagate Lyve Cloud using QuantaStor.

Seagate® enterprise storage systems with Lyve™ Cloud hosted storage combined with OSNEXUS QuantaStor supports block, file, and object storage using both scale-out and scale-up architectures that serve a broad spectrum of workloads.

As organizations expand their storage environment using a hybrid-cloud strategy, it has become even more important to IT experts that storage solutions are flexible, reliable, and secure.

A flexible solution can be deployed with a broad selection of hardware customized to meet the needs of specific applications and workloads, and have the ability to control the hardware and software upgrade lifecycle to maximize the storage system. A reliable solution delivers options for high-availability and fault tolerance, provides intelligent software that can detect problems early and offers comprehensive reporting, and notifies users when maintenance is needed. Additionally, a secure solution is paramount due to the increase in ransomware attacks—one with advanced authentication and authorization features as well as immutable snapshots to help protect your organization against attacks.

## Challenge/Problem

Managing storage in a hybrid cloud environment becomes increasingly complex as more and more storage systems are deployed. With separate silos of data and separate clusters to secure and maintain, it can get time consuming and expensive for IT administrators to manage an organization's storage, especially as the number of clusters and deployments grow across sites, co-locations, and the cloud.

## Solution Approach

To better manage storage in a hybrid-cloud environment, organizations can deploy Seagate systems combined with OSNEXUS QuantaStor to provide file, block, object storage, or any combination of these data formats. Knowing the initial storage capacity and planned future capacity will help determine whether a scale-up or scale-out approach is recommended. Both approaches have different advantages. Scale-up architecture is best for capacities from 100TB to 8PB and scale-out architecture is best for capacities starting at 4PB and growing to 100PB.

Regardless of the approach, OSNEXUS offers an on-line configuration tool—the QuantaStor Storage Grid unified management console—that provides integrated management of Seagate storage systems and Lyve Cloud hosted storage. With the OSNEXUS one-click installer and guided setup, QuantaStor installation is simple and easy. For more information, visit

<https://www.osnexus.com/zfs-designer?conf=seagate>

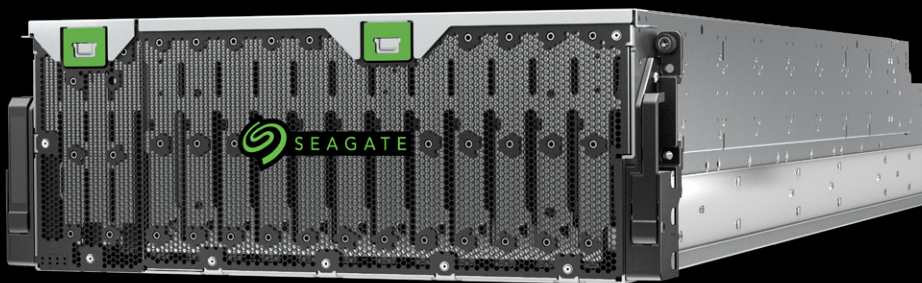
<https://www.osnexus.com/ceph-designer?conf=seagate>



## Seagate Solution

The Seagate Exos® AP application platforms integrate dual servers with 12, 24, and 84 bay storage arrays—all ideal for hosting software-defined storage systems. The Exos AP 2U24 combined with OSNEXUS enables a high performance all-flash array perfect for database and virtual machine storage workloads, while the Exos AP 5U84 configured with SSDs and HDDs is an ideal platform for NAS, backup, archive, and big data storage. Entry configurations can be created using the Exos AP 2U12 platform.

Seagate's Exos CORVAULT™ data protected storage array combined with the Exos AP 2U24 for flash storage and compute enables scale-out storage that reduces server cost by 50% as compared to a JBOD plus server implementation. This solution works well for multi-petabyte rack-scale deployments. All configurations of QuantaStor can tier data from on-premise storage to Lyve Cloud hosted storage for backup, archive, and ransomware protection.



**EXOS™ CORVAULT™**

## Partner Solution

QuantaStor addresses the complexity of managing multiple storage clusters across sites with its unique Storage Grid technology, making it easy to combine systems and clusters into a single federated control plane to manage all systems across all sites as one. QuantaStor's web management interface supports all major web browsers and is accessible across all QuantaStor systems within a given Storage Grid simultaneously—with no additional software to install or maintain. This greatly simplifies all aspects of storage management including security enforcement, alerting, and monitoring, and in turn reduces total cost of ownership (TCO) and increases the ROI for the whole storage environment.



## Total Solution

### Scale-Out Solutions

With the ability to start small (500TB) and grow to over 50PB in a single cluster, scale-out solutions provide cost-effective NAS and S3-compatible scale-out object storage while delivering high performance.

The Seagate Exos AP 5U84 with integrated dual servers enables high-density, hybrid flash/HDD scale-out file and object storage solutions. For rack-scale, multi-petabyte scale-out storage, the combination of the Seagate Exos AP 2U24 all-flash array with integrated dual servers and Seagate Exos CORVAULT's high-capacity HDD storage arrays enable a hybrid-flash/HDD storage solution that can be easily expanded by adding more systems. The Exos CORVAULT's built-in ADAPT hardware-based erasure coding off-loads the data protection workload from the server to the CORVAULT's VelosCT ASIC, reducing the number of servers by up to 50% from a JBOD implementation.

### Scale-Up Solutions

Scale-up storage clusters provide highly available SAN/NAS storage designed around a two-server cluster model using Seagate's Exos AP integrated storage servers. All-flash configurations using the Exos AP 2U24 are ideal for databases and virtualization while hybrid flash/HDD configurations provide low cost, high-density NAS for use cases that include media archive, Veeam backup storage, and home directories. Scale-up solutions support all major block (iSCSI/FC) and file (SMB3/NFS4) protocols.

The Seagate Exos AP 5U84 combines dual servers with 84 drive bays and delivers high-density SAN and NAS storage for a variety of use cases including media editing, archive, backups, user home directories, and more.

The Seagate Exos AP 2U24 has dual servers with 24 SFF drive bays and provides an all-flash array delivering high-performance SAN and NAS storage for databases, VMs, media playback, media editing, transcoding, rendering, and more.



## Features & Benefits Summary

Seagate enterprise storage systems and Lyve Cloud hosted storage with OSNEXUS QuantaStor creates a powerful and flexible software-defined storage solution that supports block, file, and object storage using both scale-out and scale-up architectures. Seagate's Exos AP platforms deliver an integrated appliance form factor for QuantaStor in capacities from 12 to 84 drive bays. Seagate's Exos CORVAULT is a data protected large-scale storage array with self-healing autonomous data regeneration and Advanced Distributed Autonomic Protection Technology (ADAPT) hardware-based erasure coding. The Exos CORVAULT provides up to 2.1PB in a high density 4U form factor and enables rack-scale solutions with QuantaStor with half of the servers required as compared to a JBOD implementation. QuantaStor supports tiering of data—from on-premise to **Seagate's Lyve Cloud hosted storage**—to enable hybrid data center and cloud solutions.

### Grid Technology

QuantaStor's Storage Grid technology provides unified management of QuantaStor servers and clusters. Grid management is built into every system so administrators can manage their storage grid from any system without having to install and maintain additional software. Each grid can scale to over 100PB and may contain multiple scale-out and scale-up storage clusters. Storage grids can also span sites and datacenters. QuantaStor has powerful access control, encryption, and security compliance features that make it easy to secure.

### End-to-End Encryption and Security

QuantaStor delivers end-to-end security coverage, enabling multi-layer data protection on the wire and for data at rest. With NIST 800-53, 800-171, HIPAA, CJIS, and FIPS 140-2 compliance, QuantaStor provides advanced security features required by government and regulated industries.

### Unified File, Block, and Object Storage

Some workloads are better suited for use with a scale-out storage architecture, while others are more cost-effective and faster using a scale-up design. QuantaStor delivers both. Scale-out configurations provide high-performance NAS and S3-compatible object storage with scalability to over 50PB per cluster. Scale-up configurations provide SAN and NAS storage with less hardware, making them more cost effective, but are generally limited to 6PB or less per cluster.

### Open Storage

QuantaStor integrates with mature enterprise open source storage technologies like Ceph and OpenZFS to deliver rapid innovations at a lower cost and without the vendor lock-in that comes with the use of proprietary file systems.



## In Conclusion

Seagate enterprise storage systems and Lyve Cloud hosted storage provide a variety of flexible deployment options with OSNEXUS QuantaStor for block, file, and object storage solutions. The Seagate Exos AP storage systems with integrated servers enable a QuantaStor storage appliance in a variety of scale-out and scale-up architectures. Seagate's Exos CORVAULT provides built-in data protection with ADR self-healing and ADAPT hardware-based erasure coding to enable rack-scale, multi-petabyte storage with half of the servers of a JBOD-based solution. QuantaStor also supports tiering of data from the data center to Seagate Lyve Cloud for hybrid cloud storage.

OSNEXUS QuantaStor enables block, file, and object storage with a unified management interface and integrates management of Seagate's storage systems. QuantaStor is a flexible software-defined storage solution that supports cost-effective, scale-up, and multi-petabyte scale-out storage architectures.

## Ready to Learn More?

Talk to an expert [www.seagate.com](http://www.seagate.com)

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