



Western Digital

Solution Brief

Unified File, Block, and Object Storage Solutions for AI & HPC with QuantaStor and Western Digital



Challenges

- Keeping pace with exponential data growth without busting the budget
- Growing costs and complexity of supporting and maintaining multiple nonintegrated solutions
- Meeting increasing data retention, security and compliance requirements
- Increasing time spent managing systems due to lack of quality automation and monitoring tools

Highlights

- Unifies file, block and object storage into a single platform with advanced storage grid technology
- Simplifies automation and management to lower maintenance costs
- Delivers end-to-end protection to assist meeting NIST, CJIS, and HIPAA requirements

Solution

The combination of OSNEXUS QuantaStor with Western Digital storage platforms creates a unified software-defined storage platform that delivers maximum IOPS and throughput for mission-critical workloads and applications while enabling rapidly growing amounts of data to be stored, managed and protected without busting tight IT budgets.

Modern AI and HPC workloads demand storage systems that can handle massive data throughput, low-latency access, and seamless scalability. Traditional storage architectures often fall short—either too complex to manage or too costly to scale. Together, Western Digital and OSNEXUS deliver integrated storage solutions that simplify infrastructure, reduce costs, and accelerate data-driven business initiatives.

Storage Grid Technology

QuantaStor's storage grid technology provides a unified control plane that spans multiple sites and data centers. This enables seamless management of diverse storage clusters, improves scalability, and enhances security. With support for over 300PB per grid, QuantaStor lets organizations combine scale-up and scale-out architectures to meet evolving data needs.

Western Digital Storage Platforms

Western Digital is redefining what's possible in storage infrastructure for AI/ML, disaggregated storage and software-defined storage. From massive-capacity, reliable Ultrastar Data series JBODs to ultra-fast OpenFlex Data 24 EBOFs NVMe-oF™ disaggregated storage solutions for AI, Western Digital's Platforms Business delivers world-class HDD- and SSD-based solutions that power today's most demanding workloads. When paired with QuantaStor, these solutions deliver unified file, block, and cloud object storage at a fraction of the cost of traditional systems. Key benefits include:

- Lower energy and maintenance costs
- Reduced data center footprint
- Reliable, long-term data retention
- Scalable storage with performance flexibility

Optimized Storage for AI & HPC Workflows

Different workloads require different storage strategies:

AI Training & Inference

- Requires low-latency, high-IOPS performance
- Best served by scale-up clusters
- Utilizes dual-controller architecture with automatic failover
- Leverages OpenZFS for RAID, caching, and fault tolerance

HPC Simulations & Data Lakes

- Requires high throughput and parallel access
- Best served by scale-out clusters
- Utilizes multi-node architecture with erasure coding and replication
- Leverages Ceph™ for distributed object and block storage
- Supports multi-site deployment and unified namespace

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Conclusion

As AI and HPC workloads grow in complexity and scale, organizations need storage solutions that can keep pace and scale without compromising performance or budget. OSNEXUS and Western Digital deliver a powerful, flexible solution that supports real-time data processing and long-term data retention—driving innovation, efficiency, and cost savings.

