

UCSF Finds Feature-Rich and Reliable Storage Platform to Grow at Scale for “World’s Largest ZFS Deployment”

At a Glance



Challenge

Solve scalability and reliability issues with home-brewed storage for research data archive.



Solution

OSNexus QuantaStor



Hardware Platform

Seagate CORVAULT



Use Case

Archive

Benefits



High-performance



Scalable



Reliable



Cost-effective

01 The Challenge

UCSF was in need of a reliable, scalable, cost-effective, and high-performing tier-2 storage solution for archiving research data. Their existing infrastructure was a mix of internally developed OpenZFS based storage solutions which, while initially effective, lacked the high-availability, security and operational simplicity they needed for their rapidly growing archive environment.

02 The Solution

Working with their trusted Value-Added Reseller, Cambridge Computer, UCSF evaluated and selected the OSNexus QuantaStor storage platform that tightly integrates with the Seagate CORVAULT auto-healing system hardware. QuantaStor stood out for its scalability, advanced security features, storage grid technology and its ease of automation via APIs, CLIs and other integration modules. The QuantaStor API enables UCSF to fully automate many storage provisioning workflows and streamlined the management of resources across their storage grid via QuantaStor’s global namespaces for NFS & SMB.

OSNexus, Seagate, and Cambridge Computer crafted a solution for UCSF and coined it the “Tower of Power” for its scale (21PB) and durability. The storage cluster uniquely utilizes two layers of fault tolerance with software 8d+2p double-parity RAID layered over hardware 16+2 double-parity erasure coding within the Seagate CORVAULT systems. This layering lends the solution extreme levels of durability such that the solution can sustain the loss of 4x devices per CORVAULT (40x total) at the same time with zero downtime. In addition, with up to 40x devices offline another two complete CORVAULTs can be powered off while still sustaining no downtime or loss of data. This level of durability is exactly what UCSF required to protect research data that needs fast access capabilities and long term durability.



QuantaStor has given us the reliability, scalability, and automation capabilities we were missing with our previous systems. The platform is feature-rich, and the OSNexus & Seagate teams have been outstanding – responsive, collaborative, and have enhanced the solution to meet our evolving needs and unique requirements.

HUNTER MCCALLUM

Sr. Research DevOps Engineer, ARS – Facility for Advanced Computing at UCSF

03 The Result



Although the initial rollout faced a few logistical challenges related to networking and shipping issues, the deployment of the solution itself was smooth and quick once those issues were resolved. UCSF has experienced strong support and collaboration from OSNexus, Seagate and Cambridge. The OSNexus team has worked closely with UCSF to implement platform enhancements that improve integration with existing IT systems and workflows, enabling a more seamless, scalable, and secure data archive solution for the university.



At OSNexus, our mission has always been to provide the most reliable, scalable, and secure storage solutions, empowering organizations like UCSF to manage and protect their most critical data. The ‘Tower of Power’ solution is a testament to our dedication to innovation and durability, designed to ensure zero downtime and data integrity even in the most demanding environments. We are proud to partner with UCSF, Seagate, and Cambridge Computer to create a storage infrastructure that not only meets but exceeds the needs of cutting-edge research.

STEVE UMBECKER
CEO, OSNexus



About UCSF

The University of California, San Francisco (UCSF) is a leading institution dedicated to advancing health worldwide through research, education, and patient care. As a major research university, UCSF generates and stores vast amounts of data across multiple departments and research disciplines.

About OSNexus

OSNexus helps organizations manage and scale their storage environments with greater efficiency, flexibility, and performance with its industry-leading QuantaStor™ platform. QuantaStor addresses a broad set of storage use cases including server virtualization, big data, cloud computing, and high-performance applications through scale-out physical and virtual storage appliances. OSNexus focuses on continuous innovation with a strong focus on product quality and industry-leading support to ensure customer and partner success with every deployment. QuantaStor is sold worldwide through managed hosting providers, OEMs, VARs, and System Integrators. Learn more at [OSNexus.com](https://www.osnexus.com).



About Seagate

At **Seagate**, we’re storing, protecting, and activating the world’s data as explosive growth in cloud, AI, and machine learning drive the demand for breakthrough technology and mass-capacity storage solutions. It starts with innovation—where we put some of the most sophisticated nanoscale engineering and material science on the planet to work while bringing circularity and sustainability to our products. The result is industry-leading areal density that powers a full portfolio of devices, systems, and services for every data-driven ecosystem imaginable—from edge to cloud. Inspired by our values, we push beyond what’s possible to create breakthrough technology so that you can safely store your data, and easily unlock its value. Learn more at [Seagate.com](https://www.seagate.com).

