

CASE STUDY

Large Public Research University Builds a New Model for Energy-Aware High-Performance Computing with Hammerspace

- Simplifies Infrastructure from Multiple Systems to One Platform
- A Single Environment for Traditional HPC and Emerging AI Workloads

Introduction

A large public research university is advancing the future of high-performance computing through a next-generation research initiative focused on improving the efficiency and sustainability of large-scale HPC infrastructure.

The initiative is designed to address one of the most pressing challenges in modern computing: how to operate large-scale data centers more efficiently while supporting increasingly diverse and demanding workloads, including AI.

To execute on this vision, the university needed more than another storage system. It needed a way to unify access to data across performance tiers and workload types while maintaining simplicity in an already sophisticated research environment. Hammerspace provided a data platform approach that aligned with these needs, enabling the research initiative to support a wide variety of HPC and AI workloads without introducing additional infrastructure silos.

The Challenge: Reduce Complexity in a Cutting-Edge HPC Environment

The university's HPC environment was designed to support a broad mix of research workloads, from traditional modeling and simulation to GPU-intensive AI and machine learning.

In a typical academic HPC environment, supporting this diversity requires multiple storage systems - for example, a parallel file system for scratch, persistent high-performance storage for project data, networked storage for home directories, and low-cost capacity storage for archiving. This fragmentation introduces operational overhead, complexity, and inefficiency. More importantly, it makes it difficult to ensure that data is available where and when it is needed as compute resources shift based on power availability and workload demands.

"Normally with an equivalent system... we have at least three different file systems in play to keep things going," says the Director of the university High Performance Computing Center. "We needed something that we could deploy that would serve a wide variety of needs... with the minimum complication."

The requirements extended beyond simplifying infrastructure:

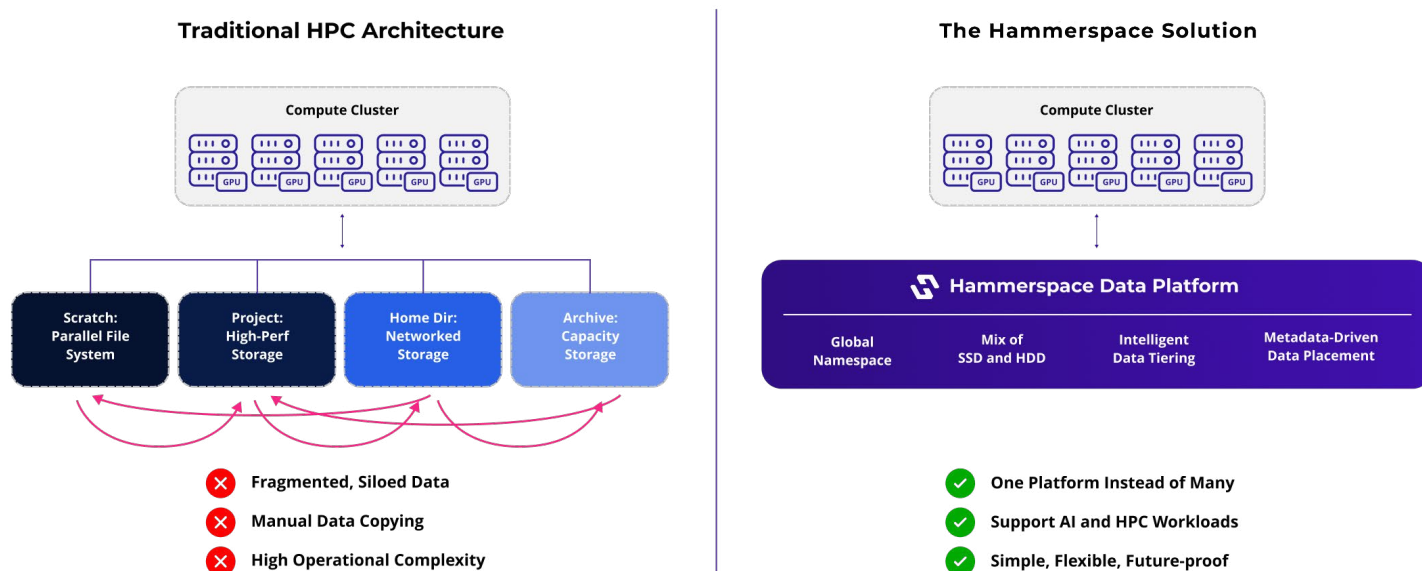
- Support a wide variety of workloads without specialized infrastructure or data silos
- Minimize operational complexity
- Enable remote, low-touch data center operations
- Provide both high-performance and capacity storage in a unified system



The Hammerspace Solution

The university selected Hammerspace to replace multiple storage systems with a single high-performance data platform that provides unified access to data across workloads and storage tiers, capable of supporting the full range of HPC and AI workloads.

From Fragmented Storage to a Unified High-Performance Data Platform



A Single Data Platform for All Workloads and Data

Hammerspace enabled the university to consolidate high-throughput, low-latency storage for performance-sensitive workloads and capacity storage for large datasets while providing consistent access through a unified global namespace. This allows data to remain in place while being accessed across different workloads and storage types.

"We needed one solution, and Hammerspace allowed us to replace multiple storage systems with a single platform."

Flexible, Tiered Architecture Addresses Scarce and Expensive SSDs

The deployment leverages a mix of NVMe flash and disk-based storage. Hammerspace data orchestration policies intelligently place data based on workload requirements while hiding storage complexity from users.

"We ended up with a mix of flash and disk... and that level of complication is hidden from the users. With modern hardware so scarce and expensive, you need to make the best use of it, and that's exactly what this platform enables."



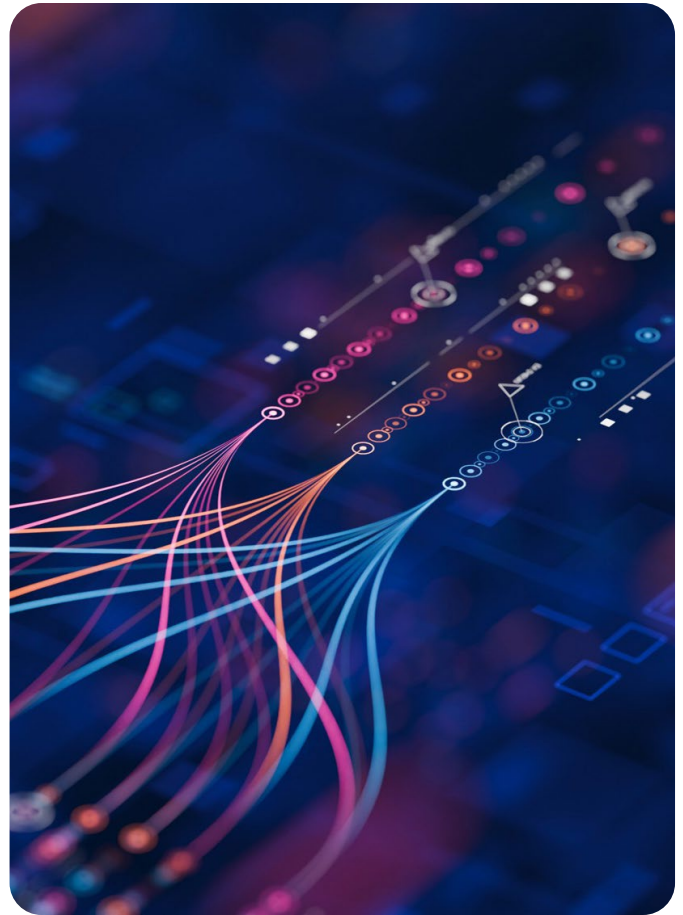
Designed for Diverse, Evolving Workloads

The environment supports GPU-accelerated AI, machine learning, scientific simulation, modeling, and other research workloads without requiring specialized storage silos.

"We knew we had a wide variety of workloads coming, and we wanted the ability to handle all of them in one system with minimum complication. Hammerspace made that possible."

Business Outcomes

- ✓ **Replaced Three Storage Systems with One Unified Data Platform:** Hammerspace enabled the university to consolidate multiple file systems that would have traditionally been required for performance, capacity, and specialized workloads into a single, unified platform.
- ✓ **Maximized Utilization of Scarce and Expensive Enterprise SSDs:** By intelligently leveraging both high-performance flash and capacity storage within a unified global namespace, Hammerspace extracts maximum value from available compute and storage resources, including enterprise SSDs.
- ✓ **Simplified Operations in a Highly Complex Research Environment:** Administrators can manage storage more efficiently, automate data movement and tiering, and reduce operational overhead for a mix of traditional HPC and emerging AI workloads.



"Hammerspace has absolutely delivered on the reason that we selected it."

