MARTINOS CENTER AND VAST DATA REVOLUTIONIZE IMAGING RESEARCH TO ADVANCE THE STATE OF THE ART IN PATIENT CARE

USE CASE

Medical imaging research.

REQUIREMENTS

A simple and scalable all-flash storage system to accelerate AI deep-learning workloads across multi-petabytes of image data.

SOLUTION

VAST Data's Universal Storage architecture with NFSoRDMA and forthcoming support for NVIDIA® Magnum IO (GPU Direct Storage).

RESULTS

Faster image analysis using affordable all-flash storage capable of scaling to support massive data growth. Uptime challenges inherent in legacy hard-drive based storage systems have been eliminated.

CHALLENGE

The medical imaging researchers at the Martinos Center must continuously find new ways to leverage AI algorithms to analyze the raw, uncompressed data generated by their imaging systems. But with hundreds of subjects and thousands of scans every year, they struggled to affordably capture and store enormous volumes of raw image data, while still enabling fast data access to hundreds of researchers' AI initiatives.

SOLUTION

In 2020, the Martinos Center engaged VAST Data to help accelerate and streamline their medical image research. With the rapidly growing need to capture and record every bit of MRI and PET scan data, the Martinos Center selected VAST Data's Universal Storage to help transition them to an all-flash solution, rendering previous hard-drive storage systems obsolete.

VAST Data's unique combination of low-cost flash, highly-efficient data protection and industry-leading data reduction enabled the Martinos Center to affordably deploy multiple-petabytes of all-flash storage for the very first time.

Meanwhile, VAST Data's Disaggregated, Shared-Everything (DASE) architecture provided the scalability and performance needed to support four NVIDIA DGX-A100 servers for any GPU deep-learning and training applications. With a high-bandwidth, low-latency RDMA-capable fabric connecting the compute and storage end-to-end, the new infrastructure easily catered to the insatiable appetite from researchers wanting access to the entirety of the image catalog, without needing to move or copy data across the datacenter.

RESULTS

VAST Data's groundbreaking flash economics eliminate the compromise between price and performance found in legacy storage solutions. As a result, the Martinos Center has started a strategic shift to all-flash Universal Storage for existing research data as well as the eventual addition of clinical data.

This new scale-out solution also eliminated the complexity and operational headaches they experienced with their previous HPC storage technologies. VAST delivers the performance of an all-flash, RDMA-enabled parallel file system with the administrative simplicity of a scale-out NAS using standard NFS protocols.

> "VAST delivered an all-flash solution at a cost that not only allowed us to upgrade to all-flash and eliminate our storage tiers, but also saved us enough to pay for more GPUs to accelerate our research. This combination has enabled us to explore new deep-learning techniques that have unlocked invaluable insights in image reconstruction, image analysis, and image parcellation both today and for years to come."
>
> **– Bruce Rosen, Martinos Center Executive Director**

ABOUT THE MARTINOS CENTER

The Athinoula A. Martinos Center for Biomedical Imaging at Massachusetts General Hospital is one of the world's premier research centers devoted to development and application of advanced biomedical imaging technologies. The Center is part of the Department of Radiology at Massachusetts General Hospital and affiliated with both Harvard Medical School and MIT. Together, faculty and researchers are developing first-of-a-kind tools and applying them to solve challenges in neuroscience, oncology, cardiology and other clinical domains.

ABOUT VAST

Headquartered in New York City, VAST Data is a storage company bringing an end to complex storage tiering and HDD usage in the enterprise. VAST consolidates applications onto a highly scalable all-flash storage system to meet the performance needs of the most demanding workloads, while also redefining the economics of flash infrastructure to finally make it affordable enough to store all of your data on flash. Since its launch in February 2019, VAST has established itself as the fastest selling storage startup in history. VAST's Universal Storage now powers several of the world's leading data centric computing centers.