

Success Story

The University of Pisa Transforms Research with the VAST Data Platform



Consolidating Distributed IT Infrastructure

The University of Pisa, one of the oldest universities in Europe, founded in 1343, is transforming its research capabilities with VAST Data's revolutionary data platform. As Maurizio Davini, CTO of the University of Pisa explained, while the university has a long and prestigious history, its scientific computing infrastructure had been distributed across 250 buildings in the medieval town until 2016. At that point, the university decided to build a new centralized data center facility outside of town to consolidate all its IT services and high-performance computing capabilities.

Over the past seven years, the data center has grown significantly to around 25,000 CPU and GPU cores, storing 12 petabytes that was managed from various vendors. However, as research demands accelerated, particularly in AI, the status quo would not suffice and the university sought out a different platform.

Seeking a HPC & AI Platform

According to Davini, "The problem with the new generation data platforms is that trying to extract all the performance is not always easy. With VAST Data it's quite easy to saturate a 200Gb/s interconnect link, which is not true for some of the competition." After examining several options across the industry, the university selected VAST Data to store, manage and process its growing dataset.

The VAST Data Platform is VAST's global data infrastructure offering, unifying storage, database and virtualized compute engine services in a scalable system that was built from the ground up for the future of AI. Designed for next-generation AI and analytics applications, it eliminates complex tiers and offers unlimited scalability and flexibility. The system can scale linearly to hundreds of petabytes without performance degradation.

VAST Data's architecture has become the cloud service provider for the Pisa campus—an internal private cloud where data can be exposed as needed for HPC, AI, or other workloads.

About Us

VAST is the data platform for simplicity at scale. VAST engineered the first new scale-out architecture in 20 years to take you beyond the conventional limits of scale, resilience and cost.

↳ Looking to simplify your data center and unlock insights from all of your data? Contact us at hello@vastdata.com

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Leveraging VAST Data’s Flexibility

The university now has a unified data platform that can scale seamlessly to hundreds of petabytes and keep pace with its growing computational power, and can be adapted quickly to new application requirements as needs evolve. The flexibility of the architecture will also allow it to support other critical applications through SMB and S3 object interfaces. Davini commented, “Due to the high-performance interconnect, it is quite easy to extract the performance outside the VAST cluster over the network—easier than other solutions.”

He also noted the exceptional ease of implementation in working with VAST Data, saying the system was installed and production-ready in one day. According to Davini, “We did the installation with the VAST team, and in one day we were in production. That’s all.” This simplicity contrasts markedly with competitive solutions that can take a week or more just to get started. The intuitive interface and turnkey deployment accelerate time to value.

Accelerating Research

The University of Pisa leverages VAST for AI workloads, including drug design simulations running on NVIDIA DGX H100 system. VAST Data’s ability to connect easily to DGX nodes over NVIDIA InfiniBand or Ethernet was a distinct advantage. Looking ahead, VAST will provide the data platform foundation as the university expands its AI infrastructure with NVIDIA Grace CPU Superchip and Arm-based systems.

On the benefits of moving to VAST Data, Davini emphasized three key attributes: “performance, ease of use, and scalability.” The university now has a data platform that can keep pace with its growing computational power and it can be adapted quickly to new application requirements as needs evolve. Davini also noted VAST Data’s simple and flexible Gemini licensing model, allowing them to only pay for what they need.

The results thus far have been transformative. Davini shared that VAST Data has delivered significant performance improvements for researchers in areas like life sciences and materials science who rely on fast parallel file access to feed data-hungry algorithms. Davini notes, “Our NVIDIA DGX is a critical infrastructure component for the University. We want our training models operating at capacity and not sitting by waiting for data to be ingested.”

“We are doubling our infrastructure and we are very interested in exploring the evolving multi-tenancy, data catalog, and database features of the VAST Data Platform. With VAST and NVIDIA, we’re transforming our research capabilities to achieve new breakthroughs and advance our scientific progress,” Davini concluded.

By providing a powerful yet flexible platform for next-generation workloads, VAST Data is helping leading research institutions, like the University of Pisa, achieve breakthroughs that will propel scientific progress worldwide.

