Academic Research Solution Brief

Facilitating the Research Lifecycle

UNIVERSITY OF MIAMI

At the University of Miami, more than 2,000 researchers, faculty, staff and students, across multiple disciplines, collaborate on diverse and interdisciplinary projects requiring HPC resources.

THE UNIVERSITY OF QUEENSLAND AUSTRALIA

The University of Queensland has infinitely scalable storage capacity available to keep pace with increased use of highend microscopy and next-gen sequencing technologies for fast, multi-site data access.

UNIVERSITY OF MICHIGAN

The University of Michigan uses DDN solutions to support an increasingly diverse set of research projects spanning from machine learning, connected and automated transportation, and precision health to computational flow dynamics, physics and more.

HARVARD UNIVERSITY

DDN storage fuels ground-breaking neuroscience and behavioral research at Harvard by accelerating the collection of data-intensive research generated by the world's fastest scanning electron microscopes.

▶ **No other field generates data on the scale of academia and its institutions' multi-disciplinary research programs. Areas like genomics, molecular biology, fluid dynamics, and particle physics hold tremendous potential to change the world.**

However, this is only possible if they can successfully access, mine, and share the mountains of data being created and avoid the creation of single purpose data lakes. Now, universities and research institutions are increasingly turning to AI to unlock insights contained in those massive datasets. AI adds another tool to drive academic discovery based on data analysis and complements existing simulation-based methods, increasing precision of results.

With this AI-led progress come the complex demands for an increasingly sophisticated infrastructure to handle the performance and capacity requirements. DDN's 20 year history of providing optimized solutions for academic research institutions has yielded cost effective solutions for consolidating multidisciplinary data. These solutions support the rising use of GPU hardware to run mixed-precision simulation algorithms, CPU clusters for shared computing and the distribution of shared research through common file access methods.

THE RIGHT INFRASTRUCTURE MATTERS

Modern workload I/O patterns are increasingly mixed and tough: reads and writes, random and sequential, high thread counts, shared file access. The academic research community needs a new level of infrastructure that provides storage capacity, performance, and access that matches the raw processing power of the supercomputers typically on their sites. DDN understands the essential elements of software, processor architecture, clustering, high-speed networking and collaborative learning that shape the landscape in academic research.

Through the strategic use of flash, DDN's solutions for academic research can deliver all the performance modern workloads require. Streamlining of the data path, dramatically enhanced metadata performance and optimizations for mixed small file and streaming IO make the most efficient use of flash media to extra the absolute best price performance profile.

DDN has delivered complete campus-wide, departmental and cloud storage solutions to hundreds of universities around the world, combining sophisticated technology with an in-depth understanding of the diverse requirements in academic research. DDN provides infrastructure that is robust enough to facilitate data sharing across different media, environments, and locations in the research lifecycle. With DDN cutting-edge storage solutions, those in the field of academia are fully leveraging at-scale data and turning it into a strategic asset supporting breakthroughs that can drive increased funding, enhance recruiting and improve the lives of countless people around the world.

DDN Solutions for Academic Research

A³I - AI Storage Solutions

DDN A³I storage solutions are fully-optimized to accelerate machine learning and artificial intelligence (AI) applications, streamlining deep learning (DL) workflows for greater productivity.

Working with industry leaders like NVIDIA and Hewlett Packard Enterprise (HPE), A³I artificial intelligence storage solutions harness the knowledge from customer-proven deployments to make AI-powered innovation easy. A³I is a turnkey, AI data storage infrastructure for rapid deployment, featuring faster performance, effortless scale, and simplified operations through deeper integration - all backed by the data-at-scale experts.

▶ **LEARN MORE**

Parallel Filesystem Solutions

DDN's file system solutions delivers best-in-class analytics, parallel file system and NAS for the most data-intensive and performance-demanding environments.

Next-generation Appliances tightly integrate award-winning DDN HPC storage technology with the power of parallel file systems to provide flexible choices for data protection and availability, offering ease of access through traditional NFS or CIFS as well as the option for high performance client access.

▶ **LEARN MORE**
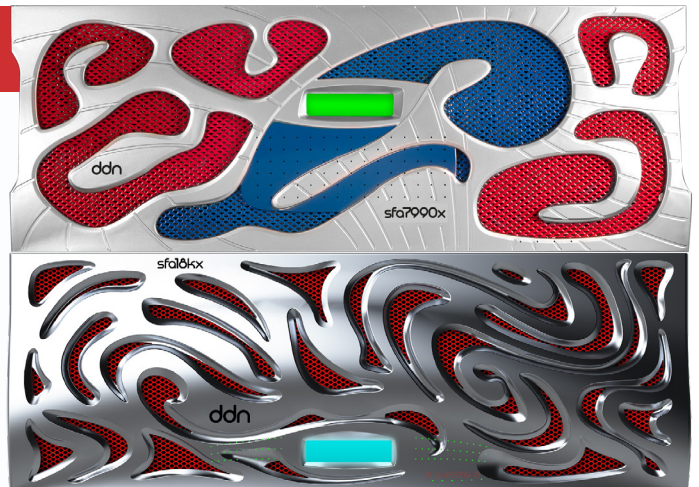
ABOUT DDN

DataDirect Networks (DDN) is the world's leading big data storage supplier to data-intensive, global organizations. DDN has designed, developed, deployed, and optimized systems, software, and solutions that enable enterprises, service providers, research facilities, and government agencies to generate more value and to accelerate time to insight from their data and information, on premise and in the cloud.

Product Specifications Subject to Change. For physical and environmental attributes, see associated Data Sheets.