



## ULTRAIOTM STORAGE FOR HIGH PERFORMANCE COMPUTING (HPC)

Imagine a revolutionary new erasure-code-based architecture that utilizes patented algorithms powered by GPUs and CPUs to deliver a combination of performance, resilience, and efficiency, enabling massive amounts of data to be managed in a single storage platform.

Nyriad® is enabling a new generation of storage solutions that empower businesses to grow, adapt, and stay competitive in a data-driven world. We are simplifying how data is stored, accessed, and managed.

### PERFORMANCE - RESILIENCE - EFFICIENCY

# REIMAGINE YOUR STORAGE REDEFINE YOUR POTENTIAL

### WITH COMBINED GPU + CPU STORAGE ARCHITECTURE

#### RESEARCH & UNIVERSITY LABS

Most labs, whether engineering, scientific research and development, medical research, or other labs, generate vast amounts of data and require high throughput both for ingestion and running queries. Projects may span days, months or even years. Large clusters of computer systems need to be brought together. Custom-designed applications and parallel processes must be considered at the same time. Research businesses and institutions need fast, cost-effective, and scalable computing capability to stay ahead of change.

Nyriad's UltraIO™ storage system delivers a superior combination of performance, resilience and efficiency. The architecture allows for the use of the largest capacity storage devices while still maintaining data resilience and performance. The ability to switch workloads and focus computational resources to critical processes is vital in R&D. The Nyriad UltraIO system's combination of GPUs for processing power and CPUs for specific industrial or use-case calculations makes it tremendously relevant for researchers who want to gain both scalable processing and precision research capabilities at the same time, in areas such as language processing, computer vision, molecular modeling or material science.

The Nyriad UltraIO system's incredibly performant storage architecture supports the complex HPC processes to be delivered more rapidly, with greater assurance and efficiency using all types of 'hot and cold' data sources.

The UltraIO storage solution enables complex and unpredictable computations to be run faster, with higher levels of assurance. This helps to accelerate research efforts and generate high-impact results.

#### GEOSCIENCES

Like research labs, earth resource-related applications such as seismic analysis, oil services, atmospheric and climate modeling, lidar (light detection and ranging), and others need cost effective and performant storage for the ingest and analysis of the massive data collected over long project cycles.

Data sets are growing exponentially and the UltraIO storage solution can process these multiple petabytes of data rapidly, from multiple data sources, to interpret complex real-world and simulated operations and modeling. The UltraIO storage system's inherent performance and resilience mean that energy and geosciences businesses can decentralize their computing capabilities to edge and field delivery, to capture and process data with lower latency and higher efficiency.

The high-performance and resilience of the UltraIO storage platform combined with its ease of delivery and repeatability make this an ideal approach for multi-core computational requirements for large and parallel computations, speeding results and enabling a faster cadence of business delivery.

## BIO-SCIENCES, LIFE SCIENCES & HEALTH SERVICES

Applications such as genomics, pharmaceutical research, bioinformatics, drug discovery, agricultural research, and the like require computational techniques that rely on consistent high read and write bandwidth that many storage solutions are not able to deliver. Additionally, such workloads typically consist of multiple petabytes of data which can be costly to store and access especially with the long retention obligation common to this industry.

Nyriad's UltraIO™ storage system provides up to 20 GB/s sustained read and write throughput, providing the predictable and consistent performance needed while leveraging large and cost-effective media to support the economics of long-term retention. The UltraIO system can grow from terabytes to multiple petabytes providing a single system for storage, collaboration, and future analysis resulting in increased business efficiency and project profitability.

## COMPUTER AIDED ENGINEERING (CAE) & PRODUCT DESIGN

CAE and Product Design applications include finite element modeling and analysis, mechanical computer-aided engineering, civil engineering, structural analysis, crash testing, and much more. These applications can be used to design just about anything. Such workloads require predictable and high bandwidth. The UltraIO storage system provides optimal performance even during drive failures, increasing reliable and predictable throughput.

More performant with reduced hotspots, improved continuity, and higher resilience, the UltraIO storage system can support operating at high levels of continuous computing operations on the most complex datasets. It can help designers to continuously improve and deliver simulations and modeling to drive design and enable vastly increased productivity and making HPC a more integrated part of product, engineering, and other manufacturing operations.

## BANKING & FINANCING SERVICES

Financial services related workloads are leveraging high performance computing because of the numerically intensive requirements of most applications and their association with economic modeling and simulation-based research. Data quantities and velocity are leaping to the next level of complexity.

The UltraIO storage solution's responsiveness and speed makes it a perfect partner for banks and brokers in compute-intensive areas such as real-time risk management where parallel transactions for clients need to be approved across the globe. Critical activities, such as constant AML processes, monitoring liquidity and processing complex asset-class strategies can all be supported by the UltraIO system's unique GPU + CPU architecture. The vast number of small but interconnected and time-critical processes that need to be run by banking computing systems demand the highest performance, availability, and resilience.

Better data placement with the UltraIO storage solution maximizes the effectiveness of real-time risk management across high-volume transaction data. The ability to make faster decisions with more data can directly increase the profits of a trading organization.

## GOVERNMENT & DEFENSE

Compute intensive applications such as surveillance and signal processing; command, control, communications, and intelligence (C3I); cryptography and image analysis; and other applications can take advantage of the UltraIO storage platform's combined GPU + CPU architecture providing secure data services with superior performance, resilience and efficiency. With the UltraIO system's GPU-accelerated erasure coding for block, deployments can achieve high-capacity utilization and simplify network shared disk (NSD) configurations by relying on the UltraIO product's erasure coding and intelligent data placement to ensure data consistency and integrity.

 [info@nyriad.io](mailto:info@nyriad.io)

 [www.nyriad.io](http://www.nyriad.io)



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