HyperParallel Data Platform™ for High Frequency Trading

Enjoy real time performance at scale for high frequency trading

Time is money

Traders are increasingly reliant on accelerated compute infrastructure to enable real time algorithmic trading, high-frequency trading (HFT), and analytics of tick data to achieve faster outcomes and higher revenues. To meet the needs of these demanding environments, trading system architects need consistent, predictable, scalable, high performance storage, with ultra low latency.

Using NVMe SSDs that are locally attached to the server to hold trading data will result in the overprovisioning of this data by 2-3X, increasing TCO. Employing legacy NVMe-based all-flash arrays will bottle neck the I/O due to failing to fully utilize the highly parallel NVMe SSDs.

The Pavilion HyperParallel Data Platform

Shattering expectations, the Pavilion HyperParallel Data Platform is the industry's most performant, dense, scaleable, and flexible solution for delivering real time performance at scale, capable of delivering up to 120 GB/s of throughput, 25µs of latency, and 20M IOPS from each array. All this performance is delivered in an ultra-dense 4U chassis with over 2PB of capacity and can be linearly scaled across an unlimited number of arrays.

As a hyperparallel flash array, the Pavilion HyperParallel Data Platform utilizes multiple controllers to unlock the parallelism of flash to deliver unprecedented performance. Capable of supporting up to 20 controllers in a single system, the Pavilion HyperParallel Data Platform goes beyond the legacy design of AFAs to enable real time insights into data.

By unlocking the parallelism of flash, the Pavilion HyperParallel Data Platform gives trading applications the performance of direct attached NVMe SSDs, combined with the flexibility of fabric attached storage. Able to deliver a unique combination of consistent, predictable, high performance, ultra-low latency storage along with and the ability to scale compute and capacity linearly and independently, the Pavilion HyperParallel Data Platform enables trading organizations to extract more insight from their data faster.

The Pavilion HyperParallel Data Platform requires no proprietary software to be installed and uses standard NVMe, Ethernet and InfiniBand drivers, freeing up host resources for processing, reducing deployment risk and increasing density.

As regulatory oversight and compliance rigors are layered on, take instant consistent snapshots of trades, clone these to a separate volume with higher capacity and less expensive NVMe drives and never miss an opportunity again. Use our built-in FIPS compliant data-at-rest encryption to assure immutability, protect your intellectual property, and maintain compliance.

Benefits

- Increases trading density 2X
- Cut storage costs in half
- Petabyte scalability, high-performance, low-latency, and linear scaling speeds trading operations
- Protect your data and meet evolving requirements for data security and compliance
- Deployments are flexible with concurrent block, file, and object protocols
- Enterprise design and data integrity validation ensures reliable access to data
- Management via Web GUI, vCenter, Kubernetes, RESTful API, OpenStack, DTMF/ Redfish, and Swordfish

The Most Performant, Dense, Scalable, and Flexible Storage Platform Available

The Pavilion HyperParallel Data Platform provides high performance and low latency to HFT applications.

Scalable & Flexible

The Pavilion HyperParallel Data Platform provides up to 2.2 Petabytes and simultaneously uses the NVMe/RDMA (Ethernet, IB), NVMe/TCP, iSCSI, NFS (v3, v4, pNFS, RDMA), or S3 interfaces to accelerate trading applications. Grow performance and capacity linearly without impacting on-going operations.

As datasets grow, the Pavilion HyperParallel Data Platform capacity and performance delivers linear scale across an unlimted number of systems.

Fast & Dense

Shaving milliseconds in transaction times can have a high impact on high frequency trades. Now take that to microseconds. Extreme low latency (25μs from the host) and ultra-high performance (20M IOPS with 120 GB/s throughput) accelerate trades. Multiple storage controllers make it ideal for the high-parallelism of NVMe SSDs. With the capability of accessing data faster than a DAS NVMe SSD, delivered in a compact 4U footprint for colocation near the exchange, the Pavilion HyperParallel Data Platform is designed perfectly for disruption.

The value that a Pavilion HyperParallel Data Platform provides to kdb+ was proven through independent certification by the Securities Technology Analysis Center (STAC®). They analyzed the results of running the STAC-M3™ benchmarks with a solution comprised of kdb+ and the Pavilion HyperParallel Data Platform. The solution set records for four of the 17 benchmarks in the Antuco suite, beating all DAS and AFA solutions tested by STAC, and was the best of all flash arrays they tested in another four benchmarks.

Safe & Secure

Protect the SSDs with Pavilion SwarmController™, which can rebuild a failed SSD at the rate of less than 5 minutes per TB. The Pavilion Data Assurance feature works with the RAID feature to provide self-healing bit-rot support for data, assuring every process gets uncorrupted data. Zero-footprint snapshots with consistency group features speed backup and disaster recovery operations.

Security is a top priority for FinTek firms. The Pavilion HyperParallel Data Platform uses FIPS-compliant data at rest encryption and ensures its always-on encryption does not impact performance. Meeting compliance is a fundamental part of the system design. Use encryption at rest to secure transactions for compliance and assure trading algorithms are kept private and off local area networks.

Enterprise Strength & Flexible Management

Get 24/7 proactive support, end-to-end data integrity, a modular chassis, and redundancy throughout the storage array to protect your trading applications as your infrastructure grows. All Pavilion HyperParallel Data Platform features are included at no extra charge, such as thin provisioning, snapshots, clones, data at rest encryption and more.

Use NVMe SSDs for all trading systems and boost operations. Access the Pavilion HyperParallel Data Platform with the web GUI or integrate with various management frameworks including: vCenter, Kubernetes, RESTful API, OpenStack, DTMF/Redfish, Swordfish, and more.

Economical

HFT applications (like kdb+) perform computing in memory across nodes to reduce the execution times of tasks, and most use local NVMe SSDs to boost I/O operations. Flash and RAM are some of the most expensive components of an application cluster. The Pavilion HyperParallel Data Platform reduces costs by eliminating the DAS SSDs and reducing the amount of RAM in every server, lowering TCO.

About Pavilion

Pavilion shatters customer expectations and resulting organizational outcomes by revolutionizing data processing for modern AI/ML, HPC, Analytics, Enterprise Edge and other data-driven applications. The Pavilion HyperParallel Data Platform, powered by Pavilion HyperOS, delivers unmatched performance and density, ultra-low latency, unlimited scalability and flexibility, providing customers unprecedented choice and control. Learn why Fortune 500 companies and federal government agencies choose Pavilion. Visit www.pavilion.io or follow the company twitter at https://twitter.com/PavilionData