

Faster Wall Clock Time For Better Trading

Challenges

- Today's trading workloads require performing near real-time analytics on millions of small files.
- Traditional shared storage struggles to keep pace with the needs of these workloads and elongate wall clock times.

Solution

- The WEKA Data Platform delivers the best possible wall clock time for latency sensitive quantitative and high-velocity analytic workloads.

Benefits

- Equivalent or greater performance than local SSD drives
- Meets or exceeds wall clock time service level agreements (SLAs) to ensure best trading strategies
- Achieves > 65% storage cost savings by leveraging shared storage instead of individual drives across each node in the HPC cluster
- Provides significantly simplified data infrastructure
- Integrates cloud tiering and cloud bursting for better economics and capacity on demand

The WEKA Data Platform Improves Analytics for Financial Modeling

High-frequency trading has undergone a revolution through the application of predictive financial models to trading strategies, and success is measured by fast execution based on scientific model results. Leading quantitative trading companies are constantly seeking out new strategies to gain better market insight and improve trading outcomes. The team members who work in quantitative trading have some of the best minds in math, computer science, and engineering. As academics from major institutions, they look for the most advanced technologies and techniques to develop a competitive edge. The constant evolution of new models presents a high level of unpredictability to the underlying infrastructure and requires a modern IT architecture that can handle the most demanding workloads — data-intensive and latency-sensitive applications.

The Challenge in Minimizing Wall Clock Time For Trades

Given the academic nature of quantitative trading, it is common to leverage the tools used in high-performance computing (HPC) simulations for financial modeling. Many financial trading institutions have enjoyed years of success with legacy HPC parallel file storage infrastructures that were designed around large block sequential I/O. Today's trading workloads, however, require writing millions of tiny files at a very high rate and performing near real-time analytics on the data.

Poor Shared Storage Performance For HPC Clusters

Legacy parallel file systems were developed and optimized decades earlier for spinning media and cannot easily leverage modern low-latency storage media using flash technology. HPC systems buckle under the small-file, latency-sensitive workloads, and wall clock times can be as much as 4x longer than local SSDs inside the high-performance computing cluster. The poor performance — and the associated increase in wall clock time to complete a market simulation — means that legacy HPC systems are not well suited for the new workloads common in financial services. As a workaround, many teams are electing to run their workloads on local SSD storage drives inside the HPC nodes to restore an acceptable trading window.

The Challenges Of Local Storage Flash

Local SSD storage inside the individual HPC compute nodes can deliver great performance, however, over time, it can introduce new headaches due to the nature of the financial services workloads. Flash technology provides great random, small-file performance but unlike disk drives, it has limited endurance and is particularly vulnerable when a workload is write-intensive. As drives begin to fail, keeping the application environment productive becomes a daunting challenge. At extreme scale, replacing all the SSDs would be a prohibitively expensive proposition as all HPC nodes would have to have local NVMe storage even if the application does not need that much physical space. In addition, as drives continue to fail, further application disruption is common and will eventually force a decision on total replacement of SSDs.

The WEKA Data Platform Enables High-Velocity Analytics

Many organizations consider SAN-based solutions utilizing iSCSI for storage, however, these solutions present other challenges and performance is not guaranteed. To deal with the biggest, most complex problems, the only solution is WEKA. It is uniquely built to solve today's big problems, and it has set many industry standard benchmark records. In fact, it has become the de facto data platform for Quantitative and High Velocity Analytics use cases.

The WEKA Data Platform for AI delivers the radical simplicity, epic performance, and infinite scale required to support enterprise AI and HPC workloads in virtually any location. Whether on-premises, in the cloud, at the edge, or bursting between platforms, WEKA accelerates every step of the enterprise AI data pipeline – from data ingestion, cleansing and modeling, to training validation or inference.

The WEKA Data Platform has a clean sheet design that maximizes performance with high-performance Flash technology. It is highly resilient and delivers the highest-bandwidth, lowest-latency performance to any InfiniBand- or Ethernet- enabled GPU or CPU-based cluster. Both data and metadata are distributed across the entire data platform to ensure massively parallel access to NVMe drives. With a single namespace that spans local storage and the cloud, WEKA delivers performance that is 3x that of local file systems and 10x that of traditional NAS or SAN. Built for enterprise-grade AI and HPC, WEKA tightly integrates object storage for best economics at scale and supports features such as snapshots, cloud backup, and multiprotocol support, including NFS and SMB.

Financial Services customers who use WEKA enjoy the benefits of full cloud integration and the ability to leverage public cloud compute resources, including automated tiering and cloud bursting. As an added bonus, the WEKA Data Platform significantly simplifies infrastructure management. Many storage alternatives require complex performance tuning to achieve the performance characteristics required, but WEKA is simple to manage out-of-the-box and requires no specialized tuning.

Business Benefits

Implementing WEKA in your Financial Services environment:

- Equivalent or better performance than local SSD drives
- Improves wall clock time to help ensure service level agreements (SLAs) are met or exceeded
- Delivers > 65% storage cost savings by leveraging shared storage across each node in the HPC cluster
- Dramatically simplifies infrastructure management with no HPC compute cluster downtime
- Enables leveraging of elastic public cloud compute resources for new application workload support

To find out more or to arrange for a free trial, go to <https://www.weka.io/get-started> or contact us at info@weka.io.



[weka.io](https://www.weka.io)

| 844.392.0665

