

Liquidnet built a data hub based on Pure Storage FlashBlade™ and FlashArray™ systems to perform timely trades and generate real-time analytics that its institutional trading clients rely on to produce outstanding results.



BUSINESS TRANSFORMATION

Liquidnet's institutional investors execute large-scale trades with precision and benefit from insightful analytics that supports better-informed decision-making.

GEO

Global

INDUSTRY

Financial

“We really value Pure Storage’s agile and reliable performance. It is providing us with high-performance capabilities that open up new possibilities in our application landscape that didn’t exist before.”

Mani Venkateswaran,
Global Head of Product Support

LIQUIDNET FLOWS TOWARD REAL-TIME ANALYTICS WITH DATA HUB FROM PURE STORAGE

Nowhere is the adage “time is money” more true than in the world of institutional investing, where money can be made or lost on the basis of split-second decisions. And few companies are more vital to that world than New York-based fintech, Liquidnet Holdings.

Liquidnet connects nearly 1,000 institutional investors to large-scale trading opportunities in 46 equity markets across the globe. Liquidnet enables institutional investors to trade on a large scale, anonymously and directly with each other, with minimal market impact.

“Liquidnet provides a global institutional investment network that many of the world’s largest asset managers use to seek liquidity and investment opportunities, and a key to helping them with their execution decision-making is superior analytics before, during and after the trade,” observed Mani Venkateswaran, Global Head of Product Support for Liquidnet.

Among the primary needs, Venkateswaran noted, “is connecting large numbers of market participants across multiple environments in real time while ensuring total confidentiality and regulatory compliance, while also providing relevant and timely analytics that will facilitate their decision making.”

One of the highest priorities for IT is having an infrastructure in place that is capable of delivering ever-higher levels of service to clients and keeping apace of industry trends. A recent contribution to this infrastructure at Liquidnet is the FlashBlade data hub from Pure Storage, which has been a supplier to Liquidnet since 2016.

FlashBlade is a scale-out, massively parallel data hub that enables enterprises to consolidate multiple workloads on a single platform. With unprecedented performance, scalability, and flexibility, FlashBlade empowers customers to manage massive volumes of data and tackle data-intensive workloads ranging from data warehouse to artificial intelligence.

FLASHBLADE ACCELERATES THE MOVE TOWARDS REAL-TIME ANALYTICS

According to Venkateswaran, the IT team saw a good match between the capabilities of FlashBlade and Liquidnet’s evolving needs, which center around making analytics available to traders in as close to real time as possible. “A lot of the data that we collect

COMPANY:

Liquidnet Holdings, Inc.
www.liquidnet.com

USE CASE:

- High-performance computing – Analytics
- Database – Oracle®

CHALLENGES:

- Legacy storage infrastructure was not appropriate for increasing production demands.
- Next-generation, real-time analytics required more flexible, higher-performing storage.

IT TRANSFORMATION:

- FlashArray solves application performance problems with superior IOPS.
- FlashBlade provides the performance, flexibility and scalability to support multiple, disparate workloads concurrently.
- FlashBlade accelerates application development process to deliver real-time analytics to clients.

“FlashBlade provides state-of-the-art technology that significantly reduces our time-to-market with capabilities of high value to our clients.”

Mani Venkateswaran,
Global Head of Product Support

has historically been used for post-trade analytics, but as the investment environment has become more complex and faster-paced, we want to provide traders more real-time analytics that will allow them to make pre-trade decisions.”

Delivering real-time analytics previously was not feasible because legacy storage systems lacked the I/O and parallelism needed to move very large data sets fast enough.

“At the time Pure Storage introduced us to FlashBlade, we were looking at building out our new analytics stack. FlashBlade had capabilities we thought were vital: the ability to process large volumes of streaming data in real time, and the ability to make a data set available to multiple workloads simultaneously.”

Liquidnet’s application development and analytics teams are employing modern tools like Elasticsearch, Spark, and Kafka and needed infrastructure to keep up with their workload demands. Venkateswaran saw FlashBlade’s leading-edge technology as a great complement and an enabler for the company’s internal teams.

“At Liquidnet, the enterprise technology services team works closely with the development teams in evaluating and adopting advances in technology, thus bringing innovations in core infrastructure closer to business solutions. As we create our future state reference architecture that projects where our infrastructure will be in five years, this solution provides a large part of that capability,” Venkateswaran said.

CONSOLIDATING MULTIPLE USE CASES ON A SINGLE DATA HUB

Because Liquidnet’s application development teams pursue several different projects concurrently, having a common data hub to support those diverse efforts is of great value.

“Pure Storage’s data hub, FlashBlade, allows us to identify use cases within different development teams and leverage the same storage technology and footprint to support all of them,” said Venkateswaran. “FlashBlade is geared toward highly parallelized and disparate I/O workflows. And we saw that would work beautifully with multiple development groups — using the same technology and getting good results without having to create parallel application stacks.” FlashBlade is now being used by two development teams, one focused on real-time analytics and the other on streaming I/O.

During pre-production evaluation, FlashBlade was tested for its ability to handle Kafka stream-processing workloads, and the results startled the application team: 2.34 million events per second, compared to a significantly lower number of events for the legacy environment.

“FlashBlade provides state-of-the-art technology that significantly reduces our time-to-market with capabilities of high value to our clients,” Venkateswaran said. “FlashBlade has been a huge enabler toward our goal of real-time analytics.”

FLASHBLADE COMPLEMENTS INVESTMENT IN PURE STORAGE FLASHARRAY

Adoption of FlashBlade in the development environment complements the use of a half-dozen Pure FlashArrays in Liquidnet’s data centers in the U.S., U.K. and Hong Kong.

Liquidnet first installed a FlashArray in 2016. “We wanted a viable alternative to our incumbent supplier, so we were not locked in with one vendor. At the same time, there was a need to go to much higher-performance storage systems. We felt Pure Storage would give us the high-speed I/O we needed in a very small form factor.”

The FlashArrays support real-time systems associated with tracking trade orders and saving those records for regulatory purposes. They're also used to process data analytics delivered to clients. These large data sets are used not only in OLTP settings but also for ad-hoc queries and reporting.

The arrival of the Pure Storage arrays made a noticeable difference in Liquidnet's production environment. "We had been seeing some significant challenges in terms of I/O operations getting queued, and then we would start seeing accumulations of I/O bottlenecks that led to slow transactions," Venkateswaran recalled. "With Pure, we saw significant improvements, not only in Oracle database performance but in I/O across multiple applications. There were measurable improvements in our ability to keep up with ever-increasing transaction volume and to provide real-time reporting and analytics."

OPTIMIZED MANAGEMENT AND HIGH ROI

From the perspective of the IT department, Pure Storage provides additional benefits, particularly in the areas of storage management and long-term return on investment.

"One of the great things we see is that Pure Storage isn't just spinning out hardware and having us manage it. They deliver storage management as a service. With Pure1®, we are getting a massive uptick in enterprise monitoring and management capabilities," Venkateswaran said. Pure1 is a cloud-based management and support platform that allows customers to manage multiple FlashArray and FlashBlade devices from a single pane of glass, even on a smartphone.

Another value-add is the Pure Evergreen™ Storage program, which guarantees customers access to the latest technology and features totally non-disruptive upgrades with complete preservation of prior investment in Pure Storage solutions, all as part of the cost of regular maintenance.

"With Evergreen, you can keep the same footprint and still add capacity and benefit from new technology," Venkateswaran said. "Pure Storage is more efficient in a data center environment, lowering operating costs and eliminating forklift upgrades."

Looking forward, Venkateswaran sees an important role for Pure Storage in enabling Liquidnet to continue growth by delivering a superior client experience. "We really value Pure's agile and reliable performance. It is providing us with high-performance capabilities that open up new possibilities in our application landscape that didn't exist before."

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info@purestorage.com
www.purestorage.com/customers