Alpha Trading Systems increases speed for securities trading with HP ProLiant servers

Financial services company boosts performance up to three times over its previous environment at lower operational cost

"The biggest surprise for me is the amount of performance gain that we receive from ProLiant DL380 G7 Servers over our original infrastructure. The performance has far exceeded my expectations, and it allows us to bring faster speed and higher quality execution to the equity trading market."
–Karl Ottywill, chief information officer, Alpha Group

HP customer case study:
HP ProLiant DL380 G6 and G7 Servers, HP Services

Industry: financial services

Objective
Enhance the Alpha Trading Systems IT infrastructure to create a stronger competitive advantage for executing trades, supplying market data, and providing technology-related services

Approach
Conduct a server proof of concept and align with key technology partners for a low-risk implementation

Business technology improvements
- Provides sub-1-millisecond response times, which brings the company's technology infrastructure to the next level of low latency and boosts usage among market participants
- Delivers up to three times the load throughput capacity of the previous environment and addresses unpredictable spikes in market activity
- Mitigates the need for a data center expansion (new servers fit in nearly the same server footprint)
- Ensures high availability and business continuity with fully redundant, fault-tolerant servers and application stack

Business outcomes
- Increases revenue potential by facilitating competitive advantages such as the fast distribution of market data
- Enhances overall competitive advantage and enables competition with major trading venues globally
- Improves satisfaction among all market participants
- Lowers operational expense, including 35% less energy usage
- Supports cost-efficient future growth
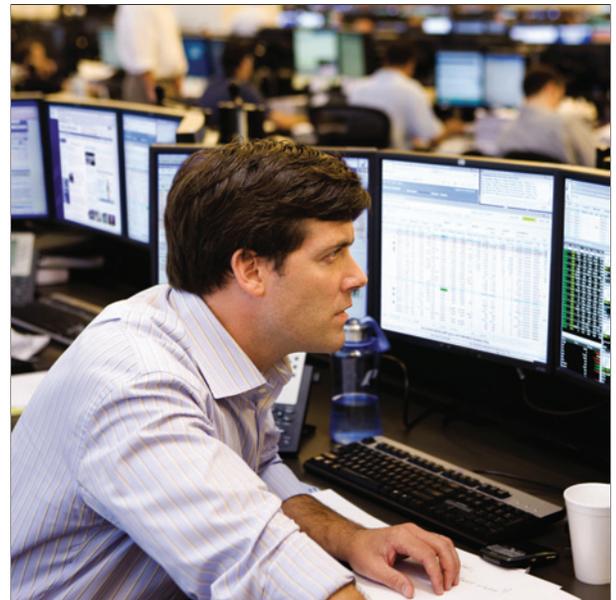
One of Canada's fastest trading venues

In securities trading, it's critical for low-latency systems to execute orders, process data, and transmit millions of messages in a flash. For a trading venue, low-latency systems are essential to stay profitable and develop the customer base.

In its third year of operation, Alpha ATS Limited Partnership is a best-of-breed alternative trading system (ATS) that offers superior technologies with reduced latency in active markets. Alpha distributes trading data and real-time quotes, as well as provides order routing and technology-related services. Alpha's partners consist of major players in the Canadian securities industry.

"Users of our new HP environment have noted significant gains in their speed of execution and more important in deterministic latency and stability. They execute their trades faster, which allows us to support more users and greater market growth with the performance and capacity we gain from ProLiant G7 servers."
Karl Ottywill, chief information officer, Alpha Group

Alpha's computing systems must get orders out as quickly as possible to maintain large trading volumes. High-frequency traders (HFTs) especially thrive on low latency in execution speed. By using one of the fastest trading platforms in the world, Alpha's subscribers are able to "source" (find) liquidity faster. Systems with whiz and zip also benefit Alpha's bottom line by accommodating higher volumes and more users. Even gaining a millisecond of computing speed can lead to increased profits.

"The more trading activity we can service and the more capacity we can make possible to the Street, the more potential we have for growth," says Karl Ottywill, chief information officer of Alpha Group.

Over the past few years, the Canadian market has grown considerably, which has elevated Alpha's trade volumes. The company replaced its previous servers with HP ProLiant DL380 G6 and G7 servers on Intel® Xeon® Processor 5500 and 5600 Series-based Servers. In doing so, Alpha addressed market growth, which enables the company to compete with major players and trading venues globally. Alpha also achieved up to three times better performance for its trading platform and dropped its response time from single-digit milliseconds to under a millisecond.

Surpassing expectations

Scalar Decisions, an HP reseller and long-time partner of Alpha, recommended the HP architecture. Knowledgeable about Alpha's environment and growth requirements, Scalar showcased HP's benefits over competing offerings. Before replacing the original servers, Alpha's IT team assessed the stability, scalability, and engineering strength of ProLiant servers running Oracle Solaris and Alpha's trading engine. Alpha and Scalar worked as a team to define and finalize the project requirements, architect the HP solution, and implement the new platform. Scalar paid strict attention to the increased performance demands of the trading platform, while ensuring the new HP solution saved on power and cooling.

Functionally rich and heavily customized for the Canadian market, Alpha's trading engine manages market data gateways that integrate with the stock market and numerous trading processes. All transactions and order matching must be in base memory on the servers and execute in microseconds or milliseconds. Alpha's Trade Through Management (TTM) service, which protects market participants from trade-through violations, also runs on ProLiant servers. The demand on the HP infrastructure is immense. Market events may cause CPU utilization to spike from 4% to 70% in a split second. Yet the infrastructure handles the upside admirably, according to Ottywill.

"The performance of the ProLiant DL380 Servers has exceeded my expectations. We expected to see a material performance gain, especially with our new network backbone, but we have seen increases that were multiple times over what we had previously in terms of our load throughput capability. I'm very pleased with the way they have integrated with our environment and architecture," he says.

Spurring competitive advantage

Participants in the capital markets industry—dealers and HFTs—must react to market events quickly to boost the profitability of their trades. On average, Alpha can execute an order within 750 microseconds on its domain, which is a sought-after capability among HFTs and dealers. The platform upgrade created a considerable latency gap between Alpha and its strongest competitor, while boosting user satisfaction.
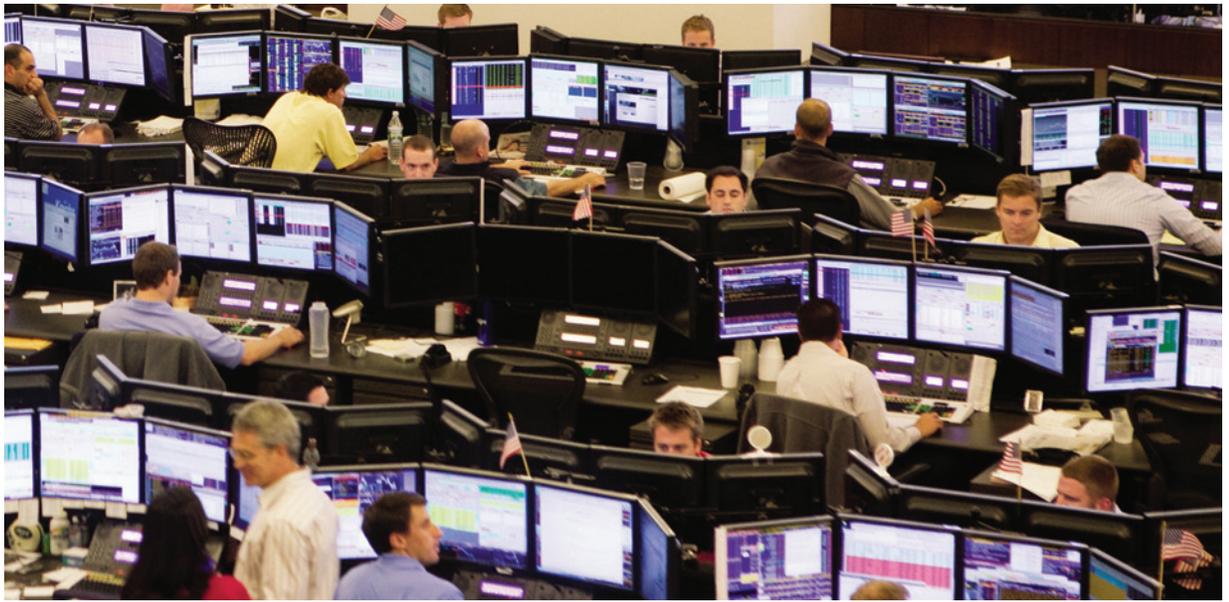
"With the HP ProLiant upgrade, we brought our native execution speeds down to the fastest in Canada, and we are competitive in execution speed to other geographical marketplaces. Being able to process more capacity quickly gives us an edge. The more trades we can drive through our system, the better it is for us," Ottywill says.

Redundancy for staying power

Alpha services—order entry and market data gateways—append to a particular connection in the market, so a server outage could be impactful. "The worst thing that can happen to a marketplace from a revenue and reputation perspective is to be out of the market," Ottywill asserts.

Due to the fact that the infrastructure must not fail, the application stack and servers are fully redundant and fault tolerant across the board. Ottywill notes that system availability on ProLiant servers is excellent. The staff co-located redundant matching engines in the primary data center, which accelerated execution speed in combination with the new ProLiant infrastructure.

In conjunction with the server upgrade, the staff made several changes to the company's third-party storage configuration, replacing the SAN fabric with internal disks. "One of the main drivers we had for switching into the HP gear was to be able to support certain storage combinations," says Ottywill.

Lower operational costs

Another compelling strategy is the acquisition of twice as much overall capacity in nearly the same server footprint at lower operational expense, including 35% less energy usage. Additionally, the ease at which the staff can expand the infrastructure in the future will also affect the company's balance sheet. Previously, as Ottywill recalls, expanding the infrastructure was a "real pain" due to the restrictions of working within a SAN disk framework. In contrast, HP servers provide infrastructure commoditization with homogeneity, enabling Alpha to achieve a higher level of IT efficiency.

Ottywill explains: "When I look at the previous infrastructure versus what we have today, one of the biggest savings besides lower operating costs and power consumption is the cost of future runways, which will be a lot less because our expansion capabilities will be significantly more cost effective. This enables us to be agile and reactive as a marketplace."

"Virtually everything is contained in one server and consistent across the environment," he continues, "so if we need to add some gateways, a couple of more matching ends—or take capacity up another notch—we can order more servers and spread the application across them. We know the ProLiant servers are going to work in the data center; that's the flexibility of this kind of HP architecture for managing growth."

The success of the latest upgrade confirms Alpha's strategy to tap the expertise of technology and professional services partners in aiding its business activities. In that regard, Alpha also uses HP Care Packs with a six-hour call to repair onsite contract to maintain business continuity and top-line availability.

"As a significant marketplace in terms of volume, we cannot afford downtime.With a modest IT staff of 20 members, our primary focus is on our core business. Leaving our specialized work to the HP support team, we are able to pull in whatever resources when needed and achieve a great deal through partners like HP," Ottywill concludes.

About Alpha ATS LP

Alpha Group includes the leading Alternative Trading System for Canadian listed securities—Alpha ATS LP, and a data distribution service for Alpha ATS market data – Alpha Trading Systems LP. Alpha Group was established in May 2007 by nine of Canada's leading financial institutions with the aim of increasing the country's securities trading efficiencies and making the Canadian marketplace more globally competitive. Established for the Industry by the Industry, the Alpha Group focuses on increasing liquidity, reducing the cost of trading and providing innovative services by leveraging its unique expertise, operating model, and technological capabilities. For further information regarding Alpha Group, visit www.alpha-group.ca.

Customer solution at a glance:

Primary applications
• Trading engine, order management, Trade Through Management

HP Services
•HP Care Packs: 24x7, six-hour call to repair onsite

Primary hardware
• 105 HP ProLiant DL380 G6 and G7 Servers on Intel® Xeon® Processor 5500 and 5600 Series-based Servers

Primary software
• TRADExpress core trading engine by Cinnober Financial Technology
• MySQL Database (for internal use)
• Oracle Solaris 10 Update 8

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