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FINANCIAL MARKETS: The Surge in Hosting at Exchange Data Centers

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US gov. move to curtail proprietary trading may affect outcome of large bets stakeholders have placed on growth in the space. *In the photo: Stanley Young, NYSE Euronext*

As the financial world comes to terms with President Barak Obama's explosive plan to order banks to cease their proprietary trading activities, the implications for algorithm-based high-frequency trading have yet to be assessed.

As DCD FOCUS went to press, the banks and stock exchanges, which are providing the data center infrastructure for such activities, had little to say as they digested the implications of the US administration's move and awaited further details on the proposed new regulations.

But what is clear is that the surge in algorithm-based trading, and the huge infrastructure investment needed to underpin it, has opened new markets for the exchanges and colocation firms, altering their own, and their client's, long-term data center investment strategies.

Commentators are saying that even the definitions of proprietary trading were being debated and it remained to be seen just how far the proposed changes would go.

However, that it comes at a time when high-frequency trading was already facing scrutiny by the US Securities and Exchange Commission only makes the whole issue even more important, with billions of existing and planned data center infrastructure investment dollars riding on the outcome.

What we do know is that demand for data center services from firms involved in electronic trading had boomed in the last 18 months and keeps growing, and providers of colocation, ultra-low latency connectivity and managed services to these firms are stocking up on room for capacity expansion to accommodate it.

NYSE CONSOLIDATES

High-frequency trading has turned financial exchanges into specialist colocation players. New space is constantly opening, whether in New York or London – the London Stock Exchange (LSE) is even considering migrating its own equipment out of its data center to accommodate client demands.

High-frequency trading is about shaving milliseconds from transactions and one of the simplest ways to achieve this is to physically place a server next to a trading platform.

Exchange members are pushing for more and more capacity within existing data centers and waiting impatiently for new data centers to begin operations. Once the power and cooling is in place, it is all about speeds and feeds.

NYSE Euronext, the company that operates two of the world's largest stock

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No Poll's Available

exchanges, has a data center strategy that is different from some of its counterparts. It builds and operates its own data centers instead of outsourcing the task to full-time operators – a strategy preferred by others in the space.

The decision to build two new data centers in Mahwah, New Jersey, and Basildon, England, was made at a time when the market for colocation in proximity to exchange servers was on the rise and NYSE's leases on buildings that housed some of the existing data centers were approaching expiration.

"We had a decision to make," says Stanley Young, chief executive of NYSE Technologies and co-global chief information officer of NYSE Euronext. "Our leases were running out."

The company currently has six data centers in North America, and two principal facilities in Paris and London. Key US data centers are in New York, Chicago, Boston and San Francisco. The company is consolidating its data center footprint and the two new facilities (due to come online by the end of the year) are central to that effort.

NYSE says its new data centers will be some of the most advanced, cutting-edge facilities. And they have to be: today's financial services customers' sophistication and needs follow the market on the same upward trajectory.

Besides the all-encompassing factor of latency, today's electronic trading firms hold colocation providers to some of the highest standards than do all other types of customer. After connectivity, key areas are scalability, ease of deployment, breadth of services and security.

CAPACITY EXPANSION

Scalability is crucial, as trading algorithms get increasingly complex and as customers expand their own client or partner rosters.

"Most firms are taking a 12-18 month projection of their compute needs," Young says. "They're already insulating themselves from having to upgrade or buy more capacity. They're already building in a level of growth. Then we have the ability, in both (new) data centers, to work with users, anticipate their demands and build additional capacity."

Three of the five 20,000 sq ft modules of the Mahwah facility will open on day one, with the other two left for future expansion. The 400,000 sq ft building's power capacity will be 28MW. Power densities on the raised floors of its data halls will go up to 150 watts per square foot.

NYSE adopted a modular design for the Basildon data center as well. It will house a total of seven 3MW pods, each providing 10,000 sq ft of raised floor. This is also a 400,000 sq ft building, sitting on a 16-acre property.

Besides the constantly growing complexity of client algorithms, a major demand driver for NYSE data center capacity is the operator's allowing member companies to provide "sponsored" market access to their own clients – the only way for non-members to use the exchange's colocation space. As members grow the number of clients they serve, so does the amount of space they use in the data center.

LONDON SNOWBALLS

LSE began its colocation business with a small pilot in September 2008.

As a data center owner/operator, LSE had experience of meeting user demands but, according to Nigel Harold, head of business development technology for its hosting exchange service, the development of the colocation business meant adapting procedures and policies to accommodate new tenants that wanted fast connection to its Tradelect platform.

"We had a number of requests from proprietary traders and worked with them to determine what they were after. We made a small area available in September 2008 and it kind of snowballed," says Harold.

The model changed as the exchange quickly saw that connectivity was key to efficient operation of trading algorithms and it expanded its carrier footprint. As proprietary traders, the clients choose their own carrier and develop their own algorithms.

"We help with installation – racking and stacking – and ongoing management. We offer remote hands and refine what they need," says Harold.

Because it is based in central London, the exchange charges on power consumed with two levels – 3KW per cabinet or 5KW per cabinet – on offer. Clients are trying to squeeze as much capacity as possible into their cabinets and various cooling methods are employed as "clients are quite powerintensive". The site is N+2 and all cabinets are monitored to ensure clients stay within their limits.

LSE won't say how many clients it is housing in its data center, but does say that demand is such that it wants to release further capacity and is refurbishing other floors.

Recent developments at the LSE include the opening up of a new floor to house members' equipment and a deal with market data aggregator Quanthouse.

The exchange is even considering migrating its own equipment out of its data center in order to free up more capacity for traders.

On the deal with Quanthouse, the market data on the number of asset classes being sent meant it made sense for them to take the data internally from the exchange, says Harold.

In September 2009, it bought MillenniumIT, which had its own in-house developed trading systems with multi asset-class functionality.

It looks as if the exchange will upgrade to a 10Gb Ethernet networking infrastructure, but Harold has not ruled out a move to Infiniband – the ultra-fast networking architecture.

Along with the capacity, the cross connects and the low latency data aggregation, the exchange is exploring whether it can provide order-validation services. With new exchanges (see article next page) and competitors' data centers coming to the marketplace, there is no choice.

DATA FEEDS

Beyond the trading platforms, the data providers are trying to cut latency by providing hosting in their data centers.

Thomson Reuters (TR) provides colocation and managed services for traders in its data centers, along with its market data feeds. "We have headroom of way north of 20%," says Bill Ruvo, global business manager for the company's Real-Time Data Feeds division.

"Given that we have been in the market-data infrastructure business for years and years, we have tight processes for capacity management."

In October, TR announced a new partnership with Savvis, a large US-based data center provider that will host infrastructure that supports TR's new managed hosting solution, as well as colocation space for firms that wish to install their servers next to that infrastructure and connect to it.

The deal includes Savvis data centers in New York, Chicago, London, Frankfurt, Tokyo and Singapore. The company planned to launch the offering in all regions except Asia by the end of January. Tokyo and Singapore were due to come online mid-February.

Prior to the announcement of its deal with Savvis, TR has been using two BT Radianz data centers in London and New Jersey. The company partnered with Savvis to expand its global reach in proximity to major trading markets. "We'll continue to service the customers that are running in those BT data centers until the end of their contracts," Ruvo says.

The company does not outsource data centers that support production of its core product – consolidated data feeds from hundreds of exchanges around the world – keeping that task in-house. "Thomson Reuters data centers are used to produce and distribute our standard products to customers," Ruvo says.

VERIZON BUILDS TO STAY AHEAD

Verizon Business, which runs the data center infrastructure that hosts the IT equipment of Nasdaq OMX, is also making expandability a key part of its offering to the exchange operator.

"The reality is at some point in time your data center infrastructure will hit a limit," says Verizon's executive director of Technical Operations, Brian Trospen. "Can you expand (in an existing facility) or build in a nearby or adjacent space?"

"We are expanding now to stay ahead of demand. We purchased enough real estate – raw land – so that we can handle expansion of data centers within the same geography, looking toward that longer-term requirement."

Nasdaq uses Verizon data centers to host its exchange infrastructure, as well as provide colocation services with connectivity to its exchanges.

Growth in demand for connectivity has to be satisfied as well, and Verizon has a policy that leaves a lot of headroom to ensure extra bandwidth is there when Nasdaq needs

it.

"When we have utilisation over 30%, we continue to upgrade that bandwidth," says Jan Claeson, Verizon's sales director for the Nordics.

FULL RANGE OF SOLUTIONS

Another characteristic of today's financial service customers is the demand for a full range of solutions from the data center service provider. Besides offering complete management of customer infrastructure within Savvis data centers, TR will provide help to clients' development teams with integrating their applications with the host.

"They're looking for a plug-and-play scenario, where they can take any work they've done in terms of coding applications and turbo-charge these applications with low latency data," says Ruvo. "Plug-and-play and compatibility play a key role in the success we've had."

In an effort to leverage the demand for fullservice solutions, data center provider Telx recently combined its numerous offerings for financial firms into one product – Financial Business Exchange.

The offering provides colocation space, managed services and connectivity to all major exchanges at the company's facilities in New York, New Jersey and Chicago.

"It really is a packaging of all the core products we offer," says Telx director of product Nelson Frye. "Fully managed is a big part of that."

FAST CONNECTIVITY AND DEPLOYMENT

Clients in the high-frequency trading space require a lot more detailed and sophisticated information about latency than other types of data center clients, says Telx chief executive Eric Shepcaro. "How many hops between their location and other clients? They are very specific and will look for actual measurements."

Financial customers also require much quicker deployment than do others. "They Continued from page 25... have faster requirements in implementation of services, particularly on the connectivity side," Shepcaro says.

"We can implement a new physical-level cross connect in 24 hours and sometimes, if all the information is correct, we can even do it within four hours," he says.

AWAITING FINAL WORD FROM US SEC

The US Securities and Exchange Commission's (SEC's) ongoing inquiry into high-frequency algorithm-enabled trading has attracted a lot of attention.

Sources interviewed for this article were reluctant to comment at length on the commission's review of their space, citing lack of definitive conclusions by the regulators.

The last action the SEC had taken in connection with the matter at the time the article was written was a proposal to ban "naked access", or execution of unscreened trading orders. It allows for quicker execution than that of orders filtered by an automated system of checks.

Lawrence Leibowitz, group EVP and head of US execution for NYSE Euronext, says the exchanges supported the rule.

NYSE's Young says that if the new rule were to be enacted, the company would benefit from increased demand for its Risk Management Gateway product, a set of filters that enables brokers that provide sponsored access for clients to check if orders are placed in accordance with regulations and block questionable orders from reaching the markets.

Young says that most firms took "a very responsible attitude" toward making sure their systems played by the rules.

This January, NYSE fined one of its clients, Credit Suisse, for running an algorithm that blocked some exchange traffic in November 2007. The exchange company says the penalty was issued to the client for lacklustre development and implementation of the application, according to news reports.

Verizon spokesman Kevin Irland says the company would make any changes necessary, if the SEC inquiry resulted in new regulations.

"With our position in the market, it's something we monitor," he says. "At the end of the day, we would want to make sure the services we offer to our customers are in accordance with any regulatory requirements."

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