



WHITE PAPER: Trading Ecosystems

Trading Ecosystems: Meeting the Challenges of Today's Fragmented Liquidity Markets

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Introduction

Regulatory, market, and technological changes have led to a rapid fragmentation of liquidity over the past few years. Regulations such as the Markets in Financial Instruments Directive (MiFID) in Europe have fueled the rise of multilateral trading facilities (MTFs), alternative trading systems (ATs), electronic communication networks (ECNs) and crossing networks, which in some instances have stolen market share away from traditional exchanges. In Europe, for example, all main markets except NYSE Euronext have seen their market shares erode throughout 2009 — on average 18 percent, and, in the case of FTSE 100, more than 33 percent, according to TAG.¹

In the United States, MTF's, ECN's and crossing networks have increased their percentage of total U.S.-listed trading volume significantly in the last few years. High-frequency traders are now significant market players, with some estimates placing their percentage of trading volume as high as 75 percent.² All this is dramatically changing the competitive landscape. Although these changes can create greater opportunities for arbitrage by savvy firms, it also makes it more difficult and costly to connect to these numerous sources of liquidity. Add the fact that broker services are increasingly commoditized and you see why all market participants are under pressure to dramatically rethink their business models.

Technological innovations both help solve these challenges — and create new ones. There's the virtual "arms race" in ultra-low-latency direct feeds and platforms, in which latency is now measured in sub-microseconds or even nanoseconds. The explosion in market data volume — which increased 84 percent between April 2008 and April 2009 alone³ — when coupled with this fragmentation, creates thorny connectivity issues for trading firms who need to access all the new liquidity venues and blend the data in a way that allows them to intelligently use it in their trading systems. Algorithmic trading is now considered such a standard practice throughout the industry that automation is part of the competitive landscape, since deciding manually when and where to trade is virtually impossible with so many venues and when liquidity is shifting from one place to another in such compressed timeframes. This drive to automate, coupled with the rapid pace of technology development, can dramatically increase the cost of entering and participating in new markets, especially since for most trading firms IT management is not a core competency.

Trading "ecosystems" increasingly offer an attractive solution to these and other challenges. Such ecosystems bring together liquidity points, content, services, and IT infrastructure to enable successful execution of the entire trading lifecycle. Positioned in close proximity to — or inside — major sources of liquidity, such ecosystems allow trading firms to shift the burden of technology acquisition, maintenance, and management over to specialists, while supporting critical pre-trade, trade execution, and post-trade activities so they can focus on their core businesses.

¹ <http://www.tagaudit.com/TAGSept-Oct09ANALYSIS.pdf>

² Ibid.

³ Statistics compiled by the Financial Information Forum with data from SIAC, NASDAQ and NYSE Arca. http://www.fif.com/docs/2009_04_fifmd_capacity_statsexcerpt.pdf.

Challenges and Opportunities in Today's Fragmented Markets

Colocation is an increasingly popular way to address the low-latency issue. If it's available, contracting with an exchange for colocation space within its physical facility is one colocation option. But it can be expensive due to the premiums charged for such services by exchanges over other hosting and/or colocation vendors. It can also significantly limit flexibility, as most colocation solutions provided by the exchanges themselves offer limited connectivity choices and, in keeping with their self interest, usually favor access to that exchange over other liquidity venues. Liquidity venues also lack the trading technologies, order and execution management, access to market data, and messaging platforms that a more value-added managed service provider would offer.

There's also the issue of scalability: most venues have limited floor space, cooling, and energy capabilities, and may not have the resources to support a firm's growth. The question many trading firms increasingly ask: how will the colocation host prioritize the firm's needs against those of the host's own, when resources are limited or an unanticipated event — even a disaster — occurs? And if a firm decides to collocate at multiple venues to address the latency issue in multiple markets, there's the sheer technical complexity of making it all work together. The alternative to colocation is a do-it-yourself IT strategy. But this can be a costly proposition. Building, maintaining, and managing a data center — or multiple data centers — close to markets to achieve low latency requires heavy investments in real estate, equipment, and other infrastructure components, not to mention hiring and retaining personnel with the necessary expertise. There's also the complexity of putting the market data infrastructure in place to deliver and process time-sensitive data to core trading applications. Although larger firms can afford in-house direct market access (DMA) solutions, in many cases smaller market participants cannot.

Buy-side and sell-side firms also face other, unique challenges to their businesses.

Buy-side firms

Buy-side firms are seeing price inefficiencies in emerging markets, but don't have the direct data feeds required to compete in these markets nor the expertise or infrastructure capability to set up these direct feeds themselves. In a related issue, many buy-side firms are simply not big enough to justify deploying their own enterprise data distribution platform, DMA, and permissioning solutions, but still need to deliver, control and track data from numerous execution venues to numerous internal users and applications. Despite opportunities to leverage their trading applications in new markets, the lack of support from data providers makes it difficult to get these set up and tested. This can cause them to miss potentially lucrative windows of opportunity for trading; restrict their ability to trade in new markets; and limit growth and profitability.

Underpinning all this are today's extraordinarily tight budgets. Traders are demanding ultra-low latency connectivity to local highly liquid markets and normalized real-time data from other geographically dispersed markets using both blended direct and consolidated feeds. But in many cases, the funds simply aren't there for many buy-side firms to invest in the necessary technologies.

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Sell-side firms

Sell-side firms share many of the challenges of buy-side firms. Chief among them is the need to access ultra-low latency data and the fact that getting access to it in today's highly fragmented markets is costly, complex, and risky. Such firms don't want to over-commit resources to markets that may not be around for the long term. Even when customers are demanding it, sell-side firms frequently lack the staff, budget, or time to build the necessary direct feeds. All these things have the potential to significantly inhibit growth.

Such firms also need instant access to bulk historical data, and require sufficient capacity to develop, test, and deliver new products to customers. But many of them can't get access to IT resources and infrastructures that scale sufficiently to meet their needs. This delays time to market of new products, and potentially impact firms' reputations due to inadequately tested algorithms/systems. Additionally, sell-side market players have to connect easily with trading partners, most notably with third party firms in the post-trade process as part of the settlements lifecycle.

Perhaps most significantly, although it's certainly an imperative for sell-side firms to differentiate their trading platforms from competitors, many find that they are constrained by their IT resources from adequately accomplishing this. Although they can lose market share if this is not addressed, IT infrastructure and connectivity expertise is simply not a core competency. Time spent negotiating with multiple content and data center vendors could be re-focused onto addressing the needs of the business.

Buy-side firms also need an infrastructure that is robust enough to perform the heavy computation required for real-time analysis and data points.

Finally, as with buy-side firms, cost is an issue. Yet by not investing in the latest technologies, sell-side organizations risk losing out on significant arbitrage opportunities.

Liquidity venues

Although liquidity venues themselves face significant challenges retaining and growing liquidity share as a result of new entrants into the market and the threat of internalization — most notably, the loss of listings — the current state of the market has also created numerous opportunities for them.

They have the chance today to offer new market models — for example, ECN's and crossing networks. But to pull this off, they require more robust and sophisticated IT infrastructure and networking capabilities than many liquidity venues currently possess.

Given the thirst for low-latency among trading firms, liquidity venues would also benefit from infrastructure capable of supporting them in offering clients new value-added service and content. This is already happening — for example, Deutsche Borse bought Need to Know News, a machine-readable data provider in November 2009⁴ — thus blurring the lines between exchanges and content providers. But many are held back by data center constraints such as limited space, cooling and power capabilities, as well as a general lack of IT infrastructure expertise.

⁴ <http://www.automatedtrader.net/headlines/24352/deutsche-brse-acquires-need-to-know-news>

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Indeed, already the rise in electronic trading volumes is putting pressure on the existing limitations of exchanges' IT infrastructures, many of which are bumping up against the ceiling of their existing data center footprint and network throughput capacities. Even more significant, many venues are being frustrated in their ability to attract new liquidity due to a lack of robust IT infrastructures — specifically, connectivity to other liquidity points.

Trading Ecosystems: A Solution for all Stakeholders

Ecosystems represent an innovative new solution to addressing the fragmentation challenge. By bringing together content and services with a robust and scalable IT platform that includes “agnostic” network connectivity options, buy- and sell-side firms and liquidity venues alike can improve operational efficiencies while lowering TCO and freeing up their resources to focus on their core competencies. What are trading ecosystems? At the most basic level, they consist of resilient, scalable, and performance-tuned data centers placed in close proximity — or even inside — strategic exchanges and liquidity venues. They offer connectivity to a wide range of networks that provide access to low-latency market data, analytics, and data management platforms as well as a broad range of managed infrastructure services in addition to colocation.

By delivering an end-to-end solution that supports the entire trading lifecycle, trading ecosystems:

- **Enable ultra low latency through proximity hosting.** By locating their systems and applications within an ecosystem — which is located close to or even inside an execution venue — traders can establish direct connections to pools of liquidity and increase bandwidth to rapidly funnel high volumes of data
- **Provide access to consolidated market data.** Data is an essential part of any trading strategy. Ecosystems deliver high-performance, direct market connectivity to worldwide execution venues and real time market data through low-latency feed technology, aggregated data feeds, and application programming interfaces (APIs) that allow trading firms to seamlessly incorporate data into their applications.
- **Provide access to a broad range of applications and value-added services.** A robust ecosystem will have a full range of software and other value-added services for trading firms to choose from — including DMA and entitlement systems — that can be easily integrated into the other managed hosting, networking, and data services being provided by other vendors in the ecosystem. For example, one recent innovation transforms machine-readable news into real-time analyses of company events, which, when combined with low-latency proximity hosting, can give trading firms a decided advantage in acting on the latest market intelligence.
- **Deliver a level playing field with network and venue neutrality/service independence.** Ecosystems provide maximum flexibility by being “agnostic” to the network and venue preferences of trading firms. Rather than locking them into a particular vendor or venue, a true ecosystem delivers choice of best-in-class products and services that support the entire trading lifecycle to all participants.

Business Benefits of Trading Ecosystems

Outsourcing IT infrastructure is an increasingly popular strategy for trading firms. For cost reasons alone outsourcing may make sense given the high TCO of building and managing an internal data center. After all, a trading infrastructure must be robust and scalable enough to handle existing workloads while also enabling fast time-to-market of new products and services. Add the complexity of building and managing a market data infrastructure that enables low-latency, and the need to integrate third-party software and value-added services, and a trading ecosystem stands out as a cost effective solution.

Among other business benefits, a trading ecosystem can allow trading firms to:

- **Lower TCO and leverage economies of scale.** Because there's no need to build out their own IT infrastructures, trading firms can minimize their TCO even as they pursue the new revenue opportunities afforded by the increasingly fragmented liquidity market. And as trading firms grow, they can leverage the economies of scale of the managed service provider to add additional capacity at reasonable cost as needed.
- **Keep ahead of the low-latency arms race.** Low-latency is a constantly moving target. No matter the competitive advantage of shaving milliseconds or even nanoseconds off access to data, or transaction execution, it is only a matter of time before that advantage evaporates as another firm manages to go even lower. The best strategy is therefore for firms to place themselves in a position to take advantage of advances in technology so they are always on the edge.
- **Streamline the trading lifecycle.** In addition to the proprietary applications many market participants have designed and built internally, many also leverage applications and data services from a range of liquidity venues and third-party vendors. These applications and services are needed to support all the different trade lifecycle stages — for example, connectivity to execution venues for price discovery; to brokers and execution venues for orders/trades; and to trading partners and applications vendors for post-trade processing. Rather than build a separate private network to each third-party site, or route trades to a hub on a common network that charges costly transaction fees, a trading ecosystem lets them deliver transaction messages and streamline straight-through processing applications for all clients, business partners, and processes.
- **Provide rapid access to new global markets.** As new liquidity venues continue to emerge around the world, trading firms desire to connect to them in order to pursue new opportunities. By placing their trading systems in strategically located ecosystems around the globe — and expanding to other ones as necessary — trading firms can dramatically reduce the risk and the expense of venturing into new markets.

Network neutrality: Not an empty phrase

Although many colocation vendors promise a broad range of network connectivity, a trading ecosystem will deliver “agnostic” access to the networks that are truly relevant for a particular locale or market. When choosing an ecosystem, trading firms must check that the network options provide the following capabilities:

- Allow them to place trading applications in a low-latency location and tie them back to other locations or a main office; feed low-latency and/or consolidated data to trading systems and their human traders; and connect seamlessly to trading partners
- Offer sufficient flexibility to meet their evolving needs
- Provide access to a full range of network-based IT services, including disaster recovery, application performance management, business-to-business integration services, and more
- Gives them the choice of choosing a managed network service, contracting for a third-party extranet, or going the do-it-yourself route
- Consolidate network architectures and maximize performance
- Offer quality of service (QoS) levels with pre-established latency, availability, and packet-loss criteria backed by specific, enforceable service level agreements

The Thomson Reuters Hosting Solution: A Global Network of Trading Ecosystems

In collaboration with Savvis, Inc., Thomson Reuters offers a global network of data centers specifically tailored to the needs of financial services firms. Initially to be deployed in New York, Chicago, London, Frankfurt, Tokyo, Singapore and Hong Kong, the global network provides firms with access to low latency and consolidated market data, software and analytics, and a data management and distribution platform, together with the ability to have their infrastructure, low latency data feeds and applications hosted and managed within these centers.

Each site offers the Thomson Reuters Enterprise solution suite, with high-performance direct market connectivity to worldwide execution venues, real time market data, and post-trade capabilities. This enables customers to plug their trading applications into a single architecture designed to bring market participants closer to strategic points of liquidity. In addition, customers benefit from lower TCO, streamlined deployment, and improved time to market with a single point of access to global trading venues.

Conclusion

Few industries are in a state of greater flux than financial services. The global economic meltdown combined with fast-evolving technology is colliding with regulations that are enabling new liquidity venues to emerge and battle over turf with established players. The need to access ever-larger volumes of market data and execute trades at ever-lower latency, coupled with downward pressure on budgets has backed many trading firms — as well as liquidity venues — into tight competitive corners. By joining a trading ecosystem that successfully integrates content, services, and IT platform, trading firms position themselves for success in a difficult and complex but exciting market that offers them tremendous room for growth.

Opportunities for financial software vendors in a trading ecosystem

In addition to buy- and sell-side firms and liquidity vendors, software vendors can also benefit from participating in trading ecosystems. First, there's the opportunity to provide additional services/solutions to customers who want to operate globally but don't have the staff, expertise, or infrastructure. Secondly, they can provide value-added services to customers by integrating market data and news into their applications, freeing up customers to focus on generating revenue and managing risk.

What to look for in a trading ecosystem

- Located in close proximity (or within) your required execution venues
- A truly global reach with connections to hundreds of liquidity venues
- A broad array of software and other value-added services available as an integrated package
- Access to both direct and consolidated data feeds and reference data, with application programming interfaces (APIs) that allow trading firms to integrate this content into their systems and applications
- A full suite of managed services, including colocation, managed hosting, cloud compute capabilities, and security services
- Network neutrality to ensure a choice of communications vendors

About Thomson Reuters

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About Savvis

Savvis, Inc. (NASDAQ:SVVS) is a global leader in outsourced internet infrastructure services for the enterprise. More than 4,000 customers, including 40 percent of the top 100 companies in the Fortune 500, use Savvis to reduce capital expense, improve service levels and harness the latest advances in cloud computing. For more information about Savvis, visit www.savvis.net.

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Case Studies

Global Trading Firm Achieves Faster Trades, Lower Costs with Savvis

One of the largest privately held financial institutions in the world was struggling to balance two equally critical business requirements. First, its hundreds of financial traders needed to be first to trade in the highly competitive and volatile markets in which advanced algorithmic trading was the norm. But it also needed to keep costs low — and managing a remote hosting environment that was closer to the exchanges it traded in would have been costly and demanded internal IT resources the company didn't possess. The firm turned to Savvis to develop a cost-effective solution that could cut latency and save milliseconds per trade..

At the heart of the solution was Savvis Proximity Hosting, which establishes low-latency connectivity between Savvis customers and the major leading exchanges and execution venues that have chosen to host their trading infrastructures within a Savvis data center. For this specific Proximity Hosting solution, the customer migrated to Savvis' New Jersey-based 'NJ2' data center, placing them geographically and logically as close to the market data sources as practical and minimizing the hardware in between them. This also had the added benefit of accommodating the customer's requirement for a sizeable hosting footprint. The net effect of the migration was a decrease in latency between the source exchange and customer's trading applications.

Utilizing Savvis Proximity Hosting, the customer could then connect its equipment to a variety of services, such as low-latency connectivity to exchanges' trading infrastructure hosted in the facility. It also now has the choice of accessing more than 125 data feeds from various exchanges, Multi-Lateral Trading Facilities (MTFs) and Electronic Communications Networks (ECNs). Several months later, the firm expanded into Savvis' Chicago 'CH4' data center, which offers the same proximity hosting solution to financial exchanges co-located in CH4, including the CME Group and InterContinental Exchange (ICE).

By leveraging Savvis' data centers and financial services infrastructure, the customer has been able to increase speed to market and reduce latency and did so within facilities known for security and superior service levels.

Investment Banking Giant Outsources to Savvis, Achieves Ultra Low-Latency While Minimizing Costs

The U.S.-based algorithmic trading division of one of the world's oldest and most prominent global financial services companies required a seamless connection from trading desk to market applications and exchanges to ensure rapid trades. Traders were continuously searching for ways to stay electronically ahead of other buyers and sellers. In a business where success is built on speed and confidentiality, being even a millisecond ahead of a competitor on a deal made the difference between significant profit or loss. Any lag or latency was a deal-breaker.

In late 2007, the firm decided to outsource some of its IT infrastructure to Savvis. With Savvis' Proximity Hosting service, the firm was able to save valuable milliseconds per trade. By placing the customer's trading applications close to financial exchanges — in this instance NYSE Arca and BATS Exchange (BZX) — the infrastructures of which already resided in the Savvis New Jersey data center — the firm was able to reduce latency and reap the trading benefits. The solution offered additional benefits in the form of lower latency for the firm's clients that reside in the same data center.

Ultimately, the Savvis solution provided cost efficiencies, technical enhancements, operational efficiencies, and speed to market. By utilizing resources not available to the customer in-house, Savvis was able to exceed the customer's high expectations.