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EQUINIX

Exchange

Global Financial Services Review

FRANKFURT:

EUROPEAN GATEWAY TO GLOBAL TRADING

IN THIS ISSUE:

FACILITATING THE GROWTH OF LIQUIDITY AROUND THE WORLD

John Knuff General Manager,
Global Financial Services, Equinix

Welcome to the 2013 edition of EXCHANGE, Equinix's review of leading insights and latest trends from thought leaders within our burgeoning Financial Services community. In this issue, we cover a wide range of topics, including potential opportunities arising from new OTC derivatives regulations; challenges posed by the growth of cloud services and big data in financial markets; how the post-trade landscape is evolving; the effects of latency in dark pools; and how increasingly hyperconnected markets are fundamentally changing the face of the world's financial ecosystem.

If you would like to comment or contribute to Exchange, please contact fs@eu.equinix.com

The last 12 months have been very exciting for Equinix as we continue to consolidate our position as the world's leading data center interconnection platform for the Financial Services community. I am delighted to report that we now host over 80 financial exchanges and trading venues globally, and we are very proud of our position as the only network-neutral data center and infrastructure provider in every one of the world's top 18 global financial centers.

Two key themes continue to shape the world's financial markets: regulation and technology. From a regulatory perspective, the reforms to the OTC derivatives market promised at the 2009 G20 summit in Pittsburgh are now starting to take effect and the electronic trading ecosystem is rapidly evolving as a result. And as OTC derivatives markets move toward an exchange-traded, centrally-cleared model, more and more trading platforms, clearing firms, data repositories and other critical components of the OTC derivatives community are now plugging into the wide range of counter parties and other financial firms already on Platform Equinix™, allowing them to anticipate and efficiently react to the changes this move will bring.

From a technology perspective, trading venues and market participants around the world have become more interconnected than ever before, via ever-faster routes, so that the world's financial markets now exist in a state of "hyperconnectivity". One result of this is a significant growth in more complex (i.e. cross-asset, cross-venue and cross-region) trading strategies. And with the rise of distributed trading via multiple interconnected markets, firms are no longer tied to one venue and one asset class; they can source liquidity from virtually anywhere and tailor their trading and hedging strategies accordingly.

Over the last five years, we have invested $4.4bn in expansion capacity and new markets, to facilitate this growth of liquidity around the world. And with Platform Equinix™, firms can access liquidity in a wide range of assets on international markets from a single location. For example, we recently created new liquidity hubs in London for Nasdaq NLX (derivatives), Moscow Exchange (multi-asset), CME Globex (derivatives), ParFX (spot FX) and the LMAX Exchange (FX).

When operating in these increasingly complex and interconnected markets, however, one issue that firms face is that it can be difficult to find and connect with the suppliers that best meet their needs.

This is why we recently launched Equinix Marketplace, an online service that significantly reduces the time to market for integrating new suppliers.

We will also shortly be launching GUIDE, a global IT deployment planning tool that will allow customers to pinpoint hundreds of financial data centers globally, find out where the liquidity sources are located and discover the most cost-effective and lowest-latency routes between them. This will enable firms to simplify their trading architectures and understand where and how to deploy their infrastructure, quickly and efficiently.

I am also very happy to announce that on 24th September 2013, we will launch our inaugural Financial Industry Forum. This will be an opportunity to engage with senior industry professionals from the world's most important trading venues, institutions, service providers and suppliers, to learn how the Platform Equinix™ ecosystem is helping firms grow their business across borders and across asset classes.

In conclusion, I would like to thank everyone who contributed their time, effort and insights to this issue of EXCHANGE and I hope you enjoy reading it.

IN THIS ISSUE

EQUINIX

HYPERCONNECTED MARKETS

Bob Giffords, Independent Banking & Technology Analyst

Hyperconnectivity trumps latency in terms of both opportunities and risks

Power Play: "…thermal imaging of power plants enables a few agile players to anticipate electricity power production figures long before the official data releases are even compiled."

There has been huge focus on low latency and high-frequency trading (HFT) as automated traders scrabble over microseconds to nanoseconds. However justified this may be, a parallel development may in the end prove even more disruptive, namely hyperconnectivity.

Everything is electronically linked up these days. Algorithms are monitoring price, post-trade, news and other data feeds from all markets and jurisdictions, responding globally in real time. Financial derivatives and index-based products add further linkages, creating unexpected pressure points or liquidity black holes. Sometimes these algorithms simply alert human traders, but increasingly they connect with straight-through processing (STP) chains of automation to move markets instantly. The number of feeds and volume of data seem to grow exponentially and the supply chains of information are becoming longer and more semantically rich. Consequently, all investment firms, not just HFT traders, need to colocate their portfolio management and trading systems with their ecosystem partners to become much more agile as well as efficient in today's agitated markets.

Opportunities in the ecosystem

The more sources of data, the smarter the software needs to be to filter and interpret them. Context is all-important too, so firms need a 360-degree digital perspective on what is happening. They will obviously struggle to manage this in their own proprietary data centers. Here colocation offers obvious advantages, including:

- Access to thousands of data vendors, research and market services firms over secure, network-rich data centers
- Low-cost connectivity within the data center and more competition to keep network costs down for wider access
- Fast time-to-market to connect with new ecosystem partners and markets anywhere in the world – even for short-term needs
- More opportunities to use third party analytics providers too to crunch data on-site without the latency and cost overheads of off-site processing
- More opportunities to sell services to third parties to leverage in-house resources more effectively

HFT traders too are looking to expand their connectivity footprint as competition intensifies in the race to zero. Increasingly they look at new trading strategies across markets, asset classes, currencies and regions, where trades are less crowded, but colocation is also less meaningful. The aim becomes to balance the latency demands of a distributed supply chain.

The latency spectrum

The focus on execution latency has therefore shifted to decision latency and value latency. Decision latency is the pre-trade time it takes to recognize an alpha or risk signal and then raise an order. Value latency measures the post-trade time from the fill to when the trades are all confirmed and settled with transaction counterparties and their agents, along with the knock-on impacts on positions and risk budgets including margin accounts, hedges or credit limits. By identifying these opportunities and threats earlier, often by using novel data feeds, traders can avoid the scrum of responding to market prices with everyone else. With modern technology, STP decision latency often ranges from milliseconds to seconds and value latency, from seconds to minutes or hours. As these delays are whittled down the whole market perceptively speeds up for everyone, including traditional long-only money managers. Waiting until the end of the day to reconcile your positions is no longer good enough.

Multiplying metrics

When macro-economic data releases, like the US non-farm payroll, are made around the world, markets typically now respond and stabilise in fractions of a second. Many short-term hedge fund traders are also drilling down into pre-news sources like court reports, regulatory and company account filings, weather bulletins, or web search statistics that are increasingly published online. Here it may take seconds to parse all the natural language documents or scan for recognisable patterns, but with adequate reference and context data many firms are beginning to drive trading algorithms off the back of such news analytics. Similarly, thermal imaging of power plants enables a few agile players to anticipate electricity power production figures long before the official data releases are even compiled. Raw data from petrol or diesel distributors can similarly offer early warnings of more general economic activity. The number of possible data feeds is limited only by the wit and initiative of entrepreneurs to invent them.

Third-party alpha and risk metrics form a whole new business model that is only in its infancy. They may be measuring the technical performance of markets such as latency, throughput, volatility or liquidity metrics. They may also provide a semantic overlay on multifarious news or pricing feeds to turn them into actionable trading signals such as sentiment metrics or flow thresholds. Since derivatives effectively price such sentiment, these metrics either inform robotrader decisions directly or may be licensed as tradable derivative products in themselves for liquidity providers who are so inclined. The opportunities are endless.

Hypervolatility?

Hyperconnectivity is speeding up the market, but also entails risks of unexpected feedback loops or sentiment contagion. Direct connectivity may trigger chain reactions of algorithms that are unwittingly sharing common trade signals or models that fall like dominoes in a self-fulfilling prophesy once a tipping point is reached. Contagion, however, is based on uncertainty around the impact of any market event. The outcome cannot be predicted since it depends on the emergent behaviour of reflexive interaction between human and automated traders. Machines too can be sentiment-driven since they all have to make allowances for tail risks, but they do so in very different ways. As thresholds of uncertainty are reached, algorithms will progressively back off hedge positions or even go rogue. Since randomness relies on market participants acting independently, hyperconnected markets are characterised by non-random volatility clusters that may be very hard to predict or deal with. Risk managers should take note. Having third-party risk specialists easily available within the colocation center can also be a good risk mitigation strategy.

Hyperconnectivity is driving the market to cluster trading engines and post trade systems into ever-larger ecosystem communities of one or more network-rich data centers in close proximity. This can reduce costs and increase agility. These are the cyber cities of the 21st century and all trading firms need to build them into their technology road maps sooner rather than later.

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For more information contact fs@eu.equinix.com

MACHINE-READABLE NEWS FLASH

DEUTSCHE BÖRSE SYSTEMS

The DB AlphaFlash Fitch ratings feed provides the fastest – and only – access to machine-readable Fitch ratings.

Machine-readable news has been a hot topic for a while now. But a closer look at industry practice reveals that most algo traders are still missing a trick.

Since the ability of algo traders to generate alpha depends on running distinctive trading strategies and being the first mover, accessing new data sources is a key success factor. Machine-readable news feeds therefore offer immense alpha generation opportunities.

One such machine-readable news feed is AlphaFlash from Deutsche Börse. It delivers more than 300 global macroeconomic indicators, treasury auction results, Fitch ratings and unscheduled corporate news for easy direct integration into trading algorithms. The feed focuses on what's most important to event-driven algo traders: market-moving content and high-speed delivery.

Market-moving data, as it happens

As the concept of machine-readable news has evolved, so has user expectation when it comes to content and functionality. The majority of event-driven traders currently trade on headline market-moving events such as US employment numbers, housing statistics, interest rate decisions and latest GDP figures, but they are constantly looking for new alpha opportunities. To respond to their needs, Deutsche Börse regularly enriches its AlphaFlash feed and has entered the arena of unscheduled events by adding two new data packages: German corporate news and Fitch ratings.

The corporate news feed covers roughly 100 of the most important German companies. The German regulator requires companies listed in Germany to immediately disclose any information that may impact a company's share price. These so-called "ad-hoc" disclosures typically report when a company's profit expectations have changed or dividend announcements are made. Today, a time span of up to 10 seconds can go by between publication of an ad-hoc disclosure and market reaction. This is the time human traders need to analyse the news and make trading decisions. By using AlphaFlash, an algo application can process ad-hoc releases and execute orders in the first second following publication.

Introduced last year, the AlphaFlash Fitch ratings feed provides the fastest –and only – access to machine-readable Fitch ratings. The Euro debt crisis has brought credit worthiness to the forefront of traders' attention and they can now feed Fitch ratings into their risk management tools and automatically unwind positions that may be exposed when an outlook or a rating deteriorates.

US data: Giving traders the edge

Although the addition of new and enriched data types to a machine-readable news feed adds value, clients are also increasingly looking at private data points that can give them a competitive edge. An example of this is the Chicago Business Barometer (commonly referred to as the Chicago PMI), which reports expanding or contracting US economic activity. It is closely tracked by many traders because it is seen as a guide to the national purchasing managers' index numbers released by the Institute for Supply Management (ISM) the following day. The Chicago Business Barometer was acquired by Deutsche Börse in 2011 and is now available to AlphaFlash subscribers three minutes before it goes on general release.

Minimum latency

As ever, when it comes to highly time-sensitive data such as news events, there is a need to deliver the feed as close as possible to an exchange's matching engine in order to minimize latency and maximise the opportunity. In line with this requirement, Deutsche Börse is continuously extending the deployment of its AlphaFlash machine readable news feed to new venues. Direct connectivity to AlphaFlash is available in data centers across the globe, including Equinix CH2 (Chicago), Equinix FR2 (Frankfurt), Equinix London Slough Campus, Equinix NY2 (Secaucus NY) and Sydney Equinix. Cross connect access within these key data centers allows mutual clients of Deutsche Börse and Equinix to streamline their infrastructure and optimize their alpha generation.

For more information visit www.deutsche-boerse.com

RIDING THE MICROWAVE

Rob Lane, European Business Manager, Trading Solutions, Interactive Data

Opportunities, current usage and constraints for microwave links

In the seemingly never-ending race to lower latency you often hear of new technologies that promise enhanced performance. One such technology, familiar to all of us in our daily lives, is microwave, which has been used for point-to-point communication for nearly 50 years.

The current quantity of data being transmitted by microwave is a tiny portion of the daily market data volume. However, market interest suggests that this will be a major technology development that shapes low-latency trading over the next 12 months.

Microwave transmission for trading emerged in the US, delivering market data and order information between Chicago and New York. That link highlighted how microwave could shave critical milliseconds off round-trip times. As a result, new paths have developed across London and are being implemented between London and Frankfurt.

However, while some concerns remain about reliability, perhaps the biggest barrier to mass uptake will be bandwidth restraints. Between data centers in London and the surrounding areas, millimetre bands may be utilised that can carry a large amount of data. However, across wider distances, microwave is typically chosen although as a consequence it has less data capacity.

Current leased links between Chicago and New York are in slices of 150MB, which is too small to send large volumes of data. Fiber optic cable, on the other hand, can offer near-limitless bandwidth, more than enough to send over large volumes of market data.

Due to these constraints, as well as practical infrastructure issues regarding the placement of transmission towers, microwave is unlikely to replace fiber as the transmission method of choice between, for example, London and New York. But over shorter routes where it is already proven to lower latency, its usage will increase through 2013. For all its benefits, microwave is not the end of the low-latency line; it's just another phase in the ongoing race to zero.

For more information visit www.interactivedata.com

WILL MICROWAVE TURN UP THE HEAT?

While microwave represents the latest technology to be employed in the race to zero, adopting microwave services will not deliver new areas of business for trading houses. But it will deliver a significant competitive advantage. What is important to consider is how and where the technology is used to best competitive advantage, complementing existing ultra-low-latency fiber-based services to exploit pricing differentials.

Microwave may not offer the same levels of bandwidth as fiber-based services, but the potential reduction in latency of up to 40% is significant when even the smallest of price movements can be the difference between profit and loss.

Colt is the first services provider to offer both fiber- and microwave-based ultra-low-latency services, making it easier to benefit from microwave services because you only have to deal with one organisation. Currently our microwave ultra-low-latency services are available between Basildon and Frankfurt and we are already investigating other routes n the UK and the rest of Europe.

Colt has been providing connectivity services to the European Financial Services industry for over 20 years within our Fastnet Ultra portfolio.

For more information please contact enterpriseuk@colt.net

THE WORLD'S FASTEST EXCHANGE

SIX SWISS EXCHANGE

On 23 April 2012, SIX Swiss Exchange became the first exchange worldwide to introduce X-stream INET, the world's most advanced trading technology for equities, created by Nasdaq OMX. As a result of the successful launch, the average round-trip latency was reduced to 37 microseconds, making trading on SIX Swiss Exchange more than 20 times faster, whilst also greatly increasing possible order volumes.

Ever since the successful launch, the SWXess trading platform has been running smoothly and the announced average round-trip latency of just 37 microseconds has been confirmed: two-thirds of all transactions in production are executed in less than 37 microseconds, making SIX Swiss Exchange the fastest exchange in the world today.

Trading participants are not the only ones to benefit from the improvements realized by SIX Swiss Exchange. Due to the simultaneous introduction of standardized low-latency interfaces for trading (OUCH) and market data dissemination (ITCH), market makers in ETFs, ETPs or Structured Products can identify price movements in underlyings more quickly, and execute corresponding investment and market-making decisions more efficiently.

To allow its clients to benefit fully from the outstanding performance of the X-stream INET trading technology, SIX Swiss Exchange also introduced a new colocation service in April 2012. Considering the successful business relationship established in June 2010, when SIX Swiss Exchange extended its offering of proximity hosting services, Equinix's Zurich ZH4 data center was the logical choice as colocation provider.

Market makers in ETFs, ETPs or Structured Products can identify price movement in underlyings more quickly.

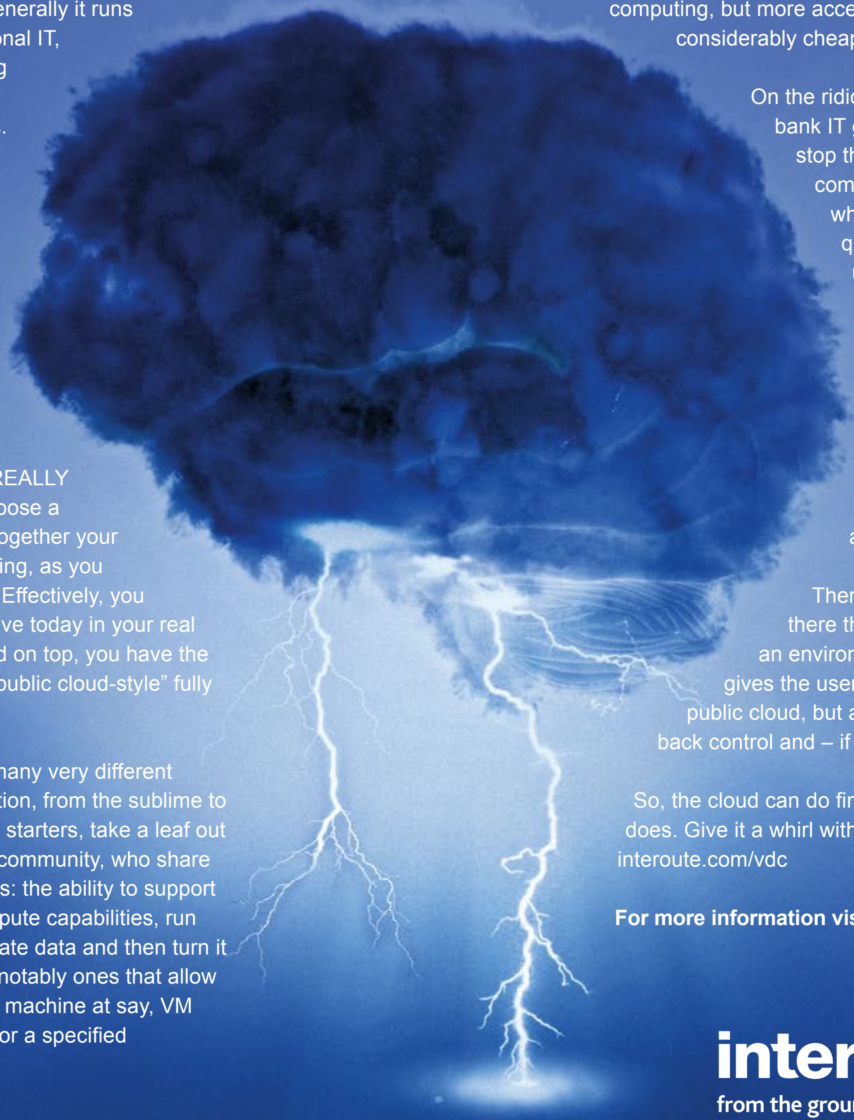
SIX Swiss Exchange is continuing to invest in future growth. In 2013, it will extend the benefits of X-stream INET to its other attractive trading segments, such as ETFs, Bonds and Derivatives, in order to attract more volume and liquidity. By providing more functionality and onward connectivity to other markets for off-book trading or simplifying connectivity, SIX Swiss Exchange can offer its broadly diversified customer base efficient access to a growing international market of securities, opening up new potential for them and pursuing its vision to be the "Independent Investment Network of Choice".

For more information visit www.six-swiss-exchange.com

BEING CLEVER WITH THE CLOUD

By Matthew Finnie, CTO, Interoute

Mention cloud computing to any regulated industry, especially finance, and you normally get a very quick "thanks, but no thanks," partly because many banks have huge IT organisations which see cloud as the thin end of the outsourcing wedge and are not about to vote for extinction. However, more often than not, it's also just perceived as an unnecessary risk to take. Get it right and your users won't notice. Get it wrong and you're explaining, "Well, there was this cloud, and the data…" What's the point?



Let's start by stating the obvious: All cloud computing is not equal. Generally it runs the same gamut as traditional IT, from simple shared hosting to military-style secure specifications and controls. So, for most banking IT organisations, what you want to get is a cloud which allows you to treat it like a real data center, i.e. one where you decide its location and in which you can build your own environments. In short, a virtual data center.

Then, to ensure that you REALLY have the same control, choose a solution that lets you knit together your private and public networking, as you do today in the real world. Effectively, you will then have what you have today in your real data center, except layered on top, you have the benefit of an on-demand "public cloud-style" fully automated utility model.

At Interoute, I have seen many very different approaches to cloud adoption, from the sublime to the ridiculous. For sublime starters, take a leaf out of the European scientific community, who share a common need with banks: the ability to support very powerful custom compute capabilities, run complex models on disparate data and then turn it off. Cloud solutions – and notably ones that allow you to precisely define the machine at say, VM with 16 CPUs each – run for a specified amount of time and are then torn down. It's grid computing, but more accessible and considerably cheaper.

On the ridiculous side, I met a bank IT guy who was trying to stop the cloud "infiltration" committed by his users, who simply found it quicker and easier to use cloud services than engage with their IT department. He couldn't compete, and found he was losing control of critical business areas including compliance, budget and security.

There are solutions out there that allow you to create an environment that not only gives the user the immediacy of the public cloud, but allows IT to wrestle back control and – if need be – turn it off.

So, the cloud can do finance. In fact, it already does. Give it a whirl with a free trial at www.interoute.com/vdc

For more information visit www.interoute.com

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from the ground to the cloud

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GOING FOR GROWTH

Hirander Misra, Chairman of Forum Trading Solutions Ltd

How can emerging and frontier markets develop successfully to be an integral part of a global financial ecosystem?

Developing markets face the challenge of how to develop their domestic capital markets whilst at the same time gaining access to the global ecosystem for primary and secondary market liquidity. Traditional solutions provided by some of the larger exchanges can be largely technology-focused, expensive and overbearing without addressing the needs of either local or global markets. The solution often comes with a price – loss of control.

Key issues that need addressing in emerging and frontier markets include the small size of markets resulting in low market capitalisation which is not attractive to issuers and investors. There is often a low level of liquidity due to the lack of foreign players being connected to trade to complement domestic liquidity, even when such markets are fully electronic.

There can also be a dearth of strong domestic institutional investors and a low retail investment culture. These factors often create a "chicken and egg" scenario, which is hard to break free from. In some cases to add to their problems, there are weak regulatory institutions, which need to be further developed to instill confidence in the marketplace and its integrity. Infrastructure bottlenecks for trading, clearing and settlement systems are also not unusual given the lack of investment in market infrastructure.

Key priorities to accelerate capital market development in emerging markets are:

- Facilitate listing of more companies including SMEs & state-owned enterprises
- Promote institutional investors through greater transparency and market integrity
- Develop an efficient trading, clearing / settlement and depository infrastructure – needed to enhance liquidity and market integrity
- Ensure interoperability of clearing facilities and increase numbers of central security depositories
- Strengthen regulation and supervision to ensure investor protection
- Attract capital flows and encourage foreign participation
- Encourage regional integration – to attract capital flows and improve liquidity through economies of scale
- Develop the corporate and government bond market
- Encourage multi-product innovation – ETFs, mutual funds and commodities
- Launch local market indices which are also tradable as derivatives
- Encourage a savings/investment culture through education
- Assess possible demutualisation of stock exchanges

Some of the highest growth in volumes in percentage terms has been in markets like Colombia and the Philippines … where improved political stability is helping attract foreign investment and fuelling growth.

Columbia: catching up

Colombia's strong fundamentals stand out as it is a world leader in the production of coffee, petroleum, textiles and flowers. It is starting from a small base and has a long way to go as turnover is about 25 times less than Bovespa in Brazil, a third of Mexico and less than Santiago in Chile. That said, it is rapidly catching up.

What is needed to address these issues is a cost-effective marketplace across securities, derivatives and commodities that addresses local needs in addition to unlocking global access, which is ethical and sustainable.

Linked pools

Then, as an element in further development, extend the offerings of the markets by encouraging regional integration to attract capital flows and improve liquidity through economies of scale. Interconnectivity of liquidity pools to facilitate more cross-border and inter-regional flow makes sense here. This is what we are seeing in the ASEAN region with key exchanges such as Singapore, Malaysia and Thailand, as well as in the Mila (Mercado Integrado Latino-Americano) cross-trading initiative, launched by the exchanges of Chile, Colombia and Peru.

Growth zones

The nature of capital flows between regions is changing as some more developed markets struggle with growth. It is no coincidence that some of the highest growth in volumes in percentage terms has been in markets like Colombia and the Philippines according to World Federation of Exchanges (WFE) statistics, where improved political stability is helping attract foreign investment and fuelling growth.

If market centers can interconnect beyond just the technology layer and allow for business integration, standardization of rules where there is no common regulatory umbrella (as in Europe and the US), and co-hosting each other's products, it will lead to a much bigger overall addressable market. Given political considerations and the amount of harmonization required, this is not an easy task. However, some of the initiatives mentioned opposite have shown that the cornerstones have been laid and technology has acted as an enabler for business development.

Over the next few years we will see this becoming more prevalent, whether it occurs in Africa, Latin America or Asia, leading to huge opportunity through what is effetively a cloud-based financial services ecosystem. The days of MOUs citing collaboration with no action seem to be long gone in a disruptive era where the minnow of yesterday is the giant of tomorrow. The Inter Continental Exchange's (ICE) purchase of NYSE Euronext illustrates this perfectly.

Equinix always looks at growth opportunities for our global electronic trading ecosystems, and enabling global reach is a key part of our value proposition, either through physical presence of our leading data center facilities or through connectivity options to markets wherever we see demand.

For more information and to discuss access to emerged, emerging or frontier markets contact fs@eu.equinix.com

Korea: bright futures

There is big HFT interest in Korea at the moment, as it is the fourth-largest equity market by turnover in Asia and is by far the biggest index options / futures market in Asia, with more than double the notional turnover of the KKEx, per WFE statistics. As a result the pie is getting bigger because of the arbitrage opportunities across a single exchange like Korea for such activity.

Saudi: opening up

The Saudi market rise has been supported by rising oil prices and more speculation, given the fact that the market will also open up to foreign (i.e. non-Persian Gulf) investors, who currently can't invest directly in Saudi shares. In January 2012 Saudi Arabia's Capital Market Authority put forward plans to allow overseas companies to list securities on the bourse.

Philippines: strong decade

Philippines has started from a small base as it is the smallest WFE Asian reported market bar Colombo, about four times smaller than Indonesia by turnover, which is third-smallest yet has huge potential. The narrowing risk gap between this market and others, given low economic growth in many markets – including those in the developed world – has helped has helped fuel this growth. Philippines has tripled gross national income in the last 10 years, leading to economic improvement and thus attracting more foreign capital for investment, e.g. into the service sector such as call centers. Manufacturing potential is also there given a cost-effective labor force, which should also help fuel future growth.

Mauritius: in the doldrums

Mauritius is obviously attractive, given its tax advantages. However, Mauritius has also declined this year in terms of stock exchange volumes because as Western economies have suffered, foreign investment into the country has also reduced as a result, due to its links to the Euro.

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THE BRICS BOOSTER

Ana Forssman, Director – Market Data, Information Products Sales Division, Johannesburg Stock Exchange (JSE)

The new BRICSMART products will generate a step change in the exposure of the BRICS bloc markets which will accelerate the importance of their role over the coming decade.

The JSE and other BRICS exchanges are currently working towards the launch of a single index giving investors exposure to all five markets. This is the second phase in an initiative to make it easier for investors around the world to gain exposure to these dynamic emerging market economies. This composite index will allow for the creation of derivatives, exchange-traded products and other financial products, or BRICSMART products, all of which will be listed on the respective countries' exchanges and traded in local currencies.

This development follows on from the first phase of the initiative which saw the exchanges cross-list their benchmark equity index derivatives on the various exchanges in March 2013. This meant that for the first time investors could get exposure to other emerging markets in their local currency.

Milestone agreement

The creation of BRICSMART products was made possible by a milestone alliance agreement that the BRICS member stock exchanges signed in October 2011 at the World Federation of Exchanges meeting held in Johannesburg. This agreement brought together the BM&FBOVESPA from Brazil, the Russian MICEX RTS Group, the BSE Ltd from India, Hong Kong Exchanges and Clearing Limited (HKEx) – as the initial China representative – and the JSE from South Africa. Named the BRICS Alliance, the purpose of this collaboration is to allow investors in the various countries greater access to these important emerging markets whilst still trading in their own currency.

This was an important moment in the history of developing countries; the alliance enables more investors to gain exposure to the BRICS bloc of emerging economics with its increasing economic power. From a global perspective, this alliance points to the growing relevance of the BRICS economies and financial markets in the coming decade.

Apart from cross-listing products, other opportunities will be explored to promote greater development and understanding between these markets.

Growing exposure in South Africa

As the only stock exchange in South Africa offering markets in equities, equity derivatives, commodity derivatives, currency derivatives and interest rate instruments, the JSE is poised for enormous growth as these emerging markets become more attractive. To support the shift, an ultra-low-latency market data feed from JSE has been established by Fixnetix, supporting the full order book. Choosing the "right" strategic partnership for an outsourced model with Fixnetix alerts the global trading world that JSE is positioned to compete for volumes across all asset classes. The crux of the JSE and Fixnetix relationship is driven by a relentless stance of neutrality for both organisations and the utmost care in delivering and supporting all solutions rendered as the South African market grows to its full potential.

JSE's Equity Market Customer Testing and real-time data services are available via the JSE PoP in the Equinix London Slough data center. The UK PoP will be extended to include trading of JSE equities and potentially access to other JSE markets in the future.

For more information visit www.jse.co.za

WAITING FOR THE GREAT ROTATION

David Wilkinson, Senior Director, Business Development, Financial Services, Equinix Asia-Pacific

Asia is at the heart of global FX growth, encouraged by digital connectivity and lower technology costs.

There has been a lot of talk recently about the great rotation, when the world's savings shift out of "safe" sovereign debt and back into higher-yielding growth stocks, a signal that things just might be reverting to "normal". Yet reversion never quite arrives. Global economic uncertainties persist, and a new normal of investment diversity means predictions are much trickier. Although markets appear to be rebounding, volumes and volatility are still down almost everywhere except in foreign exchange (FX) markets. Here Asia holds a key to what is going on, as 7 out of the top 10 appreciating currencies in 2012 were issued in the region.

Like all financial markets, FX was hit by the banking crisis of 2008, but bounced back strongly in 2011 on booming south-south trade and infrastructure investment. It overtook its pre-crisis peak and powered on, driven by retail aggregators, new electronic FX trading platforms, risk-on institutional investors and explosive growth in listed derivatives. Serious money flowed back into Asia in 2012 encouraged by digital connectivity and lower technology costs.

While spot trading continues to grow, a vast array of swaps, forwards, currency futures and options have enjoyed greater momentum, supported by highly leveraged FX brokerage platforms. Japan, Singapore and Hong Kong are now among the global leaders in adopting the G20 rules for OTC derivatives clearing, including non-deliverable FX forwards (NDF). These NDFs enable firms to hedge currency risks without having to face capital controls that apply in some jurisdictions. Activity in Asian currencies is strong with probably half of Asia's traders now dealing electronically. Serious institutional algorithmic trading has also taken off aiming for end-to-end automation, proximity hosting and a further expansion of FX instruments.

Central bank currency swaps across Asia have now been agreed to raise the percentage of trade denominated in local currency and reduce dependence on the volatile US dollar. New markets, for example, have opened up in onshore and offshore Chinese renminbi, supported by NDFs. Indeed, China's policy is now to make its currency fully convertible, since only 9% of its vast trade flows are denominated in remnimbi. After lifting the dollar peg in 2005, China has watched its currency appreciate by nearly a third. Nor should this be surprising given that Asian economies control the bulk of the global official foreign exchange reserves. Moreover, by 2030 the clear majority of the world's urban population will live in Asia as well.

Japanese housewives were once global leaders in the lucrative carry trade, borrowing cheap in pre-crisis yen and lending dear in the advanced economies. Central bank monetary easing has more recently undercut that strategy, but emerging market opportunities remain and Asian retail aggregators still exploit residual FX volatility with new strategies and sophisticated analytics. Meanwhile, competition intensifies while regulators rush to rein in the risky leverage ratios still sometimes in excess of 100:1.

Many of the new single and multi-dealer eFX trading platforms in Asia are located in network-rich data centers with colocation hosting options. Retail aggregators often use cloud-computing technologies in these multi-tenanted hubs to scale up with sentiment-driven retail demand. Institutional investors are also taking advantage of commoditised technology to catch up with the big dealers who still dominate the OTC markets. The long distances between the major financial centers ensure that latency sensitivity remains a key positioning factor in Asia along with network resilience to deal with ever-present seismic risks.

While the world waits for the great rotation into equities, Asian FX traders are busy rotating into the relevant colocation hubs to deal with the diversity, innovation, costs and uncertainty of global FX markets.

For more information please contact
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TIME TO TRADE – DYNAMIC ASIA

Steffen Gemuenden, CEO, RTS Realtime Systems

In a world where liquidity and trading opportunities ebb and flow with increasing frequency, the need to be in the right place at the right time has never been greater. The RTS Asia Etrading Algorithm Survey measures and analyzes the computer-driven trading landscape in APAC.

While trading latency is obviously crucial, traders are becoming increasingly conscious of its cousin – deployment latency. As alpha opportunities flit around the globe and new markets open in the dynamic economies of Asia, the focus is switching to how quickly trading firms can be up and running in their desired venues.

At the same time, a growing number of firms are seeking alpha with multi-asset, multi-market strategies. To be both technologically and administratively efficient, firms require a single vendor that can deploy rapidly in the broadest possible range of venues to facilitate these strategies, as well as enabling same-platform hedging of FX risks.

Furthermore, in order to minimize trading latency, access needs to be provided from hosting facilities that include the largest possible number of major trading venues.

Deployment timeline

These trends have made trading firms far more aware of the importance of picking a vendor that can not only provide fast turnkey access to existing markets, but also bring new markets, such as China, online rapidly. But a vendor that can only deliver connectivity to an exchange is insufficient. That vendor must also have a broad range of FCM partners to facilitate technological and broking/clearing connections to the exchange.

This is particularly important in the context of cross-market trading where trading firms may be executing complex multi-legged strategies across multiple time zones. A delay in going live with just one exchange can delay the time to P&L of an entire global trading strategy. Firms deploying this type of strategy also require access to the widest possible range of trading destinations, which is one of the reasons RTS provides access to more than 135 venues.

Complete solution

The trade execution methods that firms have available to them globally is also critical. Click trading and FIX access cover the manual and automated trading bases, but firms in a real hurry to start trading (or that do not want to deal with local software installation and maintenance) are increasingly also looking for hosted solutions. RTS's Tango OnDemand is a low-cost comprehensive solution for algorithmic and automated trading with built-in execution algorithms, included connections to global exchanges and a fully hosted support model.

In 2012, RTS expanded its operation in Asia with Equinix in Hong Kong and Shanghai to further support low-latency trading across asset classes on major exchanges throughout the Asia-Pacific region.This extended presence with Equinix provides the necessary connectivity infrastructure to minimize latency and enable the fastest access to markets, which supports RTS' high-frequency and robust algorithmic trading solutions.

The bottom line is that in today's markets, trading firms need to pick vendors that can compress software, broker/clearing relationships and connectivity implementations to the minimum timeline. If they can find one vendor that can deliver this across all those bases, so much the better.

Download the full report from
http://asiaetrading.com/asia-algorithm-survey-2012/

For more information visit www.rtsgroup.net

IMPROVE YOUR CHANCES IN CHINA

David Wilkinson, Senior Director, Business Development, Financial Services, Equinix Asia-Pacific

Thinking of tackling the Chinese conundrum? Remember, the best day to enter was yesterday, the next best is today.

With the global economy still facing a period of uncertainty and lackluster growth, multinational companies are scouring the globe looking for growth economies with above-average ROI. China is one of the first countries that companies tend to think of, but one of the last ones that they want to enter.

That truly is the challenge and conundrum that is China: it is the 2nd largest economy in the world – second only to the United States – and with a population of over 1.3 billion people is the most populous nation on earth. With that geopolitical footprint, China represents one of the biggest economic opportunities; not just now, but ever.

Yet the opportunity is somewhat cloudy. With a different style of government, culture, habits and way of life, China, for many Western firms and organizations is a bit of a scary place. Often thought of more for the stories of company failure than of success, many firms take a “maybe tomorrow” approach to China and delay entry indefinitely. Yet, tomorrow may be too late. The economic changes and development in China represent once-in-a-lifetime opportunities for many companies. The best day to enter China was yesterday, the next best is today.

In this context, the recent Trading China report, published by Kapronasia and sponsored by Equinix, takes a detailed look at some of the key aspects of China, China’s economy, the Chinese Financial Services industry today and what to expect in the near future. These are all key factors which entrants or existing players in the market should keep in mind. Although doing business in China’s Financial Services industry can be challenging, the rewards for success are very great.

Want to know more? You can request a FREE full copy of the report from financial-services@ap.equinix.com

China is one of the first countries that companies tend to think of, but one of the last ones that they want to enter.

MOSCOW EXCHANGE

RUSSIAN ROUND-UP

By **Vahan Vardanian**, CIO of Moscow Exchange

A review of recent and planned developments on the Moscow Exchange.

We plan to allow foreign broker-dealers to gain direct clearing membership, which will facilitate greater activity on our foreign exchange market by foreign investors by allowing them to reach the market through fewer intermediaries.

The Moscow Exchange FX market offers spot trading in seven currency pairs: USD/RUB, EUR/RUB, EUR/USD, CNY/RUB, UAH/RUB, BYR/RUB and KZT/RUB. We offer overnight swaps in three currency pairs: USD/RUB, EUR/RUB and EUR/USD. USD/RUB trading accounted for 84% of total foreign currency trading volume by value in 2012. EUR/RUB trading was 15% of total volume and trading in other pairs represented 1%.

We introduced long swaps in April 2012. Trading volume in long swaps was approximately 300 billion roubles in 2012, with around 75 market participants transacting long swaps on our foreign exchange. The terms of our long swaps are one week, two weeks, one month, two months, three months, six months, nine months or one year.

Market performance in 2012

Historically, activity on our foreign exchange and money markets has been countercyclical. For example, the foreign exchange market typically sees a rise in fee and commission income during periods of stock market decline, as banks use foreign exchange swaps to refinance their debt in foreign currencies (or roubles, as applicable) and manage their foreign currency positions.

Trading volumes on our foreign exchange market are also impacted by the commercial activities of Russian companies and import/export volumes, as well as by the dynamics of the US dollar/rouble exchange rate.

Total trading volume in 2012 amounted to approximately 117 trillion roubles, a 34.7% increase over the indicator for 2011. Total trading volumes on spot and swap deals were, respectively, 61.5 trillion and 55.4 trillion roubles, representing year-on-year increases of 31.2% and 38.8%.

Non-residents on Moscow Exchange FX Market

Only licensed Russian banks or broker-dealers can trade on the Moscow Exchange foreign exchange market. Foreign investors, as well as Russian funds, corporations and individuals, can trade on the Moscow Exchange FX market indirectly by placing orders through these market participants or via sponsored direct market access (DMA). Sponsored DMA was enabled on the Moscow Exchange FX Market in October 2010.

Trading by foreign investors is central to the performance of our foreign exchange market. Trades conducted by Russian subsidiaries of foreign banks and non-resident DMA customers represented approximately 34% of total trading volume by value on the FX market for the nine months ending 30 September 2012, an increase from 28% for the same period in 2011, respectively.

The number of non-resident clients of the Moscow Exchange almost doubled during Q4 2012. In September 2012, there were 51 banks with 100% foreign ownership out of the 576 immediate members of the FX market. There were 49 non-resident DMA clients out of 2500 total clients. As of January 2013, 50 banks with 100% foreign ownership are immediate members of the FX market and there are 95 non-resident clients among the Moscow Exchange's 3700 total clients.

Main growth drivers

We believe electronic trading is the main growth driver for our foreign exchange market, so we have made advanced trading capabilities a primary strategic priority. In particular, DMA facilities are now available for trading on our foreign exchange market. DMA facilities allow the customers of market participants, or “indirect market participants”, to direct trading themselves, using the direct market participants’ infrastructure to connect to the exchange. This reduces transaction costs and execution timing, enabling indirect market participants to exploit liquidity and price opportunities faster.

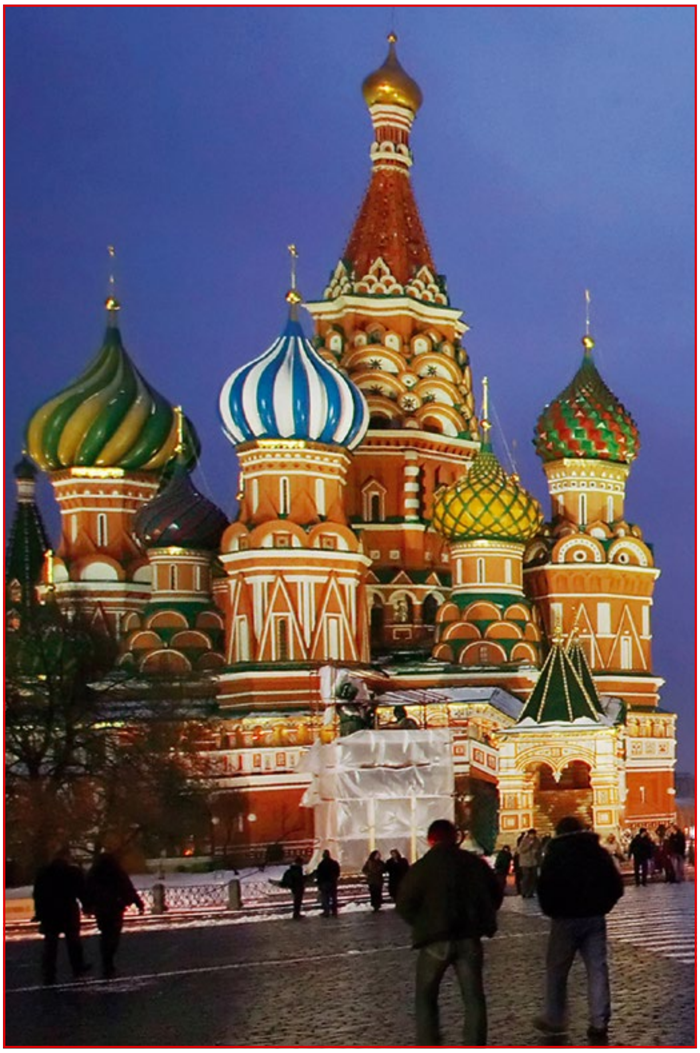
Since February 2012, market participants have been able to register their individual customers and settlement codes in the trading and clearing system, which allows market participants to increase trading volumes and reduces their settlement risk. As a result, we now have more than 4,000 direct and indirect market participants registered on our system, compared to 600 direct market participants at the end of 2011. Trading volume by value increased approximately 35% in 2012, driven primarily by foreign investors and HFT clients.

In addition, 12 of the 580 market participants on our foreign exchange market traded using low-latency execution (HFT). Trading via low-latency execution accounted for approximately 40% and 35% of spot foreign exchange market trading volume by value in 2012 and in 2011, respectively.

In 2012, we introduced tariffs with the combination of fixed payment and lowered turnover fees for market participants with high trading volume to create incentives to bring new liquidity to the market.

In January 2013, we extended trading hours on our foreign exchange market, which is now open from 10:00 a.m. to 11:50 p.m. (Moscow time).

We intend to introduce overnight swaps for CNY/RUB trading by the end of 2013, and have received approval to use onshore accounts in China for CNY/RUB trading. We also intend to offer the same conditions for CNY/RUB trading as we currently offer for our other currency pairs, such as extended trading hours and deferred settlement cycles, by the end of the year.



IT block developments

The Moscow Exchange point of presence in London provides low-latency access to all Moscow Exchange markets including equities, FX and derivatives. We were extremely pleased to extend the Moscow Exchange connectivity in Equinix’s London Slough data center campus, because it offers our member firms and market data vendors new value-added services and reduced costs enabling them to simplify their trading architecture, and demonstrates our continued commitment to expand our trading access services using industry-standard protocols.

For more information visit http://rts.micex.ru/s340

FRANKFURT: EUROPEAN GATEWAY TO GLOBAL TRADING

Jörg Rosengart, Managing Director, Equinix Germany

EVOLUTION OF ELECTRONIC TRADING

Global financial markets have been transformed by electronic trading to such an extent that speed is now of the essence. Market makers may only hold their positions for seconds, and events in one region, market or asset class are now instantly reflected in others around the world.

Even news or social media comments can impact prices in fractions of a second. Yet the vast majority of investment firms take decisions much more slowly and hold their positions for days, weeks or even years.

So how can these short- or long-term traders adapt to the superfast pace of today's markets? Adding a high-frequency overlay strategy to their portfolios may be right for some, but could be expensive, and these high-frequency trades are increasingly crowded. Whatever the trading strategy, where to position trading servers and technology is proving a key issue for all traders. For Europe, it is time to consider the unique advantages that Frankfurt can bring as a gateway to global trading.

A GLOBAL FINANCIAL CENTER

Frankfurt is home to the Deutsche Börse including Eurex, the world's largest derivatives exchange by open interest, and the second largest after the Chicago Mercantile Exchange by volumes traded or cleared. In recent years Eurex has forged innovative partnerships with exchanges in India, Russia, Korea, Singapore and Taiwan, making it an attractive offshore trading hub for those key emerging markets as well.

This has placed the city firmly in the top 10 ranks of global financial centers. It has also created a magnet for electronic trading firms that cluster their liquidity engines in multi-tenanted data centers, such as Equinix's Frankfurt FR2 data center. Not only does this facility act as the primary trading hub for the Deutsche Börse Group platforms, but it also hosts over 20 additional trading venues along with 200+ global financial services firms.

It is important to understand that financial centers are more than just trading engines. To be efficient they also need world-class post-trade and payment services. Frankfurt hosts the European Central Bank, the Bundesbank and a key node in the Target 2 real-time gross payment system for euros, the second largest reserve currency in the world after dollars. It will also host a Target 2 Securities hub that will offer efficient, real-time equities settlement and auto-collateralization across the euro zone to facilitate pooled liquidity management.

Along with Eurex Clearing and Clearstream, the Deutsche Börse's own clearing, securities depository and tri-party collateral services facility, Frankfurt provides one of the most highly automated post-trade and risk management capabilities in the world. Moreover, local service providers are already extending their post-trade services beyond the European region, as Clearstream is doing in Asia, for example.

A GLOBAL TECHNOLOGY CENTER

Technology has already enabled Asian market participants to trade in Europe, the US and Latin America, even as European and American traders venture out into emerging and frontier markets like Warsaw, Moscow and Mumbai. Investment firms therefore need to choose their regional or indeed global hubs with a particular focus on connectivity as well as operational efficiency.

Once again, Frankfurt scores well geographically with its central European location plus the highest public and private network density in Europe. From a single point, Equinix customers in Frankfurt, for example, can leverage 200+ telecommunication networks to position their Frankfurt presence as a trading gateway to a global marketplace, including over 80 market venues in North America, EMEA and Asia-Pacific.

In addition, Frankfurt hosts the world's largest Internet exchange with a peak transfer rate of 2.5 terabits per second. Surrounded by a dense hinterland of data processing capacity, the second-largest in Europe, the Frankfurt business community is very much focused on energy security and business continuity.

Germany, therefore, has been investing heavily in its power supply network to create a multi-sourced, ultra-reliable but agile energy utility for the digital age.

A GLOBAL INFORMATION CENTER

Market access is only half of the story. Electronic traders also need to wire themselves into the key information flows in the real economy in order to predict how market risks and returns will evolve. These flows also help traders to understand the different perspectives that global participants bring to market.

With half the world awash with savings and the other drowning in debt, and many emerging markets still booming while most advanced economies are struggling, the key to growth is investment, and where better to locate one's trading intelligence than in Germany, the engine room of the euro zone economy.

Expanding economic ties have also wired Germany into the whole global economy, creating a global information center with strong understanding of how the world works. Investing heavily in robotics at perhaps twice the US rate per worker, Germany has maintained or even increased its edge against intense world competition. If anyone understands what is happening in the world, German industry does. This is one reason why Chinese direct investment in Germany has also ramped up in the last few years. That partnership will be key to global recovery and a fountain of information about global development.

Both electronic traders and big money managers need access to the "prenews" sources in the real economy to understand how it ticks. Whether we talk about markets, physical trade, funding or business investment, Frankfurt remains at the center of both European and global discussions. That has made it a global information center, providing another very good reason for being there.

A GLOBAL MARKETPLACE FOR ELECTRONIC TRADING

To understand the implications for electronic traders we need then to think quite separately about those that thrive on speed and the majority of short- and long-term traders who are not latency-dependent at all.

Market-making and statistical arbitrage are both focused on speed. They need to colocate their servers either at or near to all the key liquidity venues, including, of course, Frankfurt. For them, network-rich data centers used by exchanges and their members, like Equinix's FR2 hub, have provided an efficient enabling technology for the high-speed market. Brokers too are installing their algorithmic trading engines close to the action to keep pace or react promptly to sudden shocks. Long-only firms rely on their brokers to deal with these speed issues for them.

Frankfurt is becoming a hotbed for the new breed of next-gen algos that, instead of operating using a few sets of data, now consume hundreds of market data points to gain competitive advantage and better predict future market movements. New services are spawning, allowing these algos to grow, ranging from high-quality, deep historic market data to on-demand compute and storage capacity that integrate with the already established, rich market data ecosystem to deliver big data capacity for unparalleled levels of data processing.

Frankfurt is a mere 5 to 8 milliseconds from the London markets, over the latest microwave and high-speed fiber links. For many lower-latency strategies this will be sufficient. For the ultra-low-latency players, multiple colocation hubs in both London and Frankfurt are the only solution.

Frankfurt is also that much closer to Asia and to the Russian or Middle East energy and commodity markets so crucial to global growth. Frankfurt-based trading engines therefore have an advantage in collaborating with these markets. Since Europe relies on imports for more than half of its energy supplies, developments in these regions are also vital to European recovery prospects and will no doubt continue to grow in importance for traders. In that sense Frankfurt provides an effective gateway to both established and emerging or frontier markets.

That leaves the vast majority of the trading community of institutional and private investor-traders who are not latency-dependent and don't need microsecond-level access. However, these short- or long-term traders do rely on diverse data feeds to power their portfolio models and on cost-effective connectivity to reach their brokers, multi-dealer trading hubs, clearing agents and custodians around the world.

We live in changing times. Portfolios evolve, risk appetites shift from risk-on to risk-off and back again, and policy shifts completely change the rules of the game. With thin trading volumes, increasing correlation and fitful volatility short- or long-term traders need constantly to explore new strategies and marketplaces in their search for alpha. That means they need to keep finding new brokers and liquidity venues, new data vendors and supply chain solutions to support trading efficiency, easy data access, time-to-market and shared infrastructure costs. For them, agility is crucial.

Since most of the relevant data feeds are already plumbed into such network-rich data centers, and since overall trading costs grow with the number of feeds, data volumes and distances, choosing a multi-tenanted hosting provider in a central location like Frankfurt will optimize costs and ensure that hundreds or even thousands of potential data and supply chain offerings are only a cross connect away. Trader agility and buying power to support new short- and long-term strategies are thus hugely enhanced.

So while brokers, low-latency traders and short- or long-term traders all have quite different requirements, they can find common cause to share facilities and costs. The more firms that cluster, the greater the attraction for new supply chain partners. It becomes a win-win situation.

THE BENEFITS OF COLOCATION IN FRANKFURT

Markets are driven by information, and for Europe, much of what is crucial flows into Frankfurt, as a key focus of growth, even before it makes the headlines or impacts on markets.

Global traders who need speed will always need to be close to the Frankfurt markets; consequently, economical opportunities have opened up for short- or long-term traders, both large and small. These new players shift the focus from speed to information-rich, global, multi-asset trading strategies. These firms need to understand global flows and where the emerging, "high tech", knowledge-based industries are headed.

Frankfurt is at the center of that growth in Europe and tightly integrated into global supply chains. No wonder Germany is so highly rated by global executives as an investment destination. No wonder either that investment firms are positioning more of their technology assets in Frankfurt in order to be close to the movers and shakers in the real, "prenews" world.

World-class markets, efficient post-trade services, dense global telecommunications access, ultra-reliable power engineering, just-in-time information, and a rich and growing community of supply chain partners – Frankfurt has much to offer all electronic traders looking for both efficient and effective trading opportunities in global markets. By positioning one's technology assets in Frankfurt, firms can adapt to the new pace of change in global markets and track global growth from one of its key industrial and commercial clusters.

Equinix is proud to be playing a key role in integrating Frankfurt into the global financial markets.

For more information please contact fs@eu.equinix.com

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INFORMATION, LIQUIDITY AND THE CENTER OF OPPORTUNITY

John Knuff, General Manager, Global Financial Services

New smarter structures are creating virtuous circles of attraction, effectively democratizing access to financial markets.

For many, latency was once the be-all and end-all of electronic trading. But as globalization and the whipsaw of quantitative easing drives a tighter coupling between debt and currency markets around the world, there's a more important directive emerging for market participants – access to information, and lots of it. Information is what begets liquidity – and you need high-quality information in a timely manner in order to manage risk and trade smarter.

One consequence of the turmoil in sovereign debt markets over the past couple of years has been a sharp increase in electronic FX trading, as non-domestic investors have sought to manage their currency risks. This has been accompanied by commensurate growth in the electronic trading of instruments – such as non-deliverable forwards – that have historically been traded OTC by phone. A further factor supporting growth has been greater use of centralized clearing. Collectively, these elements have all helped in boosting electronic FX volumes in the trading ecosystems, particularly in the big three foreign exchange markets – Tokyo, London and New York.

Global distribution

One of the most intriguing aspects of this growth has been its global distribution. The three principal FX trading time zones of Asia, Europe and the US have remained, but an increasing number of participants are "following the sun" – moving to deploy equipment in all three regions and managing the overall strategy from their home-office locations.

Among these regions, Asia is particularly interesting because of the transition currently underway. While Tokyo has historically been seen as the FX trading hub for the region, regulatory and tax factors have given both Singapore and Hong Kong an opportunity to jockey for this position. The huge imponderable is China and the government's strategy for the internationalization of the renminbi. The point at which the renminbi becomes freely tradable internationally is as yet unknown, but the potential liquidity is obviously massive. Regardless of that timetable, maintaining a presence at the intersection of Asian market data is critical to your ability to compete successfully in a region that continues to evolve.

Another geographical point of interest is the FX activity transition underway between London and New York. While London has historically been regarded as the global center of FX trading, activity in New York has been rising sharply – largely due to the sheer density of the electronic foreign exchange trading community there (approximately double that of any other center in terms of concentration of FX traders). The shift to electronic trading and the linkage with centralized clearing have clearly played a part in this, and are now being driven by the broadening of algorithmic trading strategies beyond what many refer to as "high-frequency trading" or "HFT". Many of these strategies originated among the New York trading fraternity for use in US futures and equity markets but are now being applied to FX, which has quickly created a dense cluster of FX trading activity in the city.

How well-connected are you?

As strategies broaden, one of the most striking changes has been the much wider acceptance of the idea that trading opportunities are not just found on single venues or within a single asset class. This in turn has driven a huge upsurge in "multi-asset connectivity" as trading firms position themselves in the center of numerous venues that trade both the same and diverse instrument types.

The major caveat here is the physical proximity of these firms to trading venues, data sources and their counterparties. Spending millions of dollars on cutting-edge hardware and brilliant minds producing cutting-edge software isn't a great investment if the same care and devotion is not paid to the location where the equipment is installed. As information sources proliferate, where you deploy can be even more critical than what you deploy. A key element in FX trading success is to have a presence in a location with the highest possible connectivity density in terms of trading platforms, information vendors and other traders. Right now, isolating your trading infrastructure places you out of the game, no matter how great your kit.

This need for high information density also applies to those who are not necessarily trading FX as an asset class. The activities of central banks have created an upsurge in FX trading associated with risk management. And quantitative easing has the same ancillary impact on other asset classes as well, such as equities and futures.

Not just about the trading

A further important shift in market behavior that also plays to the strengths of high-density locations is information. Apart from the need to trade FX as part of the risk management of open positions in other asset classes, there also has been a major upsurge in the number of informational (non-trading) feeds to which participants connect.

In many cases, these are being used for other risk management functions, such as pre-trade or portfolio risk analytics. The underlying concept is that if a firm can broaden its span of awareness (both geographically and across asset classes) so that it has up-to-date information, then that is a very good way to manage risk. This informational slant on community density is becoming increasingly important and is a major driver of the growth seen in data center-based FX communities. It is also extending now to not just the raw information, but also to the same site availability of the tools (such as complex event processing) with which to analyze/process it.

This trend is part of the move toward "trade smarter, not just faster" that we noticed developing after 2007. Market participants have become increasingly aware that speed doesn't make a bad trade better. The previous emphasis on being as close as possible to a trading venue's matching engine has been superseded by a desire to have single-location access to information across a wide range of inputs from multiple markets in multiple formats (for humans as well as computers). This has become extremely apparent to us because of the huge increase in connection requests for data feeds, news and analytics we have seen (as opposed to market trading connection requests), and was one of the factors behind the opening of our major new NY5 data center. Information begets higher quality liquidity; a community of trading firms with a broader span of awareness creates a more desirable order flow.

Cost and speed

While accessibility and critical mass have much to recommend them, high-density trading communities also deliver two other important benefits – cost and speed. The economies of scale of having multiple trading venues and information feeds under one roof are substantial anyway. However, in a trading environment where a single trading firm might need to connect to five trading platforms, 10 data sources and 15 counterparties, they effectively lower the entry barrier to new types of trading style and strategy. Furthermore, in a dense, localized trading ecosystem, it is typically possible to make all these connections in a day, thereby reducing the time to cost takeout, as well as time to revenue.

Obviously this sort of environment delivers a speed advantage in the traditional latency sense because of the close proximity of all the various components. However, it also applies in the sense of time to market and agility. If a trading firm identifies a new opportunity, then it has the strongest possible motivation to capitalize on it as quickly as possible, before it is also spotted by the competition. If the new opportunity requires a new connection, then a dense trading ecosystem is well placed to deliver it swiftly. This would be important in a world of single-market strategies, but in one where new trading opportunities are often multi-asset and/or multi-venue in nature, it is critical.

Customer access

As market structures evolve, exchanges and other trading venues have recognized the need to have a formal customer access strategy that benefits their clients and grows the client base. These firms have extended their strategies to move access points to broad bases of customers in addition to providing colocation space inside their own facilities.

As a result, at Equinix we now host some 80 different trading venues and exchanges that are quickly accessible to potentially thousands of customers. Perhaps counterintuitively, this model is driving a virtuous cycle where more customers beget more venues in one location, which in turn attracts more customers and information/analytics providers to the data center. Furthermore, the cost savings this delivers to trading venues and exchanges begets lower trading costs for customers, which make new types of strategy possible… thus begetting higher volumes, and so on...

It is apparent that the fragmented way in which FX was previously traded has changed utterly in recent years. The economies of scale, time, cost, opportunity and convenience have seen to that. Couple that with the underlying growth in FX volumes associated with the move to electronic trading and other factors, and the value proposition of these new FX trading ecosystems seems overwhelming.

Not only is this benefitting existing trading firms, venues and vendors, it is literally democratizing access to financial markets. Smaller trading groups that were previously unable to justify a data center presence now find the barriers to entry so low as to be scalable. By the same token, new niche vendors of data and analytics have provided inexpensive large-scale access to a massive concentration of potential clients. Finally, new trading venues no longer have the overhead of massive infrastructure build out to contend with before they can sign their first customer. So, the concentration of global information inside dense interconnection points has transformed these strategic facilities into the world's new financial centers of opportunity – as a new era of trading emerges.

While accessibility and critical mass have much to recommend them, high-density trading communities also deliver two other important benefits – cost and speed.

COLLABORATION ACROSS THE ECOSYSTEM

Gordon Hughes, Global Sales Director of Financial Services Alliances, Intel Corporation
& **Nigel Woodward**, Business Development Director, OnX Enterprise Solutions

The FIX Consortium has provided a basis for exceptional levels of collaboration in a competitive world, and is expanding its valuable research into new elements of the trade lifecycle.

In January 2012 a group of collaborating vendors published results comparing the performance of various FIX engines – commercial, open source, Java and C++ code streams. At the time this was referred to widely as the FIX Consortium, and included the support of Equinix. The results were illuminating and added vital transparency to the market, but more important was the new momentum and cooperation created in the vendor community. What started with a specific research piece became a working best practice model.

Vendors across the technology spectrum from processor to functional software and services had volunteered product, capability and time to generate valuable information around architecture, design, performance and the combinations for deploying advanced technologies in trading. Community-based collaboration had been started, and this was seen as valuable by the market and worth following up on.

Now, 12 months on, Fintelligent Trading Technology Community (FTTC) is maturing and has achieved a great deal. Tests have been conducted replacing the Intel® Xeon® processor X5698 with the later Intel® Xeon® processor E5-2690 family, and different subsequent products have been interchanged – NIC (Mellanox, Emulex, Solarflare), switch (Arista, Mellanox, Gnodal, Myricom, Cisco) and server (Dell, HP) – revealing the advances in innovation each of the vendors are achieving. The original test harness which compared Rapid Addition, B2BITS, OnixS and Quick FIX has been preserved and used for benchmark comparison.

Shared results

The results which have been published and commented on through the community's own social media hub (www.fintelligent.net) have achieved collaboration (in a competitive world) for industry gain; a truly positive outcome!

Commercial responses have been varied and positive. The advocacy of optimization has been the revelation. Subsequent rounds of testing after software tuning have reduced latency in applications. Infrastructure layers have been meticulously set up in the lab and new hardware products have come to market generating positive comparisons versus preceding generations.

The story continues. As the buy side continues to expand, (DMA) multiple venue execution proliferates. The race to zero latency evolves to appropriate technology deployment and risk. FTTC creates a foundation for technology selection and deployment.

Previous-generation technology used today may be slower and more expensive to run than the latest innovations, meaning that refresh should always be considered in order to optimize ROI.

Data availability

Lab-based testing is delivering insight into where the performance and cost-savings gains can be made. Previous-generation technology used today in colocation may be slower and more expensive to run than the latest innovations, meaning that refresh should always be considered in order to optimize ROI. If a trading strategy is not ultra-low-latency-sensitive, the routing function does not need to be alongside the matching engine. FTTC participant consulting service offerings provide a complete performance and technology assessment, derived from the valuable intellectual property of the tests done to date. This data is available in a flexible rental option for those who cannot or do not want to absorb the costs of continual R and D and technology evaluation.

Virtualisation results

Latest tests assess virtualisation products from Red Hat and VMware, using the same trading test harness – and hence the applicability of this technology to trading workloads.

This will add to the flexibility that virtualisation can bring to other trade support functions. As more information is fed into the trading supply chain, processor power could expand significantly and virtualisation could be the salvation for spiraling infrastructure costs. Results indicate that the widely held view that hypervisors are not a suitable technology in the trading arena is now challenged – with verifiable results to add credibility.

Help us evolve, get involved

FTTC is an evolving entity and is now in consultation regarding next-generation tests. These include the tracking of multiple functions across the trade lifecycle, opening up transparency and comparative performance. So the coming year will see more tests and commentary, with requests to look at pre-trade risk, liquidity aggregation, order routing, accurate measurement and message orchestration.

As an initiative for the industry, participation is key, and the governing team from Intel, OnX welcomes input into this unique collaboration. Visit the community site and join up to be part of its expansion in 2013, or contact us for a personal elaboration and to work out the best fit to your objectives.

For more information visit finteligent.net

THE THREE PRIORITIES OF INVESTMENT FIRMS

Chris Pickles, Head of Marketing for the financial markets sector, BT

New pressures in all areas of the business are driving new solutions.

The list of problems, challenges and issues facing investment firms is very long. But in reality, these firms have three primary goals, which are generally: 1) increase revenue, 2) achieve regulatory compliance, and 3) reduce operational costs, in that order of priority. That means that regulatory compliance isn't at the top of the to-do list for investment firms, but it's higher than it has ever been before.

Regulations are intentionally changing the structure of financial markets and how Financial Services get delivered. That means that the IT infrastructure that supports business operations has to change as well. Rather than an investment firm considering that everything that it owns is an asset, it now also has to consider which of those are actually liabilities that tie up capital and cash flow and hinder the agility of the firm to adapt to new business opportunities, achieve compliance and cut costs.

Regulations have also increased capital adequacy requirements on financial institutions, sucking money out of business operations where the greatest risks are being taken. And a primary growth area in financial markets is a risky one – derivatives. Accessing more derivatives execution venues internationally from a central location is becoming a key target for firms to increase their revenues.

When you trade on an execution venue you need to clear those trades, and if you're trading securities as well you then need to settle those trades. Accessing all of the different domestic infrastructures for trading, clearing, settlement and regulatory reporting in each national market adds to operational costs, and using conventional centralized IT and network architecture approaches can double the internal costs of achieving this.

Conventional IT and network architecture is alright for a conventional world, but the financial sector is now changing faster and more significantly than at any time in the last 90 years. Just as we don't use dial telephones and telex for international commerce any more, using "spaghetti networks" and owning data centers to store depreciating IT assets is unlikely to be the best plan for the future. Just as the "public cloud" – the public Internet – is today's de facto global platform for retail communications, financial community clouds with distributed hosting that together provide access to hundreds of service providers and thousands of clients and counterparties are today's platforms for institutional and wholesale financial markets in an increasingly regulated and cost-sensitive world. A case in point: the BT Radianz financial community cloud today supports the largest secure networked financial community in the world.

For information visit www.bt.com/gbfm

LATENCY ARBITRAGE IN THE DARK

John Burnell, Execution Sales at Bank of America Merrill Lynch

Bank of America Merrill Lynch

The impact of latency arbitrage in dark pools is reducing over time due to technology refreshes, but still requires careful management to safeguard returns.

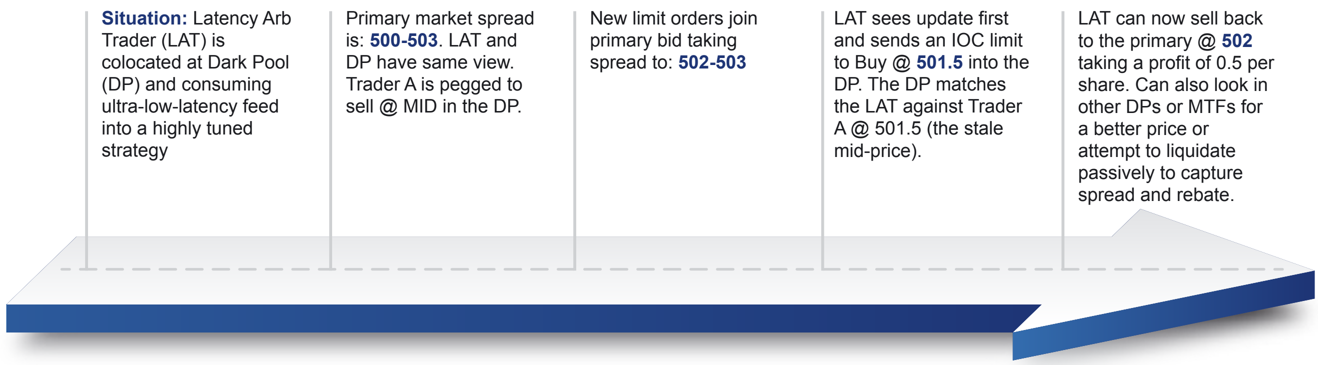


Figure 1: Latency arbitrage example

The growth in electronic market access and algorithmic trading over the past decade has reshaped the market landscape – changing the ways that participants transact, the types of liquidity opportunities that are available and the length of time that they exist. A latency edge is critical to many strategies as the first man or machine to market has the first pick of opportunities and the potential to reap the biggest returns.

Here we review the effects of latency in dark pools and look at a technique employed by some traders known as "latency arbitrage", which can give rise to an adverse selection effect. Dark pools in Europe account for up to 4.5% of pan-European volumes and provide a source of non-displayed liquidity, which can help to reduce impact costs and minimize information leakage. Dark pools in Europe currently cross orders at the mid-price of the primary market at the time of execution. In order to do this, the dark pool operator must take a price feed from each of the markets and plug these into its matching engine to provide real-time pricing.

It is with this definition of "real-time" that things start to get interesting. Maintaining market data infrastructure is a challenging and expensive business. Each of the component and design decisions taken in the market data infrastructure can have a significant effect on how quickly a quote which happens on the market is available for pricing in a client-side engine. In financial markets, millisecond advantages can translate into bottom-line profits.

Crystal ball architecture

If traders can colocate a trading solution that allows them to process and react to market data events faster than the dark pool can, then effectively, they have a crystal ball which allows them to see a sneak preview of where the mid-price on the primary exchange is going before the dark pool gets the price update. Figure 1 shows a trade exploiting this.

Latency arbitrage in action

The effects of latency arbitrage can be studied by measuring the return between the expected fill price at the time of execution (the prevailing primary mid-price) and the actual fill price obtained. The following table shows these returns calculated for a subset of passively executed transactions in public dark pools. BofAML utilises ultra-low-latency market data connections, but because of the speed of the market the price seen by the trading engine may still occasionally differ from the actual price on market. That said, there should be no bias in how this appears (it should normally be distributed around 0). What the numbers in the table show us, however, is that transactions consistently occur at a slightly worse price than the prevailing mid-price. This is the result of latency arbitrage.

The level and impact of this arbitrage differs significantly per venue but is persistent across each. This is the result of differences in the efficiency and speed of exchange data platforms and the mix of participants using those platforms. Venue D shows the biggest impact of latency arbitrage, with the mid-price given by the dark pool 1.1 bps worse (12.5% of spread) than the prevailing primary on average, with a strong negative skew indicating the asymmetrical distribution of fills around the prevailing mid-price and the bias away from the expected normal distribution.

Table: Return of achieved price to prevailing mid.

Venue	Mean Return (% Spread)	Standard Deviation (% Spread)	Median Return (% Spread)	Skewness
Venue A	-7.1%	55.5%	0.0	-1.4
Venue B	-2.4%	49.1%	0.0	-1.2
Venue C	-9.7%	43.2%	0.0	-2.8
Venue D	-12.5%	46.6%	0.0	-2.6
Venue E	-5.8%	50.8%	0.0	-1.6
Venue F	-1.9%	31.9%	0.0	-1.4

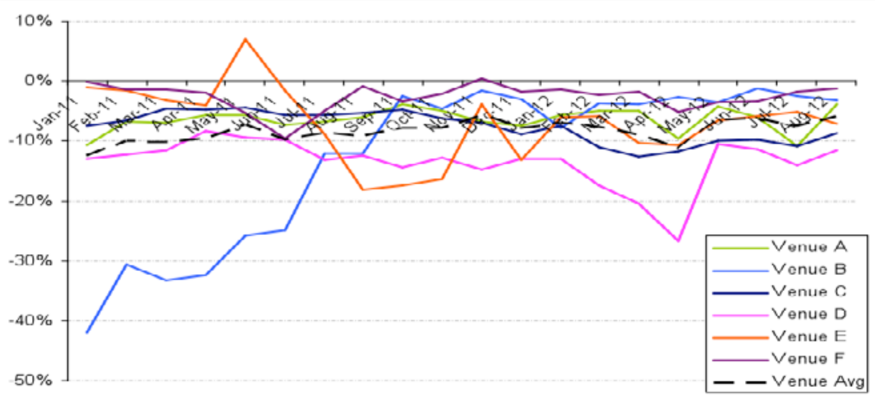
Source: BofAML European Dark Execution Data, June–August 2012

New technology and falling trends

Due to recent exchange upgrades and increasingly advanced adverse selection protection in algorithms such as Blockseeker (BofAML's dark liquidity aggregator strategy), the effect of latency arbitrage has been reducing over time (see Figure 2). In terms of spread, the loss of return on the prevailing mid is not too significant, especially given that we are potentially transacting a large block at the mid-price with lower market impact and reduced information leakage.

Following a technology upgrade at one of the leading market-share dark pools, the month-on-month market-aggregate latency arbitrage effect decreased from -1.2 bps to -1.0 bps return on the prevailing mid (14.1% to 9.1% of spread). This event was highly correlated with a subsequent decrease in market share at that venue. As the upgrade dramatically cut latency at the venue, the possibility to realize the arbitrage trade became much slimmer and this appears to have caused many traders to pull out of the market. This creates an interesting potential short-term conflict of interest for the dark pool operators.

Figure 2: Return of fill price to prevailing mid.



Source: BofAML European Execution Data, Jan 2011–August 2012

How BofAML protects against latency arbitrage

Blockseeker, BofAML's dark trading strategy, helps to minimize the effect of latency arbitrage, as well as other forms of adverse selection, whilst balancing this with efficient liquidity capture. This is achieved through a two-phase approach: firstly looking at how to allocate and reallocate an order amongst the available venues (considering fill probability, fill-quality, latency, etc.) and secondly, once slices are on the market, the strategy decides how to employ various anti-gaming measures (e.g. smart limits and min. cross quantities).

Latency arbitrage contributes to adverse selection and needs careful management to prevent erosion of returns. Advanced dark trading algorithms such as BofAML's Blockseeker help to systematically and intelligently balance the benefits of trading in the dark with the potential risks of adverse selection and gaming.

For more information visit
http://corp.bankofamerica.com/business/ci/electronic-trading

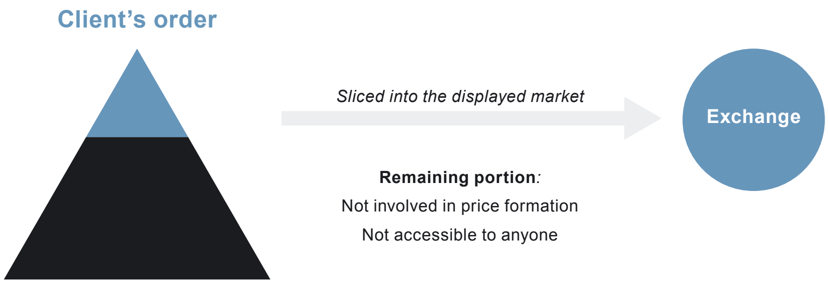
DEALING IN THE DARK

Robert Barnes, Founder and Director, Anopolis

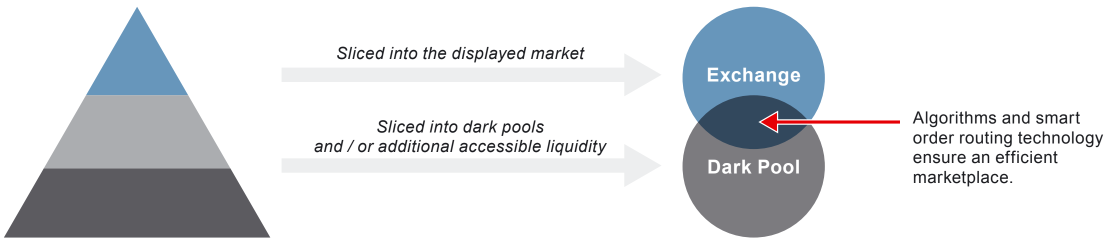
Today, there is a universe of potential liquidity that exists in the dark, but you have to be in it to act on it.

By way of background, traditional "lit" order books display the pre-trade price and size of a resting limit order, whereas dark liquidity is a firm order whose pre-trade price and size are not displayed prior to execution. Both lit and dark venues release information about a trade after the buyer and seller match in compliance with post-trade transparency regulations.

The positive effect of non-displayed liquidity:



Before the advent of non-displayed liquidity, clients were reluctant to send their entire order to the exchange; thus, we had "hidden liquidity":



With the proliferation of alternative trading venues and advances in technology, much of this liquidity is now found in dark pools.

Light and dark

Lit and dark trading actually complement one another. The lit book gives you the certainty of the price you can see, but can suffer market impact from pre-trade signalling. By contrast, within a dark pool there is no pre-trade certainty, but you do have the benefit of confidentiality. Ultimately, the role of the dark book complements the lit book because it may encourage orders that would otherwise not be sent to market. Together they allow you to meet liquidity in a controlled way.

Before the advent of non-displayed liquidity, investors were reluctant to send their entire order to the exchange and the result was "hidden liquidity". If we consider, for example, a client wishing to work 100 shares in the market, they might show just 20 shares to only two or three trusted brokers who would then slice their portion into the displayed "lit" order books. The remaining 80 shares just remain on the client blotter or order management system, and are neither involved in price formation nor accessible to anyone else in the market.

With the proliferation of alternative trading venues and advances in technology, however, much of this "hidden liquidity" is now found in dark pools as can be seen from the figure below. Of the 100 in the example above, the 20 is still sliced into the displayed "lit" market, but now the client can add more of the balance of 80 into the available dark pools. The current generation of algorithms and smart order routing technology ensures an efficient market place by interacting with both the dark and lit venues.

Dark trading techniques

Effective dark trading strategies are highly beneficial because they enable investors to pursue their objectives while minimizing their risks of pre-trade price impact. They also help to optimize performance and reduce net transaction costs. As a result, the markets also see encouraged investors who send more order volume.

Among the benefits of utilizing dark pools are:

- Minimized market impact
- Increased likelihood of achieving a target price
- Interaction with anonymous "natural" liquidity
- Maintaining confidentiality by minimizing information leakage

Successfully managing an increasingly complex market landscape, including dark pools, requires smart logic, systems to deploy that smart logic and a scale of business that can deliver statistically better results while affording to segment away or avoid negative selection. Much in the same way as the client in the example above selects two or three trusted brokers, technology today aims to implement a choice of sophisticated electronic liquidity pools to engage for the best result.

The quest is to seek anonymous liquidity, minimize information leakage and avoid negative selection. When European regulators implemented MiFID, they empowered investors with choice and a harmonized transparency framework across the single European market comprised of multiple countries. Regulators emphasised the pre-trade transparency of limit orders except where platforms operated with a waiver, such as large-in-scale above a certain size threshold or reference priced to a primary market's bid mid or offer prices. All platforms, including those using pre-trade transparency waivers, have the same post-trade transparency obligations to report price and size of executions visible to the wider market.

Today's reference price waiver exists in a framework where post-trade transparency is pre-trade transparency for the next trade. Investors are empowered with the choice to set minimum acceptable quantities to control the size – large and small – with which they interact on their choice of venues. Together these contribute to more informed decision-making, and intermediaries seek to innovate and differentiate their offerings.

The role of dark pools

In the absence of dark pools, or by constraining investor choice by mandating minimum size thresholds for all dark venues, the balance of the 80 shares in the example above does not go to the lit venue, but rather back upstream to the client's blotter or order management system. It becomes hidden liquidity again that does not participate in price formation and remains inaccessible to anyone else in the market. Choice offerings, operating within a robust post-trade transparency framework, enable firms to compete, innovate and deliver more efficient execution, ultimately delivering a better result for end investors.

UBS MTF

UBS MTF is a leading EMEA non-displayed multilateral trading facility offering a choice of fully interoperating CCPs and ability to match at mid, bid & offer prices referenced to the primary market. While UBS MTF is a non-discretionary platform, members of UBS MTF can exercise discretion by controlling the setting of MAQs, limit prices as constraints on peg to market orders, time in force [Day or IOC], the direction to buy or sell on each of mid bid & offer books, and effective resting times via order submission and cancellation. Discretion exercised per member differentiates performance by enabling that member to access the extra liquidity available from UBS MTF in a manner appropriate to the investment objective.

For more information visit
www.ubs.com/microsites/multilateral-trading-facility/en/home.html

Successfully managing an increasingly complex market landscape, including dark pools, requires smart logic, systems to deploy that smart logic and a scale of business that can deliver statistically better results while affording to segment away or avoid negative selection.

Light and dark trading actually complement each other. Together they allow you to meet liquidity in a controlled way.

BUILDING A BETTER FX BROKER

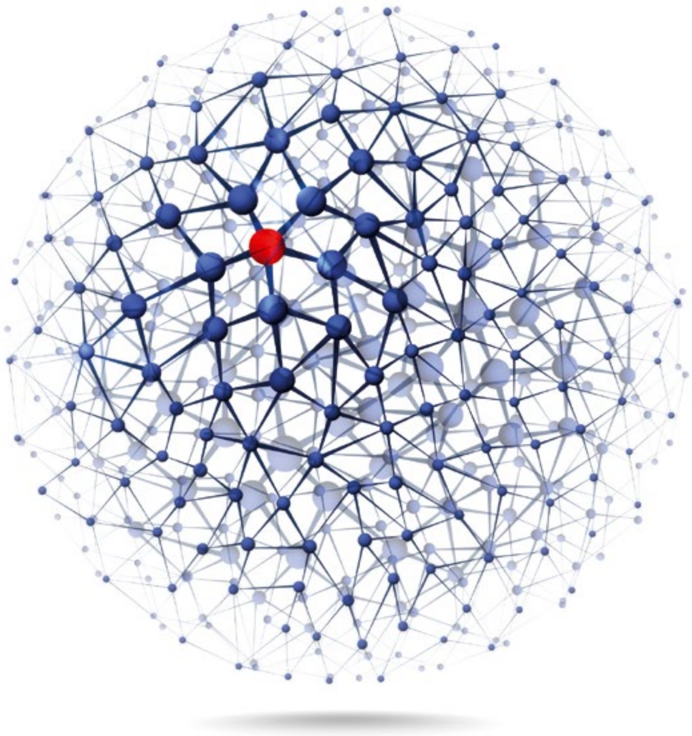
Jubin Pejman, Founder and Managing Director, FCM360

Get the relationships right and be sure to cross connect.

Since the credit crunch began in 2008, there has been a very large move of capital into trading the OTC FX markets from equities and futures. Regulation and mature, exchange-traded markets have pushed profitability to very small margins in futures and equities markets for FCMs, brokers and traders alike. As a result we are seeing a strong movement to not only trade the OTC FX markets, but also capitalize on the demand by opening OTC FX brokerages. By nature, the FX markets have shown a unique ability to cross funge and trade between different liquidity providers and various pricing streams that allow sophisticated algo or rules-based traders to arbitrage basic currency pairs with very little cost overhead.

As a consultant and technology provider to many FX traders and brokers, FCM360 has seen a proven method of building an FX broker that can attract sophisticated traders with large deposits. The key components to the method are:

1. **Liquidity**
2. **Risk management**
3. **Hosting and cross connects**
4. **Solid trading API**



Reliable relationships

Liquidity is a very strange thing. Every time we speak to a trader, they say that the new broker they are trading with claims to have the best liquidity, but almost all of them are disappointed in executions, time to fill and last-look issues creating tremendous slippage. Liquidity comes down to one thing – relationships with liquidity providers. You can be a small broker dealing with a large bank or liquidity provider and provide excellent liquidity to your clients, if the relationship is right. There are many pricing feeds and APIs available to brokers and traders, but they are not created equal. Make sure you have a real relationship with your liquidity provider before assuming it will be the best just because they say so.

Critical cross connects

A new infrastructure trend appeared throughout 2011 that required most brokers, traders or liquidity aggregators to cross connect to the liquidity provider in key buildings located in New York and London. These building are specifically Equinix NY2/4 and the London Slough campus. In the beginning of 2011 a small number of banks and liquidity providers actually had a foreign exchange presence in Equinix. By the end of 2012, nearly all major bank liquidity providers had some sort of presence in these buildings through their own cages or working through managed hosting providers to establish presence and enable clients and counterparties to cross connect to them. The term “cross connect” has become one of the biggest buzz words in the FX business. If you want traders and liquidity providers alike to take you seriously, you must be able to cross connect to them. If you cannot cross connect, you will spend exponentially more money bringing private lines into their data center point of presence.

For more information visit www.fcm360.com

THE FUTURE OF ALGO

The OptionsCity Freeway platform provides a flexible and cost-effective solution for multi-asset traders, including Algo Store – "the iTunes of the trading world"

Traders seeking to use sophisticated algorithmic trading strategies in a colocated environment with minimum latency often have a limited choice: either purchase inflexible, off-the-shelf solutions or build the functionality in-house, a time- and resource-consuming alternative.

OptionsCity developers designed the Freeway trading platform to address the various obstacles encountered in high-performance automated trading, including substantial cost, a lengthy development to deployment cycle, and safety in back testing and executing strategies. Freeway is a customizable, high-performance automated Java-based trading engine that includes a simple API for optimum extensibility. Freeway also supports recording and replay of market data for back testing. Offering server-based execution, Freeway is typically run on a server colocated next to the exchange matching engine to ensure minimum latency.

Competitive firms not only seek the best trading opportunities but also want to evolve business into completely new areas of trading. Historically, tool flexibility and the technology infrastructure at their disposal has been limited, so trading firms have either had to make enormous investments in functionality they might use only once, or have had to face the fact that they would probably need to replace and relearn the technology periodically. Freeway provides an extremely scalable and cost-effective alternative solution for multi-asset traders.

Freeway is a customizable, high-performance automated Java-based trading engine that includes a simple API for optimum extensibility.

Algo Store: a marketplace of innovation

Unique to Freeway is Algo Store; dubbed the "iTunes of the trading world", this online algorithm repository and collaborative development environment provides a market for traders and developers to create, buy, sell and download algo strategies and components of algorithms.

"Freeway is not just an execution platform," remarked Con Litvin, an OptionsCity Certified Developer on Algo Store. "When combined with Algo Store, it provides trading automation capabilities which were previously out of reach for many traders due to excessive costs. Algo Store and Freeway together dramatically reduce time to market and cost."

The range of plug-ins is extensive and offers functionality to support, among other things:

- Gamma / Delta portfolio hedging
- Auto-spreaders
- Volatility curve management
- Opportunity identification and order hedging
- Iceberg detection

Access to sophisticated option functionality is also available as a result of Freeway's inherent relation to OptionsCity's Metro trading platform, which allows complex financial products that incorporate broad optionality to be easily automatically traded, hedged and managed.

For more information visit www.optionscity.com

EXTRA EFFECTS OF OTC REGS

Hirander Misra,
CEO, Global Markets
Exchange Group

Regulation isn't just driving change and opening liquidity in the OTC arena. Low-latency data feed vendors will thrive alongside smart order routing, algo trading, managed service providers, infrastructure and OMS vendors.

With the advent of MiFID in November 2007, we saw the creation of new trading venues and – as a result – fragmentation in the cash equities markets. This was then followed by a period of consolidation as the sector became increasingly competitive. This trend is likely to repeat itself over the next few years in the Over the Counter (OTC) derivatives space.

As a result of new regulations such as Dodd-Frank in the US and MiFID II/EMIR in Europe, we will see the migration of many OTC derivatives products to an exchange-type environment with Central Counterparty (CCP) clearing. This will lead to opportunities for new trading venues to establish in this space and allow existing exchange players looking to diversify beyond their traditional product base or geography. New venues in this space are likely to be categorized as Swap Execution Facilities (SEFs) in the US and Multilateral Trading Facilities (MTFs) or Organized Trading Facilities (OTFs) in Europe, depending on how the regulations are finalized.

More transparency = more data

This will lead to the "electronification" of markets that have been largely opaque in the past, with a greater degree of trading on central limit order books with associated pre- and post-trade data transparency. Data vendors like Reuters and Bloomberg already source data from multiple OTC data contributors, consisting of mainly the leading banks and interdealer brokers who are trading bilaterally today. They in turn create consolidated composite pages incorporating the quote and trade data. The fact that these products will now be traded order-driven will result in dissemination of data from new venues, leading to an increase in data volumes driving the need for low-latency data feed vendors, such as Activ Financial, Fixnetix and Quanthouse to go more multi-asset and source multiple feeds in a fragmented market, offering data feeds in either a single-venue normalized format or as part of a consolidated feeds product.

Coupled with this venue fragmentation, we are also likely to see Banks automate their fixed income trading to a greater extent, establishing their own liquidity pools as they have done in equities and FX. However "what technology fragments, technology can also knot together" so, given the multitude of different liquidity pools, smart order routing and algorithmic trading will become more prevalent in this space.

The cost of development

All these developments, while presenting opportunities, will not come for free. They will require considerable investment in technology at a time when we are all doing more with less. Banks have cut headcount to the bone and are now also looking to consolidate systems given that they no longer have the headcount to run them, in addition to reducing complexity and cost. This, coupled with the significant approvals required to run a regulated trading venue, will encourage a trend for outsourcing exchange technology and operations to managed services vendors like Forum Trading Solutions who can do this more cost-effectively through economies of scale.

On the connectivity front, infrastructure vendors like TMX Atrium that interconnect to multiple data centers where the trading venues are located as well as OMS vendors (who leverage the physical connectivity to logically connect to these trading venues) will have opportunities to provide managed services to trading firms who want to access these markets in a less resource-intensive way. Data center providers such as Equinix also have an important role to play, given the existing financial ecosystems that have been built up, which new trading venues can leverage to gain critical mass more rapidly.

Electronic liquidity – the keys to success

When products become more accessible they become essentially quantifiable. This affords opportunities for electronic liquidity providers to enter the market. This will certainly be the case in some of these OTC market segments. The likes of DRW and Getco are already invested in Eris Exchange as are banks like Morgan Stanley who are hedging against the move from OTC trading to exchange trading.

But regulation is not the only factor driving a change in the OTC markets. The additional cost of new margins and collateral on OTC products – combined with the multiple strains on balance sheets – has driven many market players to search for new ways to hedge and trade existing products. The successful trading venues in this space will be those that bring products onto exchange using innovative new methods for the development of index-based futures contracts, which address several current issues surrounding OTC futures contracts. These contracts need to be simple to understand, easy to manage and reflect the underlying physical market. Additionally, they must be easy to trade. The indices for such contracts are dependent on the quality of underlying market data sources – both real-time and historical – to back-calculate the indices for the purpose of algo back-testing and technical analysis.

These new contracts will enable institutions to access these market segments at a drastically reduced cost by using CCPs to reduce risk. That said, a multitude of trading venues and CCPs in the short term may increase risk through fragmentation before natural selection holds true and the best ones survive and prosper.

So, more change in the air with OTC. One thing is clear, however. In this era of dramatic change, simplicity and low cost must now be the watch words for the financial markets. This will be enabled by innovative products underpinned by good scalable multi-asset technology services and data.

For more information visit www.forum-ts.com

ON THE MARGINS

Will Rhode, Principle & Director of Fixed Income, Tabb Group

NASDAQ OMX

Brace yourself for the impact of new initial margin costs.

TABB Group estimates that the global sum of new initial margin costs could require the posting of between $2 trillion and $2.6 trillion or more in high-quality collateral. In reality, the collateral shortfall will never be so acute.

Firstly, there isn't enough excess and high-quality collateral to meet the impending requirements so it is unlikely that the market will migrate without either a) figuring out a way to reduce the collateral burden, or b) shrinking in response.

Second, CCPs will vie to offer margin offsets, primarily through OTC swaps and futures contracts, and so dramatically reduce margin requirements. TABB estimates initial margin requirements for interest rate swaps will be lowered by at least 32% when portfolio margining becomes available to all market participants.

Finally, a shift toward products with favorable regulatory status (such as futures), and thus relatively smaller margin requirements is inevitable. The swaps market is already reacting to the clearing mandate by creating new products with lower margin requirements – products which demonstrate a greater ability to realize cross-product margining efficiency.

Under European Market Infrastructure Regulation (EMIR), CCPs will have the ability to access all multi-lateral trading facilities (MTFs) or regulated markets that make derivatives available for trading. This has been designed to foster competition and move the exchange-traded derivative markets away from the vertical silo approach for which it is commonly known toward a more horizontal structure.

Such a horizontal approach will resolve many of the issues associated with fragmented clearing in Europe, though it should be noted that cross-margining between CCPs will not be allowed. The ability to portfolio margin across a range of asset classes within a single CCP will be beneficial for customers.

CCPs such as LCH.Clearnet that provide clearing and settlement services for a number of markets and a significant proportion of cleared OTC products will also be well positioned to provide participants with margin, collateral and capital efficiencies.

For further information and to read a full whitepaper on the subject with charts and further analysis, visit www.nlx.co.uk

LICENCE TO KILL SWITCH

Mark Hemsley, CEO, BATS Chi-X Europe

New customer-controlled kill switches need to be deployed as part of a multi-layered risk management approach.

Recent high-profile trading technology failures offer a timely opportunity to examine the current state of automation and consider best practices designed to detect, prevent and mitigate the impact of these failures in today's capital markets. The fact that occasional technology failures may be unavoidable does not mean that the industry shouldn't do more to prevent them and limit their impact.

There has been much discussion in the industry in recent months, both in the US and Europe, about the merits of exchanges implementing "kill switches" to stop a specific firm's trading activity if a technology problem or other error is suspected.

As the third-largest equities market operator globally, we at BATS Global Markets (BATS) want to ensure we're doing all we can to help safeguard the integrity and resiliency in all the markets in which we operate. To that end, BATS has recently expanded a suite of risk management tools to customers in the US and Europe at no charge, including a customer-controlled "kill switch" that enables BATS' trading participants to cancel outstanding orders and prevent the entry of new orders to prevent unwanted executions.

BATS' risk management tools can provide customers with pre-trade risk protection at the exchange level as a supplement to their internal risk controls with incurring additional latency. Participants should consider customer-controlled "kill switches" and other risk controls, such as those now offered by BATS, as an additional safeguard and not a substitute for their own required risk management policies and procedures.

Despite best efforts to ensure that adequate safeguards are in place to eliminate technology problems, it is inevitable within complex systems that unexpected issues can occur. However, being prepared to mitigate the impact of technology problems when they occur is crucial. A multi-layered approach to risk management, with various risk checks in place both at the trading firm and supplemental controls on the exchange side during the life of an order, are fundamental to ensuring that markets remain resilient.

For more information visit www.batstrading.co.uk

A POST-TRADE HIATUS?

Mark Profeti, Post Trade Strategy Director, The Realization Group

Why now is the time for investment firms to change *their* game.

We have been predicting for the last two years that investment firms would become busier in looking to change their infrastructures as a consequence of the economic downturn and greater regulatory focus. That hasn't happened. Despite a number of warning signs during the course of 2012 and early 2013, such as high-profile regulatory fines as a result of operational and risk management failures and the first signs of the promised regulation starting to take effect, change has been slow to non-existent. There have been a number of reasons for this, but the key reason is that spare working capital for change investment has been in short supply whilst firms still retain cash reserves for capital and liquidity purposes.

So why should this year be any different? There are several combining factors that firms can no longer ignore. Regulation will always remain the principal driver for change and many small firms will continue to provide budget for this purpose only for the foreseeable future. However, firms will also need to face up to some home truths and act on them. The smarter firms will recognize this now and look to address these issues at the earliest opportunity.

Uncovering the elephant

So what are the issues? The following problems have been brewing for some time and are starting to become the elephant in the room; in some cases they represent an entire herd.

1. **Rationalization**

Firstly, the good old days of pre-2008 are not going to return anytime soon. Most firms have either realized this or in the process of realising it. Consequently, they are making strategic decisions on exiting certain markets and / or business lines based on profitability. This means that they cannot carry the operational costs associated with these businesses and therefore will need to embark on programs to either rationalize their post-trade infrastructures or seek smarter and more cost-effective solutions such as outsourcing or utility-type solutions.

2. **Margin compression**

Margin compression is also a key factor. Competition is amplified in slow markets. Trade volumes show a continuing downward trend despite the emergence of algo trading, and revenues are under threat. So firms need to focus on reducing their operational costs in order to sustain profitability. Again, this will result in firms looking at areas where the bulk of the cost is carried – the post-trade infrastructure. Firms will be forced to assess their post-trade models and look for opportunities to remove costs on a sustainable level, without introducing unnecessary operational risk.

3. **Risk management**

Risk management is another key area where firms will be forced to improve either through regulatory intervention (the need to comply with existing rules and regulations or the introduction of new regulatory initiatives such as LEI global roll-out, Basel III, CRD IV, RRP and CASS) or because best business practice demands it.

Firms tend to take their eye off the ball when things are going well. However, a number of high-profile regulatory cases last year highlighted some significant risk management failures with serious financial repercussions. Do firms really want to risk the same happening to them? The smart ones no longer view this as an acceptable risk.

The changing OTC derivatives post-trade landscape, counterparty risk, capital and liquidity pressures are creating heightened demand for collateral. The issue is further compounded by the diminishing availability of high-quality collateral to meet the increasing demand. Therefore, firms must become better and smarter at managing their collateral needs at an enterprise level (as opposed to the fragmented individual business-aligned models that exist today). A significant portion of the market has collateral optimization on their change radars and this will prove to be a large and complex exercise for most firms.

4. **New regulation**

Regulatory change is another crucial element that firms need to include in their change agenda. There are a number of significant regulatory initiatives that have a planned 2015 implementation timeline – CSD Regulation, LEI, T2S, Basel III. Why should firms be focusing now on regulation planned for 2015? Simply put, the scale of regulatory change cannot be effectively managed by adopting a "just in time" approach. Many firms do not possess the resources or capability to deliver that scale of change by employing an 11th hour philosophy. A great deal of planning is required and acting now gives an opportunity to understand and assess the impact of change to post-trade models. Where possible, it also means that firms can look to accelerate the implementation of change where regulatory outcomes are certain.

Taken separately or together, these issues mean that firms cannot continue to stand still and do nothing as they have done for the last four years. Post-trade environments need to be addressed now.

For more information visit www.equinix.com

DEALING WITH BIG DATA

Robin Manicom, Markets Development Director, Equinix EMEA Financial Services

With the rise of Big Data comes the challenge of timely cost-effective interpretation.

With the explosion of market data coming from the world's electronically traded markets comes the problem of data interpretation. Traders, and to be more precise, algorithms designed by human traders to carry out the complex trading strategies needed in today's financial markets, need ever more sophisticated input data to make decisions on when and how to place a trade in any given strategy. Three factors have compounded one another so that today, peak data rates are 10 times higher than they were three years ago … an upward trend in data volumes with no end in sight.

Today's financial institutions roll out trading algorithms by the hundreds, with each typically using 100 to 1,000 parameters (trade inputs) to operate. These input data range from stock price to volume, latest news to latest pre-news sourced from social media and world sentiment data to weather data and heat signatures of nuclear power stations; from consumers interacting with the world via their smartphones producing digital exhaust data in the form of interactional and locational data to unemployment figures and central bank interest rate changes. The world of electronic trading is operating as it has done for over 20 years, except that today it has moved into the realm of the machine, consuming several orders of magnitude more information and operating at "gigahertz" speeds.

Given the current trading landscape and the technology used to operate it, it is no wonder that the Financial Services industry is struggling to cope with the sheer volume of data needed to feed these voracious algorithms with what they need to compare ultra-real-time data with historic, allowing them to spot a stock movement and be first to act and profit on it. In many cases, the idea of moving data around immediately ages it, rendering it useless, but also uses orders of magnitude of network bandwidth, introducing significant cost that often torpedoes the business case for building such a solution.

The key to solving this puzzle – and to ensuring a solid business case is met – is to limit the movement of data which, as described above, renders the data useless and drives costs too high. Also, given the sheer volumes of data required, plugging into storage which is both easy to access and easy to scale at a price point which is favourable is key.

The answer is to not move the data, but use it where it originates so that it is nanosecond fresh, thus avoiding network costs. Cloud storage infrastructure completes the solution, keeping costs low but providing scalability so that customers only pay for the storage they use.

Equinix is home to more electronically traded markets than any other data center vendor, and a thriving cloud computing community provides a full spectrum of cloud storage solutions. Market data produced by the matching engines of stock exchanges located in our 16 financial data centers can efficiently stream that data into cloud storage for immediate access within nanoseconds. Historic data can be held alongside live data in efficient and cost-favourable storage platforms providing the perfect combination of performance versus cost, meeting today's and tomorrow's algorithmic trading needs.

For more information please contact fs@eu.equinix.com

BEATING THE PACE OF CHANGE

The industry has been in a state of seemingly endless transformation, from regulation to social media adoption to the many forms of high- and low-touch trading.

The rapid pace of change seems to be accelerating considerably as consumer and investor behaviors continue to shift, regulatory bodies apply new rules, competition increases and global markets become more accessible. Companies must anticipate and adapt – even reinvent themselves – to remain ahead of the pack.

While new product and service offerings, global expansion and high- and low-touch trading are evident signs of the transformation happening in Financial Services, IT infrastructure is the internal engine that makes them possible.

Global trading

The global trading environment is much more open than in the past as markets are expanding and becoming more accessible, which means Financial Services companies need to be able to reach new geographies and markets more rapidly than ever before. The complex, global nature of today's markets presents an immense challenge: deploying infrastructure on a worldwide scale. From understanding the market structure in a region, hiring staff, to importing or buying equipment and finding physical space to set up an office or build a data center, the time and expense that goes into moving into new geographies can sink expansion plans before they even get off the ground.

Partnering with a global technology organization that has the flexibility, scale and expertise to fulfill the networking technology needs of market participants is key.

Compliance – voice recording

Big Data is also a key topic and the recent introduction of recording for voice and SMS (short message service) on mobile phones for trading activities in the UK, has drawn further attention to the issue. As additional voice recording requirements contribute to the growing repository of data being held by firms to meet with regulatory requirements, technologists are starting to prepare for the increasing data flows.

A snowballing need to hold more data is a big challenge, not only in respect of volume, but also diversity. With so many forms of trading communication and collaboration now in play, including voice, IM, SMS, social networks and video, technologists must manage these increasing data volumes effectively.

Regulators will push for this broader range of data types to be held for far longer periods than before, with current averages in the range of 3-6 months moving closer to 3-5 years (as seen in Dodd-Frank and MiFID II proposals). Thinking about storage requirements for the future is tricky as volume and diversity of data is often affected by increased activity in the markets which is hard to foresee, along with the seasonality of specific market activities. The main concern is that existing data technologies and infrastructures could soon reach their limits of scalability and performance.

A unified archiving solution for any end-device used in trading communications, from the mobile phone to trading turret, with efficient search engines is what the industry is expecting in the short term.

Flexible trading

Orange-Trading Solutions has recently launched Flexible Trading in the cloud. It will provide trading participants with an advantage over the competition as it allows users to align their service costs to business needs and gives them greater choice.

The "pay as you grow" model is a very attractive alternative for small to mid-sized financial institutions, which can now benefit from and afford the most advanced trading solutions. It is a full end-to-end service so there is no need for in-house IT experts.

The service also offers a fast response to business changes allowing upscale and downscale of trading operations. Users of the Flexible Trading service will benefit from better oversight of their technology and in-house expenditure, with no need for additional technical space. It is also easy to deploy and set up in a short timeframe. The service is designed to improve financial efficiency as users will be able to allocate valuable IT infrastructure budgets to other areas of the business giving them a greater degree of flexibility and allowing improved business agility.

At Orange-Trading Solutions we strive to provide the solutions that help you cope with all the current challenges the industry is facing. We partner with data center providers like Equinix to make these state-of-the-art solutions possible and help you stay ahead.

For more information visit www.orange-business.com

DR FOR DEUTSCHE BÖRSE MEMBERS

Regulations are in place stipulating minimum distances for a disaster recovery site in Frankfurt.

The increasing reliance of electronic trading on technology, coupled with the heightened risks of natural disasters and IT outages, has meant that the likelihood of financial firms suffering significant operational disruptions has increased.

Equinix's Frankfurt FR2 data center currently acts as the primary, single entity exchange colocation facility for trading members of the Deutsche Börse Group. But do all of those members have a second-site disaster recovery solution in place to mitigate the risks of a primary environment disruption?

Currently, German government guidelines require that all trading members maintain a secondary disaster recovery site and that the physical distance between that secondary site and their primary colocation facility should be established outside a minimum distance that ensures reliable availability without restriction.

With this in mind, the German Federal Office for Information Security (BSI) recommends that in Germany a second-site data center should be located a minimum of 5km from all primary operations.

Equinix's Frankfurt FR4 data center makes an excellent secondary site for all colocation installations currently deployed in our Frankfurt FR2 facility. FR4 is located outside the recommended 5km threat closure radius from FR2 and can help financial firms manage the risk associated with an interruption that denies access to a physical trading floor or the operation of a business's technology.

FR4 data center disaster recovery

Second-site load-balanced data center for the deployment of distributed production systems, applications and storage, providing complete protection against physical outage of primary data center

- Location within Frankfurt city zone, outside airport air corridor
- Year-round, continuous environmental monitoring and standby staff for facility management
- Fully-managed exchange access solutions (Equinix partners)
- Easy access to market data services and office space for back office support
- Direct metro connect network solution for lower-cost connectivity and increased resilience

To find out more about Equinix's disaster recovery solutions in the Frankfurt metro area and receive a copy of our disaster recovery and business continuity trading room fact sheets, please email fs@eu.equinix.com

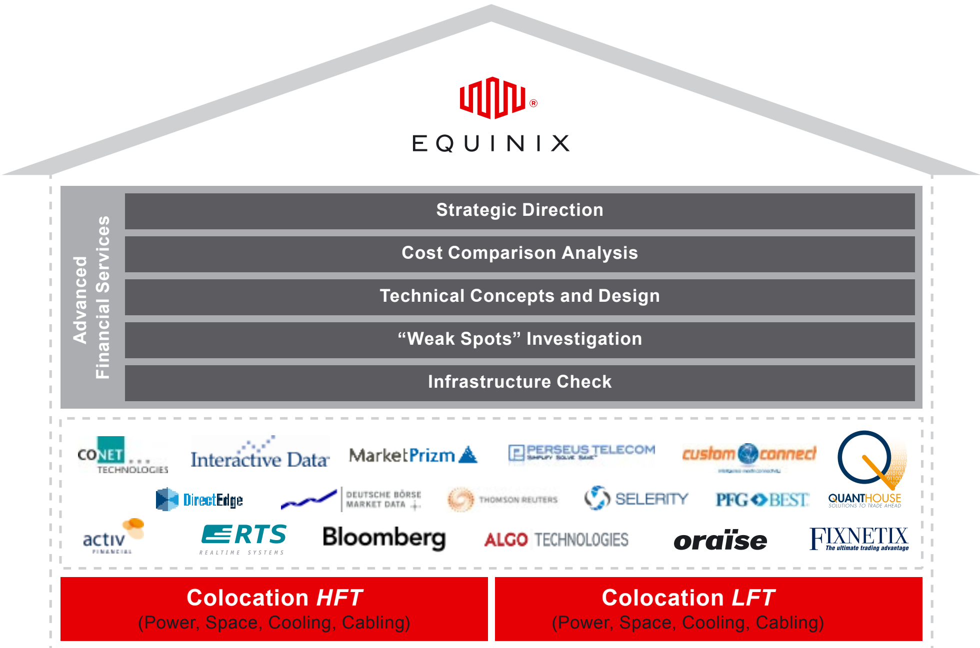
NEW ARCHITECTURE, NEW SOLUTIONS

In 2012, the Deutsche Börse AG introduced a new trading system for its Eurex trading platform, the New Trading Architecture (NTA). On December 3, 2012, trading started on the NTA. All products being traded at Eurex at present are being migrated onto the new system.

The shift in technology had significant consequences for participants. The most widely adopted previous technology, MISS, had acted as a central “gateway” – i.e. all transactions were routed via a central server farm to the exchange, as was market data. This architecture gave participants transparent insight into the current state and the utilization of Eurex connectivity – log mechanisms and test tools which were useful for load analysis and trouble-shooting. On the other hand, the NTA will run off a number of independent links between participants and the Eurex. This reduces transparency and makes functional (and error) analysis harder.

To make the new architecture work better for members, the Equinix Advanced Financial Services team developed a bespoke solution which enables participants to maintain a high level of load analysis and troubleshooting for NTA. The solution also provides opportunities for automatic testing of trading and back office applications and trading algorithms, as well as supporting capacity planning.

Equinix Advanced Financial Services



Equinix Advanced Financial Services act in a consulting capacity to the participants of the most important European trading venues. The focal point of our consultancy is the provision of optimal infrastructure to support individual trading models. We differentiate between High-Frequency Traders (HFT), for whom latency is of significant importance, and Low-Frequency Traders (LFT), for whom the minimization of cost and optimum stability of their market presence are the most important priorities.

The Equinix Advanced Financial Services Consultancy offering is available irrespective of whether you are an Equinix Colocation Services customer or not. Our consultancy approach and portfolio are designed in a modular format so as to provide transparency for market participants.

To find out more please email johann.pospiech@eu.equinix.com

EQUINIX

OPEN THE KIMONO

Karen Bertoli, Chief Marketing Officer, Fixnetix

FIXNETIX *The ultimate trading advantage*

Fintech (Financial Technology) is changing the marketplace and allowing a broader range of participants to enter. Partnerships are key to success, as are innovation, insight demand, efficiency, scalability and risk mitigation. To a person outside the industry, it's common to see heads tilting when claiming Fintech as one's livelihood, but Fintech is a growth niche market currently thriving due to trading groups needing to outsource technology as soon as they possibly can to realize the value on current strategies.

Fintech has experienced phenomenal growth over the past decade – Fixnetix even received an award in 2011 for triple-digit growth! We still have fewer than 100 employees, yet we service almost all of the top 10 tier one investment banks. Other Fintech companies have sold to larger firms and exchanges and the consolidation will continue. Innovation is moving ultra-fast. Forming strong partnerships is important, especially for Fintech companies who sell an outsourced model.

Do what you do best … partner for the rest

Every company, big or small, is founded on a mission with a goal and an objective based on demand in a competitive market. All of us want to be a one-stop solution with a single SLA. To achieve this one-stop shop, we must partner and form strategic alliances. The benefits of partnering really are endless; here are a few top reasons to open the kimono to industry:

- Knowledge Base: Information is crucial in Fintech. What's trending today can be useless tomorrow. Partnering with community members where there is a fit only enhances the possibility of positive results.
- Contacts: This is an obvious advantage to working with other groups. Think in terms of email campaigns and intimate events where costs can be shared, marketing is co-branded and the benefit of promoting to each brand represented in the contacts base is huge.
- Transparency: Traders are some of the sharpest people in the world, as they build their business on calculations and emotional stability. Don't be fooled, perception still matters here when Fintech players are being picked. Aligning with complementary partners will show your prospective and current customers you have been vetted by your community, and are thereby endorsed, trusted and respected.

One of the most successful partnerships Fixnetix has to date is with Equinix. Fixnetix has been able to anticipate customer demand based on the expansion of Equinix data centers and their chosen partners. Our knowledge base is constantly growing and reinforced by the Equinix team, both in person and electronically via the Equinix Marketplace. Equinix has allowed Fixnetix to grow worldwide; our relationship acts as a true endorsement of what we do and have done in the past award-winning seven years of providing market data, trading and risk control to trading firms.

Sharing the spotlight, opening the kimono to trusted partners and passing on value to customers is best practice in the Fintech world. Just remember, as soon as you transfer to this paradigm, assume and beware of risk.

For more information visit www.fixnetix.com

EQUINIX OPENS FOURTH DATA CENTER IN TOKYO

(Left to right) **Kei Furuta**, managing director, Equinix Japan; **Brian Lillie**, chief information officer, Equinix; and **Samuel Lee**, president, Equinix Asia-Pacific, at the ribbon-cutting ceremony to announce the opening of TY4, Equinix's fourth International Business Exchange (IBX) data center in Tokyo.

New facility to meet strong demand for Equinix's data center and interconnection services in the Otemachi area.

Equinix recently announced the opening of its fourth International Business Exchange™ (IBX®) data center in Japan, located in Otemachi, Tokyo. The new Tokyo data center, known as TY4, enables Equinix to keep up with the fast-growing customer base in Otemachi and further solidifies the city's position as the top network hub in Japan.

TY4 is the latest in a series of recently announced IBX expansions to address the growing demand for data center services in the Asia-Pacific region. Equinix most recently announced plans to develop its first IBX in Osaka (OS1), as well as build its third Singapore data center (SG3). In addition, the company expanded into Indonesia in May 2013 in partnership with PT Data Center Infrastructure Indonesia (PT DCI).

What makes Equinix Tokyo your most dependable data center choice? See the infographic at http://bit.ly/1doBfUW

Highlights / Key Facts

- Companies in Japan are in need of additional data center services to meet their customers' rising demands.
- The expansion of Equinix's footprint in Tokyo will further enable multinational companies to expand into the growing Japan market and better serve their international customers.
- Equinix is investing $43M in TY4, providing total capacity of 750 cabinet equivalents with 450 cabinets available in the first phase.
- TY4 is located in an earthquake-resistant building in one of the most secure locations in Tokyo with multiple anti-disaster measures. In addition, TY4 has direct fiber connectivity to Equinix's three other IBX data centers in the city via the Equinix Metro Connect, a service that provides reliable network connectivity, allowing customers in TY4 to easily expand their business within the Equinix platform.
- With its location in Otemachi, an international financial center and home to more than 4,000 large enterprises and financial firms, TY4 offers companies an opportunity to expand their IT infrastructure and connect to an established ecosystem of existing and potential customers and partners.
- TY4's close proximity to the major financial exchanges in Japan will also provide financial companies with reliable, low-latency connectivity that will ensure timely access to multiple information sources to make critical business decisions.
- Companies such as ABN Amro Clearing and Box have already expanded into Equinix's IBX in Japan to meet their customers' needs and are taking advantage of Platform Equinix™ and its rich ecosystems with the assurance of a consistent level of service quality and performance.

LEVERAGE YOUR ECOSYSTEM

A new approach to underlying architecture, Marketplace enables you to search for partners and suppliers by industry, service category, location or name.

Many of you will have heard of Marketplace by now, Equinix's unique, easy-to-use online portal that enables members to develop business relationships online. Equinix Marketplace features online company storefronts with full product and contact details, news and social media feeds, and it has a supplier/partner search tool filterable by data center location, industry product or service, with integrated messaging functionality for making approaches and managing responses.

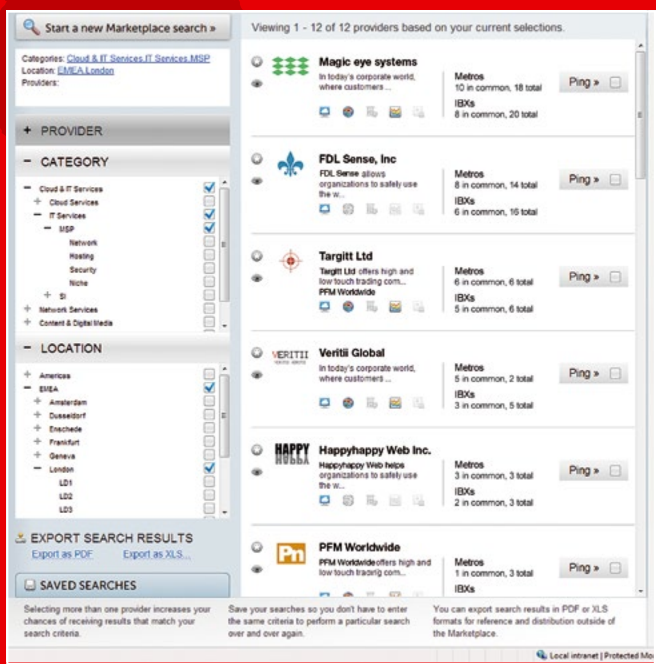
If used correctly, Marketplace can facilitate sales for market participants, acting as a shop window to effectively build and access a multi-asset financial ecosystem tailored for your business. If you're an exchange or trading venue, you can advertise your trading platform/s to an evolving community of over 400 buy-side asset managers and brokerages.

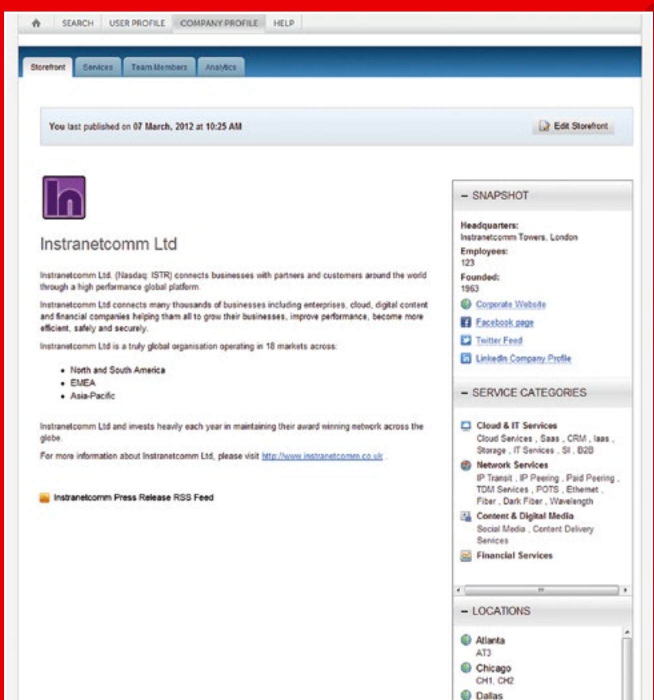
If you're a trading participant, you can access the latest enabling technology providers, connectivity vendors and market data feeds to optimize your trading performance and reduce latency and optimize bandwidth to multiple liquidity opportunities. The sheer quantity of conveniently located potential partners can also impact costs, as you can simultaneously contact a myriad of providers who are only a cross connect away, giving you a comprehensive snapshot of proximity, performance and costs.

First steps

- The first step to getting the most out of Marketplace is to populate your online storefront, setting out your full portfolio and filling in the correct contact details. You can also integrate your social media feeds to the portal to keep information fresh.
- Integrate the tool with your sales and marketing pipeline and metrics to measure its value to the business.
- Review your current ecosystem for any gaps or weak spots.
- See what is available on Platform Equinix using the Marketplace search functionality. Marketplace gives you privileged access to an array of world-leading partners and suppliers, from market data and analytics to extranets, connectivity services and many more.
- Contact new suppliers for the latest service information and prices – you can "ping" multiple contacts at once with an RFI or RFP. If you get the responses you want, you can generate savings performance enhancements, and speed time to market for you and your customers within the data center campus.

Visit Equinix Marketplace at: https://marketplace.equinix.com





CONNECTIVITY DRIVING COMPETITION

With depleted equity volumes and decreasing volatility in traditional markets, participants are constantly seeking access to new markets and trading opportunities to retain a competitive advantage. As a connectivity provider dedicated to the Financial Services industry, we are committed to investing in new connections to markets and liquidity centers to help firms achieve this advantage.

Our investment in the Russian market is an example of this commitment. When the Russian regulators and government lent their support to opening up the market, we identified an international appetite for access. In August 2012 we opened the lowest known latency route to the heart of the Russian market. Combine this with the market progression towards a standardised settlement period and the endorsement of colocation by the Moscow Exchange, itself predicting a growth of more than 200% by domestic investors by the end of 2014, and all signs point toward an expanding market ripe with opportunity.

In Moscow there are two key trading locations – M1 and Kolskaya 8 – as well as significant liquidity in London linking MICEX-RTS in Moscow to the LSE main market and International Order Book (IOB) in London, so access into/out of Moscow and within Moscow is critical.

TMX Atrium offers highly scalable, high-performance infrastructure into Russia and to other liquidity centers. Having worked closely with the Moscow Exchange and key participants, we believe our relationships have helped clients set up their trading infrastructure, get connected and start trading in this complex yet opportunity-rich marketplace.

For more information visit www.tmxatrium.com

THE APPETITE FOR FIBER

euNetworks is a bandwidth infrastructure provider operating 13 fiber-based metropolitan networks in Western Europe connected via a pan-European backbone. Dense city networks enable euNetworks to serve traditional carrier, internet service provider, system integrator and mobile network operator customers with high-capacity fiber connections between traffic aggregation points. However, euNetworks is increasingly leveraging its fiber footprint to extend beyond the traditional telecom targets to deliver fiber capacity beyond the data center to office buildings, media hubs, educational facilities and other bandwidth-hungry sites.

Growth in demand continues. Trends such as applications moving to the cloud, growth in software-defined networking, servers being moved from offices to professionally run data center environments and the proliferation of people working remotely are just a few that point toward growing bandwidth demand. Networks are evolving to support an ever more dynamic set of requirements. Yet always underlying that is the requirement for fiber, between data centers, offices and other key sites.

We believe in a vertically disaggregated telecommunications model, one where bandwidth is unlimited and infrastructure-based. The company does not inhibit network developments due to fiber scarcity or technology. With strong fiber assets, euNetworks aims to support its customers as their needs scale. The team focuses on the core and aggregation layers of enterprise networks, where connectivity between large offices and data center environments are critical. And, most importantly, euNetworks is seeing a growing demand from its customers for fiber. Customers today have the skillset to leverage what fiber can offer. Not only is this a sign of growth to come for euNetworks, but it is a fundamentally different way of doing business.

For more information visit www.eunetworks.com

FUTURES FOR KIDS

Last year was a turning point for Futures For Kids in many ways. While our fundraising efforts continue to grow apace – we have now raised over £1.5m since inception in 2008 – funding sources have become more diverse and the number of charities, and therefore children, we can support have increased.

In addition to the now-regular events in the calendar, such as the flagship Gala Dinner in June, quiz nights, poker nights and golf days, 2012 saw FFK selected as one of the charities supported by the Lord Mayor in his annual appeal. We joined Barts and the London Charity on behalf of the Trauma Unit at the Royal London Hospital, the Rowing Foundation, London Youth Rowing and Fields in Trust as part of Lord Mayor David Wooton's appeal "Fit for the Future".

And the current Lord Mayor, Roger Gifford, has also selected FFK as one of the beneficiaries for his 2013 Appeal, The City in Society. Futures For Kids supporters marked the occasion by taking part in the Lord Mayor's Show for the first time, complete with a 1950s open-topped Routemaster bus and almost enough balloons to lift the bus off the ground.

Such events have helped expand the profile of the charity and we are delighted that more and more individuals and firms are selecting FFK as their charity of choice when participating in sporting challenges and social events. For example, a team from SEB took part in the 2012 Royal Parks Half Marathon, while Citi's ETD division held a quiz night and took donations for a dress-down day, both in aid of Futures For Kids.

The now annual FFK Walk to Work day is another example of how individuals raise much needed money to support disadvantaged children and young people. In its second year, the FFK Walk to Work saw nearly 100 supporters from London's futures and options industry and foreign exchange community walk more than 35 miles on four routes to the City for four children's charities. The hardy walkers raised more than £70,000 in the process.

FFK now helps a wider range of children's charities across the UK and overseas. Our support includes financial donations for both long-term and one-off appeals. Here is how even the smallest donation can make a difference:

- £5 provides a notebook and pen for 20 children in Malawi allowing them to attend school
- £25 provides support (living allowance, education and transport to hospital) for an HIV+ child in Thailand for one month
- £30 pays for an hour of 1-1 support, helping a young Londoner plan how to achieve their ambitions
- £50 could enable successful reintegration of a street child in South Africa back into their family community
- £120 provides a student in Sierra Leone with food and education for a year
- £150 supports basic skill sessions, helping inner-city young people who struggle with essential literacy and numeracy

For more information or to offer support to FFK activities visit www.futuresforkids.org.uk

MAG INTERNATIONAL

saves lives builds futures

MAG (Mines Advisory Group) is a neutral and impartial humanitarian organisation, registered as a charitable company in the UK and co-laureate of the 1997 Nobel Peace Prize. Operational since 1989, MAG has worked in 40 countries worldwide – they are currently working in 15, expertly clearing landmines and other explosive remnants of conflict. MAG marked the 20th anniversary of its operations in Cambodia in 2012. Sadly, the country remains one of the countries most severely affected by landmines.

MAG could be clearing ground around a school or making a much-used road safe to travel along. Other times, it might be recovering farm land or demining a water source for communities and livestock. Whatever the local priority, this clearance is an essential first step on the road to peace and development, lessening the threat of death and injury whilst releasing land back to the local population, helping countries to rebuild and develop their social and economic potential.

When a country recovers from conflict, it provides opportunity to the global economy and particularly to financial organisations who can provide focused support to enable the recovery of the region. MAG is nearly always the first aid organisation to go in, making the region safe for other aid organisations and allowing its citizens to return to normal life.

For more information or to donate please visit www.maginternational.org

Whatever the local priority, this clearance is an essential first step on the road to peace and development, lessening the threat of death and injury whilst releasing land back to the local population, helping countries to rebuild and develop their social and economic potential.

A DATE FOR YOUR DIARY

In a bid to raise its profile within the corporate world, MAG in partnership with The Realization Group has created the networking group MAG-net.

MAG-net City of London is a business networking organisation designed to facilitate high-quality relationship building between vendors, clients, prospects, industry commentators and academics. Our membership is varied and spread across Financial Services firms and those who have products/services targeted at those firms.

MAG-net City holds free-to-attend networking events five times a year. From small beginnings in February 2011, the network has grown steadily in terms of membership and quality by recommendation and word of mouth. The evenings are a sociable mix of relevant guest speaker and networking.

For more information on the 2013 program, joining the network, attending or providing sponsorship, please contact info@therealizationgroup.com or visit www.magnet.maginternational.org/news-from-the-network

NEW: EQUINIX FINANCIAL INDUSTRY FORUM

This year, Equinix is launching a major new industry forum, to be held in London early in 2014. Join 300 of the world's most important foreign exchange, equities, fixed income and derivatives trading venues, institutions, service providers and suppliers at the Financial Forum. The Financial Forum will provide you with the opportunity to meet the people who participate in one of the world's largest trading ecosystems, giving you the chance to network, share knowledge and do business face to face.

The one-day event includes an ecosystem exhibition area featuring participants from around the globe, industry keynotes and panels, as well as a rolling program of global trading workshops. Senior executives from across the industry will be present, sharing experiences and discussing solutions to the latest technological, regulatory and market developments.

"As the Equinix financial ecosystem has grown down the years, we have tried to be as proactive as possible in developing our role as an industry facilitator," said John Knuff, General Manager, Global Financial Services. "The Financial Forum is the natural next step, bringing senior executives from all markets and asset classes face to face to discuss how to do business better together. We have received enthusiastic commitment from a wide range of leading players and have an excellent speaker lineup in place."

Join the world's most important foreign exchange, equities, fixed income and derivatives trading venues, institutions, service providers and suppliers at the Financial Forum. The Financial Forum will provide you with the opportunity to meet the people who participate in one of the world's largest trading ecosystems, giving you the chance to network, share knowledge and do business face to face.

Attendees include:

- Market infrastructure provider: stock exchanges, MTFs,dark pools, CCPs
- Institutional investors (buy-side): private equity, mutual funds, unit trusts, hedge & pension funds, asset managers
- Market intermediaries (sell-side): investment banks, corporate brokers, stock brokers, proprietary traders
- Service provider: FIX, SORs, market data vendors, networks, risk management
- Regulatory
- Strategic advisors
- Management consultants
- C-level management focused on business development strategy, execution, trading, operations, technology

To register, sponsor or simply find out more information visit www.financialindustryforum.com

WHY SHOULD YOUR BUSINESS PARTICIPATE?

- **Discover:** Meet industry leaders across the markets and find solutions to the latest technological, regulatory and financial market developments
- **Connect:** Leverage a unique combination of networking tools that will help you build relationships and discuss solutions with firms from around the world
- **Influence:** Discuss your most important issues with regulators and senior players from multiple markets, regions and asset classes across the entire trade lifecycle

The Financial Forum website is now LIVE and we encourage you to take a look around to explore the agenda, event participants, sponsors and unique networking tools.

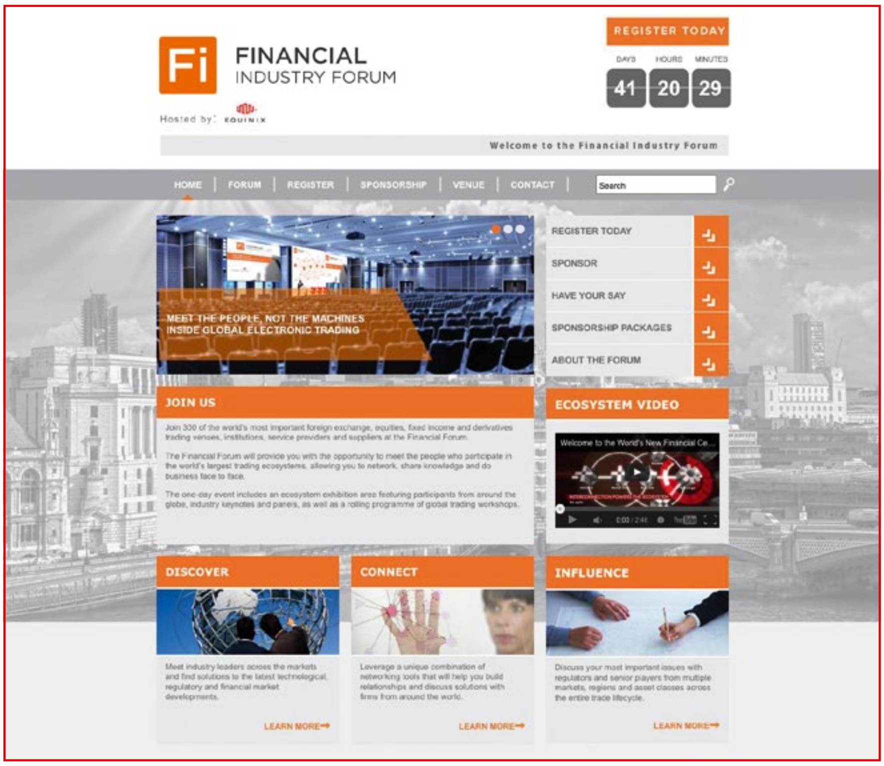
Once online, complete your FREE ticket registration and be in with a chance to place a spokesperson from your firm on The "Ever-Evolving Toolkit" panel.

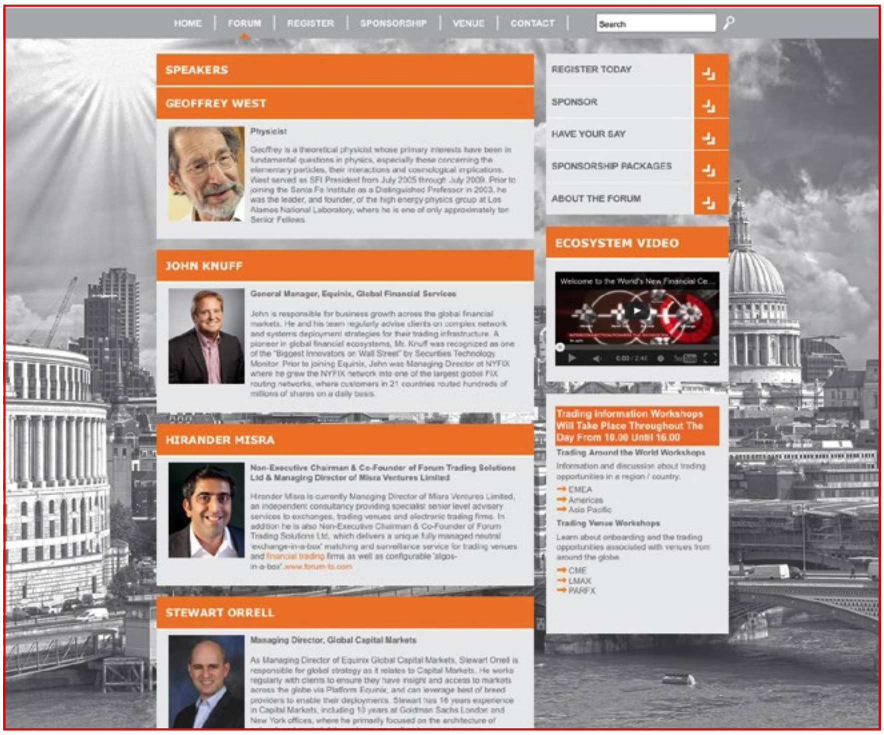
Don't miss your opportunity to do business face to face with over 300 executives from the world's leading trading venues, institutions, service providers and suppliers, as we discuss the most important trends, issues and technologies shaping global markets today.

We look forward to welcoming you to the first Financial Industry Forum!

For more information visit www.financialindustryforum.com

Fi FINANCIAL INDUSTRY FORUM





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About Equinix

Equinix, Inc. (Nasdaq: EQIX), connects more than 4,000 companies directly to their customers and partners inside the world's most networked data centers. Today, enterprise, cloud, networking, digital media and financial services companies leverage the Equinix interconnection platform in 31 strategic markets across the Americas, EMEA and Asia-Pacific.

By connecting directly to their strategic partners and end-users, customers are forming dynamic ecosystems inside Equinix. These interconnected ecosystems enable companies to optimize the performance of their content and applications and protect their vital digital assets.

www.equinix.com

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