

# Reducing barriers to entry

## New network and hosting solutions for ultra low latency FX trading

Dan Barnes discovers what network reliability, resilience and security issues need to be considered to safeguard mission critical FX trading operations and the benefits of working with connectivity providers who can offer hardware consultancy, procurement, build, installation and ongoing technical support as an integrated package.



The closure of Bloomberg Tradebook at the start of the year was indicative of how tough a business FX trading has become. Having launched in the heart of the global financial crisis it was no spring chicken and was used to turbulent markets. Nevertheless, from trading venues to traders, getting ahead of the curve is harder and more expensive than ever before.

Banks were reporting falls in liquidity across the foreign exchange markets in late 2014, but this was confirmed most fully by the Bank of International Settlements (BIS) triennial report in 2016 which reported that trading in foreign exchange markets had averaged US\$5.1 trillion per day in April 2016, down from US\$5.4 trillion in April 2013. It also noted that, for the first time since 2001, spot turnover declined, falling to US\$1.7 trillion per day in April 2016 from US\$2.0 trillion in 2013. The derivatives market grew, in contrast, which it noted

was driven “in large part by increased trading of FX swaps involving yen.”

Following the de-pegging of the Swiss franc in 2015 many market participants had their fingers burned and withdrew – in the BIS report it is notable that institutional investors had become 16% of daily turnover, up from 11% three years ago, while proprietary trading firms had reduced activity from 11% to 8% over the same period.

The landscape in 2017 reflects these changes, with firms under greater pressure to manage risk and return, without increasing their costs considerably. As they invest in trading infrastructure they have to make careful



## Reducing barriers to entry

choices about the fixed and floating costs they incur, and the quality of service they receive as a result.

### STABILITY OVER SPEED

"It's not so much the software that you need to be successful, it's the overall picture," warns Jubin Pejman, founder and managing director of FCM360, a technology solutions provider. "There are a lot of great software packages and technologies, but if you are not in the right buildings, in the right locations people will just not take you seriously, and you will not be able to conduct business."

Increasingly trading firms need to prove they are viable to their banking partners and of limited risk to their counterparts in order to engage effectively with the market. This represents a shift from the speed-focussed technology investment of a few years ago.

"The big thing in my mind, is what can we do to protect people?" he says. "Our software is designed actually to aggregate the network traffic and secure the information, things like that which are completely cost prohibitive to do yourself or to hire a third party."

Nevertheless, traders also need to manage high volumes of data with high speed reactions to trading against market events



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to limit exposure to sudden changes in currency pairs.

"There are many aspects that need to be taken into consideration here," says Cristian Vlasceanu, CEO of broker technology provider PrimeXM. "Low latency trading software, with the ability to handle a high throughput of price updates and trade requests, and take the right decisions in an instant is essential."

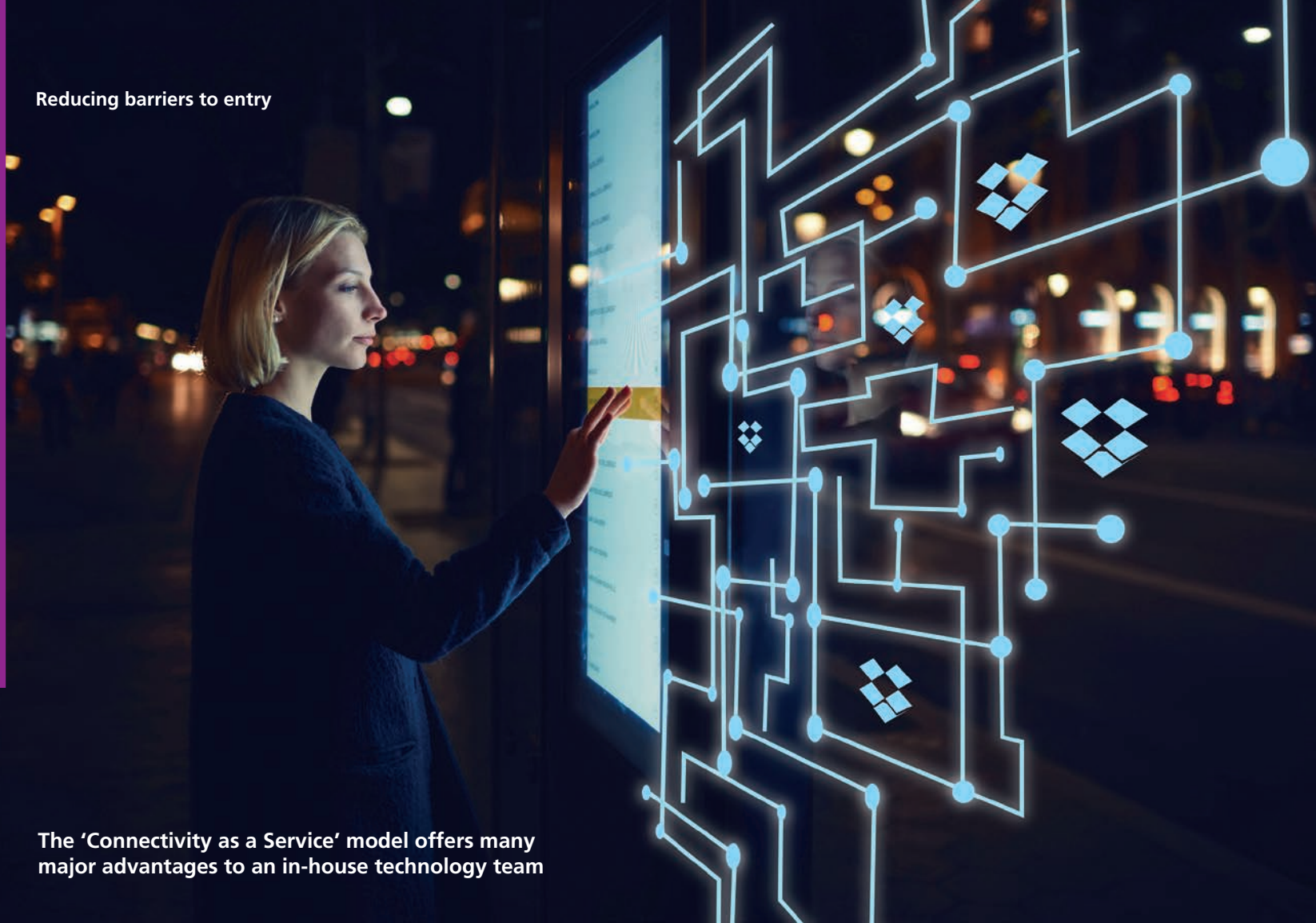
He observes that in addition to the quality and the efficiency of the software, to create optimal trading environments, the

location of the setup, as well as the hardware and network setups are imperative.

"The trading environment must be as close as possible to the source of liquidity to receive the latest price updates as soon as possible and to ensure the lowest travel times for trade requests," he says.

Even as speed-led proprietary traders reduce their proportion of trading volume, traditional long-only and alternative fund managers are becoming more cognisant of the need to trade with minimal information leakage and maximum

Reducing barriers to entry



The 'Connectivity as a Service' model offers many major advantages to an in-house technology team

efficiency reduces costs and creates opportunity to generate alpha.

"Running the setup on the latest enterprise hardware, as well as via an ultra-low latency network which is able to handle large amounts of data and tackle huge bursts of data, will guarantee the most efficient and stable trading experience, ensuring that the

traders benefit from the best trading experience available," says Vlasceanu. "This makes network provisioning highly important for such setups."

**NETWORKS AND HOSTING**

The fundamental choice involved in network management is how involved the firm wants to be in running its own network and infrastructure. Outsourcing it removes the

firm from having to deal with the data centre at a basic level. Managing and monitoring all of the network and the day-to-day infrastructure monitoring that goes with a requirement like this considerably reduces the amount of labour and subsequent cost applied to the trading business directly; mutualising the cost through a third party can have major benefits.

**NETWORKS, HOSTING & CONNECTIVITY**

own network infrastructure. A managed network solution can be far more time and cost effective."

Vlasceanu concurs, noting that his firm's XCore system and all the underlying infrastructure have been designed following low latency and flexible burst requirements, to ensure brokers can create the best trading environments for their clients.

"Furthermore, we host our environments in Equinix LD4, NY4 and TY3 respectively, as close as possible to all liquidity sources," he says. "This leads to the best possible trading experience." Even larger Tier 1 and 2 banks are pragmatic in understanding where their strengths lie, for example in how quickly they can get things done within their own organisations. Where they already have hosting in a particular data centre, that does not always mean they are able to respond at the same speed as more nimble providers.

"FXecosystem can typically achieve it extremely quickly, within 24 or 48 hours and get the connectivity live, which if you are a bank or a hedge fund is very important. The cost and time efficiencies of outsourcing connectivity come through right from the set up stage – banks, brokers or hedge funds don't need to get distracted with the engineering aspect of running the infrastructure themselves or have the additional expense of employing specialised technical staff in-house."

Managing the web of an over-the-counter market for a single firm is not only complex, there are challenges where conflicts of interest occur. From a bank perspective, all Tier 1 banks would need to be connected to all the major electronic



James Banister

"A typical example of that would be putting in a cross connect. This could take anything from 24 hours to three or four weeks," says Banister.

"If you are considering hosting in different data centres, you need to think about how involved you want to be in running your own network infrastructure. A managed network solution can be far more time and cost effective."

"We have a full 24/7 network monitoring operation," says James Banister, CEO of FXecosystem. "This has a wide range of benefits for our clients, including the fact that we do engineering work over the weekends which is the only time available to do these things. If you are considering hosting in different data centres, you need to think about how involved you want to be in running your

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communication networks (ECNs), with other connections, for the counterparties that they wish to connect to, and offer liquidity to. This can range from anything from a major hedge fund to a large retail broker to another type of trading house, or liquidity provider themselves.

“All of that requires a lot of engineering to deliver these services quickly and effectively. Managing cross connects or circuits is extremely time intensive – typically it needs a network engineer dedicated to the account to set up and manage the connectivity. A managed services provider is ideally placed to handle all the logistics and communications on a day-to-day basis.”

The ‘Connectivity as a Service’ model offers many major

advantages to an in-house technology team often tasked with delivering increasingly digital services to a business, which makes infrastructure management more costly and complex than it might otherwise be.

“For one thing, it reduces the need to have your own in-house experts and know-how as well as the time to market for setups,” says Vlasceanu. “Therefore, one of the benefits our clients have is that they can leverage our extensive experience for any kind of setup and optimizations.”

He notes that in addition, using the ‘Connectivity as a Service’ model can reduce significant costs which would be inevitable with self-provisioning the needed infrastructure.

“By using our existing infrastructure, clients can be certain of the stability and robustness of a proven setup as well as take advantage of low latency connectivity, as opposed to using standard connectivity setups,” he says. “Adopting a service for connectivity is especially important when it comes to China whose ‘great firewall’ presents its own set of unique challenges.

Our established presence in mainland China has allowed us to tackle this and to be able to provide direct low latency and stable connectivity solutions.”

**A TRUSTED PROVIDER**

Where there might be considerable levels of communication to establish the connection and get it tested, that sort of background work that goes on before the firms actually turn on, test and go live is not necessarily apparent to the average organisation until they actually look at it, and work out how time consuming that is in terms of the effort involved, the costs – and relative value of using a third party – can be hidden. In addition third parties can provide value added support including cyber security.

“It is important to have strict policies regarding security and only allow explicit access. Periodic penetration tests and checks must be performed and full uncapped DDoS protection mechanisms are definitely a must,” says Vlasceanu.

“Additionally, special care needs to be taken in regards to redundancy of the equipment and networks. Our experience has taught us that full local and geographical redundancy are an absolute must. All equipment must run in paired mode and very specific network level configurations are necessary to deal with automatic backup routes, etc. Disaster recovery setups in other geographical

locations are also an excellent practice.”

Pejman says, “We will monitor down to the packet level all of the DNA traversing your entire network, your firewalls for every single packet. You really do need to be able to handle really huge numbers of transactions a day. Our database can handle this, keep track of how many things that are going on, help you find out what happens for a given day, back three months or six months if there is a security event, so we can help you figure out what happened. We can tell you what is happening in real time with some of our dashboards.”

And managing all of that aside, the challenges of doing the engineering out of hours are where the efficiencies that perhaps are not necessarily obvious start to come to the fore, in terms of adopting a service model such as managed hosting.

“Not all firms offer the same solutions and as such, it heavily depends on the trading firm’s choice of technology provider,” notes Vlasceanu. “So, if for example the client is sourcing the technology from one provider and the hosting and network setup from another, it might be difficult to manage things efficiently or get to the source of each issue presented. In order to prevent this, as part of our solutions, we manage

NETWORKS, HOSTING & CONNECTIVITY

both the technology and the hosting and network setup, to ensure that we are able to cater to our clients’ needs. We offer clients all the expertise they will need and as such are in a position to optimize setups efficiently and to also monitor the entire setup and avoid any potential issues.”

**HEAVENLY HOSTING**

The potential advantages of working with a hosted connectivity provider are most apparent where taking the ‘one-stop-shop’ service model that takes away much of the pain and cost that firms are keen to avoid due to market circumstances.

“The fact that you don’t have to spend time managing relationships with the data centres or service your switches should be a key benefit if you are opting for a managed services approach,” says Banister. “It’s a major advantage to our clients that they are dealing with people who are familiar with what the latest and greatest equipment is. The clients that we deal with have a very strong opinion on what they believe they should be sourcing for the services they are going to place with us but often we can add a little bit of

an edge to that, and assist them in the type of service perhaps they should consider using, from the type of switches to how the firewalls operate, to how we set them up. They value the knowledge and expertise that we offer.”

Monitoring performance is still key when using a trusted third party and so a provider ought to support real-time monitoring systems in order to be effective, and crucially must be able to explain how the monitoring systems are configured.

“The aspects that are critical for the purpose of trading performance are very different than the requirements of a day-to-day network, for example micro-bursts, buffer overflow, packet re-transmissions, and so on,” says Vlasceanu. “Especially



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in the most volatile market events, it is critical that trading setups perform as expected. Therefore, networks and systems need to be tailored to be able to cater for such events, when the network and system utilization can grow exponentially, and monitoring systems play a very important role, aiding in proper capacity planning." In some cases this may involve firms taking on tailor-made servers, he notes, which can bring huge benefits to a trading system, such as increased processing power, lower processing times, higher network throughput and lower transmission times. "The cons are definitely the costs involved with purchasing and customizing such hardware," he observes.

"We hear technology conversations which are the

equivalent to a guy saying he can't pick up girls because his phone isn't good enough," jokes Pejman. He notes that technology is not a panacea, and warns that firms should not get too hung up on the technology they have in place if their relationships are not fully supporting the business they are running.

"When you think about what you are trying to accomplish, some hedge funds will be working with a horrible prime broker, and their executions are taking 50 more millisecond longer than they should be – in that situation do they actually think that having a 70 nanosecond switchboard will actually help them?" he asks. "If you don't have an answer to that question you shouldn't

be ordering a US\$75,000 dollar server. You can get what you need for US\$1,000 and by finding a new broker that doesn't rip you off."

Having an open relationship that allows these sorts of conversations is fundamental to getting the best service from your managed network service provider, says Banister. "If you start to delve into it, it's a fully rounded solution conversation you are going to have with them, it's not just jump in the car and drive," he says. "There are a lot of different aspects to it. Much like the data passing through the network, it looks simple, it's just data. In actual fact, how the data is handled, how it's presented and the information you can derive from it is extremely useful."