

Special FX

building a new breed of trade execution platform

By Nicholas Pratt

Technology within the financial markets does not stand still for very long and, despite the advances made in electronic trading and execution in the FX market, the next stage of development and the building of a new breed of trade execution platforms are well under way. Nicholas Pratt explores some of the ways that these developments are taking place and what expectations banks and brokers have of their platform providers.

More and more traders are migrating away from the single asset class strategies of the past towards either multiple or cross-asset class strategies – a trend which must surely have implications for the execution platforms they use. Similarly new and more complex instrument types within FX are becoming increasingly popular which means that trading systems will have to be able to adapt and exhibit enough flexibility to incorporate these new instruments.

Alongside these new trends there are still the enduring themes that have remained important over the last few years – the increasing need for straight-through-processing and greater connectivity and, more controversially, the demand for low latency

and high speed. The successful adoption of messaging protocols such as FIX has helped in terms of connectivity but is there still work to be done in this space? Similarly is there still a call for low latency or have most traders reached a point where execution can be performed no faster without significant and perhaps pointless investment?

And finally what of the technology itself? Can the FX market make use of general trends such as the increasing maturity of the cloud computing or software as a service (SaaS) operating models? And does the whole are of Web 2.0 technologies such as HTML 5 and rich internet applications (RIA) have any place in the FX market? Are these web-based technologies of enough maturity to form the foundation for mission critical trading platforms and services? And are FX traders fully aware of the potential benefits on offer and really ready to fully commit to these areas of technology development?

Need for flexibility

“As markets, regulation and the entire financial world are changing so fast in recent times, all parties including software development companies need to react faster and be more flexible,” says Denis Borisovsky, chief executive of Ukraine-based trading software developer PFSOFT. “It is very important to use repayable and advanced technologies like J2EE in order to build a scalable application with reusable code and inexpensive maintenance costs.”

The importance of technology like J2EE is being driven by the growing demand among traders for more performance-driven



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architectures delivering scalable and ultra-low latency functionality, says Borisovsky. “There are many factors at work when it comes to explaining this demand. Markets are becoming much more liquid in recent years. Trading algorithms are becoming much more sophisticated and automating trading mechanisms have become popular. The network of integrated parties has increased since the universal STP protocol (FIX) has become widely-used.

All these factors mean a challenge for old fashioned platforms, most of which are going out of business. New platforms have been specifically designed to cope with new market demands. They are based on new technologies and on specific architecture approaches for much better performance, scalability and flexibility.” Similarly the move towards cross-asset trading platforms requires a much more accurate approach to architecture design, says Borisovsky. “These platforms should allow different interfaces and models that are specific to each market on top of the underlying platform. For example, our product has around six different types of margin models, which allow all main asset classes within a single platform. We also offer at least eight different ways of creating an order within the system: Matrix, Market Depth,

Order Entry, Basket, FX Board, Options Chain Visual Chart, which are based on top of the platform core. All these mean that the requirements for preferences of different trader groups and markets can be met.”

End of the silo

These developments underline the theory that individual product and silo-based trading is finally coming to an end as trading firms increasingly migrate towards multi-asset class solutions. “This is a basic evolutionary rule. Once people see something better they will use it, and it’s only a question of time. Multi-asset solutions prove themselves in many ways: they are easier to learn and use for both brokers and traders; they are much more reliable than some integrated multiple solutions; they allow consolidated risk management, hedging and user management. Finally, multi-asset platforms reflect human nature. It is all about trading, and each asset class is just a little different instrument, but its core its always same – and very simple - buy, sell and make a profit.”

At the same time as traders are embracing multi-asset trading platforms, they are also moving away from multi-dealer platforms that only address single-asset classes, says Paul Caplin, company founder and chief executive of Caplin Systems, a UK-based software developer that specialises in the client delivery aspect of the FX trading process. Caplin says that the multibank platforms that dominated the FX market in the early part of the millennium, such as FXAll and Currenex, are now facing greater competition from the single-dealer platforms they once replaced among buy-side FX traders.

“In those early days the multi-dealer platforms would argue that all clients wanted to see multiple quotes for trading for both best execution requirements and for the ease of use and removing the need for multiple screens and feeds. But this has turned out not be the case,” says Caplin. “It turns out a lot of traders are happy to trade with a single bank much of the time, if the offering is good enough. Having realised this, banks saw the need to offer something better in terms of client delivery and this became an important component in their FX offerings and not just an add-on.”

At the same time banks began to apply the same logic to other asset classes such as fixed income and FX options and there was a rapid realisation that rather than having lots of single dealer platforms in separate asset classes, it would be better to combine them into

one multi-asset class, single dealer platform – a layer of software that spans silos within the bank that delivers a high quality, integrated trading screen directly to clients' desktops. "The technology is quite advanced in this area but adding equities and derivatives to this is still at a relatively early stage," says Caplin.

Does this mean that FX is an asset class that presents fewer challenges when included as part of a multi-asset class system? "For each asset class you have to connect to the appropriate systems. Some of the FX systems are quite old and they can be quite idiosyncratic. For example, rates trading requires more complex analytics because there are so many more instruments and yield curves and so on. But on the other hand, FX requires faster updates because the price changes so often. And because you are almost always supporting one-click trading of streaming executable prices, you have to ensure that prices are always displayed with very low latency, even when the user is receiving 100 updates per second. Those two factors – the high rate of price changes and the popularity of one-click trading – mean that the need for prices on the user screen to be constantly updated is more extreme in the FX market."



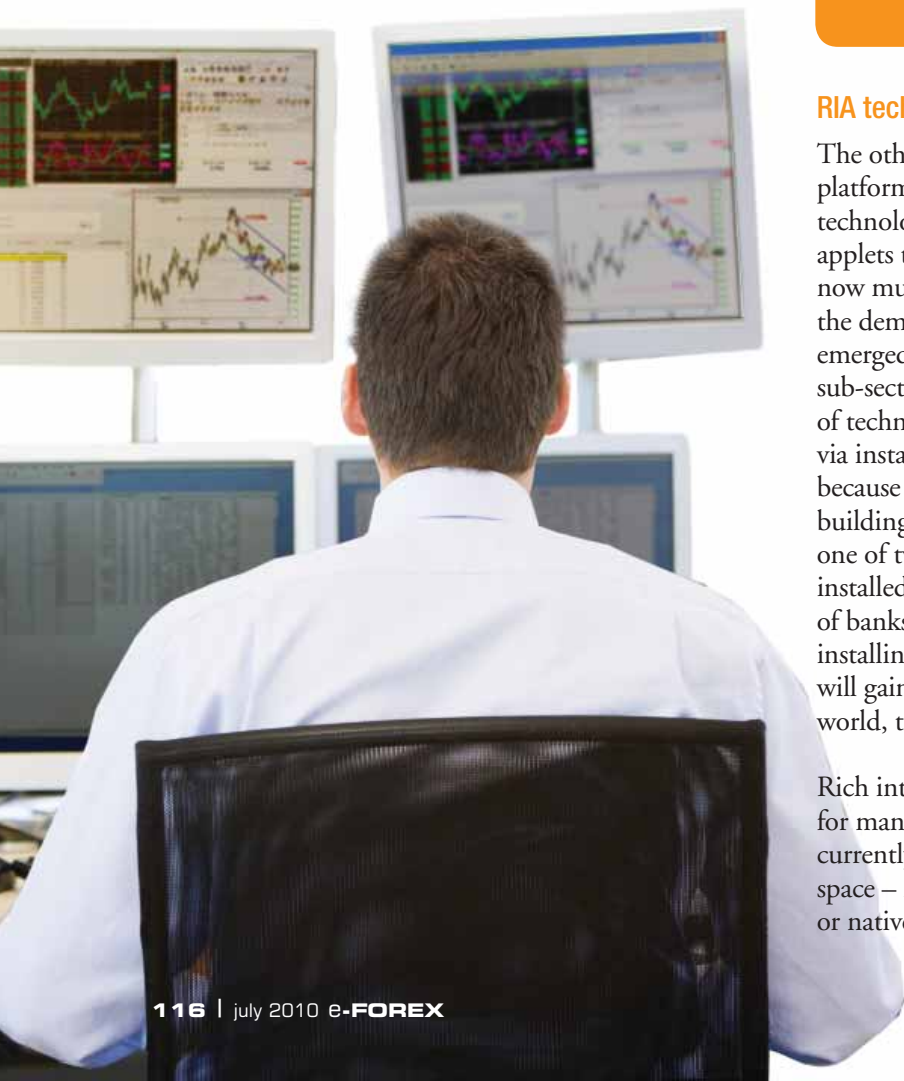
Paul Caplin

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RIA technology

The other big factor in the building of trading delivery platforms and applications is the rapid change in the technology that is being used, says Caplin. The Java applets that were so successful in previous years are now much less frequently used – in part because of the demise of Sun Microsystems. In their place has emerged rich internet application (RIA) technology, a sub-section within the much vaunted Web 2.0 branch of technology. "In previous years this was mostly done via installed applications but this is increasingly rare because of the cost of installing them. Now, if you are building a trading delivery platform, you have to go one of two ways – the first is to opt for a heavy client-installed app using either Java or .NET. A small number of banks engaged in high frequency trading are still installing Java-based applications because they feel they will gain an advantage on performance. The rest of the world, though, is using RIA technology," says Caplin.

Rich internet application technology is still a new area for many banks and it is complicated by the fact that currently there are three competing offerings in this space – Flex from Adobe, Silverlight from Microsoft or native web technology – so banks have to make



a decision about which technology to adopt and to train their development staff in while vendors have to cater for all three. “We currently support all three technologies. In the long run, native web technology is the most certain to succeed, though Silverlight is clearly very strong. There is a huge user community behind it and the support of large companies like Google and Apple so there is little doubt that it will go from strength to strength. But in the short term, technologies like Flex and Silverlight are able to offer an easier development environment. One question that banks need to ask themselves is what their time frame is. If they have a short-term outlook, almost all web browsers support Adobe’s Flex so they would be able to get an application up and running very quickly but in the long-term, it is a technology that will be squeezed out by web technology, particularly as HTML5 comes in and adds more power to web technology. We’ve tried to resolve this dilemma by providing a web framework – Caplin Trader - which takes all the pain out of building a native web application.”

Caplin believes that RIA technology will develop very rapidly over the next few years as the initial conservatism from FX traders fades and the technology matures. “FX was the first asset class



Christopher Kallmeyer

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to deliver trading over the web, so it is somewhat entrenched in the older way of doing things. But many banks are proving that RIA technology works very well so that caution is evaporating. I think it is particularly suitable because of scale. When you are voice trading there is only so many people you can speak to on the phone in a day. But once you go electronic, you can reach an unlimited number of people. But you need a technology that can be easily rolled out to all of those people.”

Better user experience

The demand for a better user experience in electronic FX trading is inevitable, according to Christopher Kallmeyer, Director of Product Development at trading technology vendor Financial Software Systems. “Users see new services in certain products and then demand the same level of services on other products.” This is particularly true of web-based technology and the whole Web 2.0 area which has been so pervasive at the general consumer level and helped retailers as well as banks to enrich the online experience of their customers and now it is being explored within the FX trading market. “While speed of execution is often a focus, post-trade capabilities are equally important to create the best overall user experience. We are seeing banks, broker-dealers, and prime brokers looking to offer their clients increasingly robust data in real-time to help with decision support and risk management.”

Kallmeyer continues, “Cross asset support is another critical area of improved user experience. Single-bank portals have begun to regain market share from multi-bank portals because of their ability to provide access across an array of asset classes. Some of the banks have opted to build this on their own while others have turned to vendors to provide a speed-to-market advantage. This is an area where we are beginning to see more uptake.” He goes on, “In addition to robust data publishing and cross asset support, the banks are also looking for pre-trade margin and limit checking, real-time alerts delivered to the desk and the client, and full multi-lingual support in the web portal, statements, and other client correspondence. These are all areas we’ve been able to differentiate.”

Scalability without latency

According to Peter Jörgne, partner and chief executive at Sweden-based trading software developer Aphelion, the requirements for latency or scalability differ depending on the trading firm. “The technology



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initiatives will differ quite a lot if you speak to a tier 1 bank who has been auto trading for a decade or if you speak to a tier 2 who is just starting they will definitely have different plans for the future. From the vendor side however I believe we will see more initiatives to offer complete suites of integrated end-to-end functionality within FX trading and cross asset bundling but it will be driven by the banks reacting to customer demand. The new generation will be based on auto-trading with broad connectivity to multi-bank portals and liquidity pools, with strong auto hedging and algorithmic execution, all performing trades with ultra low latency." He goes on, "Most banks who have been in the FX business for a while are experiencing volume increases to a level that the systems can't handle, they need scalability without adding latency. At the same time many banks and hedge funds are coming in to the market on more modern platforms with integrated components where low-latency has been part of the architecture and design from the start. Performance is a key requirement for success as the competition, trade volumes and volatility that the FX market experience requires timely and accurate processing of transactions. Quasar eFX is proving to be the quickest to respond to market quotes with capacity to handle the high volumes of trades with superior

aggregation of liquidity and risk mitigation with powerful autohedge functionality."

Latency less important

For others there is a general sentiment that low latency is becoming less important, at least in terms of this relentless race towards an end point of zero milliseconds. "There has been a big push in this area over the last two to three years and now I think you have either got low latency or you are not in the game and we are now into the realm of diminishing returns," says Carl Martin, chief technology officer at Eurobase, a UK-based developer of FX trading software. "At the moment, for the 98% percentile, the performance time for rate generation is 6 milliseconds for the most complex of processes which includes algo processing, credit checking and constructing margins. If this was to be halved to 3 milliseconds, the tangible benefit would be so slight as to be irrelevant. Most vendors have approached that sub-10 millisecond band and there is very little motivation for them to go any further than that."

Martin does see far more interest in the demand for multi-asset trading platforms as vendors look to get more out of their customers and these customers look to rationalise the number of systems that they employ. However, as simple as the concept sounds, there are some technical challenges involved for vendors – particularly when considering cross-asset trading, where multiple asset classes may be involved in the same trading process or transaction.

"Platforms are essentially two types – business-centric platforms that have technology bolted on to deliver specific technical features or technology-based platforms that understand a bit of business," says Martin. "The latter group struggle to adapt to other asset classes because of the different business processes that have to be understood. So we have tried to keep the two elements separate – the business engine from the technical delivery side. In a perfect world, traders would have a fully featured front-office sitting behind a flexible delivery tool. For example, if you have a platform that does spot FX and you want to bolt on a CFD, it is a big job. But if you have a platform that supports the A-Z of products and is delivered via a web page, to then deliver that via an XML feed is straight-forward."

Web technology

Technology development has also been made easier by the advancements in web-based technology and its take-up by users, says Martin. "It has made it possible to create a much better user experience that was not

possible five years ago, particularly on the retail side where you can create very advanced front-ends with more widgets. We are also seeing a wider use of apps on other devices such as phones and this trend is now being transferred to trading and banking. So the user experience is becoming key. And if you look at the profile of FX traders, they may all use technology in different ways but they are all concerned about the look and feel of their technology and their tools – just look at their Rolex watches. These are not supermarket employees so there is a lot more pandering to them in terms of the technology they use.

“There has been a massive shift forward in terms of web technology. When we entered the gateway space six years ago, the connectivity options were very varied but now the whole world has centred on FIX. Similarly, when it comes to the technology for frameworks and front-ends, it is becoming a lot more commoditised. For the first time ever, we are seeing mainstream web technology being used in the banking and FX space. The mainstream vendors in this space now all have an FX service or an equities service where they are showcasing their technology for a banking audience. For the first time, banking requirements are driving the technology.”

While Martin states that this development has made it easier for vendors such as Streambase by creating another tool in their armoury, he is also cautious about the rate at which new technology is developed in this area and, as Caplin stated, the need for vendors to ensure that they do not leave themselves committed to a technology that later proves to be out of favour and fashion. Vendors therefore have to approach this new technology with an attitude of openness and flexibility. “In software there is a general principle of inversion of control – rather than hardwiring any technology, you make it ‘plug-inable’. The pace of change is so fast you can easily find yourself with a Betamax and not a VHS so it has become important that you don’t hardwire the technology into the heart of the mainframe.”

Martin also agrees with Caplin’s earlier assertion that the single-dealer platforms have become more popular at the expense of the multi-dealer platforms. “It has been interesting how it has panned out. Four or five years ago, it became clear that this was going to be the way the market



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developed. Multi-dealer platforms had become popular but for the vendors, do they really want to go to market with 30 other users, competing on nothing other than price? As a vendor developing single dealer platforms it is much easier to differentiate or to be flexible enough to provide specific services at a high margin.”

Conclusion

Ultimately, says Martin, the trend for multi-bank platforms will extend to the point where asset class-specific systems will be a thing of the past. “We talk about FX platforms and equities platforms and fixed income platforms as though they are all different systems but in the future, even in two years time, I think we will just be talking about trading platforms. We are already seeing cross-fertilisation among traders – the head of eFX may not have come from an FX background. The underlying prices may still be serviced by the banks but the clients of that bank may be trading in many different asset classes and they want one point of contact at their banks. So the banks are thinking about the electronic trading platforms in a much more holistic way, combining FX with fixed income, equities, CFDs and even spread betting.”