

# Unified Messaging: helping to extend FX trading platforms beyond the enterprise



Joe Morgan

Joe Morgan examines how a new generation of middleware messaging architectures can now be leveraged to help platform developers overcome many of the difficulties in moving real-time FX data across multiple delivery channels.

In an age where technological advances are being driven forward at an increasingly breakneck pace, FX single dealer platforms (SDPs) have emerged as hubs of innovation, feeding data and trade execution services across a growing variety of channels. This is placing growing demands on a new generation of unified messaging middleware to provide real-time FX

data across different web applications, mobile trading devices and mission critical systems.

Tom Hayhurst, chief technology officer at Catena Technologies, a boutique trading technology consultancy based in Singapore, says the complex technological challenges facing those building the architecture for FX SDPs today in part have their genesis a decade ago with the transition from telephone-based trading to electronic and automated dealing. "Ten years ago, we started to see platforms which were phone trading for FX moving online to create much more automated and efficient dealing, working on volume," he says.

## Connectivity

An FX trading landscape with liquidity fragmenting across various bank-owned platforms and electronic communication networks (ECNs) has also made SDPs face up to more complex connectivity requirements. As FX markets become more interconnected and advance towards increasingly high levels of automation, SDPs have to connect to a growing number of FX trading venues.

Furthermore, the current financial crisis and regulatory reforms have heightened the pressure on SDPs to be able to provide clients with real-time risk metrics and updates on margin rates and positioning information. Added to these trading and risk management requirements, SDPs have also had to incorporate online communication tools that have become increasingly ubiquitous among FX market participants.

Paul Brant, chief executive officer (CEO) of my-Channels, a specialist in real-time messaging data that provides streaming services for four of the top eight global FX e-platforms, says technological innovation has significantly reduced the "human latency", inherent when disparate systems within an SDP are linked together. "There is a growing recognition within the FX industry that banks require an ultra low-latency unified messaging solution from which they can build out an SDP that encompasses enterprise, web and mobile," says Brant.

## Community of interests

There is a community of interests [around an SDP]," says Shawn McAllister, chief technology officer at Solace Systems, a provider of middleware appliances based in Ottawa. "Why is Facebook so popular? One reason is that it has been able to capture a widespread community. If you create that type of community, it will attract people to that source information and lead them to trade."

"Single dealer platforms now offer quite a rich user experience. You can have information such as FX quotes or market news pushed your way based on the currency that you are looking at. Traders are using SDP chat rooms to exchange trading ideas and rumours," he adds.

"While a lot of SDPs right now seem focused on FX trading, one of the important considerations in what defines an SDP is also its ability to provide a single touchpoint to clients trading a variety of products," says Hayhurst of Catena Technologies.

Hayhurst points to Deutsche Bank Autobahn, which allows users to trade across a variety of asset classes, along with providing access to analytics, research, and transaction banking services. Deutsche Bank first launched Autobahn FX as an FX trading platform in 1999, which offered users real-time data externally via the internet also using my-Channels Nirvana, delivered across enterprise, web and mobile platforms.

Bob Giffords, an independent banking and technology analyst based in the UK, points out that banks capacity for increasing revenue streams can be enhanced by developing more connectivity channels. He contrasts the relatively large fixed-costs of setting up and running services with the unit costs of delivery, resulting in large economies of scale when the range of delivery channels are increased.

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Paul Brant

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different access technologies, including internet, mobile, extranet, agents and markets or different geographies," says Giffords. "There are also a growing range of supply chain partners to simplify the process often on a pay-by-use basis to share the set up costs and reduce time-to-market. The banks are buying such services to expand their distribution networks. Connectivity is increasingly important."

Morgan Stanley for example launched its Matrix SDP in 2009, which provides its clients trade ideas, historical data, pricing information, charting functions, market commentary and trading applications that can be viewed by users using handheld applications. Users can obtain access to the Matrix portal via iPhones and iPads, enabling them to use multimedia tools to digest the latest research published by the US investment bank.

## Increase in channels

Eddie McDaid, chief operating officer (COO) of my-Channels in London says that in the current fast-moving markets where new products are being continually launched, the "one guarantee" is that the variety of channels delivering data within an SDP will increase. "A technology solution such as Nirvana that abstracts delivery channels and platforms, along with their specific nuances, from the point of entry through to the end customer can be of an immense benefit," he says.



Tom Hayhurst

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McAllister of Solace Systems says SDPs have now become centrally focused upon reaching out to a wide variety of different channels. "In the past, those who were operating SDPs needed to use different technologies for these different channels. This created a lot of complexity within the architecture. Each channel had to be glued into the existing trading backbone. A bank had to figure out how to make these channels resilient, secure and perform well. Every channel created a new technology challenge," he says.

McAllister identifies four delivery channels within an SDP: Client-side desktops (traditional trading consoles), browsers (using technologies such as Microsoft Silverlight and Adobe Flash), handheld mobile devices (smartphones and tablets) and programmatic interfaces (for electronic and algorithmic trading systems).

"We provide a unified messaging appliance that can give access to all those different channels whether it is streaming quotes or managing order flow – the appropriate traffic through the appropriate delivery channels," says McAllister.

Brant at my-Channels says "We take a broad view of how a delivery channel should be defined. We break it into three broad styles of messaging – ultra low-latency, enterprise and last mile, which includes web and mobile. A unified messaging platform is one which can simultaneously service all three of these messaging styles. Ideally, as is the case with

our product Nirvana, this should be achieved using a common set of APIs which are available across all of the commonly used programming languages."

Solace Systems provides its messaging middleware solutions to a variety of leading investment banks including Barclays Capital, which in 2009 integrated its enterprise-wide, high-speed messaging system. Barclays Capital uses Solace 3260 Content Routers to integrate applications spanning the front, middle and back office. The consolidation of Barclays Capital's messaging requirements is designed to simplify its IT infrastructure while obtaining cost-savings on development, data centre and back office support functions.

Investment banks have typically operated using three different messaging systems: Quote distribution, which have traditionally been multicast based to meet requirements for low-latency and high-rate messaging distribution. Persistent Messaging for order flow, which have typically been broker-based, along with Web Streaming, which can consist of HTTP gateways.

#### Operational challenges

McAllister identifies a series of operational challenges, including provisioning, monitoring, troubleshooting and capacity planning, which have to be developed separately when multiple messaging systems are used to achieve the same range of functionality. He points



Bob Giffords

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out that different aspects of the infrastructure – such as the difference in high availability architectures, security and monitoring – increases the complexity of the system since each system usually has its own messaging protocol.

He argues that once a system is built, the myriad integration points could also become potential points of failure, and so must allow as much throughput and resilience as the messaging or streaming systems it connects to. Varying levels of latency – with internet streaming products operating in milliseconds while financial applications run on microseconds – can also cause potential hazards.

McDaid of my-Channels argues that one of the key benefits of unified messaging is having the ability to bring the performance levels demanded in the “ultra-low latency and enterprise messaging spaces to the last mile”, which encompasses both web-based and mobile devices.

Scalability can also be a challenge in some cases. For example, if Streaming Text Oriented Message Protocol (STOMP) or a similar protocol is used to communicate to the RIAs and each STOMP connection to a GUI is mapped to a JMS or other connection into the internal messaging system, the internal messaging system will also have to scale along with the number of external internet clients.

### Benefits of a single system

Hayhurst of Catena Technologies highlights the cost-savings and efficiencies that can be achieved when a bank migrates to a single messaging system. “Having one system, rather than three, removes the risk of one going down, which can have a knock-on effect of bringing everything down. Having everything in one place on a single architecture also brings a lot more flexibility and simplicity,” he says.

McAllister says that a unified messaging system that controls internal messaging and web streaming typically has the capability to offer messaging services to the application developer while improving levels of scalability by consolidating connectivity, capacity planning, high availability and redundancy into a single system.

“When you have a single platform which can service all of your platform components in a simple, efficient and cost effective manner, the task of building and running an SDP is greatly simplified,” says Brant of my-Channels.

Hayhurst points out that latency can be reduced, when an SDP migrates from three messaging systems to a single system by getting rid of the integration points between different messaging platforms. “If you have three different messaging platforms then you are going to have to choose between them at some point which is never good for latency,” he says. “There are more moving parts. You do not just have to keep your messaging systems up but you also need all your bridges working and there is the risk that the whole thing stops working [in the event of a failure of one messaging system].”



### Low latency architectures

McDaid argues that as more SDPs are launched in the FX market, demands for low-latency messaging architecture – which in the past had been the preserve of those involved in high frequency trading and the use of algorithms – has become more of a concern among the mainstream of FX market participants.

However, Hayhurst of Catena Technologies argues that “ultra-low latency” is not of vital importance for SDPs, with latency requirements for bank corporate customers currently standing at milliseconds, rather than the microsecond-speeds of “bleeding edge” technology in equities. Nevertheless, the increasing demands placed on SDPs to distribute liquidity from a variety of different sources and consolidate pricing information into a single market view is making the capacity to facilitate low-latency messaging middleware more important.

As evidence of the growing importance of latency in messaging middleware technology, Solace Systems has created purpose-built hardware, based on Field-programmable gate array, (FPGA) to build its unified messaging platform. The SDP platforms can integrate directly with Solace’s hardware-based low-latency market data distribution message appliance technology to distribute decoded market data to a variety of trading applications.

“Because we have a hardware-based solution, latency is very low and consistent. Hardware excels at managing very high connection counts and data rates,” says McAllister of Solace Systems.

However, Brant highlights the flexibility of my-Channels’s rival software appliance, arguing that some “customized” hardware solutions can sometimes quickly become obsolete, given the current rapid rate of technology deployment. “Nirvana provides a feature rich suite of functionality with the added flexibility that comes by running as software appliance rather than ‘customized’ hardware.” says Brant.

Whether delivered through a hardware or software-based solution, having the capacity to facilitate low-latency messaging enables an SDP to meet the differing requirements of its customer base. Smaller corporate clients may execute trades using an online interface provided by the bank while large corporations can require APIs to facilitate integration with their treasury systems. While most large corporations will not require services that facilitate high-speed trading, some customers may execute orders using algorithms and require services such as real-time quotes and internet data streaming.

#### Catering for a diverse user base

“SDPs cater to a wide range of users – some are traders aiming to turn a profit, but you also have corporate participants who need to buy FX futures or do currency swaps to hedge their currency exposures. For example,



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sales may be in one currency and expenses in a different currency leading firms to use SDPs for hedging against risk,” says McAllister of Solace Systems.

McDaid of my-Channels emphasises that a unified messaging system is a facilitator, rather than a tool specifically designed for complying with regulations. But he argues that the capabilities latent within unified messaging technologies will become an increasingly important part of the fabric within SDPs for complying with more stringent regulations on risk exposure. “We make it easier to implement systems. To recover messages. To monitor flows of data and to follow audit trails within the system. Unified messaging is providing the mechanism by which you can plug in the different components that allow you to comply with regulations,” says McDaid.

As the complexity and variety of applications used within SDPs increases, the value proposition offered by unified messaging providers looks set to become all the more compelling. Mushrooming data volumes and the increasing importance of fast and efficient delivery of information and trading systems to web-based and handheld devices makes it vitally important for banks to have a messaging system which embodies simplicity and flexibility. The capacity of a unified messaging middleware platform to interconnect different communication channels and cope with the peculiarities within different systems could make it become the solution of choice for SDPs in the FX market.