Eurex breaks the mould with launch of new trading platform

The German derivatives market operator is undergoing a technology revamp that promises to surpass the demands of a transformed industry. Dan Barnes reports.

On December 3 2012, Eurex will go live with a new trading platform, which promises to accelerate order matching speeds and to offer new ways of trading. The new launch is part of a continual updating of technology at the exchange and infrastructure operator and this system is being run already at the International Securities Exchange (ISE), the US options market which is fully owned by Eurex.

As a result of the upgrade the ISE has claimed the current median latency for trading on its market equals 250 microseconds, a reduction of approximately 39% since the completion of the rollout in August 2011.

In addition to faster trading, Juerg Spillmann, deputy chief executive of Eurex says reliable performance is crucial. At the ISE, the latency tail has been reduced so that 90% of all quotes submitted to the system are acknowledged within 340 microseconds, which it says represents a 45% reduction in the past six months.

“With the ISE trading system we have shown that our new trading architecture delivers a median roundtrip time of 220-250 microseconds from the gateway to the matcher and back to the gateway. For the new Eurex system we will not only aim at providing ultra-low latency but also aim to flattening out the tail to provide predictable latency,” he says.

The new platform is intended to deliver improvements to the speed and volume of trade processing, greater standardisation of trading interfaces, which is intended to deliver easier access for members, and improvements to the system’s flexibility so that a greater range of strategies can be implemented.

The current model of providing template-based strategies will be made more flexible, so that non-standard strategies can be created; trading will now be possible across all calendar spreads for futures; a unified market concept will be applied across options and futures to make trading across different markets simpler, with market maker protection functions for both options and futures products.

“The new system will have multi-market-making capabilities, so members can connect to more than one exchange over just one system; when we launch, we will go live with the Eurex Exchange and the European Energy Exchange together,” says Spillmann. “The energy market will share the liquidity network and the hardware we have in place, but it can do its own market supervision.”

The platform is based on the open-source Linux system, with a messaging layer Workload Messaging Manager (WLMM) from IBM. It has been designed to deliver high volume throughput of messages to support increased transaction processing. A database system will be used for extraction, transformation and loading of data for downstream systems.

"The new trading system has a MYSQL database but the master data of the tradable products will still remain on the current Eurex Clearing system," explains Spillmann. "We will take data from the clearing system, import it to the trading system on a daily basis and manage it in our database.

Market data and audit trail data will flow out of the trading system and into the Deutsche Börse data warehouse which will operate as part of the Eurex system. The warehouse will be used to produce reports, and independent market surveillance can be applied. Data can be mined to monitor performance and to check on the fulfilment of market-maker obligations.

Disconnecting the Eurex trading system from the Eurex clearing system is a major step.

Spillmann explains, "Our clearing technology will remain on the current VMS system for the time being, but we have already initiated another project to upgrade our clearing architecture. The separation of trading and clearing layer will address regulatory requirements and increase our flexibility in delivering new functionalities faster to the market."

The siloed model that Eurex operates, with trade and post-trade operations for its derivatives trading all kept in-house, has been attacked by European politicians, for example MEP Sharon Bowles, as being uncompetitive. Bowles, chair of the European Parliament's economic and monetary affairs committee (ECON), called for the European Securities and Markets Authority to look into the dismantling of vertical silos in March 2011, as part of its report of interoperability between derivatives clearing houses it is due to deliver in 2014.

Access all areas

The current Eurex infrastructure, based on the Member Integration System Servers (MISS), will be shut down, as will the Virtual Access Link Using Exchange Services application programming interface (VALUES API), which together currently provide access to the market and its functionality.

"We will change and improve the interfaces; there will be socket-based interfaces for order and quote management as well as market data but we are also committed to provide GUIs for trading and administration," says Spillmann.

As under the existing model, gateways will be used to provide access to the system, for trading and data, across a new low-latency InfiniBand network, using multicast, which enables simultaneous broadcasting of data using a single transmission. Upgraded bandwidth will be available of up to 1 gigabit per second, depending on the participants' locations.

A 750 megabit un-netted data feed will be available via the co-location centres for users of the new Eurex Enhanced Market Data Interface (Eurex EMDI). The Eurex EMDI will be the only source for un-netted price-level aggregated market data.

It will replace the existing Eurex Enhanced Broadcast Solution and will have message layouts similar to those used by the Eurex Market Data Interface.

The changes to the socket interfaces will provide improved performance for market participants however the exchange has warned of "major conceptual changes and different message layouts compared with today's Eurex Enhanced Transaction Solution as well as Eurex Enhanced Broadcast Solution" which will require members to invest in upgrading their own technology stack.

The new message-based interfaces will be using FIX semantics (version 5.0 SP2) and fixed binary encoding for orders and quotes whereas FAST (version 1.2) compression will be used for market data.

Safer markets

Functional improvements will allow members to separate their trading by business units, using an entitlement concept that will let them assign roles to traders, e.g. lead trader, supervisor or securities trader, and will also them to separate out client order flow from proprietary order flow. This will provide security internally and for sell-side firms' customers.

"A further example of new functionality provided by the new platform is that it allows member firms to have Chinese walls between different parts of their business, utilising so-called business units, so that customer flow can be completely separated from the flow of a the prop desk," explains Spillmann.

The security entitlement and risk management functionality that exists in the current system on member level will also be available in the new trading platform.

"Within the new trading architecture Eurex member firms can define the roles of their users accessing the trading platform in a more adequate way, for example junior traders can have their rights set so they can't see colleagues' orders and trades at all," says Spillmann.

"Furthermore, the business unit concept will used to set up for each Eurex Clearing member not only a trading business unit but also a clearing business unit. Such a clearing business unit will only be able to receive trade confirmations for all the business units that use it for clearing."