

**Implementing
pure FIX to one
of Japan's
most traditional
trading businesses
- commodities**

**Project Case:
HimawariCX project
requires pure FIX
connectivity to Tokyo's
Commodity Exchange
(TOCOM)**

日本の伝統的なコモディティ市場にFIXが参入

ケーススタディ：ひまわりCXー東京工業品取引所DMAプロジェクト



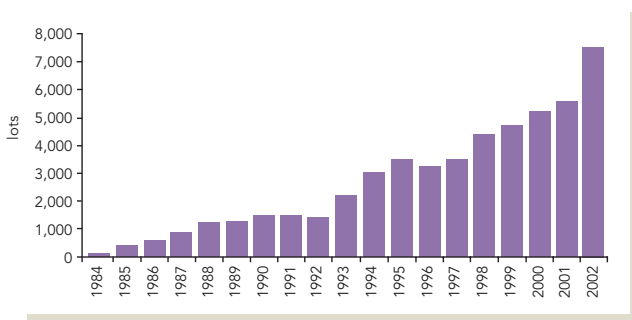
By Daniel Burgin, CEO, MetaBit

TOCOM Challenges Tradition: The trading of commodities, particularly rice, has long been one of Japan's oldest commercial businesses. The Tokyo Commodity Exchange (TOCOM) is located in Tokyo's traditional 'low city,' district or 'shitamachi' as it was originally called during the Edo period: it was the vibrant area of old Japan's merchant quarters.

One can still sense some of the older merchant quarters when visiting the district where TOCOM is located, and also where most of Tokyo's commodity brokers have their head offices. Today, TOCOM is a modern and highly technologically advanced exchange that for the first time offers its 115 members (including broker members) FIX connectivity to improve a standardised exchange access at the system level. Twenty years ago on 1 November 1984, TOCOM was established in its present form as an amalgamation of the Tokyo Textile Exchange (established 1951), the Tokyo Rubber Exchange (1952) and the Tokyo Gold Exchange (1982). Today, TOCOM is the world's largest futures market for platinum, gasoline, kerosene and rubber, and the second largest for gold .

The advent of FIX connectivity into one of Japan's most traditional business areas has created a strong demand from both foreign and Japanese software vendors to register as Independent Software Vendors (ISVs) of which there are currently six approved by TOCOM. Such software vendors recognise the immense potential in the electronic trading of commodity futures in Japan. Early 2004, TOCOM made the strategic decision to offer FIX connectivity to their native gateway for exchange members, in order to facilitate generic access to the commodity exchange. It should be noted that TOCOM has licensed a large number of "Non-Broker Members" that reside outside Japan, many of which are based in South East Asia, the US and also Europe.

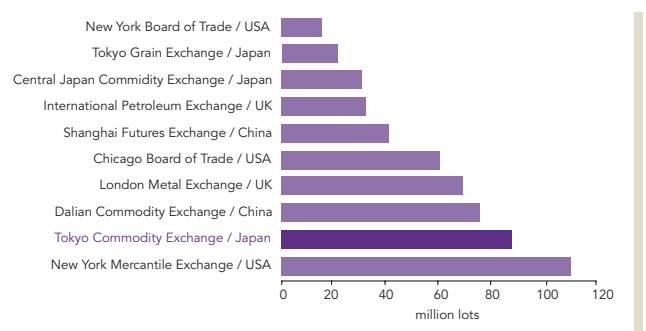
TOCOM Trading Volume



Source: TOCOM The Tokyo Commodity Exchange 2003-2004

Since June 2003, Japan's commodity futures exchange shortened their settlement life-cycle from T+2 to T+1. TOCOM's increased trading volume, expanded listings and accelerated orders, resulting from the growth of internet-based trading, have brought significant changes to its market environment. As a result, in January 2003 the exchange re-invested in its technology infrastructure, installing a new trading system to facilitate electronic trading.

Top 10 Global Futures Exchanges in 2003 (commodity futures only)



Source: TOCOM FIA

Often overlooked in the FIX world are Japan's domestic commodity brokers that are in fact, technologically as advanced as their securities counterparts. Domestic commodity brokers show an impressive willingness to embrace new technology as a means of electronically capturing domestic and global order flow. This provides their clients with faster and more efficient execution capabilities for their commodities futures trading, while promoting Straight-Through-Processing (STP) within both their own and clients' organisations.

HimawariCX: a leader in utilising FIX to TOCOM

ひまわりCX : TOCOM 会員 のFIX接続先駆者

HimawariCX Inc, one of TOCOM's leading commodity brokers, approached MetaBit (a registered ISV) in the fall of 2004. Himawari wished to FIX enable the commodity order flow for its buy side clients that are particularly active in trading futures in oil, precious metals and rubber. The objective was to FIX enable order flow for buy side clients through a FIX gateway. Such an approach would create STP for the buy side, but would also result in scalable execution capability and performance for both HimawariCX and its buy side clients.

"Himawari Group offers its clients a full range of services including commodities, securities and FX markets. HimawariCX, a licensed entity for commodity trading in Japan, is the only futures commission merchant to provide 24 hour cover for domestic and international commodity futures, and OTC markets. Its diverse client base includes foreign commercial hedgers and institutional investors who show growing interests in TOCOM trading," Mr Yasuo Mogi, Senior Managing Director, International Affairs commented. "In order to complement our client services, HimawariCX has also established itself as a leader in technology. HimawariCX was the first commodity broker to utilise FIX in Japan's commodity market. With TOCOM's offering of direct FIX connectivity to their exchange gateway, HimawariCX is taking a lead by offering its clients' services through MetaBit's Market Liquidity Hub (MLH™), a data centre to which HimawariCX, with TOCOM's approval, has outsourced all of its FIX connectivity for buy side clients."

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For TOCOM it created a unique situation where an ISV jointly with a commodity broker member approached the Exchange to create a pure FIX connectivity to TOCOM's native gateway. This pure FIX gateway was unique in that it was driven by an ISV and broker member, instead of by the Exchange itself. The idea was discussed between the

parties, and the Exchange welcomed the proposal and gave approval to build a CameronFIX gateway to TOCOM's native line handler as an alternative FIX solution to TOCOM and physically run the FIX gateway within the MLH™ on behalf of HimawariCX. To obtain this approval, it was vital that HimawariCX utilise a realtime monitoring tool, XiliX™, provided by MetaBit. This was required to fulfill HimawariCX's obligation as a Broker-Member of TOCOM, and manually interact with the electronic order flow by cancelling or amending orders when necessary. XiliX™ further offered HimawariCX a function where the broker could export an execution report electronically to its internal systems at day's end.

Initially, as part of the feasibility study, multiple solutions to connect HimawariCX to TOCOM were analysed by the broker. This included utilising the other FIX gateway provided by TOCOM. Early in the analysis Himawari considered purchasing its own FIX engine to connect to TOCOM's new FIX gateway. However, this idea was eventually rejected. The technical architecture was assessed and weighed against criteria of performance, and its dependence on multiple systems and software providers during daily operation. Eventually it was concluded that the creation of a CameronFIX gateway to TOCOM's native gateway would be both a more valuable and powerful option. The rationale was that direct connectivity to TOCOM's native gateway would increase performance, ensure persistence and reduce the number of unnecessary 'hops' from the buy side's overseas clients and Tokyo office, into the exchange.

Leveraging the pure FIX Gateway to TOCOM within the Market Liquidity Hub

メタビットMLHのキャメロンFIXゲートウェイからTOCOMへ

HimawariCX decided to fully outsource all aspects of the FIX infrastructure and FIX gateway to MetaBit's Market Liquidity Hub (MLH™), which operates within a data centre run by Singapore Telecom in Tokyo. The MLH™ already had the core infrastructure and technical architecture in place, which helped to implement the project within a three month time frame. The MLH™ already operated XiliX™, MetaBit's multi-broker trading tool, and the CameronFIX engine to provide access to Japan's financial market liquidity to buy side clients globally. It was a logical decision to leverage the same infrastructure and trading tool to provide FIX access for commodity futures traded at TOCOM.

Key decisive factors for HimawariCX to outsource the FIX gateway to TOCOM to the MLHTM were:

- Mitigation of risks for supporting the FIX gateway to TOCOM.
- 'One stop-shopping' for HimawariCX and its buy-side clients for professional FIX support and maintenance. One partner provides local language and market expertise.
- Faster execution life-cycles by reducing the number of unnecessary hops.
- Strong support by the buy side to connect through CameronFIX to the native TOCOM gateway for reasons of highest performance and persistence.
- Hot-stand-by (high availability) and high performance of the CameronFIX engine with secured data persistence.
- Availability of a realtime user interface for monitoring and interacting with order flow.
- Scalable offering to attract more buy side clients' order flow to HimawariCX, regardless of the clients' FIX infrastructure.
- Strategic value of the MLHTM to expand into providing other services to HimawariCX, such as FX, through the same infrastructure.
- MetaBit's FIX expertise and professional Japanese market knowledge.
- CameronFIX at the heart of the MLHTM would guarantee seamless connectivity to other FIX engines, including Japanese FIX engines, for HimawariCX's clients.
- Cost savings on manpower, software, infrastructure and manual transaction processing.

A pure FIX Gateway

純粋なFIXゲートウェイ

The TOCOM Trading Gateway Terminal exposes a message-based API through TCP/IP. It became a key challenge in design to convert TOCOM's Trading Gateway Terminal API to FIX messages. MetaBit mandated itself not to compromise the FIX protocol and create a FIX gateway that was pure, remaining true to the specification of the protocol, maintaining the semantics of the standard FIX session and the application layers.

A key driver for retaining pure FIX semantics was the strategic importance of ensuring a generic solution, which would not compromise any other client FIX engine connecting to the MLH™.

Also discussed were the FIX versions that should be supported. Many buy side clients use FIX Version 4.2, whilst FIX 4.3 provides enhanced derivatives support, and FIX 4.4 supports Position Maintenance Request and Position Maintenance Report messages. Eventually it was decided that the new FIX gateway to TOCOM should support FIX versions 4.2 and above.

MetaBit commenced by extracting the TOCOM native API to FIX semantics, including the conversion between the FIX tags ClOrdId and OrderId and the equivalent TOCOM identifiers. Another important area included support of the TOCOM high-availability, failover, recovery mechanisms and their support to offer a standard, highly available and recoverable FIX session to clients.

Another key focus of the project was to keep the performance at the same level as the native gateway. Buy side clients should feel they are connecting directly to the native TOCOM gateway, and should experience no negative impact going through the MLH™ and the FIX gateway. Early performance measurements demonstrated that the CameronFIX engine could comfortably exceed existing performance levels.

One reason to deliver a solution in the aggressive timeframe allowed by this project was the re-use of our new Technology Transformer Module, an XML rules driven message transformer. The Technology Transformer was originally developed to transform different FIX versions, and different client implementations of the FIX protocol entering the MLH™. For this project, the interface was abstracted to allow transformation of FIX messages to the TOCOM API messages. Clients can be integrated more rapidly and efficiently, thus saving precious time-to-market or mission critical FIX projects. **FIX**

Any thoughts on this or other articles?

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