



FX Direct System Whitepaper

FX Spotlight

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This document presents a look at how clients can connect to banks and liquidity providers directly using Rapid Addition's software.

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1 Introduction

This white paper looks at how Rapid Addition's software can be used to connect customer(s) directly to Banks providing Forex prices and trading through a single gateway using the FIX protocol over a private network.

The architecture is extensible and allows firms to not only trade on their own behalf, but also allow others to trade through their infrastructure, if desired.

The concepts set out in this document are based on Rapid Addition's low-latency tool set. Latency is a key determinant for successful high frequency and arbitrage trading. Rapid Addition has been at the forefront of low-latency since 2003; as evidenced by being the only FIX vendor to regularly test their products in Intel's Low-latency Labs (Rapid Addition was a founder member of the labs). As such, the tools described in this paper all use our ground-breaking Generation Zero™ ultra-low-latency framework.

The Generation Zero framework is proprietary to Rapid Addition, and provides for the lowest, most deterministic, latency solution available in today's markets, even in a managed-code environment. Consistent ultra-low-latency is achieved by eliminating the need for such things as garbage collection, ensuring that a deterministic, low-latency, profile is achieved throughout the entire system.

This paper also introduces our u-Dealer™ family of lightweight trading screens for both the buy-side and sell-side that enables firms to originate or work orders through a browser-based application, eliminating complex system implementations.

2 About Rapid Addition

With over 70 clients worldwide, including stock exchanges, Rapid Addition is the leading provider of FIX and FAST related software solutions to the global financial community.

Rapid Addition is a technology partner of Microsoft and founding member of the Intel Low Latency Labs. Rapid Addition is the only FIX vendor to continuously test their products in the labs. RA-Cheetah, the flagship FIX engine, gives a consistent low-latency performance and is the only FIX engine to provide this level of consistent measurement. RA-Cheetah™ and GRHub™ (our order routing software) run on our advanced low-latency GenerationZero™ technology, which, inter-alia ensures no garbage collection.

For further information, please visit www.rapidaddition.com.

3 A sample architecture overview

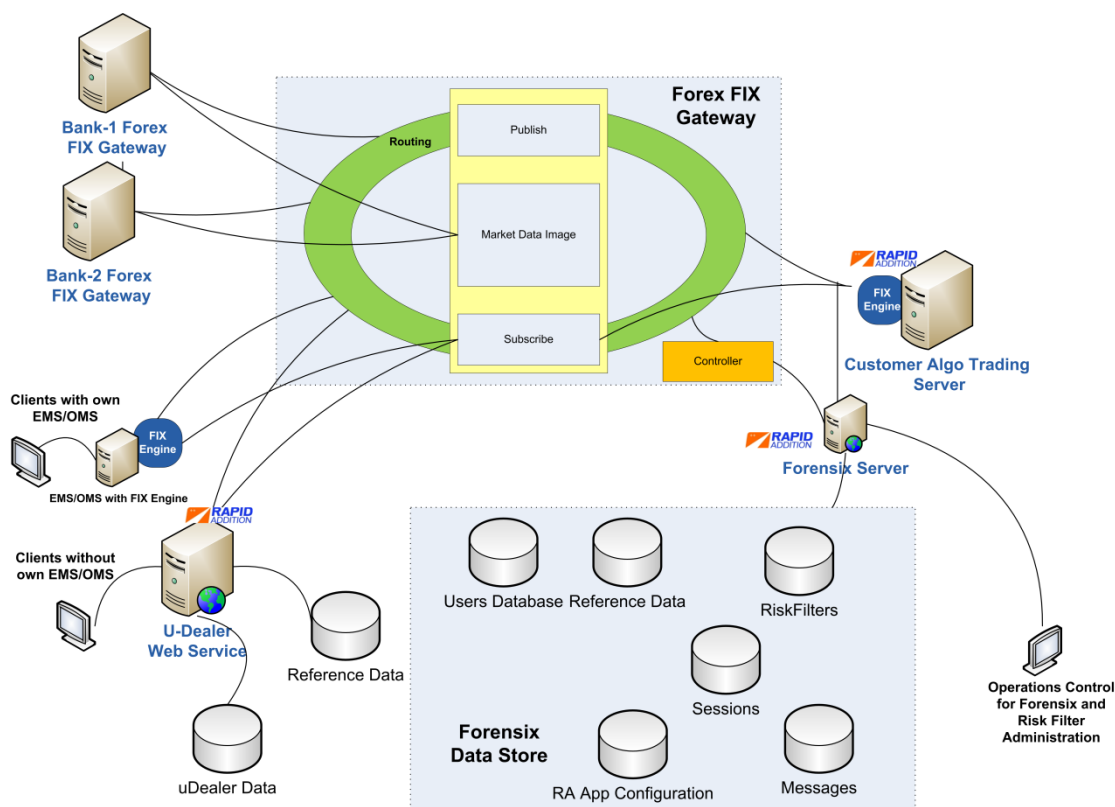


Figure 1 - Sample application architecture (logical)

In the above diagram, the Customer Algo Server is built on Rapid Addition's u-Dealer product to allow a firm's Algo engine direct access to the market data being received from the various sources they wish to place trades with.

By modifying the u-Dealer order book module, Rapid Addition can support simple and complex order books, which receive orders generated by the Algo engine before releasing them for execution based on Customer-defined rules. Executed trades are captured and made available for viewing using the standard u-Dealer facilities.

Deploying Rapid Addition's Forensix product, a highly configurable command and control interface, ensures operational control of all FIX sessions and monitoring of all FIX traffic. To ensure accurate latency timings, *without impact to performance*, we can implement network tap technology that provides nanosecond timings back into Forensix giving message-by-message latency distributions. Facilities for alerting users based on loss of connections, latency variations, errors in transmissions or conversations, and even reports on actual versus expected, trade prices and quantities can be produced. Alerts are raised via email, SMS texts, sound, or, simply, displayed on a user's screen and can be targeted at different types / groups of users as desired.



The architecture can be extended to support a firm's clients trading directly, using u-Dealer to allow clients without FIX connections to manually place orders through a standard user interface. Clients with their own, FIX-enabled, OMS, can be connected straight into the Gateway-Routing Hub (GRHub™), where they can enter orders into the order books. These clients can have their access monitored by the firm directly by Forensix and dynamically risk managed through the Inline Risk Limits module when plugged into GRHub™ to ensure trading does not exceed set limits.

All Rapid Addition products are designed to support any client High-Availability, Disaster Recovery, and Load balancing / Failover architecture; there are no specific needs that our software places on these requirements.

4 Exploring the detail

4.1 Algo Trading Server.

The detailed construction of the Algo Trading Server presented in this sample solution is predicated on the customer's Algo engine – be it proprietary or third-party – being integrated into the u-Dealer framework. Figure 2, below, shows the major modules and the main data flow:

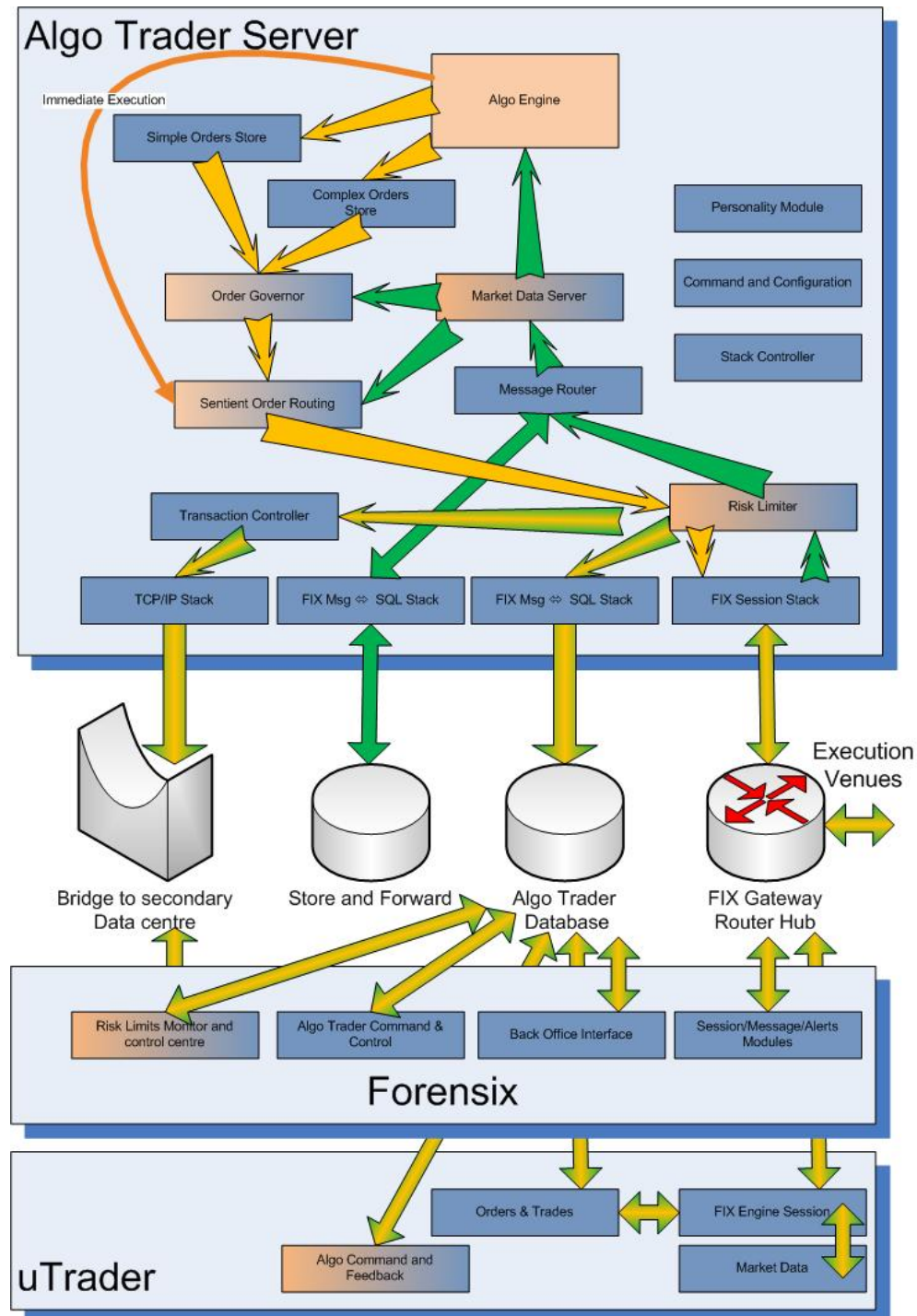


Figure 2 - Algo Trading Server



What Figure 2, on page 6, shows is the close linkage between the Market Data Server (MDS), the customer's Algo engine, and the additional modules designed to know when to send orders out and how to achieve best execution of the orders once triggered for transmission. A customer's business expertise will have a direct influence on the following modules and, over a short period of time, differentiate significantly the system's capabilities from other platforms:

- Risk Management;
- Synthetic Market Data Instruments;
- Order Generation, exposure and best execution algorithms

Rapid Addition's expertise reduces overall system reaction time to changing market data by optimising components of the architecture and collocating as many of the processes as possible.

END OF SAMPLE