



## The Challenge

To provide a technically innovative Equities Order Management System (EQ-OMS) that would increase the speed of order execution, and trading volume, ultimately driving profitability.

## Benefits of xTier™

- Reduced development costs
- Reduced risk of scheduling delay
- Highly scalable services
- Reusable Service Oriented Architecture
- Cross-paradigm service provision (Java & MS .NET)

## The Bottom Line

A 39% reduction in the development effort, reducing the project from 18 months and 2322 man-days to 10 months and 1407 man-days.

Reduction in TCO for the entire solution.

## The System

Paramount to the final design of the EQ-OMS was performance. In a system where milliseconds are a competitive edge and have a tangible and significant monetary impact the architecture and software infrastructure is critical. Any inefficiency in the platform would introduce delays in order processing which would have a deleterious impact.

The system was distributed and asynchronous in nature as new orders were asynchronously pushed to and displayed on the client application. After viewing the orders, the traders would submit single or multiple orders to market with order executions sent back to EQ-OMS, which would display them on the traders' GUI.

Ultimately the decision was made to implement a service based system in-house, written entirely in Java, utilizing a custom built infrastructure including the following services: Configuration, Metadata, Workflow, Distributed Caching, Clustering, Object Pooling, and Logging. These services along with the application code were coupled with a commercial JMS implementation.

For the desktop client, a native Microsoft application was evaluated against a Java/Swing based client. Although from a usability and deployment standpoint a native MS application was desirable, the architects were forced to use Java/Swing in order to facilitate interoperation and data interchange between the back-end services and the GUI.

## The Project

The design was finalized and the resulting project plan spanned 18 months and required 2322 man-days of development effort. A significant proportion of the project plan was dedicated to development of the complex underlying service infrastructure for the system.

## The xTier™ Difference

If this project were to have utilized xTier™, a significant reduction in calendar as well as man-days could have been realized. xTier™ provides pre-built, highly-scalable, optimized services including: Configuration, Metadata, Workflow, Distributed Caching, Clustering, Object Pooling, and Logging which could have been utilized in the EQ-OMS.

Complex system level code is removed from the responsibility of the project team. The developers can then concentrate on building and maintaining the code that directly corresponds to the business value and competitive advantage rather than supporting and debugging complex system level code.

Additionally, and of particular relevance to the EQ-OMS project, is that xTier™ provides these services cross-paradigm for both Java and .Net and additionally xTier™ makes no distinction between client side and server side. This allows, for example, a common cache between server and client side, while both are running in different run-time environments (Java and .Net). Coupled with the xTier™

Metadata Service, which provides inter-operation between Java and .Net 40x faster than native implementations, xTier™ would have enabled the application to be developed with the desired native Windows client and Java back-end server.

Furthermore, the project managers would have had additional flexibility in terms of human resource deployment as xTier™ provides these services to both environments with a common API. Once the development teams know xTier™ in Java, they know it in .Net. (Or vice versa.)

## Tangible Reductions

By utilizing xTier™ the project plan would not require the significant development effort associated with the creation of the system services, and additionally, since these services would be replaced with xTier™, the QA time could be shortened as a result of not having to QA and debug the in-house developed services. These two factors alone combine to provide a reduction of the development effort from 18 months and 2322 man-days to 10 Months and 1407 man-days. This is a 39%

improvement and translates into tangible financial benefits for the company.

## Total Cost of Ownership

In addition to the tangible financial and scheduling benefits, for the development effort itself, more than just the development cost of the application must be considered when choosing a technological solution. The cost of ownership of the application over its entire life span must be considered. xTier™ provides a significant benefit in terms of ongoing maintenance, the ease of modification, adaptation to changing business requirements as well as the ability to avoid "technology lock-in" through the ability to leverage existing code on different runtime environments.

**For More Information:**  
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