

Portfolio Risk Management Application

Client

A top ten global investment bank

Business Area

Multi-asset class trading, performance management, position monitoring, structured finance, regulatory reporting and compliance, market risk management, middle office, front office

Asset Classes

Equities, equity derivatives, fixed income, FI derivatives, FX

Technology Set

Sybase, J2SE, Core Java, JMX, Swing, RMI, iBATIS, JUnit, proprietary risk calculation library

Integration

Market data providers; instruments and trades dealing applications; risk data consumers, including trading and control systems

User Profile

Traders, market risk and business unit control, general ledger accounting, operations (1000 users)

Geography

US, APAC, EMEA

Relationships Status

Ongoing ODC, T&M

Services Provided

Development, maintenance and production support

Team Size

4 team members

Duration

3 years

Summary

Develop a comprehensive portfolio risk management application that supports multiple business units in a global investment bank.

Business Challenge

A top ten global investment bank needed a comprehensive solution for portfolio risk management that integrated the data across business units and around the world. The portfolio instruments for risk calculation included bonds, derivatives, foreign exchange, OTC, and stocks.

The solution for the risk calculation and reporting application had to achieve four main objectives:

1. *Timely reporting and 24/7 availability*

The ability to provide portfolio risk reports in a timely fashion is of critical importance from both an economic and a regulatory point of view.

2. *Advanced risk calculation and analysis*

The solution had to provide views of the positions and portfolios with the risk values, including Greeks, calculated for the corresponding instruments, as well as the implementation of scenario analysis for strategic risk management and daily P&L statements.

3. *On-demand, historical and forecasted risk reporting*

Near-real-time risk data, as well as historical data, for thousands of financial instruments and millions of trading transactions is required for on-demand reporting, regulatory compliance reporting, and scenario-based forecasts.

4. *Multiple views for multiple roles*

The solution had to provide for the unique reporting needs of traders; market risk and business unit control teams; general ledger accounting staff; and operations personnel.

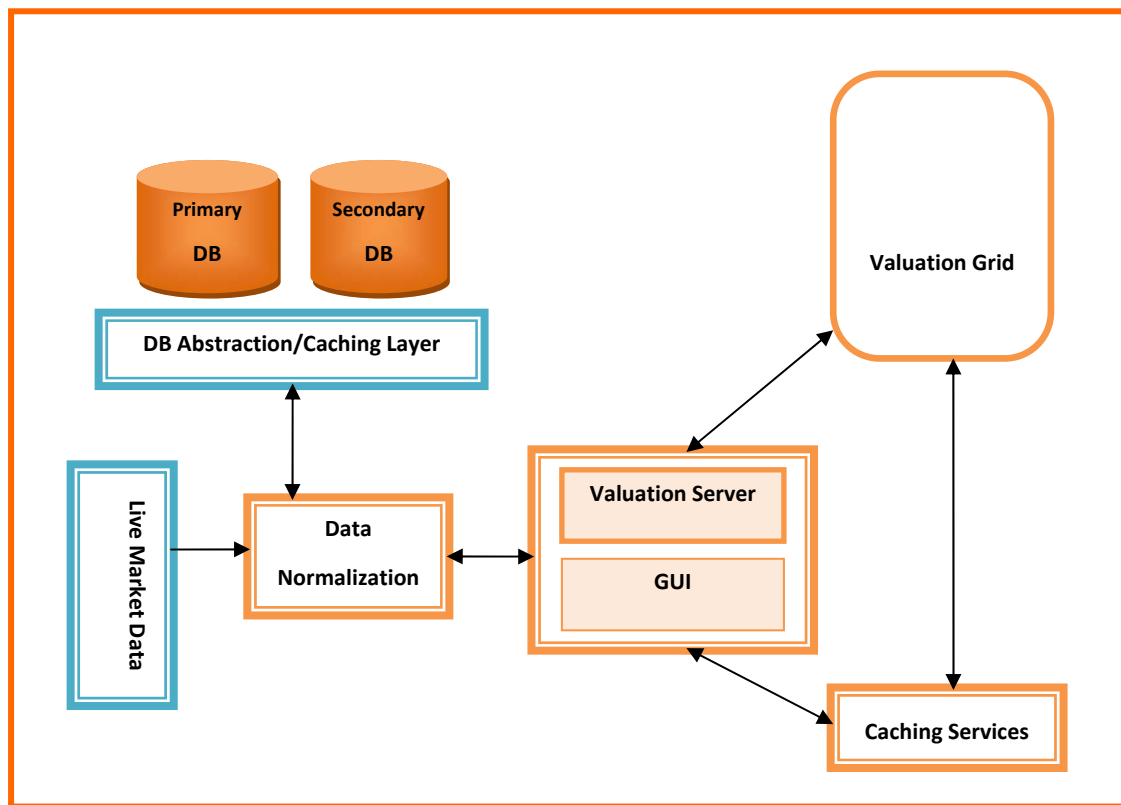
Luxoft Delivered Solution

Luxoft's team extended the bank's resources for the development and implementation of an integrated, global risk management application. In addition to advanced systems development knowledge, the complexity of the business

portfolio required that each team member have a firm grasp of the various types of vanilla derivatives and complex OTC exotic instruments that are traded all over the world.

Luxoft's engineers developed an innovative and advanced system architecture that significantly improved system performance and stability, giving the application the infrastructure needed to support complex calculations and on-time reporting. A powerful valuation grid with parallel calculation capabilities provides complex analysis results in a fraction of the time needed by standard models.

Figure 1: Portfolio Risk Management System Architecture



Luxoft's development team successfully implemented the following key system capabilities to meet the bank's objectives:

- 24/7 availability for approximately 1,000 users in 20 countries
- The system supports over 3,000 concurrent calculations
- Market risk, P&L and trading risk calculation and analysis is supported for all equities and equity derivatives, ranging from stocks to exotic-structured products
- The system efficiently meets the demand for Monte Carlo valuation within level-of-service and performance guidelines
- The system effectively exploits the hardware resources with the average CPU usage at 80%
- Automatic system recovery processes maintain system reliability with no fault-tolerance overhead

Benefits

With Luxoft's technical expertise and advanced business domain knowledge, the client realized the following benefits:

- System performance significantly improved in the first year of the involvement, providing the additional system resources needed for next-day reporting for forecasts and historical analysis
- Luxoft drove a number of critical functional initiatives, including changes to the swap valuation model, detailed and product-level P&L reports, and the migration to strategic valuation libraries
- Luxoft delivered the services, including the features development, on time and within the budget
- Luxoft improved the overall code quality with consulting services in best practices for testing and code
- System stability, measured by monthly reports, greatly increased over the years of the Luxoft team involvement and multiple architectural improvements were implemented to decrease maintenance costs
- System performance improvements allowed increase in the forecasting horizons and valuation precision without incurring the cost of additional hardware
- The flexible and scalable system architecture provides the client with the ability to expand the current application to support increased trading volumes

Customer Feedback

Detailed feedback will be provided upon request.