REAL-TIME PROCESSING FOR CAPITAL MARKETS ORGANIZATIONS

Rea-time processing has never been so crucial to market efficiencies and competitiveness as it is today. To operate in the highly dynamic global market and to have an edge over competition, access to real-time data and intelligent processing and correlation of the data has become an absolute necessity in functions such as algorithmic trading, smart order routing, pre-trade analytics, market making, risk management and compliance. Capital market institutions are however grappling with a host of new operational challenges.

- Rising trade volumes and multitudes of market-data streams flowing in on a sub-millisecond basis
- Fragmented views of liquidity, securities, clients and counterparties
- Increased product complexities and entailed risks
- Disparate platforms for different asset classes
- Regulations such as Reg NMS forcing best execution and search for alternative venues

Advantage Oracle Financial Services Consulting

Oracle Financial Services Consulting offers integrated IT solutions from strategy to conceptualization to implementation. Leveraging experience gained from engagements with global capital market institutions and continual investments in acquiring and building capabilities on the best technologies available, our real-time processing solutions are designed to help you:

- Rationalize IT assets across desks and geographies
- Build an integrated data-management framework to support real-time mission-critical trading and risk management applications
- Implement complex event processing solutions and adopt event driven architecture
- Achieve low-latency, scalability, high-availability, high performance, and reliability
- Focus on key areas within a capital markets system landscape that require high performance
- Build the foundation for a real-time enterprise
Integrated Approach to Real-time Processing

Our integrated approach helps eliminate bottlenecks and limitations that may occur at any level of your applications infrastructure and augment it with event-driven computing capabilities by leveraging Oracle’s EDA suite of products.

This means accelerating your applications using an integrated suite, with specialized components for real-time event processing (CEP engine), run time environment with deterministic garbage collection (JRockit RT JVM), data-grid in-memory cache with high scalability (Coherence), in-memory database and real-time replication (TimesTen) and diagnostics with a latency analyzer tool.
Solution Areas

Our real-time processing solutions can help in the following key areas:

- **Market data feeds and connectivity:**
  - Low-latency feed handlers to receive streaming data feeds from multiple sources and data vendors
  - Data parsing, standardization and dissemination among the subscribing applications
  - Data enrichment and real-time derived data such as Index computations

- **Liquidity analysis:**
  - Capability to provide a unified view of overall liquidity present across multiple execution venues for different instruments
  - Facility to query or subscribe to the top of the book or multiple price levels within the aggregated book

- **Compliance – Best Execution and Smart Order routing:**
  - Ability to route orders to one or more execution venues based on the market prices, liquidity, customer preferences and rules/strategy applicable for orders
  - Capture and process data adhering to internal compliance guidelines and the regulatory requirements

- **Derivatives Pricing and Risk Management:**
  - Ability to capture real-time prices from both Exchange traded and OTC markets
  - Process real-time market data along with large volumes of historical (time series data) data
  - High-scalability and high-throughput for resource-intensive stochastic simulations such as Monte Carlo for Options pricing
  - Real-time P&L and positions monitoring

Sample Case Studies

Real-time FX Positions Monitoring

Client - Global Currencies and Commodities division of a leading Investment Bank

At the bank, over 100 traders and risk managers from trading desks located globally tracked the London, New York and Hong Kong FX markets on a 24 hour basis. This involved manually monitoring the high-speed streaming data (~7 feeds/sec) which resulted in trends and opportunities being missed. Further, with no unified view of the overall position of various currency pairs and no real-time view of continuously changing bank’s positions and exposure to different currencies, the bank was prone to market risks.

Oracle Financial Services Consulting has built a decision support system capable of processing multiple streams of market data flowing in up to 30 feeds/sec. At the core of this solution was a complex event processing engine to aggregate data, apply pre-defined rules and generate events for risk managers and traders to act on them. Comprehensive dashboards allowed for tracking of volume and price movements and real-time monitoring of treasury positions and exposure limits.

Accelerating Options Pricing

Client – Global Equity derivatives business of a leading Investment Bank.

Existing risk platform and Options Pricing engine, was proving to be a
bottleneck in the overall trade lifecycle and was unable to scale up to meet the needs of the risk management group at the division.

Oracle Financial Services Consulting helped the bank implement a third party vendor’s grid computing platform along with Oracle Coherence data grid, which was implemented across the Securities Master application, Market Data servers and the servers hosting the Pricing models and Quant libraries. Using partitioned, remote caches with up to 100 thousand objects in the cache, the suite of benchmark tests showed that the bank could distribute data-sensitive applications across the grid without degradation in scalability, and increase processing speed, capacity and throughput proportionally as it scaled its applications across servers. Coherence data grid enabled users to quickly and accurately calculate prices for popular structured products across a wide variety of asset classes, such as interest-rate, equities, and foreign exchange. Alongside decision-making and risk management situations, these advanced pricing models are also being used in other functions such as reporting and accounting.

Complete failover capability for Exchange Connectivity

Client- A leading US Brokerage firm

With rising volumes of orders fed from multiple trading applications client’s real-time exchange connectivity infrastructure for Equities Trading platform started facing latency issues and risk of application crashes. A quick diagnostics identified a need for high-speed caching mechanism to enhance performance and provide real-time application recovery. The exchange adapters needed to cache all exchange specific lookup information for orders and trades at real-time speeds. As a solution, TimesTen in-memory database was implemented to cache all the look-up information, orders in transition and acknowledgements received. An additional stand-by instance was added to provide complete failover capability to the application.

Contact Us

For more information on our real-time processing services for capital markets organizations, please visit  www.oracle.com/financialservices or email us at financialservices_ww@oracle.com.