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Why ETRM Will Prove its Worth in 2009

By Dr. Salim J. Jabbour, founder and CEO of Abacus Solutions Inc

ETRM systems support business processes in different areas ranging from the front office (deal capture, positions, market data, trader tools), middle office (risk management, risk reporting, modeling and quantitative analysis), back office (settlement, accounting, invoicing, credit, AR/AP and GL), and operation management (scheduling, nomination, dispatch and load management). Users of ETRM systems include all types of market participants such as utilities, producers, investment banks, hedge funds, merchants, marketers, and large end-users (commercials and industrials). Since their inception in the early 1990s, ETRM systems continued to evolve and adapt to emerging needs and requirements (such as the Sarbanes-Oxley Act); for the most part, they provided a much-needed service and facilitated transactions management, a fundamental and basic requirement for any market participant engaged in bilateral and/or ISO transactions. From this perspective, 2008 was another year in which ETRM systems filled a market need.

Events and developments during the last seven years highlighted the importance of the second need that ETRM systems are supposed to meet – risk management. The 21st century, which started with a big bang that drove many players into retrenchment and caused bankruptcies, shakeouts and restructurings, has highlighted the importance of this rather fundamental function. Recent developments in software and Internet technologies led to a significant increase in data availability and processing needs, a situation that introduced new challenges to the corporate world, including enterprise risk management and integration. Unfortunately, the slow evolution of legacy systems was not able to meet these revolutionary changes in business needs – as a result, ETRMs started to fall short of expectations, a situation explained by their continued high replacement rate of over 50 percent. The average market participant in the energy industry continues to use five to 15 systems in the trading and risk management function, including a number of homegrown spreadsheets developed to fulfill missing critical functionality in commercially available ETRM systems.

Looking forward, ETRM systems will be increasingly challenged to address the emerging needs of the energy industry. User requirements are becoming broader and more demanding; integrated enterprise risk management is quickly moving to the forefront as more and more companies realize that poorly integrated systems are very costly to maintain and inadequate to meet the challenges of the 21st century. The following is a list of functionalities that are quickly becoming required capabilities (instead of "nice to have" features) in the energy transaction and risk management space:

1. Footprint: A broad footprint is required to facilitate an integrated corporate perspective. An integrated ETRM system needs to cover seven key building blocks: markets, generation, trades, loads, finance, credit and ISO.

2. Data Acquisition: Users access voluminous amounts of data from different sources on a daily basis; the data acquisition process needs to be efficient, flexible, fast, reliable and easy to use.

3. Data Mining: Data mining is a crucial step in the risk management value chain. It is a very important process to transform data into knowledge. Generation production, markets data and loads are three of the most common areas where users spend a significant amount of time analyzing past records to discern trends, statistical information and meaningful insights. ETRM systems often exclude this functionality and require users to rely on plug-ins or their own tools to perform these calculations.

4. Data Analysis: Most ETRM systems remain transaction-focused and do not include much-needed quantitative analytical simulation and optimization such as market price simulation, generation optimization, load analysis, credit risk simulation and portfolio management. Integrated risk management systems require these quantitative analytics and must embed them in a well-designed setup; using plug-ins is often a major source of mismatches and misleading flawed results.

5. Data Management: Modern data management architecture and technologies are needed to meet the emerging needs of the energy industry. Efficient data processing requires structured, well-designed data retrieval, cleaning, organization and storage.

6. Transaction Management: Effective transaction management features must include templates, a user-friendly confirmation process and various risk management controls such as the ability to set different trading limits.

7. Data Security & Integrity: Modern data management systems offer advanced data security and integrity features including user authentication, access authorization, audit trail and extensive data validation.

8. Reporting & Presentation: Most legacy ETRM systems offer inadequate reporting and presentation capabilities; many use inflexible third-party

(Continued on page 2)

systems. Recent advances in communication technologies enable effective reporting and presentation features such as dashboards and several sharing and collaboration capabilities.

9. Decision Support: A key objective of risk management systems is to help users process a large amount of data and transform it into useful information that helps decision-making. Legacy ETRM systems rarely offer decision-support capabilities -- a deficiency that has diminished their effectiveness and limited their ability to fully meet customer needs. Good decision-support capabilities require advanced problem-solving and consulting skills; unfortunately the need for improved decision-support capability only becomes obvious at later stages of the deployment process as users start to realize system limitations and shortcomings in meeting their business management needs.

10. Application & Use: An integrated ETRM system needs to offer several broad applications including markets analysis, generation management, asset management, financial planning, credit management, business planning, operations planning, asset valuation, investment analysis and risk management to a broad range of users including traders, analysts, managers and executives.

11. Architecture: Advances in the CPU technology in the past 30 years hit a wall in 2003, as performance gains through faster clock speeds became increasingly difficult to achieve. Recent performance improvements are achieved through multi-threading (running two or more threads in parallel inside a single CPU, a process that requires careful software design and development), multi-core (running two or more CPUs on one chip) and 64-bit computing, which can address very large amounts of memory – significantly larger than the four-gigabyte limit of 32-bit processors. Modern architecture enables additional performance boosts through optimized data storage and retrieval (balancing disk and memory usage) and optimized hardware configuration (through dynamic allocation). Software applications need to be carefully designed to benefit from concurrency and 64-bit computing – a task that's easier said than done. Legacy systems, which use a sequential control flow, will require major changes – possibly a complete re-engineering – before they can benefit from recent computer performance improvements. This can be a very serious shortcoming as users try to accomplish new levels of scalability (both vertical and horizontal) in computing-intensive procedures such as stochastic simulation, generation optimization and portfolio optimization (such as efficient frontier analysis).

12. Enterprise Services: Integrated systems need to provide at least basic enterprise services to facilitate enterprise communication and coordination including document management, portal collaboration, data warehousing, user forum, usage analysis and messaging.

Users are becoming more sophisticated, increasingly critical and more aware of integration needs. As a result, ETRM vendors can expect increasing software scrutiny and continued high replacement rates. Legacy systems are aging and quickly becoming outdated; software patches are stopgap measures with limited value and very short useful lives. With the Internet becoming readily available everywhere at any time, the increasing use of handheld devices will make Web-enabled tools the systems of choice.

Jabbour can be reached at sjabbour@abacussolutionsinc.com.