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Wall Street & Technology

Business Innovation Powered By Technology

*Hedge funds know regulations are coming.
Fund managers need to get their ducks in a row now
to prepare for new transparency requirements. **p.8***



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Data Deluge

Already overburdened by market data, hedge funds' IT infrastructures may be crippled by new reporting requirements.

As the financial reform bill rattles through Congress, politicians are now debating the best way to reestablish confidence on Wall Street in the wake of one of the worst financial crises since the Great Depression. This likely will include further modernization of our financial system and more government oversight, including a Consumer Financial Protection Agency and Systemic Risk Council.

The bill also has very specific implications for the hedge fund industry, including requiring hedge fund managers with more than \$100 million in assets to register with the SEC. As a result, they'll have to supply the SEC with asset information, counterparty risk exposures, investment positions and valuation policies, among other information. The SEC also may add its own set of hedge fund requirements, which will tax an already overburdened IT infrastructure that hedge funds use not only to comply with increased disclosure

regulation but also to make investment decisions.

Furthermore, about a decade ago, 1.5 billion trades executed each day. In 2006 the number jumped to 4.2 billion per day. By the end of 2008 there were more than 10.5 billion trades executing daily. This number keeps on growing, creating a challenge for hedge

fund managers to store, monitor and make sense of vast amounts of data. This is especially true for quant shops, which rely on the ability to process, analyze and make automatic investment decisions — involving millions, if not billions, of dollars in aggregate — literally in the blink of an eye.

Think of the volume of market data that needs to be analyzed and acted upon. Consider the implications of digital SEC filings, which are instantly available, searchable and quickly mined for data that can be used to make investment decisions. Increased disclosure regulation will only create more filings, more information and more variables with which to make investment decisions.

Our current IT infrastructure is not equipped for this dramatic information explosion, which will be utterly crippling for IT in this decade — unless we find a better way.

Back to Basics

The recent retirement of renowned mathematician, Renaissance Capital founder and quantitative investing pioneer James Simons marked the end of an era, but his legacy is instructive given the tech challenges the industry now faces. Simons was one of the first to employ specialists with non-financial backgrounds, including mathematicians, physicists and statisticians, to “crack the code” of quantitative investing. He knew that designing complex formulas and making investment decisions based on a set of predetermined variables would ultimately lead to success. He was right.

IT has made it possible to do many of the things that previously could not be done, including the ability to spot business and stock trends and design increasingly complex quantitative investing strategies to act on them. Hedge funds and quant shops employ fast computers to find predictable patterns within financial data.

In many ways, investing has become

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heavily dependent upon database management and analytics. Analytics are the extensive use of data, statistical and quantitative analysis, predictive models, and fact-based management to drive decisions and actions. Analytics may drive fully automated decisions or may be input for human decisions.

The questions that analytics are able to answer represent the higher-value end of the spectrum — the decisions that impact the bottom line. Analytics don't by themselves constitute a strategy, but investors use them to optimize distinctive business strategies, which most definitely do.

The Problem With 'Modern' Data Analysis

Since the beginning of the 1980s, relational database management systems (RDBMSs) have been the most popular database format. However, the volume and complexity of data in the enterprise has grown to unprecedented size during the past decade, increasingly challenging antiquated row-and-column-based systems. Additionally, the row-and-column format for storing and managing data is not well suited for advanced business analytics.

It wasn't until the early 2000s that business analytics became a multi-billion-dollar IT market and began to earn its place as the enterprise staple it is today. As the status quo database methodology, conventional RDBMSs have been adopted for business analytics, a purpose for which they were not originally built and are not well suited.

Information contained in conventional RDBMSs is not inherently searchable. The onerous need to constantly restructure and index source data to make it searchable creates delays in data availability, poor performance and limited functionality for analytics applications. As a result, vendors have relied on various workarounds to overcome some of the limitations of conventional RDBMSs, including proprietary techniques that require special programming.

Some, such as Netezza, Oracle and Teradata, employ proprietary hardware. Others, including Aster Data, Greenplum, IBM, Microsoft, Oracle and Vertica, employ massively parallel clusters of computers or so-called "column-oriented" RDBMSs in attempts to increase parallelism and performance.

The ability to apply statistical analyses has become a critical success factor in today's information-driven world.

While these techniques represent improvements, they all rely on decades-old conventional RDBMS technology.

Moreover, they dramatically increase the cost of deploying RDBMSs due to the expense in hardware, programming and time, often with limited results.

A Better Way to Invest

Algebraix Data Corp. is working to change the underlying technology of analytics by employing advanced mathematics to analyze data relationships independently of their data structures. The approach has shown to increase query performance while reducing the costs of hardware and support, and it is disrupting the entire business intelligence (BI) infrastructure.

By using mathematics instead of tables to define the relationships between data, this algebraic approach eliminates time-consuming table maintenance and the performance problems related to importing, cataloging, indexing and storing data that's required to be in a specific format. Additionally, it creates a system that can self-optimize with mathematical precision while retaining a history of data manipulations and relationships.

At a time when the hedge fund industry is struggling to keep pace with the flow of information, high-performance business analytics offer a smarter way to operate and create the market insights that drive good investment decisions. The ability to apply extensive data, statistical and quantitative analyses, and fact-based decision making has become a critical success factor in today's information-driven world.

It's time to take a page from Mr. Simons' legacy at Renaissance Capital and rethink the basic math that powers this industry — especially in light of recent legislation and the continued information explosion on Wall Street. ■

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