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## The Analytical Toolkit:

# As Buy-Side Appetite for Advanced Technologies Increases, Spotlight Shines on Analytical Engines

NEW YORK — The tools asset management firms and hedge funds demand are evolving beyond mere complex event processing (CEP) offerings to even more advanced products that can assess risk and analyze liquidity in real-time. Additionaly, institutional investors are also seeking customizable solutions in algorithmic trading and data management for ever more complex structured securities, according to providers developing these technologies.

Firms are looking for ways to integrate existing tools that they already use with new technology to solve other challenges or perform new functions, which leads to the demand for customized solutions, according to Daniel Chait, Managing Director and co-founder of **Lab49 Inc.**, a financial services consultancy specializing in advanced technology applications for the financial services industry.

Lab49 partners with IT vendors that specialize in various technologies for an array of securities and investment needs, including CEP vendors, data cache providers and makers of visualization tools. "Ultimately the users will judge our effectiveness on the value they got for the whole solution, not just a piece of it," says Chait. "So we need to make sure that the whole solution we build is optimal. It will often incorporate a number of different partners' products, as well as existing analysis technology that all the firms will have. We put all that together to build something new, to engineer a production system that can run at full speed, have high availability and give good visibility to the traders."

For example, in February, Lab49 partnered with **Aleri Inc.**, a CEP systems provider, to create a market liquidity analysis toolkit. "That's a good example of where there is a large amount of data that is quite complicated, and firms really needed the ability to visualize that, drill down and have good ways to slice and dice, and understand the liquidity out there," says Chait. "Aleri's core engine provides significant value for that kind of problem. Then we came in and built a supporting set of technology that together produced a solution to analyze market liquidity. It's a combination of off-the-shelf technology that the users buys or licenses, together with something we custom-built to solve that problem."

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Brokers can offer aggregation of liquidity, especially dark liquidity that has proliferated in recent years, according to John Palazzo, Managing Director of the Alternative Execution Services Division of **CA Cheuvreux North America**, an equity brokerage owned by corporate and investment bank **Calyon** and its parent, **Crédit Agricole SA Group**. CA Cheuvreux recently launched Crossfire, an algorithm connecting to 14 dark pools.

"It's our responsibility to handle all the connectivity to those spots, to understand the matching algorithms that are unique to every venue, and to consolidate this in a very efficient order type or algorithm to allow our clients to solve the puzzle of all the disparate hidden liquidity," he says.

Buy-side asset managers do have greater access to data and trading tools than ever before, according to Palazzo. "What seemed conceptual five or six years ago now has taken hold," he says. "Hedge funds or firms with proprietary money usually lead the advances. Then they become proven in the marketplace and are adapted by everyone else. It's really the amount of money, time and resources that they want to commit, relative to the greater returns they think they could get back."

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Algorithms taking in data can now react tick by tick, observes Palazzo. "In basic form, this has been going on for a number of years, since smart order-routing technology [emerged]," he says. "Taken to a conclusion, what other data can be fed into algorithmic models, whether it's smart order-routing technology or algorithmic models to come up with trading ideas? [Real-time data] is the evolution of the digital world. The complexity of the data that can be interpreted now is far greater than five years ago."

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The cleanliness, quality and integrity of data have all increased, according to Palazzo. "That will push this more into the real-time streaming data mode," he says. "Now you can take that data and scale it. That's more meaningful because if you're coming off electronic exchanges, it's timely. It will make your predictors' models better and will certainly help measure your intra-day or implied volatility better, because the data integrity is better."

Because data is fuel for pricing models, it is closely guarded, explains Bernie Weinstein, Executive Managing Director of **BGCantor Market Data**. "It goes into trading systems, and I'm sure it also feeds algorithmic trading systems," he says. "US Treasury price data is used in so many ways to price other instruments. An array of securities uses that as the risk-free return in their models. With the industry's retrenchment, more of the firms are using these algorithmic models to replace traders who were doing the same thing."

The data tools available now include statistical analysis programs such as S-PLUS from **Insightful Corporation**, and MATLAB, an open computer language designed for statistical analysis functions, observes John Coulter, Vice President of Corporate Strategy at **VhaYu Technologies Corporation**, a market data processing provider whose Velocity platform is compatible with these statistical analysis programs.

"The first need is historical data that you can get from the big vendors such as **Thomson Reuters**, **Bloomberg** and **Standard & Poor's**," says Coulter. "Clean

tick data is where you start. You need to be able to house that data in a time-series database. The other component is being able to analyze it quickly and program strategies within the [data] engine itself."

Buy-side firms want more control over transaction cost analysis (TCA), which also depends on being able to sift through market data, according to Coulter. But not all broker data is reliable, he adds. "Buy-side firms have all these brokers giving them different algorithms, all in different software applications," says Coulter. "Each broker will give them a TCA report skewed to favor that algorithm. So often, the buy-side trader doesn't trust the quality of the reports they get. They want a master view of their own data against the execution reports to really make sense of it."

With backing from **Nomura**, its corporate parent, **Instinet LLC** combined its smart order-routing capability with an analytics platform powered by Nomura's technology. "That is a custom, complex event processing engine that we use to help with our smart order-routing logic," says John Comerford, Head of Trading Research at Instinet. "For the merging of the two platforms that came from the Instinet side the really important part was access to dark pools. Based on the modularity of the algorithmic platform, we have been able to intelligently integrate dark pools into all our algorithms, so each algorithm has full access to the library of execution tactics at our disposal."

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Since the number of algorithmic trading providers has decreased through consolidation, it's more difficult for new entrants to the algorithmic trading competition, according to Comerford. "We're looking not just at access to liquidity but the timing of that access for certain clients," he says. "It's not just whether you have dark liquidity but how you access that liquidity to minimize your footprints. People will look at the quality of dark executions."

An example of hedge funds pursuing innovation in use of algorithmic trading systems is the way they apply trading platforms, as well as market data connectivity, to multiple asset classes, as Ryan Keough, Business Unit Managing Director of Trading Solutions and Client Connectivity at trading and order management solutions provider **GL Trade**, relates.

"We can provide a platform that gives access to exchanges for equities, options, futures and foreign exchange," he says. "Two of the largest five hedge funds use us for market data connectivity. We're looking to incorporate some of the new algorithmic, cross-asset and/or international offerings into the platform."

Similarly, GL Trade's new algorithmic trading product, SHaPE, allows users to use basic trading methods such as pegging and "iceberg orders" as part of customized trading strategies, according to Keough. "Getting into newer or emerging markets or other asset classes is a big drive we're seeing, as well as the ability to customize those," he says. "That's where SHaPE comes in. Having a toolkit [such as that] allows development of your own strategies."

Effectively, the endgame for buy-side investment managers may be determining what specific kinds of data they need, in what form they need it, and then choosing from a range of analytical tools, algorithmic trading and smart order-routing solutions. ❑