## Aleri Streaming Platform Supports Advanced Trading

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CHICAGO – The ability to react to events in real time through black boxes and algorithmic trading is paying big dividends to the IT savvy. A key component in this success is event-stream-processing technology. **Aleri Labs** of Chicago, which has developed the Aleri Streaming Platform, an event-stream-processing solution, is among a growing field of vendors that offer value to users on both the buy and sell side.

"We are seeing growing interest in the trading environment where traders process market data and/or trades against market data," says Jeff Wootton, Vice President, Product Strategy, Aleri Labs. "Those are applications where latency is critical." Before the technology came along, traders who wanted to match algorithms to streaming market data built proprietary technology.

Event processing falls into three categories: event detection, data capture and real-time data aggregation and/or analysis. "One of our early revelations was that different clients had different things in mind when they looked at event processing," says Wootton. "Some focus on data capture, capturing a history of event information. Others focus on event detection. More often than not, when people talk about event processing, they are thinking about event detection, watching an incoming stream of events to detect a set of conditions that have been met and which triggers a response. The third category, aggregating and analyzing data, is deriving higher-level information, whether

it is summary data or statistics."
While a messaging environment often has tools to manipulate messages, it is very much a single message. "The Aleri Streaming Platform, on the other hand, has messages coming in, where event-processing logic can join or combine messages," he says. "It can generate multiple messages coming out. It is not a one-to-one."

Low latency is measured from message arrival until that message is finished processing and all events processing logic has been applied to it. For some users, milliseconds don't matter as long as they can generate an alert in real time. Others work in a trading environment where every millisecond counts.

"Our fundamental design objective was to be able to maximize throughput and minimize latency, so we could process upwards of 100,000 to 200,000 messages a second," says Wootton. The Aleri Streaming Platform is not a customized solution. Everybody gets the same product. But the company offers a professional services group that can adapt the product to individual operations. In almost every case, the platform sits downstream or on top of the customers' market data system. Most traders already take market data, which means they have feed handlers and some form of market data infrastructure.

"We get market data from whatever [source] they have, proprietary systems they have built or third-party provider

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systems," says Wootton. Using an adaptor, clients feed the data into the Aleri Streaming Platform. "Depending on the application, they may combine it with order information from an order management system. In some cases, orders go through the Aleri platform before it goes into the OMS."

When the Aleri Platform sits in between the market data system and the trade execution system, it is used to enhance the client's market data. Customers run proprietary calculations against the market data and add those results to it. The enhanced market data is then fed into their trading platform.

Users come mostly from the sell side. Interest on the buy side right now tends to be in strategy trading, but Wootton believes buy side interest will continue to grow because it is easy to use and fast to deploy as opposed to building from scratch.

Firms that consider technology to be a strategic advantage rather than just a support tool are likely to be most interested in event-stream processing. One such firm is **Titan Securities**. A wholly owned subsidiary of **Infinium Holdings**, Titan Securities is a Toronto-based proprietary trading company, focusing on black box and manual trading. "We do quantitative and high frequency algorithmic trading," says Alex Bevziouk, Chief Technology Officer, Titan Securities. "We have all proprietary software that we design and develop in-house. Our chief business analyst felt the in-house systems could do 95 percent of the things we don't need, but not the 5 percent that we needed for this business model."

The decision was made to build something in-house, with Bevziouk responsible for it. "We decided to look at stream processing (available through third-party providers) because we realized it took a long time and much human effort to develop modifications, even for relatively straightforward ones to this

strategy. I believe the technology Aleri is offering is much better."

"Aleri is deployed now in Titan's black box and algorithmic trading, where we need statistics to decide what move to take. The statistics generate new answers that result in entering orders in the market," says Bevziouk. At Titan, quantitative traders who usually have an IT background use the platform.

"Our strategy is extremely sensitive to data latency," he explains. "For us, it is the core of success. So when we tried to use market data products from other companies, it was very challenging and too slow. We receive feeds directly from exchanges in the US and Canada and we have our own feed handlers [that] generate data that we push into Aleri. Then, we have the statistics calculated on Aleri, generating a signal that goes into our order entry system which has connections into the market."

Aleri is quite fast, says Bevziouk. "Flexibility is also very important so that you can reconfigure your model quite quickly," he adds. "You don't have to wait for a programmer who needs a lot of time. Small changes can be significant and cause an intensive workout." Titan currently uses the Aleri platform for real-time data aggregation and is considering using it for modeling.

Aleri Labs has applied a relational model to events, Wootton notes. "We have taken the concepts of the relational database but turned them on their head," he says. "A relational database holds a set of data which can be analyzed by running queries against it. We turn it upside down and as data comes in, we apply it to a set of pre-defined queries. We call them continuous queries. When you run a query against a set of data in a database, you are saying tell me if this set of conditions was met or find all of the records that meet this set of criteria. The query is defined ahead of time so as each event arrives, all of the result sets are instantly updated." ❏