

## CEP04 – Brad Bailey, Aite Group (part 2)

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**Announcer:** Hello and welcome once again to The Complex Events Podcast, brought to you by Voices in Business and sponsored by BEA Systems. This is the second part of our interview with Brad Bailey, research analyst with Aite Group. Ross Hamilton and Daniel Chait of Lab49 speak with Brad about the challenges facing capital markets firms, including electronification of markets, regulatory forces and the recent extreme market volatility and how CEP is bringing about innovation and opportunity to manage these market challenges in new ways.

**Ross Hamilton:** So I just wanted to talk a little bit about the market and some of the IT challenges that are out there. Brad, with all these rapid changes that have been occurring in the market particularly last year and years before that, what do you see as some of the common challenges that these capital market firms are facing?

**Brad Bailey:** Yes, it's a great question. Really, when you look at it, it depends on the sell-side and buy-side. We addressed that to some degree, but overall there has been regulatory driving forces, such as Reg NMS and MiFID, fundamental changes in the structure of the market, the fragmentation of the market, the electronification of the market. One of the big things in 2007, we had a perfect storm in terms of we were building up -- more electronic trading, more algorithmic trading, more adoption of this...we really accelerated. Even late adopters to having systems for electronic trading have come into the market. And that's on equities...and this is happening across asset classes.

So the perfect storm of '07 was we had New York going to electronic model, we had Reg NMS coming into play in the US. Then we overlaid that with tremendous volatility, with the subprime crisis, and now what has become an extremely volatile market after five years of quiet, and it really put the stress on all types of industries.

**Ross:** Look at even all the advances in technology that are really driving down latency levels and increasing volumes.

**Brad:** People are battling in shorter and shorter time frames. The type of traders that are existing in millisecond realms is phenomenal. The amount of trading that takes place in strategies that were almost a dream of science fiction just a few years ago are happening. That has been driven by technology. We have a bit of a network effect taking place in terms of the amount of nodes.

**Daniel Chait:** I would add to that, in addition to the increasing sophistication of the market, I would say that there is also an increase in sophistication in the products themselves that are being created and traded upon. There has been this kind of commoditization cycle where new derivatives are being constantly innovated upon and then being moved from custom OTC type contracts to high-speed electronically traded instruments. In so doing, imposing new requirements, difficult requirements on firms to price those and trade those in real time. I think that is also a lot of what has been driving some of the adoption here.

**Ross:** And then also you look at the innovation in financial instruments, that cross asset stuff, all the different types of trading strategies you can now do because you have access across these different markets, right?

**Daniel:** Sure everything from complex structured products, credit derivatives, hybrid instruments.

**Ross:** We've certainly built a number of systems where you look at virtual markets where you can create a virtual order book across different liquidity sources. The opportunities and the technical challenges that are there are incredible.

**Brad:** It's absolutely the case. The evolution from very bespoke over-the-counter product to a more vanilla type thing happened very rapidly. You can see it in numerous examples. This goes back to the challenge, as you guys were saying, "there is a lot of data", and with that data people are doing more interesting things. People want to take that data and make it into information that is very meaningful to the firms.

**Ross:** So just on that note, why don't we talk a little bit about some of the use cases? Everyone has been talking, we've even been talking about algorithmic trading, but in terms of your analysis, Brad, in your research, what has been the kind of spectrum of use cases that people are actually seriously looking at?

**Brad:** That's a great question. I think that we have moved--algorithmic trading, that was the germination point--but we are really growing from there. We are seeing it in real-time risk analytics, all around everything to do with market data. How that data is coming into the firm, how it is distributed, how you take that data and derive various types of, whether it is a VWAP or a very basic VWAP to very elaborate types of derivations, that are including other types of internally published data that is not coming from the exchange.

So with all this data, leveraging that, when we look at, I will start with the equity market, liquidity sourcing, each new venue that comes online and how rapidly that occurs is amazing. You look at a company, you look at an ECN like BATS, which in a seven-month period went from nothing to 11% market share of Nasdaq and it has now moved way beyond there. It is very easy to connect; electronic connectivity is very easy, so that is driving a lot of things. All this trading happening so quickly, people want to monitor what is happening, where are the problems, not only the problems in terms of the

network, but is there a delay in a particular venue.

If you are looking at a couple dozen venues and something is going on, you want to know as rapidly as possible. This is from a compliance Reg NMS perspective. It will be a MiFID perspective as well, but also from a trading opportunity. If you know that something is going on with say ARCA or with BATS before anyone else, you have an advantage.

And then of course, taking that information and leveraging it for trading opportunities now, going outside, right from the trading and all that, is various things that people are doing around detection of fraud, improper trading. This has been done by firms as well as regulators have implemented systems for better view of what is happening in different markets.

**Ross:** Let's explore that a little bit. I know people have talked about fraud detection, compliance and these types of issues, but realistically in terms of implemented systems, are these people already up and running or is it more kind of work-in-progress? I mean it was interesting looking at the internal control systems, both line of business and from a global capital markets perspective, but you have also got the regulatory external side of that. I mean where really is that?

**Brad:** I think there are examples. I think we are very early in terms of CEP coming in and really providing solutions. But there are built examples, there are publicly announced examples that have been used. I think by and large, a lot of this is in the process of being built and integrated. People are trying to see how they can really look at it. And this is compliance, for a firm, its own compliance, compliance on a client level, what specific clients can and cannot do, what the firm can and cannot do, from going back to the regulatory perspective, their own reasons for getting involved. This is happening -- they want this before the trade.

That also fits into the whole analytics and the evolution of pre-trade analytics and how important that has become in equities and becoming very important this year in options, in FX, in fixed income. I think that is where CEP is starting to have the use cases and we will see a lot more.

**Daniel:** Just to step in there for a second. I think if you think about the kind of incredibly broad sweep of use cases that you mentioned Brad and where the stuff germinated, as you said, even germinated from algo trading to the entire set of cases where it actually could be used, that really signals that there is a huge amount of potential, that there is a huge upside to these types of systems.

That is really why it is so exciting to firms like ours who really look for areas of technology innovation and how to best apply that technology innovation within the firm. What we see is that in the case of CEP, there are tremendous opportunities and something like you mentioned, fraud detection.

Well CEP engines excel at pattern recognition which is really what fraud detection is about. And so, there are certainly plenty of fraud detection systems out there and I think we have really only started to see the very beginnings of that in terms of building very sophisticated pattern matching type of systems to do very increasingly sophisticated fraud detection.

**Brad:** At the Aite Group, where we do a lot of research, we spend a lot of time talking to financial institutions on the buy- and sell-sides, working with the vendors, seeing their offerings. The CEP market overall is something we are extremely excited about.

I think the Aite Group is very early in its coverage, in the implications of CEP for the capital markets. I think we made certain estimates on the growth that many people said are very aggressive. But I do see CEP expanding its reach and it is the natural solution for a lot of the challenges that are out there.

Now certainly, when you look at the vendor space, there are a lot of vendors, a lot of innovation has come from firms that are and are not the huge software firms, that are out there implemented, building specific solutions for different areas. And they have a number of different perspectives -- there is a platform perspective, there is specific functionality for certain markets, there is the caching part of it for storing data. I think there are a lot of different aspects that make up this picture.

And I think it is a complicated space right now, such as the name “complex event processing”. It is hard to understand because it ties into so many different areas. And I think, as people look at the integration, they want to figure out what is the optimum way to come up with the various components.

**Ross:** Just on that note, Daniel, I know you’ve got some pretty good insight on what the types of features are, what the types of capabilities are that you are already seeing.

**Daniel:** Yeah, I think Brad makes a good point that it is like the Chinese curse, "May you live in interesting times." I think we are in an interesting time right now, which is good and bad. There is a lot of choice and there is a lot of opportunity from the point of view of the vendors. But at the same time, from a standpoint of a customer, there is not a lot of standardization and it can be difficult to understand what you get out of the box. Whereas, if you look at a more mature system, like a relational database for instance, you kind of know what you are going to get and the big vendors [of relational databases] all have a lot of the same stuff and they may offer a little bell and whistle here and there, but it is basically the same stuff out of the tin.

If you look at a CEP platform right now, they vary wildly. Some of them, as Brad mentioned, have specific business functionality like an algo trading solution or a market data system baked into it. Others consider themselves as much more of an open platform for you to build application on top of.

Some of them are very much geared towards a high availability disaster recovery, others

are geared towards being kind of lightweight embeddable systems. Some of them have very rich visual languages and designers to go along with it; others focus much more on the query languages and the other kind of textual programming tools associated with them.

You've got vast differences in their abilities to be debugged and simulated and run in sandboxes and all these kinds of things. And you have different perspectives, on whether they are viewed as a streaming data system, whether they are viewed as rules-based engines, and other kinds of models too.

So there is a lot of both fundamental and sort of ancillary considerations where the vendors have made different choices. And it is difficult right now as a consumer to sort through all that, but I think those choices are really the important ones.

I think if you look at a lot of the early published press and analysis and thinking around this space, it was really geared at, "we can process about 500,000 messages per second", "we can do a million messages per second". I think a lot of the kind of early talk around that was a little bit misplaced. And I think really the interesting questions from the standpoint of buying these things are around these kind of differences in architectures and features.

**Ross:** Also, what is the context of how you are actually wanting to use those, right?

**Daniel:** Yeah. And that is where you see a fairly high burden on customers to do very detailed and thorough proof of concepts and buying analysis of these things, especially as they get used out from beyond the sort of initial work group and desk levels to more enterprise solutions.

**Ross:** I think that is part of the challenge with having a single benchmark for all of these guys. To Dan's point, everyone has been talking about the 500,000 or the million messages per second, but my first question is, well what does that actually mean, what is in that data and what are you doing with it?

**Brad:** Absolutely. Obviously, there has been a lot of marketing material around that, but it is meaningless to say certain numbers without quantifying what exactly we are talking about. And that causes challenges for different types of firms. Certainly the larger firms are out there, as you guys have been, are looking at different platforms. They are going to do something.

They are going to take a platform that various desks want. They are testing this and they are making sure that it is going to work, that it is going to have the mission criticality and work in mission critical situations, and that it can be deployed. I think there is no doubt about that. But certainly evolution, we are early and some of these things are certainly happening.

I think people [vendors] have been more careful, even in the last year, about what they are saying because people are testing it for different messages.

**Ross:** Right. And hopefully, starting to see how much of the marketing is true versus vaporware for example.

**Daniel:** Yeah, I agree. A lot of what you saw very early on was an early adopter. Someone with some enthusiasm and some ideas and a little bit of passion would go download one of these products from the vendor site and build something and sort of put it out there. And that was kind of how a lot of these efforts got kick-started.

I think you are starting to see it now being run through, as I said, a much more kind of sophisticated analysis process. And it is putting a burden on the vendors I think to start to get their act together.

**Ross:** I think so, I mean from my perspective, we talked about the buy-side being innovative. You see absolutely a lot of very innovative groups inside the sell-side investment banks.

And to your point Daniel, they are all wanting desperately to access and download the stuff and kick the tires, because they themselves want to figure out what is the right thing for their group. And the vendors should be making that stuff available and easy to get up and running.

**Daniel:** And increasingly they are. I think they have started to notice that a common pattern is that customers will go ahead and just download this stuff and not even talk to the vendor and try it on their own. And I think if I was a CEP vendor and wasn't able to be competitive in that way I would look seriously at offering it.

**Ross:** What happens if they try that and they make a mess of it?

**Brad:** For those vendors who are allowing that, I think they are seeing a real development following. If you go earlier to Daniel's point, if you take this down, "Okay, what is this," you start playing around, you realize that you can quickly bypass a lot of custom coding.

So from a resource perspective, especially, I mean everyone is resource constrained. Whether buy- or sell-side, and there are certainly parts of the buy-side and sell-side that look a lot alike, propriety desks on the sell-side, they have tremendous demands quick to market. And if this is going to give it to them, if they can use this, their own resources rather than going out and trying to custom code and synchronize various types of things that CEP makes much easier, I think that is where we have seen lot of the early catching on.

**Announcer:** That was the second part of an interview with Brad Bailey of Aite Group. Brad was speaking with Daniel Chait, Co-Founder and Managing Director of Lab49 and Ross Hamilton, the company's Director of Client Engagements.



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