STAC BENCHMARK COUNCIL™

STAC® Summit

October 16, 2012
Doors open: 9:30am
Meeting starts: 10:00am

Grand Hyatt New York
Manhattan Ballroom
Park Avenue at Grand Central Station
New York, NY

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AGENDA

BIG WORKLOADS

STAC Update – Big Workloads [slides/video]

- *Peter Lankford, Founder & Director, STAC*

Peter will provide a brief update on the Council's activities related to big-data and big-compute workloads, including benchmarking.

Parallel Programming Case Study [slides/video]

- *Robert Geva, Parallel Programming Model Architect, Intel*

An efficient parallel program utilizes all hardware parallel resources. Robert will compare and contrast capabilities of task-parallel technologies and demonstrate the vectorization programming models across both the Intel Xeon (Sandy Bridge) and Intel Xeon Phi (MIC) product lines. Using a case-study approach, he will demonstrate the consistency of parallel programming in these environments.

Data Management Frontiers

A variety of new technologies have emerged to address new challenges in data management, enabling firms to do things they thought unthinkable not long ago. Through a series of short presentations, experts will discuss specific data management challenges and what they view as solutions.

Scaling Graph Analytics [slides/video]

- *Venkat Krishnamurthy, Lead Solution Architect, YarcData*

Graphs have been in the news with increasing frequency, thanks to a realization that a number of interesting problems in specific industries--including trading and investment--are best represented and analyzed as graphs. The growth of semantic technologies has also contributed to this trend. But graphs pose a number of challenges to traditional data-management infrastructure. In particular, graph analytics are hard to scale using relational databases or even emerging NoSQL architectures. Moreover, specialized graph databases themselves face performance bottlenecks when deployed on commodity hardware. Venkat will illustrate some of these challenges and explore how they are being addressed by YarcData, a Cray company, with their uRIKA appliance platform.

Fast Data Load and Analysis with a Distributed SQL System [slides/video]

- *Nikita Shamgunov, CTO, MemSQL*

Loading data into a database where it can be queried is a bottleneck in many trading-related processes. In a live demonstration, Nikita will use a cluster of machines to significantly reduce the batched data load process, as well as analyze the data with minimal query latency. Concepts covered in this talk include multi-threaded programming, the map-reduce framework, and SQL-to-C++ code generation.

Integration and Transformation of Front Office, High-Speed Applications and Market Data [slides/video]

- *Ronen Schwartz, VP Products, B2B Division, Informatica*

Front office, high-speed applications and business processes have pushed the limits of data variety, volume, and velocity for a long time. In this session, Ronen will discuss new capabilities that enable direct integration of these high-performance applications with data-integration infrastructure and non-SQL databases, leveraging Informatica's new Ultra Messaging connectivity. Ronen will also demonstrate and benchmark parsing and processing of trade and market data on Hadoop.

Postcard from the Future – How Real-time Big Data Analytics Changed Financial Markets [slides/video]

- *Marc Andrews, Global Information Agenda Banking and Financial Markets Leader, IBM*

"Postcard from the Future" is a new, experimental session format at STAC Summits. Each presentation is intended to push the time horizon farther down the road than usual, in order to catalyze discussion of what may lie ahead for the markets and technology. Our presenter tells his story from the perspective of someone sitting years in the future.

"Back in 2012, who would have thought that the financial markets would adopt real-time analytics and big data as quickly as they have? ..." In this Postcard from the Future, Marc will highlight use cases and technologies that may--in a very short time—morph real-time big data analysis from a luxury into a necessity in virtually all trading and risk-management decision processes. Along the way, he will give some real-world examples of how financial markets companies are using larger data sets—structured and unstructured—to drive low-latency decision making for improved trading profitability, increased risk management capabilities, and compliance.

Innovation Roundup – Round 1

"Arista Innovations in Big Data" [slides/video]	*Ashwin Kohli,Senior Systems Engineer, Arista*
"Tools and Libraries for the Intel® Xeon Phi™" [slides/video]	*Scott Lasica, VP, Products & Alliances, Rogue Wave*
"Accelerating Big Workloads with WAN-Optimized Data Grids" [slides/video]	*Ken Overton, Systems Engineer, Solace Systems*
"Real world solutions for high-scale market data analytics" [slides/video]	*Keith Miller, Director, WW HPC & LS Technical, DataDirect Networks*

Modeling the Big Data Beast [slides/video]

- *Niall Dalton, Chief Software Architect, Calxeda*

There are several workloads within trading organizations that meet the definition of "Big Data." These include big-but-structured tasks like market simulation/backtesting of potential trading algorithms, as well as unstructured or schemaless/schema-last data challenges like analyzing trade archives and system logs. A number of new software and hardware technologies may have potential to accelerate these tasks, reduce their cost, or both. But the industry lacks standard benchmarks that would enable solution providers to focus their engineering efforts and provide end users with meaningful test results. As a consequence, several Council members have asked for STAC Benchmarks for these kinds of workloads, and Calxeda have decided to propose a starting point. Niall will outline his proposal and solicit participation in a working group.

Networking Luncheon

FAST WORKLOADS

STAC Update – Fast Workloads [slides/video]

- *Peter Lankford, Founder & Director, STAC*

Peter will provide a brief update on the Council's activities related to low-latency, realtime workloads, including benchmarking.

Innovation Roundup – Round 2

"Redline & Intel: Optimizing the Tick-to-Trade Path with Mainstream Technology" [slides/video]	*Al Maillet, Vice President of Sales, Redline Trading Solutions*
"Achieving true determinism for market data normalization, book building and distribution" [slides/video]	*Olivier Baetz,VP Sales and Operations, NovaSparks*
"Less is More: Hardware Accelerated Filtering for Optimal Software Performance" [slides/video]	*Mohammad Darwish, CEO, AdvancedIO Systems*
"Advancements in High-Performance Enterprise Messaging" [slides/video]	*Bill McLane, Senior Product Architect, Messaging, TIBCO*

Point of View: Sockets Acceleration in 2013 [slides/video]

- *Steve Pope, CTO, Solarflare Communications*

Solarflare spends a lot of time working with trading organizations on their requirements for faster sockets applications. In a use-case driven talk, Steve will present the trends that he sees and stake out a position on how the industry can best support customer needs.

Innovation Roundup – Round 3

"A Faster Trading Infrastructure" [slides/video]	*Jeffrey Margolis, Manager, Systems Engineer, Mellanox Technologies*
"Low latency, congestion avoidance enterprise networks" [slides/video]	*Bob Fernander, CEO, Gnodal*
"Arista Innovations in Low Latency platforms" [slides/video]	*Ashwin Kohli,Senior Systems Engineer, Arista*
"Gaining a Competitive Advantage with the Cisco Nexus 3548" [slides/video]	*Lucien Avramov, Technical Marketing Engineer, Cisco*
"Network microbursts and switch queues: the hidden truth" [slides/video]	*Rony Kay, President & CTO, cPacket*
"Indoor GPS Timing Sync Solution" [slides/video]	*Jeremy Onyan, Technical Sales – Financial, Spectracom*

Nearer to 'c' than Thee? – panel discussion [slides/video]

- *S. Jay Lawrence, CEO, NeXXCom*
- *Gene Callahan, CEO, CCSI*
- *Ed Kopko, CEO, ULL Networks*
- *Mike Schonberg, Director of Market Data Technology, Quincy Data*

The last several months have seen many new providers offering low-latency long-haul and metro connectivity to the trading market. Many of them claim to be able to reduce latency by huge amounts through use of wireless (and fiberless) transport. What are the pros and cons of these approaches? What are the true capabilities of these providers? Where are things heading? After short vendor presentations, our panel will roll up its sleeves to debate.

Coffee Break

Quality Control of Trading Algorithms [slides/video]

For obvious reasons, the nation is talking about the need to control trading and matching algorithms. Two experts will provide their views in a session consisting of three pieces:

Introducing AT 9000

- *Greg Wood, Director, Algorithmic Execution, Listed Derivatives, and Foreign Exchange, Deutsche Bank*

Events over the last few years have focused attention on how algorithms are used within today's markets and the responsibility of an automated trading system to protect the integrity of the market. Greg will give a high-level overview of AT 9000, an initiative to create an ISO 9000-style quality management standard for the development, testing, deployment, control and monitoring of automated trading systems.

Post Card from the Future – The Very Visible Hand

- *Thomas Chippas, Managing Director and Global Head of Quantitative Prime Services and Futures Execution Products, Barclays*

"Postcard from the Future" is a new, experimental presentation format at STAC Summits. Each presentation is intended to push the time horizon farther down the road than usual, in order to catalyze discussion of what may lie ahead for the markets and technology. Our presenter tells his story from the perspective of someone sitting years in the future.

The growing popular unease with automated trading is driving discussion and action in many regions of the world today. As the cycle of action and reaction plays out, how will trading firms ultimately satisfy regulators and long-term investors that flaws in a market participant's trading systems won't destabilize the market? In this Postcard from the Future, Tom will explore a world in which firms open up their technology in certain ways, even "plugging in" limit- and risk-management libraries mandated by regulators.

Best Practices in Quality Control – panel discussion

Tom and Greg will provide their views on of this topic, from process maturity and kill switches to market simulation and visibility into the possible behavior of complex code.

Gloves Off: Top developer/technologists go toe-to-toe [video]

- *Jeffrey M. Birnbaum, CEO, 60East Technologies*
- *Niall Dalton, Chief Software Architect, Calxeda*

Jeff and Niall have a lot of things in common. Both of them are wires-and-pliers types with a deep understanding of infrastructure, but both of them would rather be coding than doing almost anything else. Both of them have experience on the firing line in trading firms and have reputations for achieving outstanding results from their code. But they don't agree on everything. In a free-flowing discussion that could go anywhere, we'll fire questions at them on a range of topics--from the performance opportunities most commonly missed by developers, to the role of FPGA, to the future of the network switch--then open it up for audience Q&A. We'll even throw in a little twist to spice things up (as if that will be necessary!).

Networking Reception

Speaker Biographies

Marc Andrews, Executive Information Agenda Consultant , IBM. Marc provides clients in the banking and financial markets industry with industry-specific guidance to help them identify opportunities where they can more effectively use information and information technology and generate new intelligence to improve their business performance and create competitive advantage. Marc was previously the Director of Information On Demand Market Strategy for IBM. In this role, he was a key spokesperson, responsible for engaging with customers, partners, analysts and press to articulate IBM's Information Management capabilities and strategy, along with promoting the business value of information technology. Marc has over 14 years of experience in information management, including leadership roles in Product Management, Marketing, Sales and Business Development. Prior roles have included being an integration executive for IBM's Cognos acquisition, responsibility for IBM's data warehousing strategy and product management, lead evangelist for IBM's Information On Demand initiative, and strategy and business development for IBM information integration, text analytics and enterprise search products. Marc has also participated in the acquisition and integration of Ascential, FileNet and Cognos, along with a few other smaller software companies. Marc joined IBM through the acquisition of Venetica, where he was a Director and received key patents related to the company's content integration technology. He holds a bachelor's degree from The Wharton School of Business at the University of Pennsylvania.

Jeffrey M. Birnbaum, CEO, 60East Technologies. Jeff is the founder of 60East Technologies where he developed "AMPS" (Advanced Message Processing System), which delivers high performance for real-time environments. Previously, Jeff spent 20 years in the Financial Services industry, first at Morgan Stanley and then Bank of America/Merrill Lynch. At Morgan Stanley, where he was employed from 1991 to 2006, Jeff was Managing Director, Chief Technical Architect and Global Head of Enterprise Computing (2000 to 2006). At Bank of America/Merrill Lynch, where he was employed from 2007 to 2012, Jeff was Managing Director, Chief Architect and Global Head of Architecture and Engineering (2007 to 2010). In this capacity he was responsible for the engineering and development of all core infrastructure encompassing Desktop, Server, Network, Storage, Market Data, and Database technologies. Throughout his career, Jeff has dedicated his talents to applying modern and emerging technical solutions to some of the most demanding computational and latency-sensitive areas of the business, particularly in the Electronic Trading arena.

Gene Callahan, Partner, Callahan Communication Services, Inc. (CCSI). Gene is a founding partner of the wireless infrastructure company, CCSI. The Company designs, builds, operates and maintains wireless networks for telecom carriers, institutions, government agencies and private enterprises. CCSI provides turn-key solutions to its client base by utilizing in-house professionals for real estate, zoning, permitting, RF/MW design engineering and project management. In addition, the firm has its own civil, electrical, antenna/line and technical crews for facility construction, commissioning and maintenance. The CCSI management team has decades of wireless network and backhaul implementation experience which has enabled the firm to become a leader in the design, construction and operation of ultra-low latency microwave networks for customers in the financial industry.

Prior to founding CCSI, Gene was a Vice President in the Equities Division of Goldman Sachs. He has a BS from Fordham University and an MBA from Northwestern University's Kellogg Graduate School of Management.

Thomas Chippas, Managing Director and Global Head of Quantitative Prime Services and Futures Execution Products , Barclays. Tom leverages his years of experience to expand the firm's solutions for quantitative and systemic trading clients, including the global, multi-asset, low-latency SubM[SM] product and BARX Futures trading platform. Prior to joining Barclays Capital, Tom was at Deutsche Bank where he was Head of Autobahn Equity North America, Deutsche Bank's electronic distribution service. He previously held management positions at Bank of America and Macgregor, the trade order management firm.

Niall Dalton, Chief Software Architect, Calxeda . Niall is an expert in algorithms and technology for low-latency, data-intensive systems in applications such as high-frequency trading. His 17 years of experience include working as Director of HFT at a Wall Street firm; CTO of Kx Systems, a leading vendor of high-performance column-oriented database software widely used on Wall Street; senior software engineer at NVIDIA; and CTO at X.R.N.D, a European vendor of high performance parallel data analysis software. He has enjoyed a variety of engineering and research positions in Europe and the US in areas such as language design and compilers for parallel computing, data-intensive distributed systems and non-traditional database internals. He currently serves on the advisory board of MemSQL, creators of a realtime in-memory MySQL compatible database, and Calxeda, designers of ultra-low power processors for hyperscale servers. Despite many publications and multiple degrees in Computer Science, Niall acquired the skills to swear fluently at multifarious hardware and software systems in a wide variety of common and obscure programming languages. He has never met an abstraction layer he didn't enjoy violating.

Robert Geva, Parallel Programming Model Architect, Intel. Robert joined Intel in 1991 and has since developed an expertise in compilers and performance analysis and tuning for microarchitectures. Robert has worked on compiler optimizations for a variety of Intel microprocessor based systems, including the 80486, the Pentium, Pentium Pro, Itanium, Pentium 4 and Pentium M and core II Duo. Currently, Robert is an architect in the development products division responsible for driving language extensions and programming models for parallel and heterogeneous programming. Robert has been involved with the development of Intel Cilk™ Plus and the offloading model for Intel® Xeon® Phi™. Robert has BA and MSc from the Technion, Israel institute of technology.

Ed Kopko, CEO, ULL Networks. Ed is an experienced telecom industry executive. Prior to becoming CEO of ULL Networks, a network services provider, Ed served for 23 years as Chairman and CEO of Butler International, a worldwide engineering and systems integration company with over 4000 employees. He has assisted carriers, equipment manufacturers, governments and enterprises design, build and manage networks internationally across numerous technologies throughout his career. Ed has been responsible for delivering over $6 billion of client projects in his career. He also serves as CEO of Mercury Z LLC, an international network systems integrator and a sister company of ULL Networks.

A prolific writer on business matters as well, Ed's articles have appeared in The Wall Street Journal, Forbes, Detroit Free Press and Chief Executive Magazine. He holds an M.A. in Economics from Columbia University.

Venkat Krishamurthy, Lead Solutions Architect, Analytics/BigData Products and Solutions, YarcData. Venkat has worked in analytics and data management for 15+ years, most recently at Oracle in DW/Analytics Product Development for Financial Services, and prior to that, as a technologist at Goldman Sachs in Institutional Sales, and Risk groups. He is a graduate of Carnegie Mellon University and the Indian Institute of Technology, Chennai.

Peter Lankford, Founder & Director, Securities Technology Analysis Center. Peter has overseen STAC since its birth in 2006. Before that, Peter was SVP of Information Management Solutions at Reuters, where he led the $240M market data systems business. Peter's team led Reuters into the business of low-latency direct feeds and catalyzed the widespread adoption of Linux on Wall Street by making RMDS available on that platform. Prior to Reuters, Peter held management positions at Citibank, First Chicago Corp., and operating-system maker IGC. Peter has an MBA, Masters in International Relations, and Bachelors in Chemistry from the University of Chicago.

S. Jay Lawrence, CEO, NeXXCom. Jay is a seasoned executive and technologist with hands on experience leading enterprises in diverse domains of the telecommunications sector including real time control systems, semiconductor, system integration/networking and fixed broadband wireless. He has operated in these areas of business in a leadership role, globally, for over the past 20 years. Jay was appointed Chief Executive Officer of NeXXCom Wireless, LLC. in January 2012 with the mission of setting the organization's technology and go-to-market strategy. NeXXCom has since positioned itself as a subject matter expert and thought leader in the area of high performance wireless broadband networking, aligned itself with fiber line based partners and has realized unprecedented growth. NeXXCom, under Jay's watch is assuming the lead position in wireless high frequency trading networks working with both private firms and service providers to provide lowest latency network capabilities.

Steve Pope, Co-Founder and Chief Technology Officer, Solarflare. Steve is CTO for controllers at Solarflare. Previously he co-founded Level 5 Networks and prior to that was a post-doctorate researcher in the field of high-speed networks and operating systems at Olivetti Research Labs, which later became AT&T Laboratories Cambridge. Steve holds a PhD in Computer Science from the University of Cambridge.

Mike Schonberg, Director of Market Data Technology, Quincy Data. Prior to joining Quincy Data in August of 2012, Mike worked at Wombat Financial Software and NYSE Technologies for over 10 years where he focused on API development and high performance messaging. He also played an instrumental role in releasing OpenMAMA, and is currently a co-maintainer for the OpenMAMA project.

Ronen Schwartz, VP Product Marketing UM, VP Products B2B Division, Informatica. Ronen leads Informatica's Ultra Messaging Marketing and B2B product marketing and management. He brings with him vast experience in the middleware market and with a variety of messaging technology, B2B, ESB, EAI, BMP solutions. Ronen is leading specific vertical efforts in Informatica and has deep knowledge of industry standards and formats including trading and payments format and feeds: Swift, FIX, FpML, Bloomberg, Reuters, NACHA (ACH), BAI. Ronen holds a BSC Cum laude in Information Technology from Technion - Technological Institute of Israel and a MBA from Tel Aviv University - Recanati Graduate School of Business

Nikita Shamgunov, CTO, MemSQL. Nikita spent six years as a senior database engineer at Microsoft SQL Server. Nikita holds a bachelor's, master's and doctorate in computer science, has been awarded several patents and was a world medalist in ACM programming contests.

Greg Wood, Director, Algorithmic Execution, Listed Derivatives, and Foreign Exchange, Deutsche Bank. Greg Wood heads the algorithmic execution product in the US for FX and Futures at Deutsche Bank Securities, based in New York. Greg has been involved in electronic trading for over 10 years and has focused on multi-asset automated trading. He is a director of FIX Protocol Ltd and co-chair of their Global Derivatives committee, and president of the Futures Industry Association's IT Division. As well as contributing to several papers on pre-trade risk management best practices, he was selected in 2012 to be part of the CFTC Technology Advisory Committee's working group on automated and high frequency trading.