

# **STAC<sup>®</sup> Summit**

June 12, 2012 Doors open: 8:30am Meeting starts: 9:00am

Andaz Hotel 40 Liverpool Street Great Eastern Room London

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## Panel: Technology and Career Trends

What are the key business trends that will affect technology needs in trading firms over the next few years? Conversely, what technology trends will have the biggest effect on trading businesses? How will these trends change the demand for human resources (management tracks, developer skills, low latency, HPC, big data, on-shore vs off-shore)? How will the capital markets continue to compete for technology talent with other industries? Our executive panel will tackle these topics and address your questions.



**Tim Lipscomb, co-head of Electronic Trading Technology, Bank of America Merrill Lynch.** Tim joined Bank of America Merrill Lynch in 1999 working as a developer on middle and back office systems in the UK and Hong Kong. He subsequently moved to work with the equities front office on Fidessa before moving into Electronic Trading. Prior to Merrill Lynch, Tim worked for Logica on transport-related projects. He was sponsored by British Airways Engineering while undertaking a BEng Electronics at Southampton University.





**Dr. Tony Chau, Lead Architect, UBS.** Tony is Executive Director and Lead Architect in the CTO Office at UBS, where he drives technology strategy in multiple areas important to UBS's trading and investment banking businesses. Prior to UBS, Tony was Global Chief Architect for Credit, Rates and Global Emerging Markets at JPMorgan, setting the strategic architecture direction for those businesses. Other roles within JPMC included Chief Business Technologist for EMEA Credit Markets and Chief Business Technologist for SMEA. Tony has had responsibility for front office, middle office, and core processing systems, as well as supporting systems such as Global Reference Data and P&L. Tony also represented JPMorgan in the ISDA FpML Standard's Committee. Before joining JPMorgan, Tony was the European CTO of New Era of Networks (NEON) Inc. and before that was Head of Equity Trading Group IT at Nomura International plc. Tony received his Ph.D. in information engineering at The City University, London in 1986 and a B.Sc. from University College London in 1983. He is a Fellow of the British Computer Society and a Chartered Engineer.

**Dominic Connor, Director, P&D Quant Recruitment.** Dominic is a director of QF Search, a specialist headhunting firm. Previously he worked on the implementation of fixed income trading systems and taught C++on the Wilmott CQF. He has debugged operating system code for IBM & Microsoft, written deal capture, swaps valuation and risk code, and all of the 25 largest banks run software he has developed. Using this experience, Dominic has made it his business to understand which factors make for a good or a bad career in banking IT. In addition, he writes for several technology sites including TheRegister, on both careers and tech issues.

## STAC update – Big Workloads [slides]

### Peter Lankford, Founder & Director, STAC

STAC will provide a brief update on Council activities related to Big Workloads such as tick databases, risk management, and bi-temporal data management.



**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.

## Advances In Number Crunching

In a data-driven discussion, David will present Intel's initial experience with the compute-intensive STAC-A2 monte carlo Greeks benchmarks on multiple Intel platforms.



**Ian Lloyd, Technical Account Manager – UK Financial Services, Intel.** [slides] Ian is responsible for driving the early adoption of the latest Intel technologies into the UK Financial Services vertical. He has been with Intel for 12 years and has had several roles within IT, Product Development and Server Product design-in. Ian graduated from UWIST with a degree in Electrical and Electronic Engineering. He is a Chartered Engineer and Member of the Institute of Engineering and Technology.

# COFFEE BREAK

## Breaking "Big"

One of STAC's missions is to facilitate industry dialogs that have real substance. Nowhere is that need more acute than in the area of "Big Data." STAC is kicking off a series of discussions that attempt to break through the Big Data hype by focusing on specific workloads, what is challenging about them, and the tradeoffs of new approaches. In the first such discussion in London, Peter Lankford will sit down with Lee Pollington to discuss Lee's first-hand experiences with several production Big Data use cases in capital markets.



Lee Pollington, Principal Consultant, Marklogic. [slides] Lee has been delivering large scale systems since 1995. Lee ran development teams building high volume, high complexity publishing web sites for leading brands for 16 years before joining MarkLogic as a Principal Consultant. In the last two years Lee has been the technical account manager and consultant for a wide range of companies including, JP Morgan, BP and the BBC, helping them refresh their technical infrastructure towards a data driven architecture to meet the challenges of Big Data. At JP Morgan Lee works with their core teams to help them deliver their mission-critical derivatives operational data store.

Innovation Roundup – Round 1		
<ul> <li>"Accelerating performance by transforming the way compute-intensive applications use network data" [slides]</li> </ul>	David Riddoch, Chief Software Architect, Solarflare	
<ul> <li>"The Challenges that Big Data Presents for your Network"</li></ul>	Alex Nichol, Consulting Engineer, EMEA	
[slides]	Arista	
<ul> <li>"Managing Distributed Big-Workloads across LAN, WAN</li></ul>	<b>Benjamin Taieb,</b> Senior Systems Engineer,	
and Web" [slides]	Solace Systems	

### Getting Smarter Faster: Building better platforms for research and back-testing

In liquid markets, tick-to-trade latency hogs the technology limelight. But another type of latency is also a key to competitiveness: the latency of developing and deploying new trading strategies. Trading firms are constantly pushing to enable more rapid experimentation and adaption of algorithms to market conditions. Depending on how quants and developers tackle this issue, big bottlenecks can arise in compute, I/O, and programmer productivity. Panelists will provide a customer perspective on the challenges of various approaches, then engage in a dialog about solutions. What's the best approach for moving from batch to near real-time analysis? For overall throughput and productivity, how best should we scale out the workloads? Where are the bottlenecks and what can we do about them? Can we believe the results we get?



Philip Beasley-Harling, Head of Algorithmic Solutions IT for Global Rates and Currencies, Bank of America Merrill Lynch. Philip has recently delivered the firm's FX DMA platform, built entirely on KDB+, which enables desk traders and clients to execute FX orders algorithmically across many global pools of liquidity. The platform has many demanding users and functional requirements to satisfy that require it to deal with large amounts of data in short amounts of time with low latencies; in particular the quant researchers need access quickly to extensive market data to enable research and back-testing of their strategies. Previously, he was Head of Market Data at Marshall Wace Asset Management and before that he was the lead developer for JP Morgan Chase's equities market data and analytics platform, TicDB.





James Coomer, Senior Technical Advisor, DataDirect Networks. James' career has been spent entirely in High Performance Computing. James began with a PhD in Theoretical Physics working on the fastest machines in Europe performing large scale atomic simulations. Subsequently James has occupied the breadth of technical roles in HPC including back line support, installation, consultancy, training, and latterly presales and design in organisations including Sun Microsystems, Streamline Computing and Dell. James enjoys daily direct contact with customers across all sectors in HPC and presents widely on HPC topics.

**Doron Arad, Client Solutions Director, Mellanox Technologies.** Doron has served as Mellanox's Client Solutions Director since February 2011. Previously, he served as Senior Solutions Architect at Voltaire from February 2007 to February 2011. From February 2002 to January 2007, Doron served as Data Center Manager at eBay. Doron holds a Bachelor of Science in Computer Science and Economics from Tel Aviv University and a Master of Business Administration with a concentration in marketing and Public Relations from Fairleigh Dickinson University.

# **NETWORKING LUNCHEON**

## STAC Update

## Fast Workloads [slides]

### Peter Lankford, STAC

STAC will provide a brief update on Council activities related to Fast Workloads and cover some highlights of the just-released analysis of the 2012 STAC Latency Monitoring and Time Synchronization Survey.

Innovation Roundup – Round 2		
<ul> <li>"Cisco Innovations for High-Frequency Trading Workloads" [slides]</li> </ul>	<b>Gordon Hirst</b> , Technical Solutions Architect, Cisco	
<ul> <li>"Low Latency to High IOPS: Wire to Storage Solutions" [slides]</li> </ul>	<b>Steve Perkins,</b> Senior Systems Engineer, Emulex	
<ul> <li>"Optimizing ProLiant Gen8 Systems for Ultra Low Latency" [slides]</li> </ul>	Lee Fisher, Worldwide FSI-HPC Solutions, Hewlett-Packard	

## Panel: Not Your Father's Network

The network landscape continues to change dramatically. Innovations relating to latency, scalability, and even programmability are redefining how we think about both switches and host interfaces. Our panelists will discuss what this means for trading firms and what we can expect the leading trading architectures to look like a year from now.

	<b>Colin Constable, VP/CTO, Juniper Networks.</b> Colin joined Juniper in September 2008 from Credit Suisse as the Senior Director covering Enterprise Architecture within the office of the CTO. Colin collaborates closely with enterprise customers and alliances partners to define next generation architectures to support emerging requirements in video, mobility, cloud computing and security among others. He has a broad background in telecommunications, computing and engineering, as well as a strong interest in shaping the future of technology.
(B)	<b>Gordon Hirst, Technical Solutions Architect, Cisco.</b> Gordon serves Cisco as a World Wide Technical Solutions Architect, responsible for Unified Fabric in the World Wide Data Center and Virtualisation team, including OpenFlow/SDN and other emerging technologies. Gordon joined Cisco in April 2008 as a Consulting System Engineer and served as a Technical Solutions Architect from April 2011 to February 2012. Prior to Cisco, he served as a Core Engineering Manager for Fibernet.
	<b>Doron Arad, Client Solutions Director, Mellanox Technologies.</b> Doron has served as Mellanox's Client Solutions Director since February 2011. Previously, he served as Senior Solutions Architect at Voltaire from February 2007 to February 2011. From February 2002 to January 2007, Doron served as Data Center Manager at eBay. Doron holds a Bachelor of Science in Computer Science and Economics from Tel Aviv University and a Master of Business Administration with a concentration in marketing and Public Relations from Fairleigh Dickinson University.
	<b>Paul Goodridge, Area Sales Manager, Arista.</b> With over 23 years experience in selling Networking Technology and Services into Financial Services, Paul joined Arista Networks in September 2009. As Arista's first employee in Europe, Paul has spear-headed Arista's growth an expansion. Focused primarily on Financial Sales, Paul has been the driving force behind growing Arista's UK market share of the Tier1 Banking Communities Ultra Low Latency, Market Data and Trading Infrastructures networks and remains focused on taking Arista's innovations to an ever expanding Customer base. Prior to joining Arista, Paul held the post of Client Director for BT Global Services and a number of Senior Global Account Manager roles at Cisco Systems.

## *Panel:* Java In Low-Latency Trading

A fact that gets little media attention is that there is a lot of Java code deployed in latency-sensitive trading. This means there is an important conversation to be had about how to optimize Java. What are some of the highly effective patterns of low-latency Java programming? Are innovations available in underlying technology like VMs that promise to help? What could vendors be doing that they aren't? More broadly, what role should Java play in low-latency trading today? What are the non-performance benefits (or drawbacks) to using Java in this kind of environment vs C/C++? Does making Java perform well mean giving up those benefits?



# COFFEE BREAK

Innovation Roundup – Round 3		
<ul> <li>"Innovations in High Performance Messaging" [slides]</li> </ul>	James Andrews, Product Specialist - Ultra Mesaging, Informatica	
"Performance Like No Other" [slides]	<b>Vasil Kajcovski,</b> Director EMEA, Messaging, TIBCO	
<ul> <li>"WAN PTP – the good, the bad and the ugly" [slides]</li> </ul>	Henry Young, CEO, TS-Associates	

## Technical Briefing: The Sandy Bridge Difference for Tick-to-Trade Latency

Intel will review the latest research on the performance improvements that trading firms can realize by using the Sandy Bridge platform.



**David Barrand, Financial Services Business Development Manager, Intel.** [slides] David owns Intel's relationship with the big four UK banks and coordinates Intel's FSI engagement across Europe. He has worked in Sales for over 6 years. Before that, he spent 3 years running Intel's European Operations for all of Intel's customers in the Communications and Embedded industries (e.g. Nokia, Siemens, Alcatel Lucent Ericsson...) Prior to that role David spent 19 years in Intel IT. He was Project Manager on a wide variety of European and Global projects, and then spent a number of years in team and department management, concluding with a Greater Europe HRIS role where he ran teams in Ireland, Israel and the UK. When David joined Intel, the company was just 15 years old and was primarily a manufacturer of memories and microcontrollers and no-one outside of the electronics industry had even heard of Intel! David graduated from UMIST in 1983 with an honours degree in Computation. He is married, with 3 daughters. In his spare time he sits on the board of trustees of a local hospice.

#### Accelerator Boards: Making Hardware Softer or Software Harder?

FPGAs and more recently, network processors (NPUs), have secured a place in many low-latency trading shops. While most early adopters bought complete, integrated solutions from vendors, today many trading firms are going directly to component vendors and doing the integration themselves. These accelerators are effectively "bumps in the wire" that perform critical tasks directly within a network card or switch without needing to up-call a host system. What is the state of the art in these components? What differentiates them from each other? How broad a part can they play in the trader's arsenal? Just how tough are they to program, and how risky is it to slow down code change in a world of rapidly evolving requirements? How do the underlying technology roadmaps compare to those for CPU-based platforms?



**David Riddoch, Chief Software Architect, Solarflare.** [slides] David co-founded Level 5 Networks in July 2002 and joined Solarflare when it merged with Level 5 in April 2006. David is the architect and lead developer of Solarflare's market leading OpenOnload network acceleration middleware. David's mission is to deliver absolutely the best possible performance without asking users to abandon the standard network stack: Sockets, TCP, UDP and Ethernet.



**Nikolaj Hermann, CTO, Fiberblaze.** [slides] Nikolaj has been in charge of the development of the complete product portfolio at Fiberblaze, including all 10 GigE FPGA based Network Interface Cards. The network interface cards are now being used as the state-of-the-art choice at many High Frequency Trading sites worldwide. Before Nikolaj founded Fiberblaze in 2008, he worked in the electronics and telecommunication industry for more than 10 years and holds a degree in physics.



**Mohammad Darwish, Founder and CEO, AdvancedIO.** [slides] A 20-year veteran of business and technology innovation, Mohammad leads AdvancedIO Systems, a company providing programmable Ethernet cards built for real-time performance in the financial and defense markets. AdvancedIO began leveraging 10GE and FPGA in 2004, beating the general market by five years. Mohammad excels in design and innovation in the field of real-time systems with focus on FPGA technologies. He has developed real-time software and defined radio products at Spectrum Signal Processing and digital image quality processors at Ward Labs. He took his expertise into the classroom, teaching senior classes at the University of British Columbia (UBC) and has been published in prestigious conferences on VLSI and parallel systems. He has a BSc in Computer Engineering and a MASc in Electrical and Computer Engineering from UBC, specializing in high-speed digital design.