



STAC[®] Summit

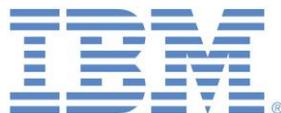
October 28, 2013
Doors open: 9:30am
Meeting starts: 10:00am

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 review progress on STAC Benchmark Council activities related to workloads involving big data and big compute.

Lessons from the NSA in building secure, scalable Big Data applications

- *Ely Kahn, VP, Business Development, Sqrrl* [\[slides/video\]](#)

One of the biggest hurdles to the adoption of big data technology in financial institutions is the need for fine-grained control over who can access what information. The National Security Agency had similar requirements when it set out to create an internal cloud-based NoSQL data store, starting from techniques developed by Google. Not long ago, some of the software the NSA developed to meet those needs was open sourced and became a top-level Apache project. In this talk, Ely will describe how the NSA was able to create a scalable, real-time analysis framework that supported a bloom of innovative applications while maintaining security through fine-grained access control. He will then discuss how the same techniques can be applied in financial services.

Parallel File Systems [\[video\]](#)

- *David Rukshin, SVP, D E Shaw*
- *Brent Gorda, General Manager, High Performance Data Division, Intel* [\[slides/video\]](#)
- *M.C. Srivas, CTO and Co-Founder, MapR Technologies* [\[slides/video\]](#)
- *Bob Gaines, Senior Sales Director, DataDirect Networks* [\[slides/video\]](#)
- *Doris Conti, Director, Cross Systems Software including GPFS, IBM* [\[slides/video\]](#)

Parallel file systems are starting to get significant attention on Wall Street, and it's no surprise. Whether searching for alpha or quantifying risk, each trading firm has more and more compute nodes trying to access large data stores simultaneously. Data bottlenecks are rife. Parallel file systems--many of which hail from supercomputing or the web-scale industry--seem to promise great acceleration for data-intensive analytics. A panel of experts will offer their views.

Innovation Roundup – Round 1

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| “Scalable Informatics Time Series Analytics appliance” [slides/video] | <i>Joe Landman, Founder and CEO, Scalable Informatics</i> |
| “Driving big workloads with the world’s fastest all flash, scale-out SAN: The Kaminario K2” [slides/video] | <i>Bill Bodei, Senior Director, Kaminario</i> |
| “RDMA for the Masses” [slides/video] | <i>Asaf Wachtel, Director, Global FSI, Mellanox Technologies</i> |

Networking Luncheon

Innovation Roundup – Round 2

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| “Next generation technologies for virtualized workloads: An Overview of the Solarflare SFN7122F 10/40GbE Server Adapter” [slides/video] | <i>Davor Frank, Sr. Solutions Architect , Solarflare Communications</i> |
| "Vertically Scaling Messaging Systems to Meet the Needs of Big Data " [slides/video] | <i>Ken Overton, Sr. Systems Engineer, Solace Systems</i> |

Technical Brief: The next stage in high-performance networking

- *Paul Grun, Vice Chairman, OpenFabrics Alliance* [\[slides/video\]](#)

The world is adopting new ways to analyze avalanches of data. The data may be stored and accessed in new ways, such as from public and private clouds. And larger, complex problems are demanding new ways to collaborate. The OpenFabrics Alliance (OFA) believes that these trends demand new approaches to high-performance networking. For the past several years, the OFA has led the development of open source software for high- performance, low-latency communication in trading and scientific applications, via technologies such as RDMA. Now the OFA has begun an effort to drive high-performance networks to the next level in scope and performance. By focusing first on application requirements, the OFA intends to bring HPC-style benefits to new use cases. Paul will describe this approach and suggest ways that developers from the financial services sector can get involved in defining this next push forward in network technology.

FAST WORKLOADS

STAC Update – Fast Workloads [\[slides/video\]](#)

- *Peter Lankford, Founder & Director, STAC*

Peter will review progress on STAC Benchmark Council activities related to low-latency, high-volume realtime workloads

Technical Brief: Getting the most from Haswell

- *Mark Chamey, Senior Principal Engineer, Intel* [\[slides/video\]](#)

The first of Intel's Haswell processors has been released to the market, with more on the way. This architecture supports new intrinsics and the Haswell New Instructions, which have the potential to reduce latency and accelerate compute- and data-intensive workloads. Mark will provide insight into the most promising of these innovations and where developers should focus their initial efforts.

Innovation Roundup – Round 3

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| “New Enhancements in Precision Time, Instrumentation, and Packet Capture with the Solarflare SFN7322F IEEE 1588 Precision Time Server Adapter” [slides/video] | <i>Davor Frank, Sr. Solutions Architect , Solarflare Communications</i> |
| "Building highest density networks at lowest latency" [slides/video] | <i>Lucien Avramov, Technical Marketing Engineer, Cisco</i> |
| “Shaving nanoseconds: pushing the frontiers of low latency networking” [slides/video] | <i>Matthew Chapman, CTO, Exablaze</i> |
| “Test, Assess and Optimizing Networks” [slides/video] | <i>Michael Haugh, Sr. Manager, Market Development, Ixia Communications</i> |
| “CIARA ORION HF: The World’s Fastest High-Frequency/Low Latency Servers” [slides/video] | <i>Jeff Cachat, Director of Business Development, Ciara Technologies</i> |

Frontiers in Public and Private Markets [\[video\]](#)

- *Christian Martin, CEO, TeraExchange* [\[slides\]](#)
- *Shawn Sloves, Founder & Partner, Atlas ATS* [\[slides\]](#)
- *Jacob Loveless, CEO, Lucera* [\[slides\]](#)
- *Matt Rotella, SVP of Trading Systems, MIAx Options* [\[slides\]](#)

While many of the major exchanges are focused on consolidation, another trend is quietly taking hold: the entrance of innovative new exchanges and private-market technology providers. Whether in mature asset classes like options and FX, or assets that are new to exchange trading like swaps and digital currencies, new trading venues are sprouting up along with new enabling technologies. There are even cloud technology vendors offering to spin up a new exchange or dark pool in hours ("just add liquidity"). These players have potential to change the way business is done and technology is used, with implications for exchanges, brokers, and the buy side. We'll ask some of the pioneers at the forefront of these trends how they are innovating, how they are exploiting technology, and what this means for the future.

Coffee Break

Hardware acceleration today [\[video\]](#)

- *Nikolaj Hermann, CTO, Fiberblaze* [\[slides/video\]](#)
- *Mohammad Darwish, CEO, AdvancedIO* [\[slides/video\]](#)
- *John Lockwood, CEO, Algo-Logic* [\[slides/video\]](#)
- *Sanjay Shah, CTO, Nanospeed Technologies* [\[slides/video\]](#)

Seven years after the first well-known use of FPGA to accelerate financial workloads, what is the state of the art? Where does FPGA play in the trading process? What is the division of labor between vendors and internal staff? Where can we expect the technology to head? And hey: with all the talk of the latency race being "over", why are we still talking about FPGA?

Innovation Roundup – Round 4

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| “Red Hat Enterprise Linux: the platform of choice for STAC performance research” [slides/video] | <i>Jan Mark Holzer, Senior Consulting Engineer, Red Hat</i> |
| “Embracing Open Source in the Enterprise” [slides/video] | <i>Scott Lasica, VP, Global Alliances, Rogue Wave Software</i> |
| “Benefits of Trading with Direct Options Feeds” [slides/video] | <i>Lee Fisher, VP Technical Marketing, Redline Trading Solutions</i> |
| “TIBCO FTL: Still the Fastest and now the Broadest” [slides/video] | <i>John Page, Global Director Messaging, TIBCO</i> |

Networking Reception

Speaker Biographies



Doris Conti, Director in Systems and Technology Group, Cross Systems SW including GPFS, IBM. Doris currently works for IBM as a software development director in Systems and Technology Group. She has responsibility for GPFS and HPC software. Prior to this role, Doris has held various other positions in IBM, including development, performance, product management, and marketing. She has worked on various software and hardware products, including the mainframe. Doris has a BS and MS degree in Computer Science. She lives in Poughkeepsie with her husband and three kids.



Mark Charney, Senior Principal Engineer, Intel. Mark is a senior principal engineer in the Technology Pathfinding and Innovation group of the Software and Solutions Group at Intel Corporation based in Massachusetts. Mark joined Intel in Massachusetts in 2002. He works on architecture definition issues for Intel's future microprocessors. He created the Intel(R) Software Development Emulator and the XED instruction encoder decoder. Both are widely used inside and outside of Intel. In 2007, Mark was honored as part of a group earning an Intel Achievement Award for his contributions to the Pin dynamic binary instrumentation system. Before joining Intel, Mark worked at Transmeta from 2000 to 2002 and IBM Research from 1995 to 2000. As a research staff member at IBM, Mark worked on architecture, memory systems and performance for PowerPC and S/390. He received a Ph.D. from Cornell University for studying hardware prefetching and a BSE from Princeton University.



Mohammad Darwish, Founder and CEO, AdvancedIO. A 20-year veteran of business and technology innovation, Mohammad Darwish is the Founder and CEO leading AdvancedIO Systems, a company providing programmable Ethernet cards built for real-time performance in the financial and defense markets. In 2004, he launched AdvancedIO focused on leveraging 10GE and FPGA technologies, a prescient innovation that beat 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 defined radio products at Spectrum Signal Processing and digital image quality processors at Ward Labs. He took his real-time expertise into the classroom teaching senior classes at the University of British Columbia and he has been published in prestigious conferences on VLSI and parallel systems. Mohammad followed his BSc degree in Computer Engineering with a MASc degree in Electrical and Computer Engineering at the University of British Columbia, specializing in high-speed digital design.



Ely Kahn, co-founder and Director of Business Development, Sqrrl. Previously, Ely served in a variety of positions in the Federal Government, including Director of Cybersecurity at the National Security Staff in White House, Deputy Chief of Staff at the National Protection Programs Directorate in the Department of Homeland Security, and Director of Risk Management and Strategic Innovation in the Transportation Security Administration. Before his service in the Federal Government, Ely was a management consultant with Booz Allen Hamilton. Ely has a BA from Harvard University and a MBA from the Wharton School at the University of Pennsylvania.



Bob Gaines, Senior Sales Director, DataDirect Networks. Bob Gaines is senior director for DataDirect Networks solutions team for the US and Canada. He is a long-term veteran of the storage industry having spent the past 12 years at StorageTek, Sun Microsystems, and Oracle. He created StorageTek's state, local, & education sales practice that become Sun's government education and healthcare vertical via acquisition. Bob developed large-scale data management and storage architectures for government agencies and educational research labs.



Brent Gorda, General Manager, High Performance Data Division, Intel. Prior to joining Intel, Brent co-founded and led Whamcloud. Recognized by OpenSFS and EOFS as the primary innovators, maintainers and providers of technical support for Lustre software. Before launching Whamcloud, Brent held several leadership positions at the Lawrence Livermore National Laboratory where he was responsible for the BlueGene P/Q architecture as well as some of the large IB-based clusters in use among the DOE laboratories. Brent is the founder of the Student Cluster Competition originally held at Supercomputing 2007, now a worldwide event that showcase the power of parallel computing in the hands of students. Brent currently sits on the Executive Steering Committee for the SC conference series. Brent lives in the East Bay and longs to ride his bike farther and more often.



Paul Grun, Vice Chairman, OpenFabrics Alliance. Paul was recently appointed Vice Chair of the OpenFabrics Alliance, an industry organization dedicated to providing open source software stacks for high performance RDMA networks. He is a past chair of the InfiniBand Trade Association's (IBTA) Technical Working Group and currently serves as a Director of the IBTA. Paul is currently a Senior Technologist in Storage and Data Management at Cray. His focus at Cray is on large scale storage systems and system-level networking. During nearly 35 years, Paul has been engaged in all aspects of server I/O, ranging from hardware design of early generation RAID controllers to architecture and design of industry standard high performance networks to server chipset architecture. He was a key contributor to the creation of the InfiniBand Architecture and was responsible for creating the InfiniBand transport protocol. He also proposed a new approach to networking over Ethernet known as "RoCE" (RDMA over Converged Ethernet), chairing the working group charged with creating the RoCE specification and serving as its principle author. As an Intel Principal Engineer, Paul oversaw a chipset architecture team charged with developing high end chipsets for servers and workstations. Paul holds four patents related to the application of RDMA technology to RAID system design and PCI.



Nikolaj Hermann, CTO, Fiberblaze. 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.



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.



John Lockwood, CEO, Algo-Logic. John is the founder and CEO at Algo-Logic Systems. Algo-Logic's hardware-accelerated logic circuits enable networks to achieve ultra-low latency processing while carrying large volumes of data. From 2006 to 2009, John managed the NetFPGA program as a Consulting Associate Professor at Stanford University. At Stanford, John grew the worldwide deployment of NetFPGA hardware from 10 to 1,021 units. Prior to joining Stanford in January of 2007, John led the Reconfigurable Network Group, which was a part of the Applied Research Laboratory at Washington University in Saint Louis. There he was a tenured Associate Professor in the Department of Computer Science and Engineering. John and his research group developed the Field programmable Port Extender (FPX) to enable rapid prototype of extensible network modules in Field Programmable Gate Array (FPGA) technology. Over the past 20 years, John has published over 100 papers and has 7 patents related to FPGA systems and networking systems. John earned his MS, BS, and PhD degrees from the Department of Electrical and Computer Engineering at the University of Illinois.



Jacob Loveless, CEO, Lucera. Jacob is the CEO of Lucera (<https://luceraHQ.com>) and former head of High Frequency Trading for Cantor Fitzgerald. He has worked for both high frequency trading groups and exchanges for the past 10 years in nearly every electronic asset. Prior to a life in finance, Jacob was a special contractor for the US Department of Defense with a focus on heuristic analysis on things which cannot be discussed. Prior to that, he was the CTO and a founder of Data Scientific, a pioneer in distributed systems analysis.



Christian Martin, CEO, TeraExchange. Christian directs overall management and strategy of TeraExchange. As a former market maker and proprietary trader executing transactions in virtually every major asset class, Christian observed significant gaps in the marketplace for electronic trading and analytical solutions that were available to market participants in the emerging world of cleared OTC derivatives. He co-founded TeraExchange with the goal of addressing the rapidly evolving needs of derivatives market participants in the post Dodd-Frank environment. Earlier in his career, Christian spent more than 20 years in senior trading and management positions at Merrill Lynch and Bank of America, where he made markets in interest rate swaps, credit default swaps, and financing and securities lending transactions. He started his career on the floors of the New York Stock Exchange, the Chicago Mercantile Exchange, and the Singapore Mercantile Exchange. Mr. Martin received his B.A. in Business from The Catholic University of America in 1988.



Matt Rotella, Senior Vice President - Trading Systems Development and Systems Operations, MIA X Options Exchange. As Senior Vice President of Trading Systems Development and Operations, Matt is responsible for the oversight of the MIA X Options trading system architecture, application software development, quality assurance and production systems operation. Matt has nearly two decades of experience building large-scale technology solutions in the exchange trading industry. Prior to joining MIA X, Matt served as Vice President for NASDAQ/OMX and the PHLX, where he was responsible for overseeing technical initiatives for derivatives trading systems. Matt earned a Bachelor of Arts degree in Computer Science from Temple University in Philadelphia, PA.



David Rukshin, Senior Vice President, D. E. Shaw Group.



Sanjay Shah, Founder & CTO, NanoSpeed. Sanjay has a career spanning 25 years in the UK and Europe. His experience includes: Lead Engineer for Fixnetix, a financial services company in London; Led a team of 10 senior engineers to develop FPGA Trading Gateway product for the UK and US markets; FPGA team lead for Airbus A350 engine control, safety and management (UK and France); Principal Architect of SharpEye Radar at Kelvin Hughes (UK); Founder and CTO of Sancom Technologies (Ireland) involved in Wi-Fi chip design; Senior member of team at Texas Instruments (France) developing 3G Telecoms products; and Senior member of DVD chip development team at Philips (Belgium). Sanjay holds degrees in Electronics from Imperial College, London and Cardiff University, UK.



Shawn Sloves, Founder and Partner, Atlas ATS, Inc. Shawn is a founder and a partner of Atlas ATS Inc. a Global Digital Currency Exchange and the Chief Executive Officer and Co-founder of Fundamental Interactions. Prior to joining the firm, Shawn was Co-founder and Head of Product & Strategy at Mantara Inc. In his five years at the firm he developed a suite of low latency trading infrastructure products widely deployed across high frequency trading firms and backed by over \$40 million in invested venture capital. Prior to Mantara, as SVP at SunGard, Shawn ran product management and development for their market making direct access platforms that were widely deployed across their one brokers. In addition, he was the product manager of the BRUT ECN, and he worked at Optimark Technologies. He has over 20 years of experience in the financial services industry. Shawn holds undergraduate degrees from Ohio State University and University of Massachusetts at Lowell, and a graduate degree from Montclair State.



M.C. Srivas, CTO and Co-Founder, MapR. Srivas ran one of the major search infrastructure teams at Google where GFS, BigTable and MapReduce were used extensively. He wanted to provide that powerful capability to everyone, and started MapR on his vision to build the next-generation platform for semi-structured big data. His strategy was to evolve Hadoop and bring simplicity of use, extreme speed and complete reliability to Hadoop users everywhere, and make it seamlessly easy for enterprises to use this powerful new way to get deep insights. That vision is shared by all at MapR. Srivas brings to MapR his experiences at Google, Spinnaker Networks, Transarc in building game-changing products that advance the state of the art. Srivas was Chief Architect at Spinnaker Networks (now NTAP) which built the industry's fastest single-box NAS filer, as well as the industry's most scalable clustered filer. Previously, he managed the Andrew File System (AFS) engineering team at Transarc (now IBM). AFS is now standard classroom material in operating systems courses. While not writing code, Srivas enjoys playing tennis, badminton and volleyball. M.C. has an MS in Computer Science from University of Delaware, and a B.Tech. in electrical engineering from IIT Delhi.
