

Agenda

IBM Smarter Energy Research and Cloud Computing Briefing

10/12/2011

2:15 pm to 5:30 pm

IBM Thomas J. Watson Research Center
Yorktown Heights, NY
Room 12-113

Host: Ron Ambrosio

2:15 pm – 2:30 pm	Arrival	Ron Ambrosio <i>Global Research Executive Energy & Utilities Industry</i>
2:30 pm – 2:40 pm	Welcome and Introduction	Katharine Frase <i>Vice President Industry Solutions & Emerging Business</i>
2:45 pm – 3:20 pm	Smarter Energy Research Overview and the Pacific Northwest Smarter Grid Demonstration	Ron Ambrosio
3:25 pm – 4:00 pm	Smarter City Dubuque Project	Sambit Sahu <i>Research Staff Member Cloud Enablement Services</i>
4:00 pm – 4:45 pm	Coffee break and Smarter Energy Lab Demo	Brian Gaucher <i>Manager Smarter Energy</i> David Kung <i>Senior Manager Design Automation</i>
4:45 pm – 5:20 pm	Cloud and Hybrid Computing	Maria Ebling <i>Senior Manager Cloud Enablement Services</i>
5:20 pm – 5:30 pm	Wrap Up and Q&A	Ron Ambrosio

Additional Information:

During the break we will bring the attendees into the Smarter Energy Lab across the hallway in three smaller groups due to space restrictions in the Lab. The demonstration will run approximately 10 minutes.

Abstracts

Smarter Energy Research Overview and the Pacific Northwest Smarter Grid Demonstration

Ron Ambrosio
2:45 PM – 3:20 pm

A central tenet of the utility of the future is anchored in the realization that there are vast opportunities to improve both centralized and decentralized informed decision making to drive better business and operational performance outcomes. Realizing these gains will require, (1) a shift from reactive to proactive decision making through the use of predictive analytics, (2) broadening the availability of these new decision making tools throughout all layers of the enterprise, and (3) the acceleration of both centralized and distributed control and automation for all those operations not requiring a human in the loop.

We envision a future in which utilities will benefit from having access to a broad ecosystem of analytics, modeling, simulation and optimization-based applications that are designed to leverage the large (and growing) sources of data available inside and outside their enterprises. The objective of these data-driven applications will be to improve operational efficiencies, lower risks, improve quality of services, as well as to deliver new energy services.

In addition to reviewing IBM Research's Smarter Energy strategy and activities, Ron will provide a more detailed description of the Pacific Northwest Smart Grid Demonstration project, one of our major initiatives where we are collaborating with Battelle Memorial Institute, Bonneville Power Administration, Alstom Grid and a number of other partners.

Smarter City Dubuque Project

Sambit Sahu
3:25 PM – 4:00 pm

IBM and the City of Dubuque, Iowa are collaborating to make this community of 60,000 one of the first "smarter" sustainable cities in the U.S.. Dubuque was a living lab to implement and test a replicable model with participation from city management, ecosystem partners, and a large base of volunteer citizens.

The first phase of the smart city partnership included two projects to enhance the city's and its citizens' understanding of their energy consumption and water management, in order to reduce costs and the overall carbon footprint. To accomplish this, IBM built a Platform for Real-time Integrated Sustainability Monitoring (PRISM) to provide the city with an integrated view of its energy management, including energy consumed by the electric grid, water system, and general city services.

Information from these various data sources was used to enable analysis, incentive design, community engagement and decision support across these services between the city management team and citizens of Dubuque. This platform was deployed in a Research cloud made available in the first phase to the city team and 250 volunteering citizens to help them better understand water consumption and detect potential leaks through integrated monitoring devices being installed in the city's water meters.

Abstracts

Cloud and Hybrid Computing

Maria Ebling

4:45 PM – 5:20 pm

Cloud computing will require an increased focus on community-driven innovation, capitalizing on the power of people both inside and outside the organization to define and create new offerings and services. It will demand “IT without boundaries”—systems and processes that break down traditional silos and simplify access to information in order to deliver better business outcomes. Cloud computing offers organizations dramatic increases in agility and efficiency, providing secure and reliable Software as a Service (SaaS), Platform as a Service (PaaS) and Infrastructure as a Service (IaaS) solutions.

Implementing a cloud computing model means encouraging innovation by simplifying and standardizing underlying infrastructure. It entails the creation of efficient yet flexible IT foundations that can support the development of new services and the consistent delivery of quality user experiences. And it demands a focus on ensuring interoperability, resiliency and security in an integrated fashion.

Cloud computing delivers SaaS-based Business Process Services, which improves productivity by enabling agile collaboration. Cloud also includes IaaS and PaaS services and solutions, which simplify the deployment and technology needed to build and manage cloud environments. Maria will provide an overview of our Cloud and Hybrid Computing strategy and activities.

Speaker Bios

Ron Ambrosio

**Global Research Executive
Energy & Utilities Industry**

Ron Ambrosio leads IBM's Energy & Utilities Industry activities in its ten world-wide Research Laboratories. He joined IBM in 1981 at the T.J. Watson Research Center, working in a variety of areas including embedded real-time operating systems, distributed application frameworks, and pervasive computing environments, ultimately focusing on networked embedded computing with specific emphasis on what he coined "Internet-scale Control Systems" - the interoperability of sensor networks and control systems with enterprise systems and business processes. He established IBM's smart grid research program in 2000, and helped define and establish IBM's activities in both Intelligent Utility Networks and Sensors & Actuators.

In 2000 Ron also began working with the U.S. Department of Energy (DoE) on the planning, collaboration and workshops that led to the establishment of the DoE GridWise® initiative in late 2002, and then helped plan and launch the GridWise Alliance industry consortium in 2003. In 2004 he was selected by the Department of Energy to sit on the 13-member DoE-convened GridWise Architecture Council (a separate entity from the GridWise Alliance), and continues as a member after having served as Chairman of the Council during 2009 and 2010.

Ron is the International Convenor of the ISO/IEC JTC 1 Special Working Group on Smart Grid, Chairman of the National Institute of Standards and Technology (NIST) Smart Grid Interoperability Panel (SGIP) Architecture Committee (SGAC), and is editor of the ISO/IEC 18012 standard series on premises automation interoperability in JTC 1/SC 25/WG 1.

Sambit Sahu

**Research Staff Member
Cloud Enablement Services**

Sambit Sahu has been a research staff member at IBM since 2000. Dr. Sahu received his Ph.D. degree in Computer Science from University of Massachusetts at Amherst. After joining IBM Research, Dr. Sahu has focused on systems and network services management, content distribution network and data center networking and more recently on cloud computing and smarter planet solutions. He has more than 50 technical papers and 60 patents filed in these areas. He is the founding chair of Usenix/ACM HotClpoud workshop which has been well received in the Cloud/Systems community. Dr. Sahu has a best paper award at ACM Internet Measurement Conference 2006. Dr. Sahu's recent research has been on designing cloud platform and solutions for deploying smarter city services at city-wide scale. He is a master inventor at IBM Research and has Outstanding Achievement Award and Research Division Awards for his pioneering work in these areas.

Speaker Bios

Brian Gaucher

Manager
Smarter Energy

Brian Gaucher performed his undergraduate work at U-Mass ('82) and graduate work at Northeastern University ('93). From 1982-83 he worked at Alpha Industries. In 1984 he joined GTE Communication Systems Division, designing spread spectrum communication and radar systems. In 1993 he joined IBM Research in Yorktown Heights, NY. He managed a communication system design and characterization group, designing cellular, Bluetooth, WiFi, UWB and 60 GHz multi-Gbps wireless and 77& 94GHz radar systems in advanced CMOS and SiGe. His group has helped more than six products to market. He also managed a worldwide team of people developing standards compliant High-speed-serial (HSS) link solutions up to 25Gbps with complex equalization in advanced CMOS technologies. From 2009 to present he's been a manager in IBM's Smarter Energy dept, leading a grand challenge of smart grid simulation of ultra-large-scale networks and complex systems of systems. He's been an IBM master inventor with over 40 US and foreign patents pending, filed or issued. He's received one Corporate Award, three Outstanding-Technical-Achievement awards, a Research Division Award and has authored or co-authored over 50 papers, one book. He's a member of the IEEE: P2030, 1809, 1547, 802.11, 802.15 and ECMA.

David Kung

Senior Manager
Design Automation

David Kung received a BA from U.C. Berkeley, M.A. from Harvard, and a PhD from Stanford University (all in Physics). He joined the Advanced Simulation group in IBM Research in 1986 and worked on a massively parallel simulation engine. He moved on to the Logic Synthesis group and contributed to IBM's BooleDozer logic synthesis system. He became the manager of the Logic Synthesis group in 1999 and led the development of the Placement Driven Synthesis tool. He became the Senior Manager of the Design Automation Department in 2004 and is responsible for the Design Automation Strategy for IBM Research. He has won 4 Outstanding Technical Achievement Awards and one Corporate Award, and he is a member of the IBM Academy of Technology. He is the chair of the IEEE Design Automation Technical Committee, and has served on executive and technical program committees of major design automation conferences and workshops.

Speaker Bios

Maria Ebling

Senior Manager

Cloud Enablement Services

Maria Ebling is a research staff member and senior manager at the IBM T. J. Watson Research Center. She manages a team working to support the IBM cloud offerings, enabling customers to more easily adopt cloud computing technology in their business. She received a B.S. from Harvey Mudd College and an M.S. and a Ph.D. in computer science from Carnegie Mellon University. Her interests are in distributed systems supporting mobile and pervasive computing, privacy, and human-computer interaction.

Maria was the Technical Program Co-Chair for Seventh IEEE Workshop on Mobile Computing Systems and Applications in 2006, now known as HotMobile, and she now serves on the Steering Committee for this workshop, She serves as an Associate Editor-in-Chief on the Editorial Board for IEEE Pervasive Computing. She was elected to the IBM Academy of Technology in 2011 and is a senior member of both the ACM and the IEEE.