

Highlights of the 2013 IEEE Rebooting Computing Summit



The first IEEE Rebooting Computing Summit (RCS), organized by the FDC Rebooting Computing Initiative, concluded successfully at 1:30 PM on Dec 13, 2013 at the Omni Shoreham Hotel, Washington DC. This two-day Summit included 38 invited participants who are thought leaders from government agencies, academia and industry. This Summit is first in a Series intended to catalyze innovative and holistic thinking and planning for the next generation computing platforms.

Tom Conte and Elie Track, IEEE Rebooting Computing Summit Co-Chairs, opened the Summit and welcomed the participants. Five speakers provided opening talks in the morning of the first day, followed by a discussion session that used the Appreciative Inquiry approach to engage active participation by all attendees.



The five opening talks provided thoughtful insights into different perspectives of computing.

- “*Eyore’s Look at the End of Computing*,” Bob Colwell, Director, Microsystems Technology Office, DARPA – Bob Colwell hypothesized that the end of Moore’s Law will mean the end of computing as we currently know it. Mr. Colwell discussed other developments that are needed to move the industry forward.
- “*Future Technology Directions*,” Peter Highnam, IARPA – Peter Highnam provided a brief overview of some of the technologies IARPA is exploring, including superconducting computing, energy efficient cryogenic memory, and superconductor circuit fabrication to name a few. These are high-risk and high-payoff research programs that can provide the U.S. with an overwhelming intelligence advantage.
- “*Big Data and International Competition*,” Rob Leland, Office of Science Technology Policy – Rob Leland looked at the conditions that made the first major “reboot” possible in the 1940s and discussed trends that could become the catalyst for another “reboot” in computing now.
- “*IBM Research: The Journey to Watson*,” David McQueeney, IBM – David McQueeney explored the possibilities for the future of computing, using examples from developing a chess-playing computer in 1997 to the more recent Jeopardy-playing Watson machine.
- “*Visions of the Future*”, Brian David Johnson, Intel (via video conference) – “The future is the result of people who get together with an intent to change the future,” asserted Brian David Johnson. Science fiction allows us to explore the future we want and the future we want to avoid. Science fiction also gives us a common language to talk about the future.

The discussion portion of the Summit, using Appreciative inquiry, was organized around three pillars: Applications and Human-Computer Interface, Energy Efficiency, and Security. These three pillars were identified prior to the Summit as broad, functional areas that will likely serve as driving forces in computing. Divided in three break-out groups, participants discussed the broad vision for each pillar in the year 2023 and beyond, and what the metrics of success will be. They reconvened as a group to provide a report on their respective sessions.



At the conclusion of the Summit, participants discussed, as a group, the next steps, including how to broaden this conversation with people who did not attend this Summit, what comes next, and what can each person do to further this initiative. After the Summit, a survey was sent to all participants. The feedback from this survey will help in planning of the 2014 Rebooting Computing Summit.

The 2013 Rebooting Computing Summit Event Summary is available on the Rebooting Computing Portal
http://rebootingcomputing.ieee.org/images/files/images/pdf/ieee_rebooting_computing_summary.pdf.

