IEEE ICCCN 2008 Keynote Speakers

Dr. David E. Culler (NAE Member, IEEE Fellow, ACM Fellow)
Howard Friesen Chair Professor, University of California, Berkeley
CTO, Arch Rock Corporation

Title: Sensing the Next Tier of the Internet

Abstract:
Today's communications networks allow us to connect almost everybody, but soon we will have the ability to connect almost every thing of value. This next tier of the internet will connect directly to the physical world, allowing a real-world web of physical information to stream up into the IT enterprise where it can serve as a basis for decision making and action. Over the past decade, broad R&D efforts of many companies and universities have created the technological building blocks of this next tier. These include the integration of sensing, computing, and wireless communication into compact, low-power devices, the development of robust, communication-centric embedded operating systems, and the formulation of reliable, energy-efficient routing protocols.

In this talk, we show how these building blocks are taken forward into a natural, production-ready extension of the internet with IEEE 802.15.4 (LoWPAN) wireless links supporting (6LoWPAN compressed) IPv6 routing, transport and manageability, allowing rich physical information to be presented as Web Services. These long-lived, self-powered physical information servers provide unprecedented visibility into built and natural environments, manufacturing processes, supply chains, health care, and emergency response to improve efficiency, productivity and safety.

Bio:
David Culler is a Professor of Computer Science at the University of California, Berkeley and CTO of Arch Rock Corporation. Professor Culler received his B.A. from U.C. Berkeley in 1980, and M.S. and Ph.D. from MIT in 1985 and 1989. He has been on the faculty at Berkeley since 1989, where he holds the Howard Friesen Chair. He is a member of the National Academy of Engineering, an ACM Fellow, an IEEE Fellow and was selected for ACMs Sigmod Outstanding Achievement Award, Scientific American's

'Top 50 Researchers', and Technology Review's'10 Technologies that Will Change the World'. He received the NSF Presidential Young Investigators award in 1990 and the NSF Presidential Faculty Fellowship in 1992. He was the Principal Investigator of the DARPA Network Embedded Systems Technology project that created the open platform for wireless sensor networks based on TinyOS, and was the founding Director of Intel Research, Berkeley. He has done seminal work on networks of small, embedded wireless devices, planetary-scale internet services, parallel computer architecture, parallel programming languages, and high performance communication, and including TinyOS, PlanetLab, Networks of Workstations (NOW), and Active Messages. He has served on Technical Advisory Boards for several companies, including Inktomi, ExpertCity (now CITRIX on-line), and DoCoMo USA.

Dr. Chip Elliot (IEEE Fellow, AAAS Fellow)
Chief Engineer, BBN Technologies
GENI Project Director, NSF

Title: GENI - Global Environment for Network Innovations

Abstract:
This talk introduces GENI, the National Science Foundation's ambitious plan to build a national facility to enable research into "clean slate" architectures for future global communications networks. GENI has just entered a new stage in its development. Early prototyping is now beginning, which will offer illumination into its construction plans and research potential. The first round of software, hardware, and trial facilities are now being proposed by academic and industrial research teams. This talk presents current plans for GENI, but leaves plenty of time for discussion and comments, both for the eventual facility itself and for prototypes that will be built in the coming year.

Bio:
Chip Elliott is Chief Engineer at BBN Technologies and Project Director for GENI, a national-scale experimental facility being created by the National Science Foundation for "clean slate" network research. He is an AAAS Fellow and IEEE Fellow with over 85

patents issued and pending. Mr. Elliott led DARPA's design and build-out of the world's first quantum cryptography network - 10 optical nodes across metro Boston providing highly secure key distribution non-stop through both telecom fibers and the atmosphere - as well as the design and implementation of large-scale, mission-critical "ad hoc" radio networks now used in nearly a dozen nations including the United States, UK, and Canada. For his leadership in quantum cryptography he was given Frost & Sullivan's Award for Excellence in Technology (2005) and named a World Technology Award Finalist (2004) and Fellow. Mr. Elliott has served on many national panels and has held visiting faculty positions at Dartmouth College, Tunghai University in Taiwan, and the Indian Institute of Technology, Kanpur.

Dr. Biswanath Mukherjee (IEEE Fellow)
Child Family Chair Professor, University of California, Davis

Title: Telecom Networks: The Road Ahead

Abstract:
Progress on research and development in telecom networks will be discussed. Emerging important topics include wireless-optical broadband access networks (WOBAN), long-reach broadband access, dynamic optical circuit switching (DOCS), robust network design, Ethernet everywhere, etc.

Bio:
Dr. Biswanath Mukherjee received the B.Tech. (Hons) degree from Indian Institute of Technology, Kharagpur (India) in 1980 and the Ph.D. degree from University of Washington, Seattle, in June 1987. At Washington, he held a GTE Teaching Fellowship and a General Electric Foundation Fellowship. In July 1987, he joined the University of California, Davis, where he has been Professor of Computer Science since July 1995 (and currently holds the Child Family Endowed Chair Professorship), and served as Chairman of the Department of Computer Science during September 1997 to June 2000. He is winner of the 2004 Distinguished Graduate Mentoring Award at UC Davis. Two PhD Dissertations (by Dr. Laxman Sahasrabuddhe and Dr. Keyao Zhu), which were supervised by Professor Mukherjee, were winners of the 2000 and 2004 UC Davis

College of Engineering Distinguished Dissertation Awards. To date, he has graduated 30 PhD students. Currently, he supervises the research of nearly 25 scholars, mainly PhD students and visiting research scientists in his laboratory.

Mukherjee is co-winner of Best Paper Awards presented at the 1991 and the 1994 National Computer Security Conferences, and at the Optical Networks Symposium of the IEEE Globecom 2007 conference. He serves or has served on the editorial boards of the IEEE/ACM Transactions on Networking, IEEE Network, ACM/Baltzer Wireless Information Networks (WINET), Journal of High-Speed Networks, Photonic Network Communications, Optical Network Magazine, and Optical Switching and Networking. He served as Editor-at-Large for optical networking and communications for the IEEE Communications Society; as the Technical Program Chair of the IEEE INFOCOM '96 conference; and as Chairman of the IEEE Communication Society's Optical Networking Technical Committee (ONTC) during 2003-05.

Mukherjee is author of the textbook "Optical WDM Networks" published by Springer in January 2006. Earlier, he authored the textbook "Optical Communication Networks" published by McGraw-Hill in 1997, a book which received the Association of American Publishers, Inc.'s 1997 Honorable Mention in Computer Science. He was a Member of the Board of Directors of IPLocks, Inc., a Silicon Valley startup company during 2005-07. He has consulted for and served on the Technical Advisory Board (TAB) of a number of startup companies in optical networking. His current TAB appointments include: Teknovus, Intelligent Fiber Optic Systems, and LookAhead Decisions Inc. (LDI). He is a Fellow of the IEEE.

Mukherjee's research interests include lightwave networks, network security, and wireless networks. His e-mail address is: mukherje@cs.ucdavis.edu.

Dr. Taieb (Ty) Znati
Division Director, Computer and Network Systems (CISE/CNS), NSF
Professor, University of Pittsburgh, USA

Title: Trends, Grand Challenges, and Opportunities in Networking Technology and Systems

Abstract:

Computer systems have evolved to encompass a wide range of hardware and software technologies, supporting increasingly complex and dynamic applications. Furthermore, unprecedented advances in Internet technology are revolutionizing the use and scale of distributed systems, ushering in a variety of global-scale, data intensive applications. The talk will discuss future research trends, grand challenges, opportunities, and initiatives in computing and networking with a focus on future networking technology and systems and will explore the potential of data intensive applications areas.

Bio:
Dr. Taieb Znati received a Ph.D. degree in Computer Science from Michigan State University in 1988, and a M.S. degree in Computer Science from Purdue University, in 1984. Dr. Znati is a Professor in the Department of Computer Science, with a joint appointment in Telecommunications in the Department of Information Science, University of Pittsburgh. He currently serves as the Director of the Computer and Network Systems (CNS) Division at the National Science Foundation (NSF). From 2000 to 2004, he served as a Senior Program Director for networking research at NSF. He also served as the Committee Chairperson of the Information Technology Research (ITR) Program, an NSF-wide research initiative in information technology.

Dr. Znati's current research interests are on network science and engineering, with the focus on the design of scalable, robust and reliable network architectures and protocols for wired and wireless communication networks. He is a recipient of several research grants from government agencies and from industry. He is frequently invited to present keynotes in networking and distributed conferences both in the United States and abroad.

Dr. Znati is very active in the research community. He served as the general chair of IEEE INFOCOM 2005, the general chair of SECON 2004, the first IEEE conference on Sensor and Ad Hoc Communications and Networks, the general chair of the Annual Simulation Symposium, and the general chair of the Communication Networks and Distributed Systems Modeling and Simulation Conference. He is a member of the Editorial Board of the International Journal of Parallel and Distributed Systems and Networks, the Pervasive and Mobile Computing Journal, the Journal on Wireless Communications and Mobile Computing, Journal of Wireless Networks, and the Journal of Mobile Communication, Computation and information and the Journal on Ad-Hoc Networks. He was also a member of the editorial board of IEEE Transactions on Parallel and Distributed Systems.