

Computer Science Department, Northwestern University
Presents

"Towards Tetherless Computing"

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Ensim Corp. (after Cornell Univ.)

--- 12:30 pm --- Monday, January 27, 2003
CS Main Classroom (rm. 381), 1890 Maple Avenue

Abstract:

The last few years have given rise to four significant trends:

- the reduction in computing costs and form factors, as evidenced by PDAs
- the proliferation of wireless networking technologies such as 802.11 and GSM
- the rapid creation of resource-rich Internet Data Centers
- increases in battery life using fuel cell technology

The convergence of these trends will lead to a world where ubiquitous, always-on, wireless nodes can remain in constant communication with rich computational resources over wireless networks. This will allow devices and systems that have been stand-alone in the past to access a wealth of information, albeit over a network whose characteristics, such as inherently mobile end systems, and inherently insecure channels, differ dramatically from those of current wireline networks. The implications of this change are profound. Imagine: intelligent shipping containers that update a central database as they move, smart cameras that instantly beam pictures to websites, sophisticated drug delivery systems that are in a patient, yet can be monitored by a team of remote health care providers, and devices that can give people instant access to every word they have ever spoken, or every sight they have ever seen. These are all possible when low-cost computing, wireless communication, and resource-rich data centers come together. In this talk, I will present this overall vision followed by a description of three research projects motivated by it: a hierarchical cryptosystem for inter-federation roaming, server virtualization for controlled resource sharing, and techniques for mapping the topology of Internet Data Centers. (Joint work with M. Kopikare and C. Nagarkar at Stanford, R. Govindan at USC, A. Jain and G. Kwatra at IIT, Delhi, P. Goyal, P. Menage, R. Sharma, X.W. Huang, B. Deianov, and S. Gylfason at Ensim)

Srinivasan Keshav is the Chief Technology Officer and co-founder of Ensim Corporation, a leading provider of software for mass application hosting. He was an Associate Professor of Computer Science at Cornell University from 1996 to 1999. He is the author of a popular graduate-level textbook, "An Engineering Approach to Computer Networking," (Addison-Wesley, 1997). Prior to joining the faculty at Cornell, Keshav worked at AT&T Bell Laboratories, where he did pioneering work in ATM network design and traffic management. Keshav received his Ph.D. from the University of California, Berkeley in 1991 and his Bachelor's in Computer Science from the Indian Institute of Technology, Delhi in 1986.