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Half day Tutorial T2: Wireless Networking using IEEE 802.11 Standard : Technology, Applications and Research Challenges

Dr. Rajeev Shorey
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The promise of untethered computing in workplaces, homes and public areas is becoming a reality. IEEE 802.11b/g/a, the wireless LAN standards, have arrived in full force, and market response has been very positive. This tutorial will explain the key design aspects of IEEE 802.11 (a,b,g) standards and illustrate how technology innovation and market forces are shaping their evolution. We will begin with some basic concepts (RF, signal processing, and wireless networking) and technology trends. We will then give an overview of 802.11 specification, followed by their application scenarios and current commercial focuses. The theoretical and real-world performance will be discussed along with co-existence issues with the different IEEE 802.11 technologies, followed by their impact on higher layer networking functions and applications. We will then briefly address issues related to large-scale deployment and management of WLAN systems. The tutorial will cover the emerging IEEE 802.11e standard for providing QoS over WLANs and the IEEE 802.11n high-speed WLAN standard that provides bandwidth of the order of 100 Mbps and more over large distances. The final part will be devoted to future directions and open research issues in Wireless LANs. Wherever possible, we will provide comparisons with other wireless systems such as Bluetooth and WiMax.

RAJEEV SHOREY - CURRICULUM VITAE

Rajeev Shorey is a Research Staff Member at the IBM India Research Laboratory, New Delhi, India since 1998. He received his Ph.D in Electrical Communication Engineering (ECE) from Indian Institute of Science, Bangalore, India. He has masters degrees in Electrical Communication Engineering and received his bachelor of engineering degree in Computer Science and Automation Department, both from the Indian Institute of Science, Bangalore, India. He is a senior member of IEEE. Rajeev is an adjunct faculty in the Computer Science and Engineering Department, Indian Institute of Technology, New Delhi, India. He was a faculty in the Computer Science Department at the National University of Singapore from July 2003 to July 2004. He has four issued US patents to his credit and several pending patents, all in the area of wireless and wired networks. He is in the Technical Program Committee of several reputed international conferences in the area of networking, namely, IEEE Infocom 2006, ACM Mobicom 2005 and IEEE SECON 2005. He has published extensively and has more than 50 papers in International journals and conferences to his credit. Rajeev has given talks and tutorials in several international conferences and workshops. He is the editor of the book titled "Mobile, Wireless and Sensor Networks: Technology, Applications and Future Directions" that will be published by John Wiley, US in 2005.