

PALESTRA

(Distinguished Lecturer Tour)

Terça-feira, 9 de Outubro de 2007, 10h00
Sala PA2, Pavilhão de Matemática, IST, Lisboa

Next-Generation Wireless Broadband

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Abstract

Broadband wireless access is viewed by many telephone and cable operators as a “disruptive” technology and rightly so. The broadcast nature of wireless transmission offers ubiquity and immediate access for both fixed and mobile users, clearly a vital element of quadruple play services involving voice, video, data, and mobility. The first part of this lecture will provide a comparative assessment of the key standards and technologies underpinning promising broadband wireless access solutions, including 802.16 (Wi-Max), 3G/4G/LTE, mobile digital TV broadcast and 802.22 (wireless regional area network), and addressing wireless bandwidth management, wireless multimedia services, cognitive radio technologies, and fixed-mobile convergence. Wireless LAN applications have blossomed tremendously over the last few years. Wi-Fi data rates have also continued to increase from 2 to 54 Mbit/s with the current 802.11n draft topping 600 Mbit/s. An increasing number of municipal governments around the world and virtually every major city in the U.S. are financing the deployment of Wi-Fi mesh networks with the overall aim of providing ubiquitous Internet access and enhanced public services. In addition, cheap phone calls using Wi-Fi voice over IP may become one of the biggest benefits of a citywide municipal network. This has led some technologists to predict that eventually we are more likely to see meshed Wi-Fi cells that are linked together into one network rather than the widespread use of high-powered WAN handsets cramming many bits into expensive and narrow slices of radio spectrum. The second part of the talk focuses on emerging Wi-Fi technologies. Specifically, it will cover mesh networks, Wi-Fi/cellular interworking, multiple antenna transmission, security, QoS, new applications, and emerging 802.11 standards and research

Bio

Dr. Benny Bing is a research faculty member with the School of ECE at the Georgia Institute of Technology. He has published 50 technical papers and 10 books. In early 2000, his book on wireless LANs was adopted by Cisco Systems to launch Cisco’s first wireless product, the Aironet Wi-Fi product. He was subsequently invited by Qualcomm and the Office of Information Technology to conduct customized Wi-Fi courses. Dr. Bing is an editor for the IEEE Wireless Communications Magazine. He has guest edited for the IEEE Communications Magazine (2 issues) and the IEEE Journal on Selected Areas on Communications. In October 2003, he was invited by the National Science Foundation to participate in a workshop on Residential Broadband. Dr. Bing is a Senior Member of IEEE and an IEEE Communications Society Distinguished Lecturer. He is a recipient of the Lockheed-Martin Fellowship for his Ph.D. studies at the University of Maryland (College Park).