Wireless Multimedia: Panacea or Reality

Kalyan Basu
University of Texas at Arlington

The success of mobile voice service created the opportunity of the Wireless data services in the world. The wireless data services initially were started with the SMS and circuit switched data services of GSM and IS-95CDMA along with the CDPD services offered by TDMA system. The limited bandwidth capacity of those technologies prevented the growth of wireless data service. The Deployment of GPRS and CDMA packet data services have just started to enhance the link speed. The standard bodies defined 3G sets of standards where wireless data services will be able to support link speed up to 2 mbps. Side by side, the enterprise environment defined wireless data services standards like IEEE 802.11 and WiFi. The success of these technologies within enterprise domain justifies their role in the Wireless Multimedia data services. The terminal and mobility paradigm of the enterprise services are different from the wireless network. At this juncture, when the telecommunication industry is reevaluating its position on the services and applications of the information industry, the appropriate question for us to ask is: “What is wireless multimedia?” Over the last 10 years, considerable amount of research on Wireless Multimedia QoS, the wireless access technologies to get more effective bits/Hz capacity, and use of spectrum greater than 2 GHz for the network have not resulted in an integrated technology solution for Wireless Multimedia. The new reality of the telecommunication industry forces us to reassess the value of all the technologies and architectures in the scale of business value, capital requirement, and productivity impact. Unless these technologies provide satisfactory answers to these questions, the deployment possibility of those technologies for Wireless Multimedia may be very limited.

This talk will try to identify the challenges that face the wireless multimedia services deployment. Attempt will be made to provide a pragmatic view to addressing these challenges without ignoring the industry reality. The important issues in the talk include (1) evolution vs. revolution, (2) disconnect between wireless voice and data services, (3) wireless cost per bit and its impact on wireless multimedia, (4) wireless links and its capacity, (5) transportation time to transport large files through wireless link and its impact on user acceptability, (6) how complex is the management of QoS in the wireless multimedia and what is reality, (7) what is the mobility direction of wireless multimedia, (8) wireless multimedia terminal: plug and play or single integrated, (9) multimode terminal, (10) terminal power, (11) content delivery and its format, (12) wireless spectrum licensed vs. unlicensed. This talk will not provide an answer to these questions, but it will help to stimulate the debate for our future research and innovations.

Kalyan Basu is the Managing Director of CreWMaN Lab and a faculty member of Computer Science and Engineering Department of University of Texas at Arlington since January 2002. He has more than 30 years of telecommunication industry experience, of which the last 27 years is in telecommunication system research. Since 1980, he has worked at Nortel Telecommunications Research Division, first as manager of performance group at Bell Northern Research, Ottawa, Canada, and then as senior manager at BNR, RTP, North Carolina. In 1989, He moved to BNR, Richardson, Texas, to set up the wireless system engineering group and became the Director of Wireless system Engineering. He left Nortel in early 2001 to become the Vice President System Engineering for Yotta Networks, Plano, Texas, and to lead the architecture team to design the Petabit Photonic Switch. He has received 12 US/International patents; four applications are pending. He has published more than 50 papers at various international conferences during last 27 years. He has been involved in various IEEE/ACM sponsored International conferences as organizer, technical committee member, and session chair. He obtained his B.E.E. degree from Calcutta University, India, and Master of Computer Engineering degree from Indian Institute of Technology, Delhi.