

Roaming, Hand-Off and Services Continuity for Voice Services in Converged Wireless Networks

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Abstract:

The success of Wi-Fi and emergence of Wi-MAX creates exciting technology and business challenges for the communication industry. Roaming, seamless voice and data hand-offs, in conjunction with continuity of voice services such as Messaging, Push-to-talk, and Voicemail, are posing the next technology and business challenges. Services convergence among Wi-Fi, Wi-MAX, and Cellular networks is creating opportunities for both wireless, and wireline service providers. Similar opportunity exists for enterprises for the first time. Services convergence can give enterprises the freedom similar to "PBX"es for wireless access on and off campuses.

As the business cases for enterprises and wireline service providers are pitted against each other on the commercial front, the technologies will evolve out of market leverage, presence and acceptance. This poses a challenge for technologists to create a technology that is easily deployable in target scenarios. The requirements exist for a solution that, independently of the end user and service providing entity, can fulfill the "service quality" expectations of users and providers.

In this talk, we discuss the requirements of voice service convergence solutions, protocols, standardization effort, and challenges for solution development. We also allude to the opportunities for research and development of newer technologies. These innovations will breach the current gaps in convergence of services beyond packet to circuit call control mechanisms and extend them across different access technologies, such as Wi-Fi, Wi-MAX, GSM, CDMA, and others.

Bio:

Dr. Giridhar D. Mandyam is the Director of the Radio Systems Group in the Radio Communications Laboratory of Nokia Research Center (NRC), and also the head of NRC's San Diego, California division. He received the BSEE degree (Magna Cum Laude) from Southern Methodist University in 1989, the MSEE degree from the University of Southern California in 1993, and the PhD EE degree from the University of New Mexico in 1996. At SMU he was a University Scholar and Hyer Society Scholar. While at USC he was a Teaching Assistant in the Signal and Image Processing Institute, and at UNM he studied under a NASA Fellowship. From 1989 to 1994 Dr. Mandyam held positions with Rockwell International and Qualcomm Inc. In April 1996, he joined the Wireless Business Unit at Texas Instruments, Dallas, TX, to work primarily on CDMA chipsets. In September 1998, he joined Nokia Research Center (NRC) in Dallas as a Senior Research Engineer. He became a Principal Scientist in June 2000 and Research Manager of the Wireless Data Access group in NRC-Dallas in June 2001. He became Director of the Radio Systems group in NRC in July 2002, and then went on to become the first head of NRC's division in San Diego when it opened in August 2004. While at NRC, he has conducted research into standardization and implementation of 3G technologies such as cdma2000, WCDMA and Wi-MAX.

Dr. Mandyam is inventor or co-inventor of twelve issued US patents. He has also published over 50 conference and journal papers, and 4 book chapters. In addition, he was a guest editor for a special issue of the *Eurasip Journal on Applied Signal Processing* entitled "3G Wireless Communications and Beyond" (August 2002). He is a co-author of the text *Third-Generation CDMA Systems for Enhanced Data Services* (Academic Press, 2002). Dr. Mandyam is a Senior Member of the IEEE.