Workshop 2. Technologies for 4G Wireless Systems - WiMAX & LTE (10-04-2014 AN)

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Abstract:

Fourth generation wireless systems have the potential to change the way we communicate and collaborate to accomplish business needs. The need of the hour is to provide a unified system that provides a seamless user experience on the move. Systems beyond IMT-2000 claim to have the capability to support services/applications that demand very stringent performance requirements. Standardization bodies are trying to achieve this by adopting cutting edge technologies and strategies that have evolved over the last few decades. WiMAX (802.16m) and LTE-Advanced (UMTS Release-10) are the mostly likely candidates to meet ITU defined IMT-Advanced performance goals. Both WiMAX and LTE have lot of technical similarities primarily on the radio access network side. Both have adopted an OFDMA based physical layer. Channel based scheduling algorithms; link adaptation techniques and hybrid ARQ are the common trait in these systems. Adaptive modulation and coding scheme (AMC) is another popular feature in this system which aims to exploit the channel conditions and assignment, to improve channel capacity. The performance of these systems is further augmented by embracing multiple antenna techniques. Flat network architecture and All-IP network are the buzzwords across standards to achieve throughput expansion and to reduce the capital and operational expenditure. The cutting edge technologies/strategies listed above are critical to achieve the performance target set through IMT-Advanced. This workshop presentation would provide a detailed view of the important technologies behind 4G systems and how it is proposed to be implemented in IEEE-802.16m and LTE-Advanced.

Profile:

Dr. M. S. Sricharan is currently working as wireless consultant with Wipro Technologies, India. He is a member of Advanced Technology Labs, Talent Transformation, the training unit of Wipro Technologies, involved in training senior architects and technical managers in wireless domain. He joined Wipro Technologies in November 2006 as a consultant in Aerospace, Defense and Satellite group. He was actively involved in developing proof of concept solutions to showcase Wipro’s capabilities in location based services space. Before Joining Wipro he was working as a Teaching Research Associate (TRA) in the department of Information Technology, Madras Institute of Technology, Anna University, Chennai and completed PhD (Wireless Networks) from there. He has published several papers in international journals and IEEE conferences. His areas of interest include broadband wireless networks, mobility management, location based services, MANET routing protocols and wireless simulators.