浙江大学信息与通信工程
系列学术报告
ACADEMIC LECTURES

Topic： Green Multi-Homing Video Transmission in Wireless Heterogeneous Networks

Time： 2015年8月13日（周四）上午10:00-11:30

Venue： 信电大楼 215 学术厅

Speaker： Weihua Zhuang, Professor, FIEEE, FCAE, FEIC, Tier I Canada Research Chair University of Waterloo, Canada

Abstract ： The wireless communication medium has become a heterogeneous environment with various wireless access options and overlapped coverage from different networks. Mobile terminals (MTs), equipped with multi-homing capabilities, can explore network cooperation to simultaneously aggregate the offered resources from different networks to support the same application and thus increase the data rate. On the other hand, as the gap between the MT energy demand and battery capacity continues to increase, the MT operational time in between battery charging has become a significant factor in service quality. In this presentation, we introduce an energy management system for MTs to support a sustainable multi-homing video transmission, over the call duration, in a heterogeneous wireless access medium. Through statistical video quality guarantee, the MT can determine a target video quality lower bound for a target call duration. The target video quality lower bound captures the MT available energy at the beginning of the call, the time varying bandwidth availability and channel conditions at different radio interfaces, the target call duration, and the video packet characteristics in terms of distortion impact, delay deadlines, and video packet encoding statistics. The MT then adapts its energy consumption to support at least the target video quality lower bound during the call. Simulation results demonstrate the superior performance of the proposed framework over two benchmarks, and some performance trade-offs.

Biography： Weihua Zhuang (M'93-SM'01-F'08) has been with the Department of Electrical and Computer Engineering, University of Waterloo, Canada, since 1993, where she is a Professor and a Tier I Canada Research Chair in Wireless Communication Networks. Her current research focuses on resource allocation and QoS provisioning in wireless networks, and on smart grid. She is a co-recipient of several best paper awards from IEEE conferences. Dr. Zhuang was the Editor-in-Chief of IEEE Transactions on Vehicular Technology (2007-2013), and the Technical Program Symposia Chair of the IEEE Globecom 2011. She is a Fellow of the IEEE, a Fellow of the Canadian Academy of Engineering, a Fellow of the Engineering Institute of Canada, and an elected member in the Board of Governors and VP Mobile Radio of the IEEE Vehicular Technology Society. She was an IEEE Communications Society Distinguished Lecturer (2008-2011).

浙江大学信息与电子工程学院
College of Information Science & Electronic Engineering, Zhejiang University