BCWS Seminar Series

Efficient Broadcasting in Multihop Wireless Networks

by

Professor Thomas Kunz
Department of Systems and Computer Engineering
Carleton University

Time: Tuesday, April 3, 1:30 - 2:30 pm
Place: Room ME 4356, Mackenzie Building, Carleton University

Abstract: Broadcasting (communicating information from one to all or many to all nodes in a network) is an important communication primitive. It is used as a building block in many MANET routing protocols, for example. In addition, broadcasting is a key primitive in multihop tactical networks to support applications of all-informed voice, group push-to-talk, situational information sharing etc. Supporting one-to-all and many-to-all communication patterns in multihop wireless networks efficiently is therefore important. The key metric we are interested in our work is the number of packet transmissions at the MAC layer: if a protocol can deliver data packets to all nodes with fewer packet transmissions at the MAC/PHY layer, this will lower energy and network resource consumption and mitigate the traffic congestion problem in the network. In this talk I will give discuss our work in this area over the past few years, where we have studied both lower bounds and the efficiency of broadcasting protocols. The work has explored both routing/packet forwarding solutions as well as approaches based on network coding.

Biography: Thomas Kunz is currently a professor in the Department of Systems and Computer Engineering, Carleton University, Ottawa, Ontario. He heads the Mobile Computing Group, researching wireless network architectures (manets. wireless mesh networks, and wireless sensor networks), network protocols (routing, mobile IP, and OoS support), and middleware layers for innovative wireless applications. He has served on more than 50 TPCs of international conferences and workshops in the mobile and wireless domain. He is the author or coauthor of more than 160 technical papers and received a number of awards and best paper prizes. He is a senior member of both ACM and IEEE.