Abstract

In a multi-rate wireless network, a node can dynamically adjust its link transmission rate by switching between different modulation schemes. For the current IEEE802.11a/b/g standards, this rate adjustment is limited to unicast traffic only. We consider a novel type of multi-rate mesh networks where a node can dynamically adjust its link layer multicast rates to its neighbours. In particular, we consider the problem of realising low latency network-wide broadcast in this type of multi-rate wireless meshes. We will first show that the multi-rate broadcast problem is significantly different from the single-rate case. We will then present two algorithms for achieving low latency broadcast in a multi-rate mesh which exploits both wireless broadcast advantage and the multi-rate nature of the network. The proposed algorithms allow us to study how the design of multi-rate meshes can affect the broadcast latency. In particular, we show the significance of the product of transmission rate and transmission coverage area in designing multi-rate wireless mesh networks. This is joint work with Archan Misra (IBM Watson). This project is supported by the Australian Research Council.

Biography

Dr. Chun Tung Chou is a Senior Lecturer at the School of Computer Science and Engineering, University of New South Wales, Sydney, Australia. He received his BA in Engineering Science from University of Oxford, U.K. and his PhD in Control Engineering from University of Cambridge, U.K. He has published over 80 journal and conference articles in Computer Networking and Control Engineering. His current research interests are Wireless Mesh Networks, Sensor Networks, Multimedia Networking and Network Optimisation. URL: http://www.cse.unsw.edu.au/~ctchou/

** ALL ARE WELCOME **

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