



Hamilton Institute

Joint Scheduling, Routing and Congestion Control in Multi-Hop Wireless Networks

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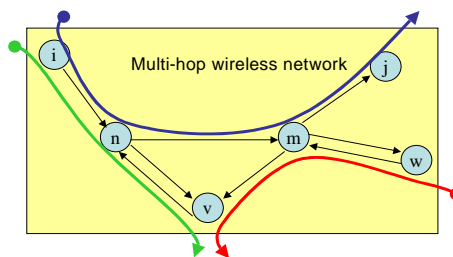
Friday, October 7th, 2005



Abstract

In this talk, we will consider resource allocation problems in multi-hop wireless networks shared by many users. In the first part of the talk, we will consider a very general model of a wireless network and propose a joint scheduling, routing and congestion control mechanism that asymptotically guarantees stability of the buffers and fair allocation of the network resources. The queue lengths serve as common information to different layers of the network protocol stack.

In the second part of the talk, we will restrict our attention to a simple interference model that only constrains a node to either transmit or receive, but not both, at any given time. For this model, we propose an architecture for fair resource allocation that consists of a distributed scheduling algorithm operating in conjunction with an asynchronous congestion control algorithm. We show that the proposed joint congestion control and scheduling algorithm supports at least one-third of the throughput supportable by any other algorithm, including centralized algorithms.



Venue: Seminar Room, Hamilton Institute, Rye Hall,
NUI Maynooth

Time: 1.00 - 2.00pm (followed by tea/coffee)

Travel directions are available at www.hamilton.ie