Concordia University
ENCS
Engineering & Computer Science

Master Thesis Defense

Speaker: Mohammad Nurujjaman

Supervisors: Dr. Jaumard and Dr.Hébuterne

Examining Committee: Drs. Fevens, Narayanan and Dr. Shiri (Chair)

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ABSTRACT

Optical Burst Switching (OBS) was proposed ten years ago as an alternative switching paradigm in order to overcome some of the drawbacks of Optical Circuit Switching (OCS). While OBS is no more necessarily perceived as a competitor to OCS, but more of a more adapted switching for networks with bursty and highly dynamic traffic, there are still debates around OBS, i.e., how far an OBS network can go in terms of throughput with no or limited burst losses. This thesis attempts to answer this question by investigated how to devise an upper bound on the throughput of an OBS network, assuming no recourse to electrical buffering is made at any node. We look at both the burst scheduling and routing issues, with a larger focus on routing in three directions: (i) exploration of weighted k-shortest paths, (ii) revisiting load balancing, (iii) examining tree decomposition. Simulations have been conducted to compare and evaluate each of the new ideas with adapted (with respect to throughput upper bounding) previously proposed routing algorithms on different network and traffic instances.