

IST-053
Control Strategies for End-To-End Timing Guarantees Under Heavy Traffic Conditions

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Abstract

This project will result in the development of new network flow control policies to provide quantifiable end-to-end real-time performance for stochastic flows. We will extend our existing theory to model these control policies and evaluate them using both analytical and experimental techniques. Tradeoffs among end-to-end deadlines, lateness allowances and network performance requirements will be developed, and an analytical basis for traffic engineering will be created.

We anticipate at least two areas of potential technology transfer. First, the Real-Time Queuing Theory methods can be used to analyze networks of existing Marconi products. These analysis methods can be used to predict performance, apply admission control to meet performance objectives and reconfigure the network to maximize performance potential. Second, the new queuing and control policies can be incorporated in future network switches and routers. These devices will allow Marconi to offer customers networks with predictable real-time performance.