DTMW: A New Congestion Control Scheme for Long-Range Dependent Traffic

C. Huang, I. Lambadaris, M. Devetsikiotis, P. W. Glynn, and A.R. Kaye

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Recent measurements based on long empirical traces have revealed that many important types of traffic (e.g., LAN, WAN and VBR video) possesses long range dependent (LRD) characteristics. Studies have shown that traffic streams with LRD will suffer higher cell loss rates than traditional models predict. Therefore network performance can be significantly degraded.

To reduce the cell loss rate, schemes based on predicted service have been proposed in the literature. Predicted service uses traffic monitoring to predict future bandwidth requirements and dynamically allocate bandwidth whenever it is necessary. In this paper, we propose a new traffic predictor called the *Double Threshold Moving Window Detector* (DTMW). Our analytical and simulation results show that DTMW can detect and predict bandwidth requirements for LRD traffic in a robust manner. DTMW is not sensitive to the marginal distribution and short term characteristics of individual traffic streams.