FACTOR ANALYSIS OF NETWORK FLOW THROUGHPUT MEASUREMENTS FOR INFERRING CONGESTION SHARING (WedPmPO1)

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Abstract :

Internet traffic primarily consists of packets from Transmission Control Protocol (TCP) flows. Based on passive, flow level TCP network measurements, our previous work has focused on using the principal component method to perform factor analysis on flow class throughput correlation matrices in order to infer which classes of TCP flows are sharing bottlenecks in the network. In this paper, we present a first−order autoregressive model for congestion at a bottleneck to analyze the need for filtering out a subset of the collected flow measurements before analysis. We demonstrate the successful application of our statistical methods in inferring congestion sharing after filtering out small− and large−sized flow samples.

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