

# **TRAFFIC METRICS FOR ADAPTIVE ROUTING**

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## **ABSTRACT**

A measurement based analysis and modeling of HTTP traffic statistics is presented. The objectives are to characterize and model the non-stationarity in the mean value of the packet arrival process and to apply the model in adaptive routing algorithms. To this end, recursive estimation algorithms are implemented and used for characterizing the mean. Discrete time markov chains and first order autoregressive process are shown to adequately capture the mean variation. The AR model is implemented in a state-space formation for estimating the mean arrival rate and buffer occupancy at a network node. Kalman estimators are used to predict the Kalman optimal value of the state vector. The application of this technique in adaptive routing is demonstrated.