PERFORMANCE OF MULTI HOP WIRE LESS NETWORKS IN OPTIMIZED SCHEDULING POLICIES WITH DELAY ANALYSIS

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Abstract

We investigated the delay performance of a multi-hop wireless network in which the routes between source-destination pairs are fixed. We designed a new queue grouping technique to handle the complex correlations of the service process resulting from the multi-hop nature of the flows and their mutual sharing of the wireless medium. A general set based interference model is assumed that imposes constraints on links that can be served simultaneously at any given time. For a special wireless system, namely the clique and tandem queue, we design a policy that is sample path delay optimal. It provides useful insights into the design and analysis of optimal or nearly optimal scheduling policies.