

Approximate Markovian model for delay behavior of internet router under self – similar traffic input

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Abstarct

It has been reported that Internet Protocol (IP) packet traffic exhibits self-similarity or long range dependence (LRD) and causes degradation of router performance. Therefore, it is crucial for an appropriate buffer design of router. In this paper, we propose an approximate Markovian model for delay behavior of router under self-similar traffic input. Original 16 –MMPP which emulates the self-similar input traffic is approximated by 2 – MAP. Input traffic is assumed to be of asynchronous variable length. Numerical examples show that our method gives accurate results. This result can be applied in evaluating real time asynchronous router.

Keywords: *Self-similar traffic, Markovian arrival process, Markovian modulated Poisson process, waiting time distribution, mean waiting time.*