Abstract

Communication networks create lot of interest due to their ready applicability in performance evaluation of several communication systems. In communication systems it is customary to consider that the arrivals are characterized by Poisson process. This assumption holds good if the arrivals are homogeneous and independent of time. But in many tele and satellite
Three Node Tandem Communication Network Model with Dynamic Bandwidth Allocation and Non Homogeneous Poisson Arrivals

In this paper, we develop and analyze a three node communication network model with the assumption that the arrivals are characterized by non homogeneous Poisson process. It is further assumed that transmission time required by each packet at each node is dependent on the content of the buffer connected to it. The transient behavior of the network model is analyzed by deriving the system performance measures like mean number of packets in each buffer, mean delay in transmission, the throughput of the nodes, utilization of transmitters, etc. The sensitivity analysis of the model reveals that the non homogeneous Poisson arrivals and dynamic bandwidth allocation strategy can reduce burstness in buffer and improve quality of service. A comparative study of communication network with non homogeneous Poisson arrivals and Poisson arrivals is also given.

Reference

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Index Terms

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Key words

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