Abstract

This paper introduces a three node Tandem communication network model in which the arrival process follows a Duane process such that the inter arrival times follow Weibull distribution. In this model it is assumed that intermediary departures after transmission from first and second nodes are allowed it is further assumed that the inter transmission times in each node follow Poisson process and the transmission strategy is Dynamic bandwidth allocation. The network behavior is analyzed by deriving expressions for average number of packets in each Queue. The mean delays in transmission, the throughput of the nodes, the Utilization of the transmitters and the variability of the content of buffers. Through Sensitivity analysis it is observed that the arrival process has significant influence on network performance measures. The strategy of allowing inter mediatory departures reduce conjunction in buffers and mean delay of transmission of packets. This model also includes some of the earlier models as particular cases for specific limiting for specific values of the parameter. This model is useful for design and monitoring self-Similarity networks.
References


**Index Terms**

Computer Science  
Communications

**Keywords**

Duane Arrival process, Communication network model, Sensitivity analysis, DBA