Abstract

Transmission Control Protocol (TCP) is a reliable, end-to-end transport protocol, which is most widely used for data services and is very efficient for wired networks. However, experiments and research showed that TCP's congestion control algorithm performs very poorly over Wireless Ad Hoc Networks with degraded throughputs and severe unfairness among flows. In this paper, a deep study has been conducted in order to study the factors that cause congestion in an ad hoc wireless network. Main focus in this report has been to simulate and study the effect of change in topology and number of users on network congestion. Apart from that, the effects of network congestion and the importance of its study have also been highlighted. Congestion is a critical factor, in determining the quality of network. It also determines the dependability and sustainability of a network. Deploying new network infrastructure to tackle congestion problem is not economically viable solution, hence it is important to understand the reasons behind such network operation conditions and then design suitable methods to overcome them. In this paper, various network behaviors have been simulated using OPNET Modeler 14. 5 to study how node's buffer space gives impact to the in-flight packets in ad hoc environment by also taking mobility and power consumption into consideration. With a controlled size of users the network condition has been simulated. Performance has been measure on several parameters such as throughput, number of packets
dropped, and retransmission count and end number of users changed.

References

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A Systematic Approach for Congestion Control in Wireless Ad hoc Network using Opnet


**Index Terms**

Computer Science

Wireless

**Keywords**

Ad hoc network  Power Consumption  Buffer size  Opnet