Review of Performance Trade of QoS in IEEE 802.11b using Various Security Parameters

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Abstract

IEEE802.11 have been fully understood in the networking era. Opnet with IEEE802.11 give assistance is an easily understood able simulation tool for communication researchers. However it's academic Edition have limited abilities. In this paper author have studied performance of IEEE802.11b (WLAN) using various security parameters. Author found that the throughput was decreases with respect increase in number of nodes and packet drop also increases with increase in number of nodes.
Keywords- WLAN, OPNET, Fixed Nodes, AODV, IEEE 802.11b

I. INTRODUCTION

Wireless consist of rapid growing present era tells the flexibility of wireless access into public or domestic area .WLAN to ensure their commercial success into global operation, low power or license free operation. In the WLAN it is easy to robust transmission, simplified spontaneous corporation, easy to use and transparency for connections. The most commonly simulation tool is OPNET Riverbed modeler. This simulation tool is considered as a first class simulation tool .Which is very easy to make communications project work. OPNET modeler is not costly for students which are individually researchers. This is the reason to prefer OPNET modeler as a simulation tool. Author tells the ability and flexibility of OPNET simulate WLAN performance Trade of Qos in IEEE 802.11b using various security parameters. The occurrence of a high density of nodes within a single collision domain of an IEEE 802.11 wireless network can result in congestion, thereby causing a significant performance bottleneck. Effects of congestion include drastic drops in network throughput, unacceptable packet delays, and session disruptions. The wireless network consisted of 38 IEEE 802.11b access point deployed on three adjacent floors of the venue. An analysis of data shows that the large number of participants and access points resulted in heavy utilization of the wireless network with multiple periods of congestion.[1]. Ad-hoc networks are collection of wireless mobile hosts which are able to cooperatively establish communications. In particular each host can act as a router and can forward packets to the next hop in order to reach the final destination.[2]. The 802.11b standard has a maximum raw data rate of 11 Mbit/s, and uses the same media access method defined in the original standard. 802.11b products appeared on the market in early 2000, since 802.11b is a direct extension of the modulation technique defined in the original standard. The dramatic increase in throughput of 802.11b (compared to the original standard) along with simultaneous substantial price reductions led to the rapid acceptance of 802.11b as the definitive wireless LAN technology. Devices using 802.11b experience interference from other products operating in the 2.4 GHz band. Devices operating in the 2.4 GHz range include microwave ovens, Bluetooth devices, baby monitors, cordless telephones, and some amateur radio equipment. [3]. 802.11b is a Wi-Fi standard developed by the IEEE for transmitting data over a wireless network. It operates on a 2.4 GHz band and allows for wireless data transfers up to 11 Mbps. A faster standard, called 802.11g, was introduced a few years after 802.11b and supports data transfer rates up to 54 Mbps.

II. RELATED WORK

The main objective of this simulation study was to evaluate the performance analysis of QoS parameters in IEEE 802.11b in this simulation three scenario are set up in which fixed nodes are used. We make three scenarios with 5, 10, 20 and 50 fixed nodes. We also have a router for routing protocols and for the security purpose. Techniques have been proposed that optimize IEEE 802.11 protocol performance frame sizes in high bit ratr environments or varying the protocol contention window. Heusse et al. analyze problems with multirate adaptation in the IEEE 802.11b protocol. [4]. They suggest that because frames transmitted at low data rates occupy more time in the channel compared to frames transmitted at high data rates, hosts utilizing the high data rates suffer a penalty. In this paper throughput and packet drops and delay are compared graphically by reducing the bit rate to 512 bits from 1024 bits. Throughput is a measure of how many units of information a system can process in a given amount of time. It is applied broadly to systems ranging from various aspects of computer and network systems to organizations. In data transmission, network throughput is the amount of data moved successfully from one place to another in a given time period and typically measured in bits per second(bps), as in megabits per second(mbps), or gigabits per second(gbps).[5] Packet drop or packet loss is the failure of

packets which have data to reach their destination. Due to some delay or other problems in the network some time packets will drop in their path and loss all the data and does not reach their destination. Delay is a performance characteristics of a telecommunication network. The delay of data is represent how long it takes for a bit of data to travel across the network from one destination to the another destination. Delay is depend on the number of pairs of communication nodes.

III. CONCLUSION

In this research paper author present a set of simulation experiments on IEEE 802.11b with security parameters. OPNET IT which have very good and easy steps for execution of the scenarios. This OPNET software is very easy to understand for the researches. The execute experiment on WLAN 802.11bwith security parameters are out of the range of a WLAN. Experiments are based on the IEEE 801.11b standard which is commonly used. We plan to further extend this work by change in data rates and other security parameters for best and high or low rates. OPNET simulation tool is the best simulation tool to attract the students. Specifically, we have investigated the effect of congestion on network throughput and good put, packets drops due the busy of the becons and also delay in the channel due the interference and collision of the data. Alternate multirate adaption schemes that determine an optimal packet transmission rate. To maximize WLAN throughput, loss of algorithm has been developed, the most of these ideas focus on maximizing the throughput of WLAN, less is done on delay.

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