State of the Art in TCP Friendly Congestion Control Techniques

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Abstract--- This article provides a survey of TCP friendly congestion control techniques. It summarizes the state of the art in this field of research. We also propose a classification hierarchy that sets the basis for analyzing the work which has been performed in this context. A detailed review of the work accomplished in this area is also given, along with the coordinates of each work to the classification hierarchy. A brief evaluation is performed and some initial conclusions are made.

I. INTRODUCTION

IEEE has developed the project 802 for getting the media access and flow control. IEEE 802 has been designed for Wireless and Wire LAN with number of media accessing scheme Protocol has been designed for the maximum utilization of the available capacity of transmission media like CSMA/CD, CSMA/CA, ALOHA. Our Proposed communication policy has been designed for maintaining the network performance factor for any network. when we are working with MAC 802.11 it works well compare to other standards like 802.3 , 802.4,802.1 etc. with the possible considered communication system each LAN now are working with Video, Voice and Data packet where Video and Voice can be sanded with some different addressing while the Data Packet having some difference addressing[12]. Mode accordingly we have network Scheme that works as a intelligent decision maker that not only evaluating the performance but also directing the packet to right direction whenever required.

Project 802 organized by IEEE to set the communication standards that allows intercommunication in different systems developed by variety of manufacturers .Our proposed scheme has been implemented as a media access manager for all of system of any Network to make this achievement we need to design network that should co-ordinate with project 802 as a super intelligent machine with higher throughput and less delay time. In proposed model we are performing all the experimental operation on TCP connection so that all the associated organization who is like to work in confidential environment can also take the reliable communication at higher level. Where ever connection has been established by Transmission Control Protocol all the QoS Support services has been activated at the evolutionary model layer which can be achieved with the help of Ethernet 802.11 series instead of 802.3 or other remaining Ethernet because project 802 has been designed for MAC layer [13], all the 802 Ethernet protocols are working well at that position but when we go through the 802.11 protocol series what we find, simulator shows clearly that how much 802.11 Ethernet is best than other protocol for communication network system for data transmission with all the network specification factor has been covered with TCP oriented connection. As the technology growing all the government or private organizations who are working with in a confidential environment want to make very higher level of efficiency , Performance and Qos Services.

II. REVIEW OF LITERATURE

The telecommunication industry began with a wired connection and then the recent advancement in different technologies has made it possible to communicate using wireless technologies. Invention of computer, software, hardware, micro chips has changed the whole concept of communication. Today we see a blend of wired and wireless communication network using heterogeneous technologies. The heterogeneity in communication networks has not only opened the door of different formats of communication but also has induced lot of issues that need to be addressed in order to provide high quality communication. Congestion is one of the major issues among them. A modern communication network is built using a number of well connected devices or nodes, which have limited local capacity and resources. Currently, two different transport paradigms are used [1] circuit switched transport and [2] packet switched transport. Congestion, which is a sudden state of this communication network where one or more nodes reach their capacity limit and as a result they drop the incoming packet or buffer them for a later transmission, induces delay in the arrival of packets at the receiver. None of these effects of congestion are desirable for media transport hence counter measures should be taken to prevent the occurrence of congestion in communication network.

Congestion became an issue in the 1980's on TCP/IP networks as documented by Nagle [3]. Nagle proposed that no new data is sent until an acknowledgment is received for previous data and improved use of ICMP source quench. During the 1980's TCP/IP links on the Internet became increasingly congested and Van Jacobsen [8] in 1988 proposed that if 'conservation of packets' was observed then TCP flows would generally be stable. The 'conservation of packets' was implemented by a congestion window where further packets would not be sent once the congestion window was full until another was removed. This congestion window could be dynamically re-sized as the connection was established and as conditions changed. These changes are widely credited with preventing ongoing TCP collapse. Development work continues on TCP with congestion protocols such as Vegas [7], West-wood [9] and BIC [10] being produced. There are many stream of investigation into TCP congestion carrying on such as Paganini et. al. [11] who model congestion based on provable mathematical modeling. Floyd and Fall [12] in a paper in 1999 discuss the main danger to the stability of the Internet is now undelivered packets particularly UDP. To overcome this number of protocols such as XCP [13] and

SCTP [5] have been proposed which provided stream based reliable transport. Real time media applications do not necessarily need a reliable transport and congestion will often be worse on a reliable transport due to retransmission.

III. Conclusion

We have presented a a survey of various TCP friendly congestion control techniques. . The work presented in here, indicates the ever increasing interest of researchers in the area of congestion control methods. We have analyzed some modern methods of network congestion control. In our forthcoming paper, we will propose a more effective method for congestion controlling.

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