

A SPECIAL APPROACH TO REDUCE THE PACKET LOSS OVER THE CONGESTED NETWORK

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ABSTRACT

There are several approaches proposed for detecting and overcoming the congestion in the heavy traffic. Due to that most of the packets are lost, overall efficiency will be reduced and retransmission required for lost packets finally result is wastage of the bandwidth. In this paper we present modified congestion control method that is if sender identified or received congestion report from any intermediate routers through internet control protocols then immediately sender choose alternative path with reserved high bandwidth to transmit rest of the packets and also extra feature is sender continuously check the status of the congested router until to release the congested state by router. If it is clear sender choose previous path to transmit rest of the packets. Using this scenario no need to wait to transmit the packet even congestion arises.

Keywords: Congestion, ECHO Packets, Bandwidth Reservation, Internet Control Protocols.

I. INTRODUCTION

In network each node acts as a router, which helps in forwarding packets from a source to destination. The delay in the packet delivery or packet losses is due to route change should not be misread as congestion. In Internet when congestion occurs it is normally concentrated on a single router, the changes in the routing of the packet might lead to packet losses which is not caused due to congestion in the network should not be erroneously misinterpreted as TCP congestion. This can lead to wrong reactions of TCP congestion control. Monitoring packet losses is much harder, because of their varying transmission time and round trip time. When more data packet arrives at the router, the un-serviced packet gets dropped. These dropped packets would have consumed most of the network resources. The lost packets have to be retransmitted, which in turn leads to pumping of more packets into the network, resulting in degradation of network throughput and leading to congestion. To avoid congestion and network overload each sender has to adjust its data sending rate and increase the bandwidth.

A lot of research is being carried out in the area of congestion control, routing of packets, modification of routing algorithms, designing of new routing protocol, etc. Congestion in a network may occur if the load on the network- the number of packets sent to the network- is greater than the capacity of the network- the number of packets a network can handle. Congestion happens in any system that involves waiting. Congestion in a network or internetwork occurs because routers and switches have queues- buffers that hold the packets before and after processing. It degrades quality of service and also can lead to delays, lost data. Congestion can be brought on by several factors. If all of a sudden, streams of packets begin arriving on three or four input lines and all need the same output line, a queue will build up. If there is insufficient memory to hold all of them,

packet will be lost. This problem cannot be solved by increasing memory, because Nagle discovered that if routers have an infinite memory, congestion gets worse, not better. Slow processor can also cause congestion. If routers' CPUs are slow at performing the bookkeeping tasks required, queues can build up, even though there is excess line capacity. Similarly, low bandwidth lines can also cause congestion. Congestion control refers to the mechanism and techniques to control the congestion and keep the load below the capacity. It is a mechanism that can either prevent congestion, before it happens, or remove congestion, after it has happened. The objective of congestion control is to maintain the number of packets within the network below the level at which performance falls off dramatically. Due to the unpredictable fluctuations and burstiness of traffic flows within high speed network congestion can occur frequently. So we need efficient congestion control technique. There are many mechanisms developed for congestion control.

II. RELATED WORK

Through this congestion problem reducing quality of service and waste of bandwidth to retransmit the packets. Here using some new technique to improve the QoS, for that extra bandwidth required, to escape from the congestion little bit of extra bandwidth is require. if the router face a overload due to packet size and heavy traffic on transmission lines final result is congestion problem. In this paper we proposed new technique to control the congestion. i.e., In Existing method if the router suffers from congestion choose alternative path to transmit rest of the packets and forgot about the congested path. Here the problem is if you new path to transmitting that path already busy with some other packets by others, so for fast transmission reserved some extra bandwidth without delay of delivery. From the routing algorithms also create the overhead traffic. Because of if the network eleted virtual path with minimum cost there is no chance to create alternative path to transmit. This paper use some internet control protocols to reduce the packet loss from the congestion, basically use ICMP protocol to get the error information from the congested routers, is only carry the information does not clear the problem. Based on report sender take decisions to control the problem. Here have various methods to control the problems. Here use continuous ECHO packets to get the status of the congested area either it is clear or still have problem. This new approach we introduced to know the information about errored areas, depends on report either continue the process or stop the procedure.

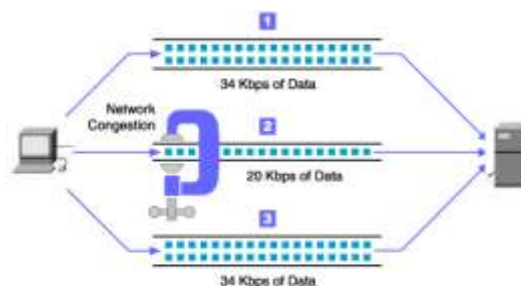


Fig.1.Distribute load over Congested network

III. IMPLEMENTATION

We use some required steps to recognize the congestion less path and make it use.

1. FINDOUT CONGESTED AREA
2. SELECT ALTERNATIVE PATH
3. ASSIGNMENT OF EXTRA BANDWIDTH

4. FREQUENTLY SEND ECHO MESSAGE
5. TRANSMISSION ON CONGESTION FREE PATH.

3.1 Findout Congested Area

In the network layer every packet transmit along with internet control protocol especially ICMP, it report any kind of error message to the actual sender, if the router overhead with traffic immediately through ICMP get the congestion report to the sender.

3.2 Select Alternative Path

In this phase after find out the congested path in our paper sender choose alternative path to transmit rest of the packets. But in virtual circuit it's not possible even it possible take more time to choose alternative. most of the cases internet scenario use connection-less service.

3.3 Assignment of Extra Bandwidth

Basically alternative path selection is normal procedure but here extra functionality is Assignment of extra bandwidth to assign highest priority of selected sender packet transmission. This procedure to continue until to find out existing congested to become free.

3.4 Frequently Send Echo Message

Actually ECHO messages use to get status of the neighboring nodes, It is new technique to find either the congested node is free or not. in this method ECHO messages are sent frequently example for every few seconds vast number of ECHO message are Broadcasted.

3.5 Transmission on Congestion Free Path

After receiving the ECHO positive reply sender release the extra bandwidth and choose congestion free path to transmit rest of packets.

IV. CONCLUSION




In this paper, we have proposed reducing the packet lost from congestion and special approach to find out status of congested node. Here, we have considered a high speed network in which congestion usually occurs. Therefore, to avoid this congestion we adopt special congestion control methods with few parameters values regulated through by instantiations condition of these parameters over high speed network. Parameters values may set or reset according to their value. Fully utilization of bandwidth to allocation of alternative path and retrieve the same again depends upon echo report.

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