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RESEARCH ARTICLE

A Novel Routing STLCC Based Control of Packet Loss over Network Edge

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Abstract* — In this paper we proposes the usage of link- sharing methods in various packet networks and a concurrent algorithm for hierarchal link-sharing since the Internet contains audio files, video files and enormous data traffic. Many protocols have been launched to implement TCP method so forth which has a bottleneck of network jamming. We use a docket proposed Random Early Detection (RED) for gateways that prevents jamming in a packet for witched networks by providing Core-Stateless Fair Queuing(CSFQ) which was intended as an open-loop controller to offer the fair preeminent endeavour service for managing the per-flow bandwidth utilization and has turn into incapacitated when the P2P flows happening to control the traffic of the Internet where Token-Based Congestion Control (TBCC) leads to an closed-loop congestion control rationale which limits token resources enthusiastic by an end–user and also provides the fair best effort service with (big-oh) O(1) complexity measure and a Self-Verifying CSFQ and Re-feedback implementation leads us to heavy load by controlling inter-domain traffic for deficiency of trust and by which the docket presents Stable Token-Limited Congestion Control(STLCC) technique that is proposed as novel protocols that adds inter-domain congestion control to Token- Based Congestion Control(TBCC)and build the congestion control to be more secure since STLCC is able to shape output and input traffic at the inter-domain link by O(1) intricacy and the RED gateway has no prejudice aligned with explode traffic and forefend the global management of numerous links diminishing their window at that time where a TCP/IP network is employed to demonstrate the presentation of RED gateways.

***Keywords*— Congestion Control, CSFQ, TBCC, Token, STLCC, Congestion- Index, TCP/IP, P2P**

I. INTRODUCTION

There are a number of very good reasons to avoid loss in today's computer networks since the main reason is stem from the loss is often a symptom of overflowing router buffers in the network which are limited in size and can also lead to high latency, jitter, and poor fairness. In the last few years a considerable effort has been made on the design and implementation of the packet switching networks by many researchers [1] [2]. The principle reason for developing such packet networks has been to facilitate the sharing of computer resources where our study lies on the benefits of a network architecture that embraces rather than avoids widespread packet loss outweigh with the potential loss in efficiency of the networks and we propose an alternative approach to Internet congestion control called as un-congestion control.

Due to day to day advancements in technology conventional approaches are disappearing and end hosts strive to transmit data packets faster than the network can deliver them by leveraging end-to-end erasure coding and in-network fairness enforcement hence in this paper we propose a protocol design and philosophy that supports the sharing of all the available resources that exist in various packet switching networks. Since there are many internet protocol issues we consider the function of a gateway as an interface between the network and discuss its role in the protocol [3][4]. We then consider the various details of the proposed work which includes in addressing or formatting or buffering or sequencing or flow control or error control used in un-congestion control.

In a typical packet switching network that comprises of a set of computer resources called as hosts where a set of one or more packet switches based on requirement through some communication media that interconnects the packet switches where the ensemble of packet switches and communication media is called as packet switching subnet as shown in below fig 1. In a typical packet switching subnet data of a fixed maximum size are accepted from a source node along with a formatted destination address which is used to router and the data in a store and forward fashion the data is transmitted into packets.

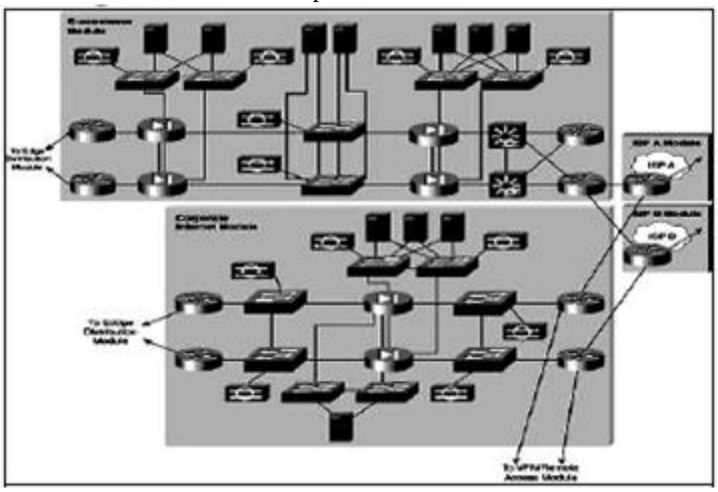

Fig. 1 packet switching communications at network Edge

II. RELATED WORK

The basic idea or implementation of peer-to-peer network is to have one or more peers that tend to participate in an application level overlay network and operate as both a number of approaches for queue management at Internet gateways that have been studied previously for example Drop tail gateways are used almost universally in the current Internet because of their simplicity where this gateway drops an incoming packet only when the buffer becomes full then it provides congestion notification to protocols such as TCP that is very simple in implementation where it distributes losses among the flows arbitrarily[5].

This often results in the burst loss from a single TCP connection thereby it reduces its window size sharply due to which the flow rate and the throughput for that packet flow drops, this technique is called as Tail dropping which results in multiple connections simultaneously suffering from data or packet losses leading to a global synchronization[6]. The Random early detection (RED) addresses some of the drawbacks of drop-tail gateways which drop incoming packets with a dynamically computed probability when the exponential weighted moving average queue size avg q exceeds a threshold value which is predefined by the protocol.

In reference [6] the author prefers the procedure of per-flow accounting by maintaining only a single queue that suggests changes to the RED algorithm which ensure fairness and to penalize the misbehaving flows by keeping a maximum limit on the number of packets that a flow can have in the queue in other words the capacity of queue and also maintains the per flow queue occupancy which may be considered to be a drop or accept decision for an incoming packet that is based on the average queue length and the state of art of packet flow.

It also keeps track of the flows which consistently violate the limit requirement by maintaining a per-flow variable called as strike and penalizes those flows which have a high value of strike which intends that this variable will become critical for non- adaptive flows which will be penalized aggressively. Here RED protocol does not maintain any per flow state and works on the good heuristic that a flow sending at a high rate is likely to have more packets in the queue during the time of the congestion where it decides to drop a packet during congestion if in a random toss protocol finds another packet of the same flow we establish and check how rate guarantees can be provided by simply using buffer management technique.

III. PROPOSED SYSTEM

We propose a model by name Node Dependent Congestion Control case which is a best-effort service in the Internet that was originally designed for a cooperative environment where the congestion control is mainly dependent on the TCP congestion control algorithm at node level that is supplemented with load shedding at various possible congestion links as is shown in Fig. 2 in a high speed networks with Core Stateless Fair Queuing (CSFQ) that enhances the fairness that is set up on open loop control system at the network layer that inserts the label of the flow arrival rate onto the packet header at edge routers and drops the packet at core routers based on the rate label when congestion happens and all the core routers CSFQ is the are the first to achieve approximate fair bandwidth allocation among flows with O (1) complexity.

CSFQ can provide fairness to compete packet flows in the networks with Peer to peer traffic as intended but unfortunately it is not what end-users really want since they consider a Token Based Congestion Control (TBCC) technique that restricts the total token resource consumed by network traffic for transmitting a packet or group of packets used to transfer over a network using or obtaining extra bandwidth resources when TBCC that is used so no matter how many connections the end user has to set up here a Self Verifying CSFQ tries to expand the CSFQ across the domain border by selecting randomly a flow and then re-estimates the flow's rate, and checks whether the re-estimated rate is consistent with the label on the flow's packet and consequently Self-Verifying CSFQ will put a heavy load on the border router and makes the weighted CSFQ null as well as void.

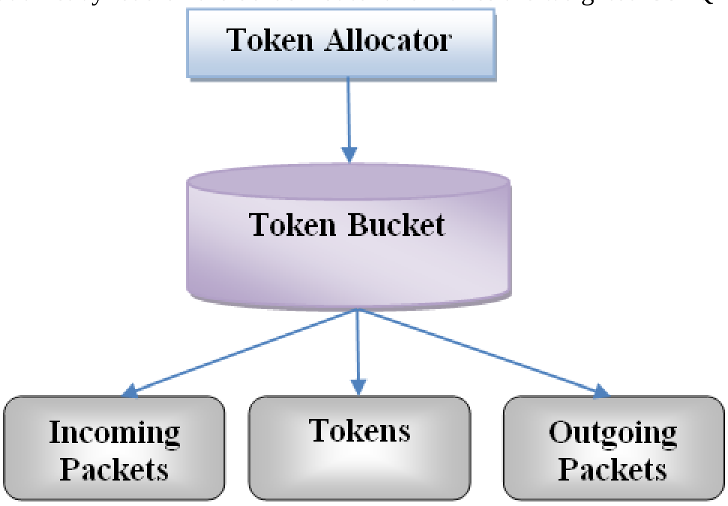

Fig. 2 Packet Loss Control

The main aim of congestion control architecture feedback is to provide the fixed cost to end-users and bulk inter-domain congestion charging to network operators where feedback not only demands very high level complexity to identify the malignant end user where it is difficult to provide the fixed congestion charging to the inter domain interconnection with low complexity and there are three types of inter domain interconnection polices such as the Internet Exchange Points or the private peering and the transit. The private peering policy a Sender Keep All (SKA) peering arrangements through which the traffic is exchanged between two or more domains without mutual charge and the feedback is based on the congestion charges to the peer domain as it is difficult for feedback to support the requirements of SKA.

The modules of the proposed work are:

- NETWORK CONGESTION
- STABLE TOKEN LIMIT CONGESTION CONTROL (STLCC)
- TOKEN
- CORE ROUTER
- EDGE ROUTER

Network Congestion occurs when the number of packets was being transmitted through the network across the packet handling capacity which is predefined that of the network by aiming to keep number of packets below the level at which performance falls off dramatically which may lead to congestion.

Stable Token Limit Congestion Control (STLCC) is able to shape output and input traffic at the inter domain link with O(1) complexity where STLCC produces a congestion index by pushing the packet loss to the network edge and improves the overall network performance for solving the oscillation problem Stable Token-Limited Congestion Control (STLCC) is also introduced which integrates the algorithms of XCP and TLCC [10] altogether.

In STLCC the output rate of the sender is controlled using the algorithm of XCP hence there is almost no packet loss at the congested link because the edge router allocates all the access token resources to the incoming flows equally then if congestion happens then the incoming token rate increases at the core router and then the congestion level of the congested link will also increased as well thus STLCC can measure the congestion level analytically and then allocate network resources according to the access link and further keep the congestion control system stable.

Token is a new and better mechanism for handling congestion control with various applications that shows vital impact on Packet Loss in network with peer to peer traffic that comprises of new method the edge and the core routers will write a measure of the quality of service that is guaranteed by router as it writes the digital number in the option field of the datagram of the packet which is also called as a token. The token is read by the path routers or intermediate routers which transmit data and then interpreted as its value that is give as a measure to the congestion especially at the edge routers which are based on the token number at the edge router of the source which reduces the congestion on the path.

Core Router is a router that is designed to operate in the internet backbone or a core that supports multiple telecommunications interfaces of the highest speed in use and must be capable to forward the IP packets at full speed on all of them by supporting the routing protocols that are being used in the backbone and always a core router is distinct from the edge routers.

Edge Router sit at the edge of a backbone network and then connect to the core routers when a token is considered to be read by the path routers that transmit it will then interpret as its value which gives a measure of the congestion especially at the edge routers based on the token number of the edge router at the source and then reduces the congestion on the path.

IV. CONCLUSION

In this paper we have implemented a structural design of Token based on Congestion Control (TBCC) that gives us a fair bandwidth allocation to end users in the alike domains that are commenced and the two jamming control algorithms CSFQ and TBCC are eminent in this proposed work. STLCC is available and the simulation is premeditated on the way to show its legality. The Unified Congestion Control Model which is the conceptual representation of the CSFQ, Re-feedback & STLCC. The easy description of the STLCC is proposed and can be arranged on the present Internet. The inter domain router is combined to the TBCC scheme as the two TBCC fields are unified.

REFERENCES

[1] G. Appenzeller, N. McKeown, J. Sommers, and P. Barford, ―Recent Results on Sizing Router Buffers,‖ in Proceedings of the Network Systems Design Conference, Oct. 2004.

[2] R. A. Scantlebury and P. T. Wilkinson, ―The design of a switching system to allow remote access to computer services by other computers and terminal devices,‖ in Proc. 2nd Symp. Problems in the Optimization of Data Communications Systems, 1971, pp. 160-167.

[3] L. Zhang, S. Shenker, and D. Clark, ―Observations on the dynamics of a congestion control algorithm: The effects of two-way traffic,‖ in Proceeedings of ACM SIGCOMM, pp. 133–147, Sept. 1991. [3] F. R. E. Dell, ―Features of a proposed synchronous data network,‖ in Proc. 2nd Symp. Problems in the Optimization of Data Communications Systems, 1971, pp. 50—57.

[4] M. Enachescu, Y. Ganjali, A. Goel, N. McKeown, and T. Roughgarden, ―Part III: Routers with very small buffers,‖ ACM/SIGCOMM Computer Communication Review, vol. 35, pp. 83- 90, July 2005.

[5] S. H. Low and D. E. Lapsey, ―Optimization flow control—I: Basic algorithms and convergence,‖ IEEE/ACM Trans. Networking, vol. 7, pp. 861–874, Dec. 1999.

[6] cooperative storage with CFS. In Proceedings of the 18th ACM Symposium on Operating Systems Principles(SOSP '01), Chateau Lake Louise, Banff, Canada, October 2001.

[7] Das and R. Srikant. Diffusion approximations for a single node accessed by congestion-controlled sources. IEEE Transactions on Automatic Control, 45(10):1783–1799, October 1998. [11] G. de Veciana and X. Yang. Fairness, incentives and

[8] Dina Katabi, Mark Handley, and Charles Rohrs, "Internet Congestion Control for Future High Bandwidth-Delay Product Environments." ACM Sigcomm 2002, August 2002.

[9] John Nagle, RFC896 congestion collapse, January 1984.

[10] F. Dabek, M. F. Kaashoek, D. Karger, R. Morris, and I. Stoica. Widearea.

[11] Sally Floyd, Van Jacobson, Link-sharing and Resource Management Models for Packet Networks, IEEE\ACM Transactions on Networking, Vol.3, No.4, 1995.