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RESEARCH ARTICLE

Network Border Patrol Prevents the Over Loading Of Data Packets and Congestion Collapse Thereby Introducing GCRA

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Abstract

The Project flow chart algorithm is multicast service. It is very simple being LAN/WAN broadcasting tool. The LAN/WAN links are often private Lines, unlike submarine and over network. A private network has the advantage of being managed and by few people so to avoid many problems about the property and origin of LAN/ WAN has been investigated in the literature for some use. The fundamental philosophy behind the internet is expressed by scalability argument No protocol, mechanism or service should be introduced in to the internet if it does not scale well. A key corollary to the scalability argument is the end to end argument to maintain scalability algorithmic complexity should be pushed to the edges of the network to whenever possible Perhaps the best example of the internet philosophy the TCP congestion control which is implemented primarily to algorithms operating at end systems unfortunately TCP congestion control also illustrates some of the shortcomings the end to end argument As a result of its strict adherence to end and congestion control.

Introduction

NBP entails the exchange of feedback between routers at the borders of a network in order to detect and restrict unresponsive traffic flows before they enter the network, thereby preventing congestion within the network.

The terms LAN and WAN are more complicated in terms of understanding technically. The term LAN and WAN are connections that allow users to connect their computer to a network, including the internet. LAN is termed has Local area network, while WAN is meant for Wide area network. These two differ from each other in distinct ways.

LAN is a computer network that connects computers in small areas such as home, office, school, corporation, etc. Using a network media. It is useful for sharing resources such as printers, files, games, etc. A LAN network includes a couple of computer systems connected to each other, with one system connected to a router, modem or an outlet for internet access. The LAN network is built using inexpensive technologies such as Ethernet cables, network adapters and hubs. However, other wireless technologies are also available to connect the computer through a wireless access in order to configure a LAN network.

WAN is a network that covers a broad area using private or public network transports. The best example of WAN would be the internet, which can help connect anyone from any area of the world. Many businesses and government use wan in order to conduct business from anywhere in the world.

WAN is responsible for major part of business that happens across the world. The basic definition of wan includes a network that can span regions, countries, or even the world. However, practically speaking WAN can be viewed as a network that is used to transmit data over long distances between different LAN'S, WAN'S and other networking architectures.

Existing System

- ❖ Packets are buffered in the routers present in the network which causes Congestion collapse from undelivered packets arises when bandwidth is continuously consumed by packets that are dropped before reaching their ultimate destinations.
- ❖ Retransmission of undelivered packets is required to ensure no loss of data.
- ❖ Unfair bandwidth allocation arises in the Internet due to the presence of undelivered packets.
- ❖ Congestion collapse from undelivered packets--arises when bandwidth is continuously consumed by packets that are dropped before reaching their ultimate destinations.
- ❖ Unfair bandwidth allocation--arises in the Internet for a variety of reasons, one of which is the presence of unresponsive flows. Adaptive flows (e.g., TCP flows) that respond to congestion by rapidly reducing their transmission rates are likely to receive unfairly small bandwidth allocations when competing with unresponsive or malicious flows. The Internet protocols themselves also introduce unfairness. The TCP algorithm, for instance, inherently causes each TCP flow to receive a bandwidth that is inversely proportional to its round trip time hence; TCP connections with short round trip times may receive unfairly large allocations of network bandwidth when compared to connections with longer round trip times.
- ❖ The congestion collapse from undelivered packets and unfair bandwidth allocations--have not gone unrecognized. Some have argued that they may be mitigated through the use of improved packet scheduling or queue management mechanisms in network routers. [5,6]

Proposed System

- ❖ Buffering of packets is carried out in the edge routers rather than in the core routers.
- ❖ NBP is to compare, at the borders of a network i.e. the rate at which each packet from each application flow are entering and leaving the network.
- ❖ In addition to NBP algorithm for prevention of congestion collapse. The Feedback control Algorithm and Rate Control Algorithm acts together to finish it thereby introducing Traffic shaper concept(GCRA)
- ❖ To preventing the Congestion Control through the communication over network we are introducing Intelligent Packet Filtering using GCRA Concept.
- ❖ NBP's prevention of congestion collapse comes at the expense of some additional network complexity, since routers at the border of the network are expected to monitor and control the rates of individual flows.

GCRA

The generic cell rate algorithm (GCRA) is a leaky bucket-type scheduling algorithm for the network scheduler that is used in Asynchronous Transfer Mode (ATM) networks. It is used to measure the timing of cells on virtual channels cells that do not conform to the limits given by the traffic contract may then be delayed in traffic shaping, or may be dropped or reduced in priority in traffic policing. Nonconforming cells that are reduced in priority may then be dropped, in preference to higher priority cells, by downstream components in the network that are experiencing congestion. The GCRA is given as the reference for checking the traffic on connections in the network. [1, 2]

Leaky Bucket Algorithm

The leaky bucket analogy refers to a bucket with a hole in the bottom that causes it to "leak" at a certain rate corresponding to a traffic cell rate parameter. Each cell arrival creates a "cup" of fluid flow "poured" into one or more buckets for use in conformance checking. In the algorithm, a cell counter represents the bucket. This counter is incremented by one for each incoming cell. The "leak rate" in the algorithm is the decrement rate which reduces the counter value by one at certain intervals. This rate is given by the cell rate under consideration and is governed by the minimum distance between two consecutive cells.[3]

Asynchronous Transfer Mode (ATM)

Standards for carriage of a complete range of user traffic, including voice, data, and video signals". It was designed for a network that must handle both traditional high-throughput data traffic (e.g., file transfers), and real-time, low-latency content such as voice and video. The reference model for ATM approximately maps to the three lowest layers of the ISO-OSI reference model: network layer, data link layer, and physical layer. [4]

Conclusion

We have presented a novel congestion avoidance mechanism for the Internet called Network Border Patrol. Unlike existing Internet congestion control approaches, which rely solely on end-to-end control, NBP is able to prevent congestion collapse from undelivered packets. It does this by ensuring at the border of the network that each flow's packets do not enter the

network faster than they are able to leave it. NBP requires no modifications to core routers or to end systems. Only edge routers are enhanced so that they can perform the requisite per-flow monitoring, per-flow rate control and feedback exchange operations.

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