Evacuation of Delayed Packets in Networks

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Abstract

The aim of this paper is to give idea of postponed packets in networks. At present the networks which we are using supports only two classes of traffic, it takes long time to service if there is any failure. Hence to solve all these problems a OCGRR technology has been developed. This is the advanced version of OCRR technology. It requires a processor of 500MHZ and above, ram of 128 mb and hard disk of 10 gb size. It makes use of jdk 1.5, windows 2000 server family operating system and sql server databases. In OCGRR, small rounds of a frame and a packet-by- packet are made used such that every stream inside a class can send only one packet in each small round. .In this packets of same class are sent to the destination. Before frame is scheduled, each output port data streams are stored in a separate Buffer .Buffers are placed in frames such that each frame consists of only one buffer. Once Scheduling is done transmission traffic occurs and data is transferred according to their priorities. Only one packets are transmitted in one single round.

Keywords: *OCGRR, Packets in Networking, Delayed Packets*

Introduction

OCGRR supports several service traffic in a core router. Similar class packets are send to the destination of the core router production port. In prior to scheduling the frame , every output port stream of data are stored at one unique Buffer. Now execute the scheduling operation. (Arranging a particular order) at every buffer. At last every buffer placed in one frame. After arrangement, sequence of transmission traffic occurs then streams of frames (data) are transferred to the order of "Highest Priority traffic" to "Lowest Priority traffic". Frame may have a number of small rounds for each class.

In the frame , when we allow or permit (grant) then that time only each class streams of packets are transmitted one by one.Only one packets are transmitted in one single round.It is helpful to reducing intermission time from the same stream and achieving smaller Jitter and startup Lattency. Jitter - >**Jitter** is the variability of packet delays within the same packet stream.Some times lowest priority classes buffer frames not send then(Starvation) that time we are changing the permission(Grant) for that particular class. Similar types of permission adjustment helpful to transfer the Lower Priority Classes frames.

Problem formulation

The Differentiated Services (DiffServ) is a well-known model to support Quality of Service (QoS) in IP networks. Under DiffServ, edge routers are in charge of classifying, marking, dropping, or shaping of the IP packets based on the service level agreement and preventing the DiffServ system from malicious attack , then core routers execute high speed routing of packets classified as Expedited Forwarding (EF) , Assured Forwarding (AF) , and Best Effort (BE). In general, EF traffic needs low loss, low latency, low jitter, and assured bandwidth. AF traffic requires a guaranteed forwarding, and BE traffic has no service guarantee.

In the DiffServ domain, the QoS requirements for different classes such as jitter must be satisfied both in the core routers and on the end-to-end basis. A DiffServ architecture was proposed , for a distributed environment where a scheduler in each link guarantees local node QoS requirements for different classes by dynamically adjusting the scheduler parameter. There are two kinds of scheduling algorithms in requisites of operation are timer-based, and credit/frame-based, The former algorithms have real-time restrictions in their implementation Credit-based algorithms can have different capabilities such as handling different packet sizes and traffic types. Consider the algorithms suitable for fixed-length packets while Deficit Round Robin (DRR) , Smooth Round Robin (SRR) and DRR++ can handle variable-length packets fit. Then DRR has to generate output when serving a data stream, thus leading to a higher startup latency and jitter. When scheduling a packet from a stream, unlike DRR/DRR++ must know the packet size of the head of the stream in order to decide whether to schedule the packet or not. In the form of different deficiencies discussed above (namely, supporting only one or two classes of traffic, unfairness, non smooth scheduling (bursty transmission from same stream), higher service time, and higher startup latency and jitter), we extend our OCRR [5] to support multi class traffic and provide extensive performance study. Our goal is to fairly schedule IP packets in the DiffServ **domain**, to reduce packet inter-transmission time from same stream, and to give all streams the same chance to use bandwidth in order to reduce jitter and latency. We may isolate traffic streams from each other within each class to combat the behavior of a bursty stream.

The proposal of OCGRR that create small rounds in a frame and a packet-by-packet scheme so that each stream within a class can only send one packet in each small round. We can employ a smaller frame length to improve the higher priority traffic significantly, while giving opportunity to other classes to access the bandwidth in that. OCGRR can adjusted in a way to avoid the starvation of lower-priority traffic. Through performance evaluation, we demonstrate that our scheduler has the features to support DiffServ in 1) dropping burst creation at the output port from the identical traffic stream, 2) maintain light bandwidth portion for competing network streams, and 3) minimize setback, startup latency and jitter.

Proposed System

- It is one of the extended Technology of OCRR.
- Packet by Packet each class stream are send to Destination.
- Send one packet in each small round.
- OCGRR is used to avoid the starvation of lower-priority traffic and improve the existing system drawbacks.
- The common approach to support DiffServ traffic is to save all same-class packets from different sources in a shared FCFS (First Come First Served) buffer.
- It is difficult to control the service order of packets from different sources because a bursty source in a class may cause a higher delay and even loss for well behaved streams within that class.
- OCRR to support multi class traffic and provide extensive performance analysis.

Proposed System Features

- Reducing burst generation at the output port from the same traffic stream
- Maintaining fair bandwidth allocation for competing network streams
- Minimizing delay, startup latency and jitter.
- Giving opportunity to other classes to access the bandwidth.
- To reduce packet intertransmission time from same stream

System Design

System design is the identification of classes, relationships as well as their collaboration. In objector ,classes were separated into Entity classes ,interface classes and the control classes. In the combination method ,there are some object-oriented approach like Object Modeling Technique (OMT), Class Responsibility Collaborator (CRC) and Objectory, worn the term Agents to symbolize some of the hardware and software systems .In synthesis method, there was no prerequisite types , but in a user will provide the initial requirement document. The analyst create the Use case diagram and the designer creates the Class diagram. Once the design is above it is want to decide which software is appropriate for the application.

Implementation

Implementation is the period of the project when the hypothetical design is turned out into a functioning system. Thus it can be calculated to be the a fine number critical period in achieving a thriving new system and in giving the user, guarantee that the new system will work and be effective.

The implementation phase involves guarded planning, examination of the accessible system and it's constraints on completing, designing of method to attain exchange and appraisal of changeover methods.

Implementation is the development of changing a new system design into operation. It is the stage that pin point on user guidance, site training and file swap for installing a applicant system. The central issue that should be considered here is that the conversion should not interrupt the functioning of the organization.

The implementation can be carried from side to side Socket in java but it will be considered as peer to peer communication. For proactive routing we want seperate routing. Java will be more appropriate for platform independence and networking concepts. For maintaining route in order we go for MS-SQL as database back end.

Module Description

Login Module

Used to check the user authorization.

Source Module

Used to maintain and perform the client input data and also the source data's are packet wise forwarded to the server in one by one.

Each round only one packet send to scheduler .Give the chance to each class frames.

Scheduler Module

Used to performing the following 3 operations
That is

- Receiving the message.
- Scheduling the message.

- Forwarding the Message.

Here Maintain one queue .That Queue based all the above 3 process are performed. EnQueue and Dequeue Process are performed. At last after receiving and scheduling packets are forwarded to the corresponding own destination.

Destination module

Receive message from the server and displayed to the message area.

Priority Server Module (Scheduler Module)

Each client packets are first comes in this corresponding priority server (i.e High,Low,Medium). After wards only it transfer to the centralized scheduler server.
In Each priority server , we apply the following 2 services
1 : Backlogged
2 : Non Backlogged

i Backlogged

Particular priority client data are not allow to send the data to other users.

ii Non Backlogged

Particular priority client data are stored in the server queue ,when we again allow for blocked messages that time only the blocked messages are forwarded to the destination.

Consclusion

In this paper, proposed OCGRR in the DiffServ domain and compared its performance with DRR+, DRR++, and PQWRR. We use buffer per stream in each class in order to provide fairness for source routers. OCGRR has the features/ capabilities of using smaller frame lengths and rounds; sending traffic packet by packet in smaller rounds; reducing the intertransmission time from the same stream; reducing queuing delay, jitter, and startup latency; controlling the starvation of lower priority classes; and beginning the transmission in each class from a delayed stream in the previous logical frame to ensure low latency and fairness. It can also keep the fairness for streams at an acceptable level. A desired QoS performance can be obtained by adjusting class indices. In future enhancement is DiffServ domain by using OCGRR at the routers.

Future Enhancement

There are a number of avenues for future work, Our future research is to study end-to-end QoS in a DiffServ domain by using OCGRR at the routers. This is a challenging and interesting issue as it would require the schedulers in routers along the path to cooperate with each other to provide a desired QoS.

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