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ABHISHEK.V .RAO
UG scholars, Department of Computer Science and Engineering, Alpha College of Engineering, Thirumazhisai, Chennai., abhish3k.v@gmail.com

MANIKANDAN. A
UG scholars, Department of Computer Science and Engineering, Alpha College of Engineering, Thirumazhisai, Chennai, manikandan_anbalagan@hotmail.com

AZARUDEEN. A
UG scholars, Department of Computer Science and Engineering, Alpha College of Engineering, Thirumazhisai, Chennai., jka.azar@gmail.com

DEVENDAR RAO
UG scholars, Department of Computer Science and Engineering, Alpha College of Engineering, Thirumazhisai, Chennai, bdeva.infotec@gmail.com

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[1] ABHISHEK.V.RAO, [2] MANIKANDAN.A ,[3] AZARUDEEN.A ,[4] DEVENDAR RAO

UG scholars, Department of Computer Science and Engineering, Alpha College of Engineering, Thirumazhisai, Chennai.

E-mail: [1]abhish3k.v@gmail.com,[2]manikandan_anbalagan@hotmail.com [3]jka.azar@gmail.com

[4] bdeva.infotec@gmail.com

Abstract*— A Number of commercial peer-to-peer (P2P) systems for live streaming have been introduced in recent years. The behaviour of the popular systems has been extensively studied in several measurement papers. However, these studies have to rely on a "black-box" approach, where packet traces are collected from a single or a limited number of measurement points, to infer various properties of the traffic on the control and data planes. Although, such studies are useful to compared different systems from the end user's perspective. It is difficult to intuitively understand the observed properties without fully reverse-engineering the underlying systems. In this paper, we describe the network architecture of Zattoo, one of the largest production, live streaming providers, in Europe, at the time of writing, and present a large-scale measurement study of zattoo, using data collected by the provider. To highlight we found that even, when the zattoo system was heavily loaded with as high as 20000 concurrent users on a single overlay, the median channel join delay remained less than 2-5 s, and that, for a majority of users, the streamed signal lags over-the-air broadcast signal by more than 3 s.

***Keywords*— live streaming, peer-to-peer technology (p2p), video streaming.**

I. INTRODUCTION

There is an emerging market for IPTV. Numerous commercial systems now offer services over the Internet that are similar to traditional over-the-air, cable, or satellite TV. Live television, time shifted programming , and content-on-demand are all presently available over the internet. Increased broadband speed, growth of broadband subscription base, and improved video compression technologies have contributed to the emergence of these IPTV services.

Peer-to-peer(P2P) networks used in three ways: delay-tolerant file download of archival material, delay-sensitive progressive download of archival material, and real-time live streaming .

1. Delay-Tolerant File Download Of Archival Material:

In this case , the completion of download is elastic, depending on available bandwidth in the P2P network. The application buffer receives data as it trickles in and informs the user upon the completion of download. The user can then start playing back the file for viewing in the case of a video file

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2.Delay-Sensitive Download Of Archival Material:

In this case, video playback starts as soon as the application assesses it has sufficient data buffered that, given the estimated download rate and the playback rate, it will not deplete the buffer before the end of file. If this assessment is wrong, the application would have to either pause playback and rebuffer or Slow down playback. While users would like playback to start as soon as possible, the application has some degree of freedom in trading off playback start time against estimated network capacity.

3. Real-Time Live Streaming:

In this case , has the most stringent delay requirement. While progressive download may tolerate initial buffering of tens of seconds or even minutes, live streaming generally cannot tolerate more than a few seconds of buffering.

The Zattoo peer-to-peer live streaming system was a free-to-use network serving over 3 million registered users in eight European countries at the time of study, with a maximum of over 60000 concurrent users on a single channel. The system delivers live streams using a receiver-based, peer-division multiplexing scheme.

II. SYSTEM STUDY

The streaming system was one of the earliest systems that utilize the Gossip protocol for constructing a random overlay for live streaming applications.

A. Existing System

In our Existing system consists of,

Delay-tolerant file download of archival material:

application buffer receives data as it trickles in and informs the user upon the completion of download. The user can then start playing back the file for viewing in the case of a video file.

delay-sensitive progressive download of archival material:

In this case, video playback starts as soon as the application assesses it has sufficient data buffered that, given the estimated download rate and the playback rate, it will not deplete the buffer before the end of file.

Drawback of our existing system:

If this assessment is wrong, the application would have to either pause playback and rebuffer or Slow down playback. While users would like playback to start as soon as possible, the application has some degree of freedom in trading off playback start time against estimated network capacity.

B. Proposed System:

In our proposed system consist of,

Real-time live streaming:

In this case , has the most stringent delay requirement. While progressive download may tolerate initial buffering of tens of seconds or even minutes, live streaming generally cannot tolerate more than a few seconds of buffering.

The Zattoo peer-to-peer live streaming system was a free-to-use network serving over 3 million registered users in eight European countries at the time of study, with a maximum of over 60000 concurrent users on a single channel. The system delivers live streams using a receiver-based, peer-division multiplexing scheme.

This delay introduced by signal ingest and encoding, and network transmission and propagation, the live streaming system can introduce only a few seconds of buffering time end-to-end and still be considered “live”.

Advantages of proposed system:

The system delivers live streams using

Receiver-based Peer-Division Multiplexing:

When a peer joins a TV channel ,it establishes a peer-division multiplexing(PDM) scheme among a set of neighbouring peers by building a virtual circuit to each of the neighbouring peers. Baring departure or performance degradation of a neighbour peer, the virtual circuits are maintained until the joining peer switches to another TV channel. Virtual circuits set up; each packet is forwarded without further per-packet handshaking between pairs.

The PDM establishment process consists of two phases:

1. Search phase
2. Join phase

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III. SYSTEM ARCHITECTURE

In the search phase, the new joining peer determines its set of potential neighbours.

In the join phase, the joining peer requests peering relationships with a subset of its potential neighbours.

IOB:(Input Output Buffer)

It drains to:

1) A local media player if one is running
2) A local file if recording is supported
3) Potentially other peers

This figure shows that, depicts a zattoo player application with virtual circuits established to four peers. As packets from each sub stream arrive at the peer, they are stored in the IOB for reassembly to reconstruct the full screen. Portions of the stream that have been reconstructed are then played back to the user.

In addition to providing a reassembly area, the IOB also allows a peer to absorb some variability’s in available network bandwidth and network delay.

The IOB is referenced by an input pointer, a repair pointer, and one or more output pointers. The input pointer points to the slot in the IOB where the next incoming packet with sequence number received so far will be stored. The repair pointer always points one slot beyond the last packet received in order and is used to regulate packet retransmission and adaptive PDM.

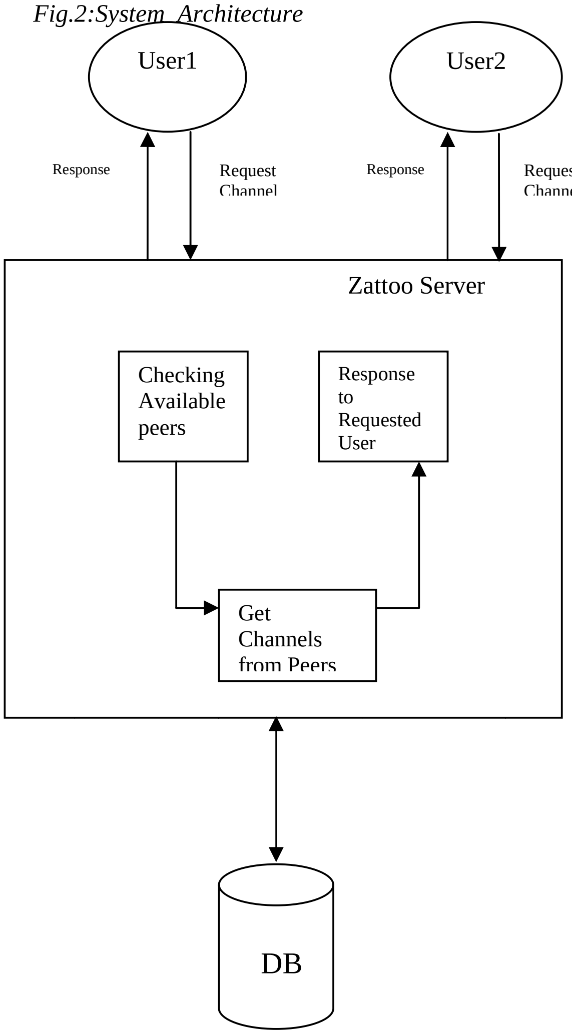
The output pointer of a destination indicates the destination’s current forwarding horizon on the IOB. In accordance to the three types of possible forwarding destinations listed, we have three types of output pointers: player pointer, file pointer, and peer pointer. The Zattoo player application does not currently support recording.

We could move the output pointer to match the input pointer so that we consistently forward the oldest packet in the IOB to the destination. However, requires checking the input pointer against all output pointers on every packet arrival. Instead, we have implemented the IOB as a double buffer. With the double buffer, the positions of the output pointers are checked against that of the input pointer only when the input pointer moves from one sub-buffer to the other.

The Zattoo system rebroadcasts live TV, captured from satellites, onto the Internet. The system carries each TV channel on a separate peer-to-peer delivery network and is not limited in the number of TV channels it can carry. Although a peer can freely switch from one TV channel to another, thereby departing and joining different peer-to-peer networks, it can only join one peer-to-peer network at any one time. We henceforth limit our description of the Zattoo delivery network as it pertains to carrying one TV channel.

TV signal captured from satellite is encoded into H.264/AAC streams, encrypted, and sent onto the Zattoo network. The encoding server may be physically separated from the server delivering the encoded content onto the Zattoo network. For ease of exposition, we will consider the two as logically collocated on an encoding server. Users are required to register themselves at the Zattoo website to download a free copy of the Zattoo player application. To receive the signal of a channel, the user first authenticates itself to the Zattoo authentication server. Upon authentication, the user is granted a ticket with limited lifetime. The user then presents this ticket, along with the identity of the TV channel of interest, to the Zattoo Rendezvous Server. If the ticket specifies that the user is authorized to receive signal of the said TV channel ,the Rendezvous Server returns to the user a list of peers currently joined to the P2P network carrying the channel, together with a signed channel ticket. If the user is the first peer to join a channel, the list of peers it receives contain only the encoding server. The user joins the channel by contacting the peers returned by the Rendezvous server, presenting its channel ticket, and obtaining the live stream of the channel from them.

Fig.2:System Architecture



IV. FEASIBILITY STUDY

All projects are feasible given unlimited resources and infinite time. It is both necessary and prudent to evaluate the feasibility of the project at the earliest possible time. Feasibility and risk analysis is related in many ways. If project risk is great , the feasibility listed below is equally important.

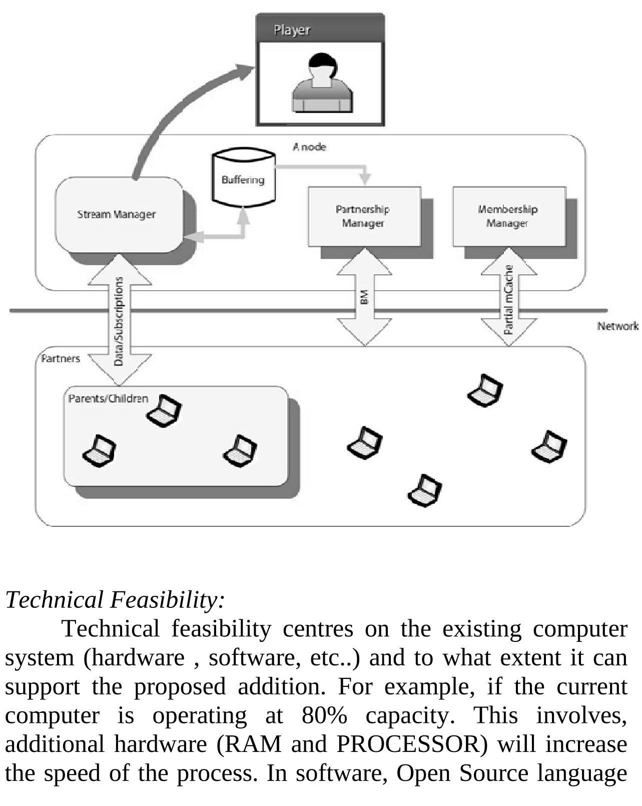
The following feasibility techniques has been used in this project

- Operational feasibility
- Technical feasibility
- Economic feasibility

Operational Feasibility:

Proposed system is beneficial since it turned into information system analysing the traffic that will meet the organizations operating requirements.

IN security, the file is transferred to the destination and the acknowledgement is given to the server. Bulk of data transfer is sent without traffic



Technical Feasibility:

Technical feasibility centres on the existing computer system (hardware , software, etc..) and to what extent it can support the proposed addition. For example, if the current computer is operating at 80% capacity. This involves, additional hardware (RAM and PROCESSOR) will increase the speed of the process. In software, Open Source language that is JAVA and is used. We can also use in Linux operating system.

Economic Feasibility:

Economic feasibility is the most frequently used method for evaluating the effectiveness of a candidate system. More commonly known as cost / benefit analysis, the procedure is to determine the benefits and saving that are expected from a candidate and compare them with the costs. If the benefits outweigh cost. Then the decision is made to design and implement the system. Otherwise drop the system.

This system has been implemented such that it can be used to analysis the traffic. So it does not requires any extra equipment or hardware to implement. So it is economically feasible to use.

CONCLUSION

We have presented a receiver-based, peer-division multiplexing engine to deliver live streaming contain on a peer to peer network. The same engine can be transparently build a P2P delivery network by adding Repeater nodes to the network. By analysing large amount of usage data collected on the network during one of the largest viewing events in Europe, we have shown that the resulting network, can scale to a large number of users and can take good advantage of available uplink bandwidth at peers. we have also shown that error correcting code and re-transmission can help improve network stability by isolating packet losses and preventing transient congestion from resulting in PDM reconfigurations.

Traditionally, MVoIP services use a collection of multicast trees or a centralized audio mixing server. In this paper, we argue that a P2P MVoIP system can achieve better scalability and cost-effectiveness by adaptively and efficiently distributing the stream processing workload amongdifferent peers. To the best of our knowledge, this is the firstwork that studied the P2P system design for the MVoIPapplication, which we believe could be a new killer

Application for the P2P technology. Specifically, this paper makes the following contributions: 1) we propose a novel decoupled stream processing model that can better explore the asymmetric property of MVoIP services and optimize the stream mixing and distribution processes separately, 2) we provide localized mixer splitting/merging/migration algorithms to continuously optimize the quality of the MVoIPservices according to

The technical requirement for this project are Java tool kit and Swing component as software and normal hardware configuration is enough , so the system is more feasible on this criteria.

speaking activity changes, and 3) we propose lightweight backup schemes to make peerTalkresilient to peer failures/departures by utilizing redundant

resources in P2P environments. We have implemented a prototype of the peerTalk system that are evaluated in both real-world wide area networks and simulated P2P networks.

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