A Survey on Live Video Streaming Over Peer to Peer Network

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***Abstract* —** *The Internet is a platform which share large number of multimedia content in a easier way. File sharing can be done using servers as well as by using peer to peer network models. As the traffic for content downloading increases, it creates load on server. To manage this traffic load Peer to Peer Network Architecture is preferred. Due to growth in private networks, the scarcity of network accosted in the Internet headed to the appearance of private and global networks. Peer to Peer application cannot run between the two peers in separate private networks because in a private network each peer has its own individuality which stays hidden at the back of their global termination.*

So there is need for a system which can access peers in global as well as in private networks along with the communication between them. Also which reduces the need of hundreds servers in Peer to Peer application with the use of Digital Signature for securing communication between the Peers.

Keywords— *Peer to Peer (P2P), Quality of Service (QOS), Network address translator, Content Distribution Network.*

I. INTRODUCTION

The blended pressures of enormous development and massive security disputes have constrained the Internet to acquire in ways which cause living unmanageable for lots of coverings. The Internet's archetype consistent address architecture, in which each client has a globally singular IP address and can intercommunicate at once with each other client, has been replaced with a newly *de facto* Internet-address-architecture, comprising of a globular address realm and lots individual address realms interlinked by Network Address Translators (NAT).

The Internet can be looked upon as a medium to broadcast information. Multimedia content of any size can be easily distributed and it is very ordinary over internet.

The original stereotype of content distribution was the server-client architecture, wherein a dedicated server furnished the required content to all requesting clients. However such a system faces a bottleneck from the constraints of available upload bandwidth and resources at the server and is thus incapable of scaling up to serve a large number of clients.

This can be resolved by the use of large-scale commercialised content distribution services. In customer's content get mirrored which are to be brought out on various servers . The advanced algorithms can be applied to locate the mirroring server. Mirroring server is the place from which content is channelized to the requesting client.

Another approach can be content distribution in peer to peer network. This implies the formation of a network topology where no already defined server-client architecture exists. Each peer in the topology is capable to function as the source, channelizing agent or requester of content. Commercial CDNs are generally used by customers who wish to publish high-quality.

Downloading clients with several Quality-of-Service features often charged for the content they have downloaded. The fundamental assumption for peer to peer networks is the concept of sharing of content and resources amongst all participants of the network. Thus as the count of peers goes high, corresponding resources available in the system increase too. And this type of system is fundamentally scalable.

Peer to peer networks are adequate to working in the absence of a central server and the nodes are capable of joining or leaving the network at any time without any centralized control. The P2P CDNs are accordingly self- coordinating, dynamic and scalable networks.

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II. REVIEW OF EXISTING WORK

This section reviews the main existing work found in the scientific literature that applies Live Video Streaming Over Peer to Peer Network.

[1] Video on demand getting so much popularity in recent years. The content provider may hire various resources from geographically distributed data centers. These data centers are also called as proxy servers which are positioned near to user pools.

These proxy servers cooperatively share content with each other. Proxy servers service their local users by these shared contents. The optimization of storage and retrieval of movie is the main issue. By solving this problem, reduction in operation cost can be achieved. This also affects streaming, storage, and network bandwidth amongst data centers.

All videos are encoded from the source side and then stores in the repository. Coded symbols are generated by calculating each source symbols and then distributed to the servers in the cloud. Linear programming (LP) conceptualization can be used to calculate the optimal solution for these encoded symbols. The algorithms related to video grouping and online reoptimization are used for large movie pool . This arrangement can be used for related system arguments also. It will also help in extensively cutting down the computational complexity .Through comprehensive simulation, this algorithm has achieved the least possible cost, beating conventional and state of art heuristics with a significantly broad margin.

[2] In existing peer-to-peer (P2P) live streaming systems, nodes in a channel form a Peer to Peer overlay intended for video distribution. A node always depends on the centralized server to connect in the overlay of the channel. This is used for watching a new cannel. Nowadays many people wants to see number of channels at a time or they want to watch one after another. This produces load on server. Also it increases requirement of large number of resources which affects overall cost.

A Social-network-Aided efficient live streaming system (SAVE) is used to get higher efficiency as well as superior scalability. Social-network-Aided efficient live streaming system gathers user information and interests. Using this details Social-network-Aided efficient live streaming system categorize user into a analogous interests people to contribute to information over peer. Thus consequently make the data communication easier in between friends which are having same video interests.

[3] Network coding is an encouraging enhancement of routing network throughput. It provides high reliability also permits a node to generate output messages by encoding its conventional messages. P2P networks are a impeccable place to apply network coding because two motives. 1) The topology of a P2P network is assembled randomly. So it is easy to modify the topology to simplify network coding. 2) The nodes in a P2P network are termination hosts. They are capable of performing extra compound operations like encoding-decoding as compared to the basic storing - forwarding messages. A scheme of applying network coding to P2P file sharing which services a P2P network to issue files be located in a web or file server has been explained .

[4] The number of online viewers is incredibly increasing nowadays. Internet based video is one of the application which is getting more popularity. The unbelievable development of audiences, subtleties of contributors and extraordinary video quality of service (QoS) obligation pose scalability - availability as well as low-latency challenges to P2P live video streaming schemes. Tree based-systems have lower delay but are susceptible to churn. While a mesh based-system are churn resilient but suffers higher delay & overhead. Both systems are not able to make full application of the bandwidth in the system. To grab the challenges, a DHT aided Chunk driven Overlay (DCO) has been introduced. It announces a mountable DHT ring structure into a mesh based-overlay to competently direct video stream distribution.

[5] In Social application applied on a P2P architecture, the social graph that attaches their users is dispersed on the P2P system. The traversal of social graph interprets to a socially knowledgeable routing in the P2P layer. The model of a projection graph which is the result of mapping a social-graph on top of a P2P network has been explained here. They have rationally expressed the relation amongst metrics in the social-graph & in the projection-graph
[6] Peer to peer (P2P) systems use the uploading-bandwidth of different peers to dispense content at small server-cost. While the P2P bandwidth influence design is appropriate efficient for bandwidth profound tenders. It inflicts a simple performance limit for delay sensitive-applications. The uploading bandwidth of a peer can' not be exploited to upload a portion of content until it completes the download of that content. This constraint groups up a limit on how firm a portion of content can be dispersed to all peers in a P2P system. The impact of this integral delay limits and derivation of the minimum delay limits for P2P live streaming systems has been explained here.

[7] An infinite server queuing network models has been developed here which is able to analytically educate the performance of multichannel peer to peer live video systems. Their prototypes capture essential aspects of multichannel video structures. It includes, peer-channel-switching, peer-churn, peer-bandwidth-heterogeneity, & Zipf like channel admiration. They have applied the queuing-network representations for the two peer to peer streaming designs. The isolated-channel-design (ISO) and the View-Upload-Decoupling (VUD) design. For both of these designs, they have developed efficient

algorithms to work out serious performance measures.

III. CONCLUSIONS & FUTURE WORK

With the growing use of internet, downloading of content has also augmented. Due to this server gets enough loads. For better server-load-handling, peer to peer download can be use. This resolved the problem of downloading. By using this technique, live streaming of files can be made improved. Future work lies in further dropping the cost of SAVE in structure conservation and node communiqué. The principal goal is to incredulous the restrictions of server dependency.

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