A Review on HTTP Streaming Strategies in Media Streaming

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Abstract- Streaming is mostly referred as a delivery system for media content or dynamic data. HTTP was not designed for data streaming. HTTP communications are stateless, and they take place over TCP/IP where there is no continuous connection between the ends. Usually, HTTP responses are buffered rather than streamed. HTTP 1.1 added supports for streaming through keep-alive header so data could be streamed. There are various HTTP streaming strategies-Progressive http streaming, HDS (HTTP dynamic streaming), HLS (HTTP live streaming), HSS (Http smooth streaming), DASH(Dynamic adaptive streaming over http and some others. HTTP streaming works by breaking the overall stream into a sequence of small HTTP-based file downloads, each download loading one short chunk of an overall potentially unbounded transport stream. My focus is on http streaming. In this paper, a review of various streaming strategies has been presented.
Keywords- **Streaming, adaptation, video,http.**

INTRODUCTION

Streaming or media streaming is a technique for transferring data so that it can be processed as a steady and continuous stream. Streaming technologies are becoming increasingly important with the growth of theInternetbecause most users do not have fast enough access to download large multimedia filesquickly.Withstreaming,the client brow ser or plug-in can start displaying the data before the entire file has been transmitted. For streaming to work, the client side receiving the data must be able to collect the data and send it as a steady stream to the application that is processing the data and converting it to sound or pictures. For streaming,the audio stream is compressed using an audio codec such as MP3,Vorbis or AAC. The video stream is compressed using a video codec such as H.264 or VP8.Encoded audio and video streams are assembled in a container bit stream such as MP4, FLV,WebM, ASF or ISMA.

The bit stream is delivered from a streaming server to a streaming client using a transport protocol, such as MMS or RTP. Newer technologies such as HLS, Microsoft's Smooth Streaming, Adobe's HDS and finally MPEG-DASH have emerged to enable adaptive bitrate streaming over HTTP as an alternative to using proprietary transport protocols. The streaming client may interact with the streaming server using a control protocol, such as MMS or RTSP.

Dynamic Adaptive Streaming over HTTP (DASH), also known as MPEG-DASH, is an adaptive bitrate streaming technique that enables high quality streaming of media content over the Internet delivered from conventional HTTP web servers. MPEG-DASH works by breaking the content into a sequence of small HTTP-based file segments, each segment containing a short interval of playback time of content that is potentially many hours in duration, such as a movie or the live broadcast of a sports event. It allows devices like Internet-connected televisions, TV set-top boxes, desktop computers, smartphones, tablets, etc. to consume multimedia content (video, TV, radio, etc.) delivered via the Internet, coping with variable Internet receiving conditions.

LITERATURE SURVEY

Chin-Feng Lai ,Ren-Hung Hwang ; Han-Chieh Chao ; Hassan, M. ; Alamri A.[1] With increasing interest in the concept of 5G wireless networks and the popularization of mobile devices, users gradually watch videos through mobile devices in streaming mode rather than off-line mode. However, the latency and lags of mobile networks will reduce the quality of service. In HTTP live streaming services, when there are multiple sources for the same content stored in the streaming servers, the suited quality content is able to be selected for playing according to the networking bandwidth conditions between servers and user equipment, and the users can obtain appropriate streaming quality automatically.

Kristian EvensenTomaKupka, Haakon Riiser, Pengpeng Ni, Ragnhild Eg,Carsten Griwodz and Pål Halvorsen[2] Video streaming is predicted to become the dominating traffic in mobile broadband networks. At the same time, adaptive HTTP streaming is developing into the preferred way of streaming media over the Internet. Different components of a streaming system can be optimized when serving content to mobile devices in particular. We outline benefits and challenges for HTTP streaming, on the sender and the receiver side, and we investigate how HTTP-based streaming affects server performance. Furthermore, discussionof various aspects of efficient coding of the video segments from both performance and user perception point of view. Experimentally evaluate and improve adaptation strategies, multilink solutions, and bandwidth prediction techniques. Based on the results from our evaluations, recommendations are made for how an adaptive streaming system should handle mobile devices. Small changes, or simple awareness of how users perceive quality, can often have large effects.

Reuban Gnana Asir Kishore Kumar C Praveen Kumar Reddy[3] Multimedia streaming is still in its immaturity

compared to its potential market because of its own manifest format, streaming protocols. There is no interoperability exists between devices and servers of various vendors. MPEG-DASH is one which provides interoperability between various servers and devices. Achieving such interoperability will increases the market growth, because there is no such common video streaming which supports all the formats and plays in all the devices like apple devices android devices etc. Video streaming through the web has been increasing due to MPEG-DASH Dynamic Adaptive Streaming over HTTP.

Shuai, Y.; Gorius, M.; Herfet, T.[4] - Due to the increasing number of portable and mobile consumer electronics devices, today's Internet paths include generally at least one wireless segment. It address the quality bottleneck on wireless and mobile networks via a novel dynamic streaming architecture that proactively transmits packetized multimedia services under delay-based congestion control. The presented scheme builds upon the Predictably Reliable Real-time Transport protocol (PRRT). They evaluate the bandwidth allocation of our dynamic streaming approach and demonstrate a significant increase of the video bit rate compared to HTTP-DASH on mobile broadband and wireless home network infrastructures as well as an emulated broadband access network path.

S. Khemmara, **R. Zhou, D. K. Krishnappa L. Gao,M. Zink**[5]- Even though user generated video sharing sites are tremendously popular, the experience of the user watching videos is often unsatisfactory. Delays due to buffering before and during a video playback at a client are quite common. In this paper, a prefetching approach for user-generated video sharing sites like YouTube. It motivate the need for prefetching by performing a PlanetLab-based measurement demonstrating that video playback on YouTube is often unsatisfactory and introduce a series of prefetching schemes: (1) the conventional caching scheme, which caches all the videos that users have watched, (2) the search result-based prefetching scheme, which pre-fetches videos that are in the search results of users' search queries, and (3) the recommendation-aware prefetching scheme, which pre-fetches videos that are in the recommendation lists of the videos that users watch. It explore the trade-offs and feasibility of implementing recommendation-aware prefetching.

Christopher Müller and Christian Timmerer [6]describes the implementation of a VLC media player plugin enabling Dynamic Adaptive Streaming over HTTP (DASH). DASH is an emerging ISO/IEC MPEG and 3GPP standard for HTTP streaming. It aims to standardize formats enabling segmented progressive download by exploiting existing Internet infrastructure as such. Our implementation of these formats as described in this paper is based on the well-known VLC. Hence, it is fully integrated into the VLC structure and has been also submitted to the VLC development team for consideration in future releases of VLC. The plugin provides a very flexible structure that could be easily extended with respect to different adaptation logics or profiles of the DASH standard.

Iraj Sodagar[7] said MPEG has recently finalized a new standard to enable dynamic and adaptive streaming of media over HTTP. This standard aims to address the interoperability needs between devices and servers of various vendors. There is broad industry support for this new standard, which offers the promise of transforming the media-streaming landscape.

S. Y. Wu and C. E.[8]presented dynamic adaptive approach that provides multimedia data suitable for a terminal unit environment for mobile streaming services, when there are multiple optional streaming sources in the cloud mobile network, the optimal resolution and bit rate cannot be selected for playing, according to the hardware and network status conditions. And it describes a parallel low-power design on the system level. Under the condition of preserving the original decoding process, we manage the size of the system's multimedia buffer by considering the spontaneous streaming transfer and tuning the decoding process scheduling time by using the Dynamic Voltage Frequency Scaling (DVFS) system.

PROPOSED WORK

The use of mobile device is increasing day by day. The concepts lead to next generation wireless network 4G. Mobile device user watched videos on-line rather than off-line mode. On the current network we are facing the problem of worse quality of data during buffering will be overcome by providing local side buffer storage. So the user will not receive worse quality content even if network bandwidth changes within a period of time. HTTP streaming approach is proposed, which evaluates the weights of media segment to decide the transmitting properties based on the current playing time and adjust the appropriate transmission path. Through the decision making network controllers according to the utilization and stability of   routers and switches in SDN.

CONCLUSION

Form all these papers we come to know that still there is a need to work on media streaming strategies. Adobe Systems HTTP Dynamic Streaming, Apple Inc. HTTP Live Streaming (HLS) and Microsoft Smooth Streaming are some of the most popular Adaptive HTTP streaming solutions but these are not specified by international standards. MPEG-DASH is the first adaptive HTTP-based streaming that is an international standard. There are only a few video players with HTTP streaming implementation that converts .avi files to XML to fasten the speed.so, there is need of a video player based on http streaming that will be compatible with different environment settings.

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