Impact Factor Value: 4.029 ISSN: 2349-7084
International Journal of Computer Engineering In Research Trends
Volume 4, Issue 10, October - 2017, pp. 441-443 www.ijcert.org

A Framework of Adaptive Video Publishing and sharing in Cloud Network

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Abstract:-The video traffic demands are raising over a mobile network through wireless link capacity cannot meet with the demand of video traffic. The increasing traffic demand is considered by video streaming and downloading. As a result, there is a gap between link capacity and traffic demands together with the time varying condition which results in the poor quality of video streaming service over a mobile network such as sending long buffering time and intermittent disruptions due to limited bandwidth and wireless link condition. Cloud computing provides various advanced services, AMES cloud network framework built to provide video services to user, it has two main parts: Efficient social video sharing and Adaptive mobile video streaming which built a private agent, which provides video streaming service for each user in the network efficiently. Thus, it provides efficient storage over cloud network.

Keywords: Adaptive Video Streaming, Scalable Video Coding (SVC), Efficient Video Sharing, HTTP Live Streaming (HLS).

1. Introduction

In cloud, live video streaming is an interesting area. It provides new ways of delivering effective media content like video and audio. An individual can run their own effective media infrastructure, flexibly at low cost without depending on private agent. Hence, this results in delivering on demand video and live video streaming. The concept of iterative process of infrastructure and shared services are in Cloud computing. It cooperates with the availability of effective low-cost computers, high-speed bandwidth, storage devices and the widespread adoption of hardware virtualization and service oriented architecture. Due to the increase of more traffic demands over a network having the difficulty in streaming and downloading while the video streaming is not so challenging in the wired networks [1]. It has been suffering from video traffic transmissions over a wireless network of scares bandwidth. It takes effort to improve the wireless link bandwidth and rising video traffic demands from users are rapidly causing the wireless link capacity. There have been many studies to enhanced the better service quality of streaming based on two aspects, it is shown that users the streaming is not popular in wired networks and obtaining problem from transmission of video traffic over a scare bandwidth.

A] Adaptive Video Streaming Techniques:

The video traffic rate is adjusted so that the user can experiences the best video quality based on the time-varying link capacity bandwidth in Adaptive Video Streaming Technique. The adaptive streaming service can switch among the different bit rate segments encoded with the configurable bit rate and resolution at the server where clients dynamically request the videos based on the monitoring of link quality. The rate adaptation control techniques, the streaming service over network is control by TCP rate control methods [2]. It provides the function of packet loss rate, packet size and round trip time. Adaptively is controlled by the server or the receiver. In adaptive video streaming technique the scalable video coding is deployed in the real time SVC encoding and decoding at server [3].

B] Mobile Cloud Computing Technique:

It provides the streaming service in the wired internet especially because of its capability and scalability [4]. The cloud computing based services requires more factors to consider in mobile environments they are user mobility, wireless link dynamics and limited capability of mobile devices [5].

The new designs of cloud computing indicates that the virtualized third-party agents are fulfilling the requirements of quality of service of individual users. It proposes to design a cloud framework prototype using private agents in the cloud to provide adaptive streaming services efficiently.

2. Methodology

In cloud framework the adaptive video publishing and sharing framework are called as AMES-Cloud. Video service provider stores popular videos where as video cloud having a large scale of video base. The temp VB counts the access frequency of each video clips and also catch the new candidates for the most popular videos. The video collector try to find the videos which are already popular in video separator and re-encode the collected videos in the scalable video coding (SVC) format and store it to temp VB. Management is done by the central controller (CC). This is the two tier architecture: data deliver and data center [6]. VC creates the sub VC dynamically when video traffic demand is increases. The sub VC is having the sub VB fetching the recently video segments. The delivering of video from VC and sub VC are not similar but it is only a link operation within the data center, sub VC is also having the encoding function. If the end user demanding for video which is not available in sub VB and VB then VC will be fetch and encoding the video and the transfer to user. Each user will report about its link condition to their sub VC, user device has temporary catching called as local Video Base and it is also used to buffering and Prefetching [7]. The VC provides efficient video streaming, efficient video sharing and storage.

(i) Efficient streaming Videos: It is necessary to increase the streaming of video data and provides click and play functionality by increasing prefetching. It is used Social Network Services (SNSs) based prefetching for increasing the video streaming and publishing.

(ii) Efficient sharing Videos: In cloud it adjust the streaming flow with scalable video coding technique.

(iii) Security Over Cloud: It defines a security issues for storing, sharing, streaming and storing the videos that not any one can access videos over a cloud. It should be used the bit level security using RSA algorithm.

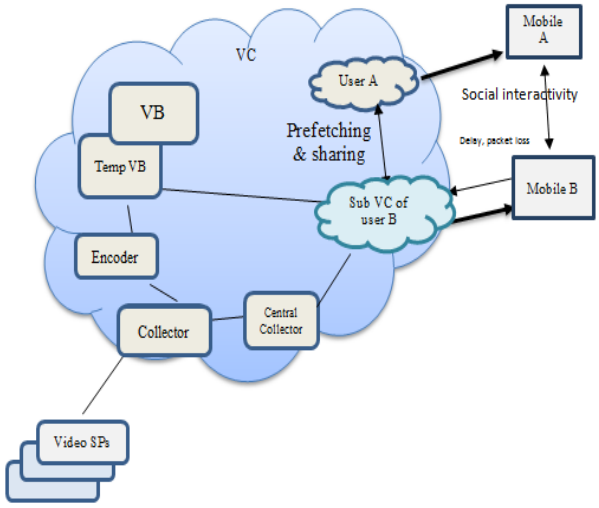

Fig 1: Cloud framework

3. Proposed Work

Cloud computing using techniques for flexibly provide scalable resources to content, service providers, and process of loading to mobile users. Thus, cloud data centers can easily provision for real-time video services as. Several studies on mobile cloud computing technologies have proposed to generate third party agents for servicing mobile users [8]. Hence, in the cloud, multiple agent instances can be maintained dynamically and efficiently depending on the time-varying user demands.

We proposed HTTP Live streaming (also known as HLS) is an HTTP based media streaming protocol for communications, is to be used in cloud framework. HLS is an adaptive streaming video delivery protocol for devices. It utilizes the .M3U8 index files to deliver live and on-demand video and H.264 video codec, which is segmented and encapsulated in MPEG2 transport streams. Automatically selects the most appropriate stream given available bandwidth, CPU and platform constraints, downloads a manifest for that stream, and then downloads segmented chunks to the buffer for the playback in the mobile. HLS video streaming provides the best user experience. Its benefits also include good IT practices and important business considerations:

a) The best user experience for mobile users.
b) Reach more viewers and maintain quality videos.
c) Save data transfer.
d) Secure video content in cloud.

Here implementing Real-Time Messaging Protocol (RTMP) to stream on demand content. Use the RTMPE (Encrypted tunneled for HTTP) protocol instead of the regular RTMP, to secure it.

4. Conclusion

In cloud computing the adaptive video streaming technique and scalable video coding techniques can be combined to form the effectively best quality of video streaming services. Aim of proposed system is that it will reduced the traffics and provides the implementation of protocol to minimize data usage and effectively uses bandwidth capacity. As per the methodology it proposes the algorithmic approach for the conversion of video scalability, depending upon the strength of signal received from the system. It also proposes the preservation of viewed videos over cloud computing. In that the server will automatically detect the signal and subsequently convert the video in the most optimal streams and further to provide "non buffering" experience of video streaming. The mobile streaming. This cloud computing technique enhances streaming and social feature which reduces cost effect. The focus of this paper is to verify how cloud computing can improve the transmission adaptability, quality of video and pre-fetching for mobile users. The cost of encoding video in the cloud while implementing the prototype is ignored. As one important future work, the SNS-based pre-fetching, and security issues in the Cloud network framework can improved.

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