International Journal of Advanced Research in

Computer Science Engineering and Information Technology

Volume: 4 Issue: 3 09-Apr-2015,ISSN_NO: 2321-3337

A Novel Mobile Streaming Approach For Sharing Videos In The Cloud

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Abstract-- *As we all knows that the mobile phones become important part of our daily life, along with increasing use of mobile phones also end-user demands also increased ,one of that is video streaming in mobile network. As video traffic is increased now a days, the wireless link capacity is not such flexible as like video traffic, result in poor quality of video streaming over mobile networks such as long buffering time and intermittent disruptions. The new cloud computing technology, a new framework to get improved quality of video services for the mobile users, which contains of two different parts: AMoV (adaptive mobile video streaming) and ESoV (efficient social video sharing). AMoV and ESoV design a private agent for each mobile user. For a given user, AMoV lets her private agent adaptively adjust her streaming flow with a scalable video coding technique (H.264 SVC technique) based on the feedback of link quality. Similarly, ESoV monitors the social network interactions between mobile users, and it provides that the private agents try to prefetch video content in advance. It is shown that the private agents in the clouds can effectively provide the adaptive streaming, and perform video sharing (i.e., prefetching) based on the social network analysis.*

Keyword- Scalable video coding, Adaptive video streaming, Mobile networks, social sharing, Cloud computing.

1, INTRODUCTION

Over few years, video streaming is becoming challenging through the wireless link than on wired link. To reduce the problems regarding with the video streaming, with the help of cloud computing technology, we propose a new mobile video streaming framework, that is AMES- Cloud, which has two main parts:

1. Adaptive mobile video streaming (AMoV). 2.Efficient social video sharing (ESoV).

To improve the service quality of mobile video streaming, there have been studies two aspects:

1.1, Adaptability:

Traditional video streaming technique designed for stable traffic link between server and users. Due to this perform poorlymobile environment. To address this issue, we have to adjust the video bit rate adapting to the currently time-varying available link bandwidth of each mobile user. Adaptive streaming techniques can effectively reduce packet losses and bandwidth waste.

1.2, Scalability:

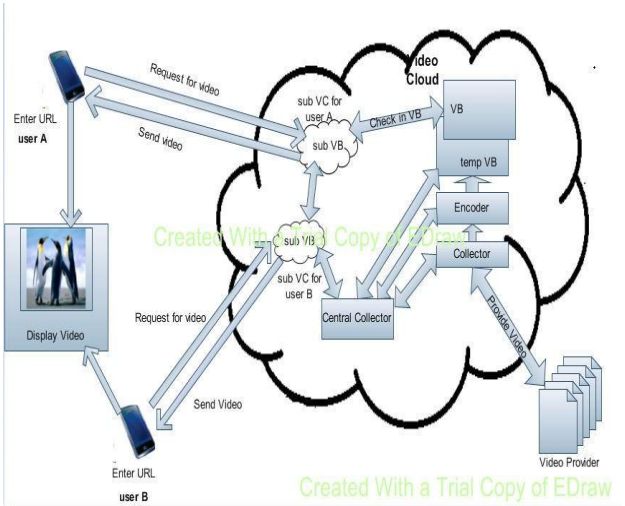
Mobile video streaming services should support a wide spectrum of mobile devices, they have different video resolutions, different computing powers, different wireless links and so on. And also the available link capacity of a mobile device may vary over time and space depending on its signal strength and link condition variation. To address this issue, the Scalable Video Coding (SVC) technique defines a base layer (BL) with multiple enhance layers (ELs). By the SVC, a video can be decoded/played at the lowest quality if only the BL is delivered. However, the more ELs can be delivered, the better quality of the video stream is achieved.

Now days more number of peoples are addicted to fetch the video from networks like 3G/4G mobile networks. These peoples are often suffer from problems of traffic while receiving video due to short bandwidth and link fluctuations. And these users are also suffer from long buffering time and distruptions or different problems. Thus, to avoid all these problems and improve the mobile quality of video streaming need we propose new framework.

2, PROPOSED SYSTEM WITH SYSTEM ARCHITECTURE

System architecture contains following main parts, each having separate functions.

- User
- Video Cloud
- Sub Video Cloud
- Video Base
- Central Controller
- Temp. Video Cloud
- Encoder
- Collector
- Video Service Provider



Let us see functionality of each, with the help of system architecture.

The whole video storing and streaming system in the cloud is called the Video Cloud (VC).In the VC, there is a large-scale video base (VB), which stores the most of the popular video clips for the video service providers (VSPs). A temporal video base (tempVB) is used to cache new candidates for the popular videos, while tempVB counts the access frequency of each video. The VC keeps running a collector to seek videos which are already popular in VSPs, and will re-encode the collected videos into SVC format and store into tempVB first. By this 2-tier storage, the AMES-Cloud can keep serving most of popular videos eternally.

There is also encoding function in subVC (actually a smaller-scale encoder instance of the encoder in VC), and if the mobile user demands a new video, which is not in the subVB or the VB in VC, the subVC will fetch, encode and transfer the video. During video streaming, mobile users will always report link conditions to their corresponding subVC's, and then the subVC's offer adaptive video streams. Each mobile device also has a temporary caching storage, which is called local video base (localVB), and is used for buffering and prefetching. As the cloud service may across different places, or even continents, so in the case of a video delivery and prefetching between different data centers, an transmission will be carried out, which can be then called "copy".

3, RELATED WORK

3.1, Adaptive Video Streaming Techniques

In the adaptive streaming, the video traffic rate is adjusted so that a user can experience the maximum possible video quality based on his or her link's time- varying bandwidth capacity. There are mainly two types of adaptive streaming techniques, depending on whether the adaptively is controlled by the client or the server. The Microsoft's Smooth Streaming is a live adaptive streaming service which can switch among different bit rate segments encoded with configurable bit rates. Recently the H.264 Scalable Video Coding (SVC) technique has gained a momentum. An adaptive video streaming system based on SVC is deployed in , which studies the real-time SVC decoding and encoding at PC servers. The work in proposes a quality-oriented scalable video delivery using SVC, cloud computing can significantly improve the performance of SVC coding.

3.2, Mobile Cloud Computing Techniques

The cloud computing has been well positioned to provide video streaming services, especially in the wired Internet because of its scalability and capability. For example, the quality-assured bandwidth auto-scaling for Video streaming based on the cloud computing is proposed , and the CALMS framework is a cloud-assisted live media streaming service for globally distributed users. However, extending the cloud computing-based services to mobile environments requires more factors to consider: wireless link dynamics, user mobility, the limited capability of mobile devices. More recently, new designs for users on top of mobile cloud computing environments are proposed, which virtualized private agents that are in charge of satisfy the requirements (e.g. QoS) of individual users such as Cloudlets and Stratus . Thus, we are motivated to design the AMES-Cloud framework by using virtual a gents in the cloud to provide adaptive video streaming services.

4, LITERATURE SURVEY

4.1, Existing System

Now days we are familiar with the use of You Tube, but while fetching video from YouTube or any other social media we encounter many problems like long buffering time or we didn't get clear video. This is because of fluctuations in bandwidth. Due to such problem operating such system become time consuming.

4.2, Proposed System

We propose a Novel mobile streaming approach for sharing videos in the cloud, called AMES-Cloud , which efficiently stores videos in the clouds (VC), and utilizes cloud computing to construct private agent (subVC) for each mobile user to try to offer non-terminating video streaming adapting to the fluctuation of link quality based on the Scalable Video Coding technique. Also AMES- Cloud can further seek to provide less buffering experience of video streaming by background pushing functions among the VB, subVBs and localVB of mobile users. We evaluated the AMES-Cloud by prototype implementation and shows that the cloud computing technique brings significant improvement on the adaptivity of the mobile streaming

4.3, Cloud Computing Techniques

Cloud computing techniques are used to provide scalable resources to content, service providers, and process offloading to mobile users. Thus, cloud data centers can easily provision for large-scale real-time video services as. Several studies on mobile cloud computing technologies have proposed to generate personalized intelligent agents for servicing mobile users, hence, in the cloud, multiple agent instances or multithreads can be maintained dynamically and efficiently depending on the time-varying user demands.

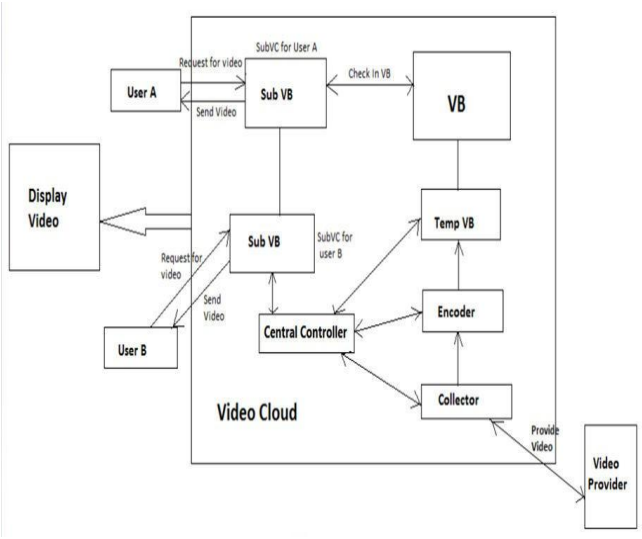


Fig 2. Block Diagram of system

In above fig. we see number of blocks in that user block indicate the functionality of user, that means user request for the video to the subVc, VB(Video Base) block used to store most popular videos, SubVB (Sub Video Base) block is specialized for each mobile user, when user request for a video this subVc automatically created, which stores the recently fetched video segments, entire management work will be handle by Central Controller block in VC(Video Cloud),temp VB stores temporary videos, VSPS are Video Service Providers which provides video from external source. Output of this block diagram is display requested video.

5, MODULES

Module1 - Central Controller
Management work will be handled by controller in the VC.
Input –Request of video through http protocol. Output – Creation of sub VC.

Module2 - Sub VB (Sub Video Base)
Sub video base (Sub VB) which stores the recently fetched video segments.
Input –Name of video. Output –Display that video.

Module3 - VB (Video Base)
It is a large scale video base, contains most popular video clips for video service providers.
Input – Name of video. Output –Share link to sub VC.

Module4 - Video Service Provider(VSPs):
If user demands for a video & that video is not present in VC then VSPs should provide that video to VC. Input – Name of video.
Output – Provide that video to VB.

Module5 - User
It is nothing but android phone user who sends the request for video to this system.
Input – Request for video. Output –Display video.

6, PROJECT SCOPE

This project is developed mainly for efficient displaying of videos. This system provide the way to concentrate on videos which can be requested by large or maximum number of users having different bandwidth and how our system provide videos to such user with low buffering at the time of video displaying. This system achieve this by using SVC coding technique. Also the cloud computing technique is ready to provide scalable resources to the service providers and process offloading to the mobile users. So, cloud data centers can provision to large scale real time video services. In cloud more than one agent instances can be maintained dynamically and effectively due to mobile user demands.

7, IMPLEMENTATION

A.Hardware Requirement

1. The proposed system is operated using Android Mobile.
2. The mobile are connected using the wi-fi connection.

Software Requirement

1-Operating System- Windows XP/7/8.
2-Front End Language- HTML, java, jsp
3-Back End Language- MySQL
4-Database Connectivity- JDBC

8, CONCLUSION

AMES-Cloud, which efficiently stores videos in cloud (VC),and utilizes cloud computing technique to construct private agent (SubVC) for each mobile user to try to offer non-terminating video streaming adapting to the fluctuation of link quality based on the Scalable Video Coding technique. Also system can further seek to provide non-buffering experience of video streaming by background pushing functions among the VB, subVB's and localVB of mobile users. Evaluation of the AMES-Cloud by prototype implementation and shows that the cloud computing technique brings significant improvement on the adaptivity of the mobile streaming.

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