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Adaptive Video Data Streaming and Video Sharing in Cloud

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Abstract - As we know that cloud is a drastic data center for outsourced data. Cloud is a familiar tool because of its useful architectural tools. Data sharing is another common habituated property to the common people. These data sharing include video data in social networks, this was done frequently through mobile devices like smart phones, tablets, laptops etc. We focused on difficulties on video interchange over mobile networks. Mobile network consist limited bandwidth and long buffering time. To overcome these issues we propose adaptive mobile video streaming and efficient public video sharing. These two approaches show scalable results in social network environment. With this framework, the overloading buffering time and disruptions can be avoided.

Keywords – secure processing, videobase, sub videobase, secretekeys.

I. INTRODUCTION

Cloud computing is the result of solution and adoption of existing technologies and paradigms. The goal of cloud computing is to allow users to take benefit from all of these technologies, without the need for deep knowledge or expertise with each one of them.

In the past decade, the traffic will gradually more while downloading video and uploading. Specially, over the past few years services of video loading have become ubiquitous over the mobile networks. In wired networks the video streaming is not so demanding, due to the less bandwidth and limited capacity mobile networks have been suffer from video transfer transmission . In the network operator distracted hard work to improve the bandwidth of wireless link, high video interchange load and the wireless link capacity are quickly crushing by user. Hence, this can be critical to recover the quality service for video loading when use the network and resource resourcefully. In recent times there are two facts to progress the quality service for video loading.

Scalability: The extensive range of mobile devices should supported by Mobile video loading services. That should be in different resolutions of video, different powers of computing, different wireless relations and so on.

Depending on its signal strength the mobile device existing link capacity may differ in excess of space and time. It may occur the over head for storage and communication while storing multiple versions of the same video. Here we are using the Scalable Video Coding (SVC) technique which can encode the elevated quality video that also contain one or more subsets.

Here the subsets can be having three different features:
1. The layering image resolution for spatial scalability,
2. The layering the frame rate for temporal scalability,
3. The layering the image compression for quality scalability.

Adaptability: By considering comparatively constant transmit content between users and servers, execute badly in portable networks, then conventional video streaming techniques can be designed. Here the unreliable wireless link grade must be correctly dealt with to give acceptable video loading service. Here we need to change the video bit rates to the currently time varying accessible bandwidth links of each individual user for dealing with the problem. We can reduce the packet loss and bandwidth loss by using adaptive loading techniques. The scalable video data and the adaptive loading technique preserve for both shared to complete successfully the preeminent probable video services for quality.

Though most of the proposal looking for together uses the video scalable and adaptable techniques. So, each individual user needs to separately report the program status from time to the server that can modify the accessible bandwidth for each individual user. Here the as the number of users increases the server should take over the significant dispensation transparency that is one of the problem.

Here the scalable property to content service provider, and method off-load to individual users can be flexibly balanced by cloud techniques. So that, the important coincident services for video as consider in several study on mobile cloud technology have planned to produce modified intellectual users for servicing mobile users by cloud data centers.

In recent times social network services have been gradually more admired. By using SNs we will be recover the content delivery quality. Here in these SNs, the videos among friends can be shared, repost and comment by users and same group members, that can be user can watch a videos which are suggested by her friends, Users in SNSs can also follow popular videos and recent videos watched by their friends.

By the way, in order to reduce the loading time of the video we have to prefetch the video in advance or even to send the whole video to the members of the group. Then this can be automatically finished at the back ground that job can be done by the private agent. When the user clicks the video it can be playing without loading time.

Here by keeping the above objectives in mind, we plan the adaptive video loading and the framework for individual users, i.e. AMES Cloud. Here this framework creates a personal agent for each individual user in cloud environment that can be divided into two sub parts:

1. AMoVs
2. ESoVs

Here the AMoVs offer the top probable loading experience in adaptively scheming the loading bit rate depending on the variation of the link quality. By using scalable video coding technique the private agent will control the streaming bit rates. The link status information will always keeps by the private agent. This personal agent of user be energetically initiate with optimized in the cloud stage. Here the valid time SVC code is ready on the cloud side resourcefully.

This cloud supports distribute video streams resourcefully by providing a 2tier structure: those are content delivery network and data center. Through this structure, with in the cloud only video sharing can be optimized. It can downloads of popular videos and reduce the unnecessary redundant videos. And the second part of AMES Cloud is ESoVs; here the popular videos can be prefetched before by the private agent. The video can be stored depending on the strength of the social links between users.

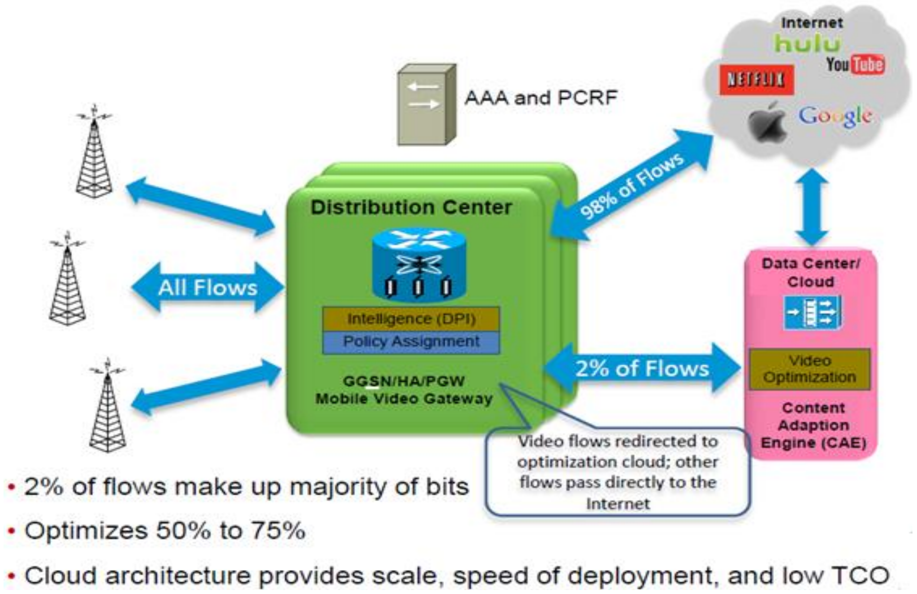


Fig-1: Cloud Structure

II. RELATEDWORK

In the late 1950s, when computers (mainframe) were enormous and expensive, hardware time-sharing came to light. They were used mainly for computing rigorous military operations. In 1961, John McCarthy stated in a speech at MIT that computing can be sold like a utility such as electricity or water. It was a brilliant idea, but the technology was clearly not prepared for it signifying that the idea was ahead of its time. The next few decades brought about the expansion of the concept to include more than sharing a processor. It became known as "utility computing" and then "grid computing" in the 1980s and 1990s. Of course time has passed and the technology caught up with the ideas and there are a few milestones we have to mention.

The development of the home computer by Apple in 1977 and the personal computer by IBM in 1981 ushered in a new age of computing. Several companies understood that servers resident in normal computers could be mounted at lower costs compared to mainframes. This realization steadily brought about the exit of mainframes and the entry of personal computers. Another factor was the reduced cost of personal computers. The 1990's saw the commencement of the wide spread use of the Internet and this brought back the trend of having lots of computers access one main server. The rise in the Internet usage and numerous requests to the server made it essential to have web servers with enough power to handle such requests. This is on the increase even till today as users demand more web services and storage space. At an increasing rate, applications are now being moved from the personal computer to servers on the Internet due to the increase in server speed and the abundant devices (i.e. mobile devices) to access this service. Today, the Internet can handle substantial computations as providers have made this facility available and customers can together share the same infrastructure, thus reducing costs and increasing effectiveness.

The year 1999 saw the advent of the first ever cloud service. It occurred when Sales force created a website committed to granting enterprises applications over the internet. The once fuzzy dream of Paul McCarthy has now come into being as now computing can be sold like a utility. Although this was a success, it would take some time until it would become extensive. Amazon, in 2002, launched the Amazon Web Services (AWS) which was considered the next major development in this field. It offered services such as storage, computation, to a large degree, human intelligence and other services to its customers. Then in 2006, Amazon launched the Elastic Compute Cloud (EC2). This afforded small companies and individuals the means to run their own computer applications in the cloud.

III. EXISTING METHODOLOGY

Whereas delivery video stream transfer via 3G/4G mobile networks, mobile users often suffer from lengthy buffered time and asymmetrical disturbances due to the partial bandwidth and linkage condition variation cause by multi path vanishing and client mobility. So, it is critical to develop the check feature of mobile video stream though use the network and compute assets efficiently.

DISADVANTAGES

- It has to maintain various bit rates for different copies of the video content.
- Thus to extend the services to mobile environment require more considerations to think

1. To improve Wireless link dynamics.
2. To maintain User mobility.
3. And maintain limited capability of mobile devices

IV. PROPOSED METHODOLOGY

We propose an adaptive streaming and framework sharing, that is AMES Cloud, the videos can be stored in the cloud, and utilize cloud computing for each mobile user. We can construct private agent, by using Scalable Video Techniques, the private agent will reduce the buffering time. Also it can provide nonbuffering experience of video loading by background work among the Video Base, subVideoBase and localVideoBase of mobile users. Here we are implementing the framework by using archetype and that can be important development on the adaptively of the mobile stream. Here we implement the prototype, while overlooked the cost of programming workload in the cloud.

ADVANTAGES

- We can keep serving most of people videos externally.
- It can be particular for each portable user.
- Reduces cost and time.

The entire video store and stream method in the cloud is called the Video Cloud (VC). In the VC, here is a large scale video base (VB), which supplies the majority of the popular video clip for the video service providers (VSPs). A temporal video base (tempVB) is use to reserve original candidate for the popular videos, as tempVB count the access regularity of all videos.

The VC keep operation a antenna to seek out video which are previously popular in VSPs, and will re encode the composed videos in to SVC arrangement and store up in to tempVB first. By means of this 2-tier storage, the AMES Cloud able to maintain serve the majority of popular videos forever. Reminder that managing work will be handling by the organizer in the VC. Specific for each one movable client, a sub video cloud (subVC) is formed vigorously if here is any video stream demand as of the client.

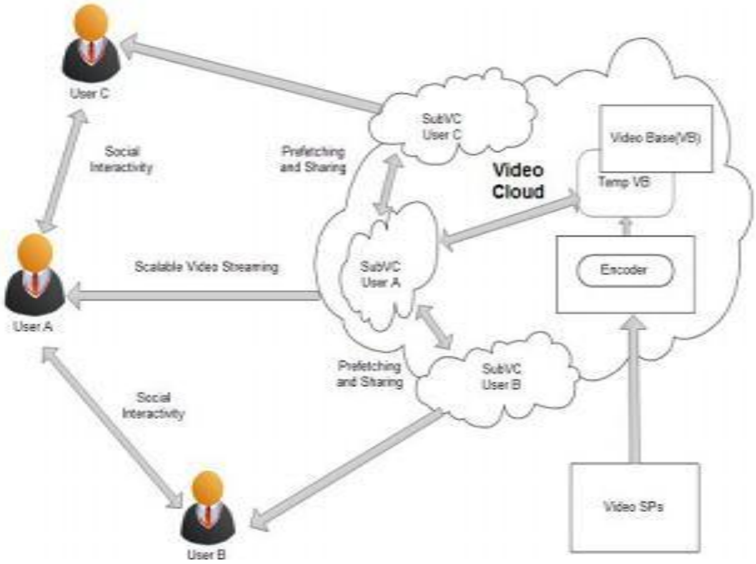


Fig 2: System model

The subVC have a SubVideoBase (subVC), which stores the in recent times fetch video segment. Make a note of that the video delivery along with the subVCs and the VC in main cases are essentially not 'copy', but just 'link' process on the similar file eternally inside the cloud data center.

V. IMPLEMENTATION

Implementation is the stage of the project where the theory is accepted and initiation of process to convert theory into working system. Hence it can be considered to be the most important stage in achieving a successful new system and in giving the user, so that the new system will work and be effective.

The implementation step involves cautious planning, analysis of the current system and it's constraints on implementation, we can achieve barter and evaluation of changeover methods by using designing methods.

Here the following are the three modules that are used in the proposed system.

1. Admin
2. User1
3. User2

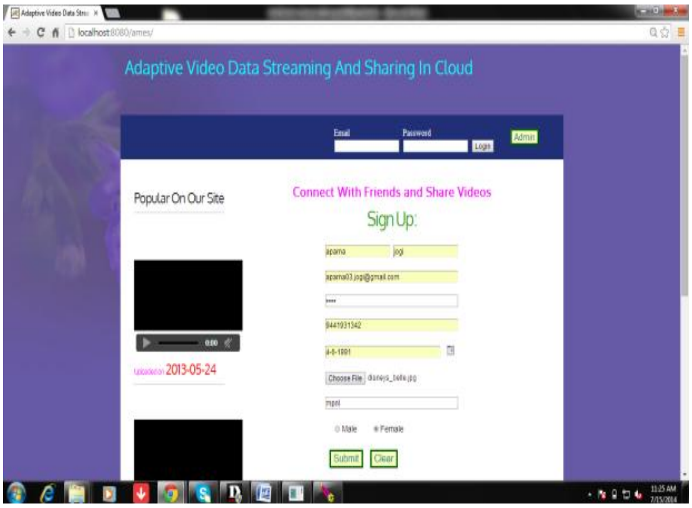
1. ***Admin*** **:**Here in this module, there are four associate modules. Those are,

- **Upload Video:** Here Admin can add a new video. It is used for user for viewing more collections.
- **User Details:** Admin can view the user those have registered in this site.
- **New Video's:** In this module the admin can restrict unexpected videos from users by accept or reject videos then only user can or cannot access to view their own videos.
- **Logout:** Admin can logout after finishing his work.

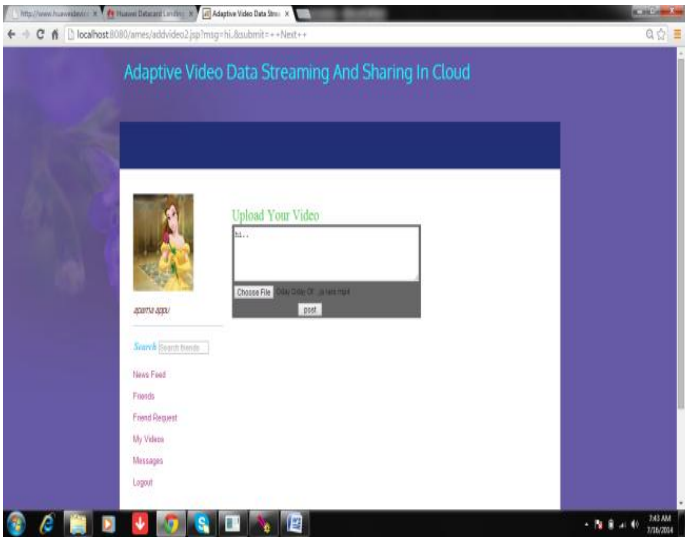
User 1: This module includes registration of user with personal information and password creation.The following are associate modules in user1 module,

- **News Feed:** The user can get access to view the status, videos or messages of accepted friends.
- **Search Friends:** User can search for links, send friend request and also can view their allowed details.
- **Share Video:** The user can share videos with his friends by adding videos.
- **Update Status:** In this module, the user can update status**.**
- **Friends:** In this module, the user can see the accepted friends details.
- **My Videos:** In this module the user can check their updated videos.
- **Messages:** Here user can view the messages from friends.
- **Secret key:** Will be generated by admin, when the user wants to view shared video.
- **Logout:** Here the user can logout after finishing his work.

2. ***User 2:***This module includes registration of user with personal information and password creation. The user can share the messages and share the videos. And also receiving comments for those videos.
Through this paper we are reducing the buffering time and cost for uploading videos. The following images showed how the process will done.
User login page:

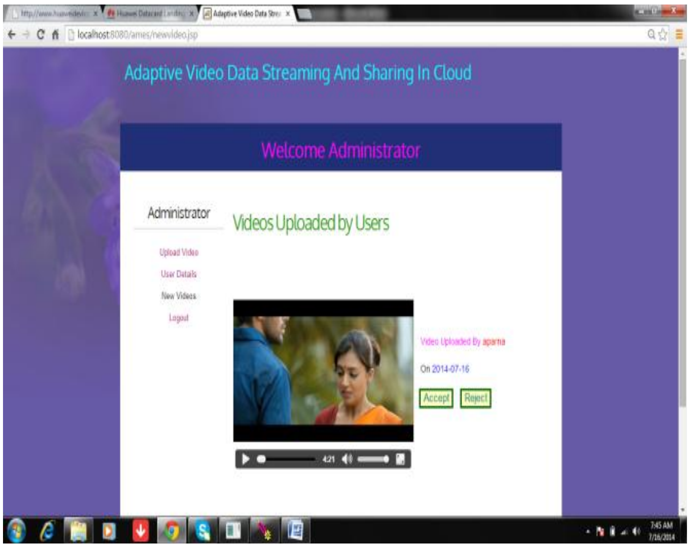


The user must have to register before he has to login.
Uploading video page:



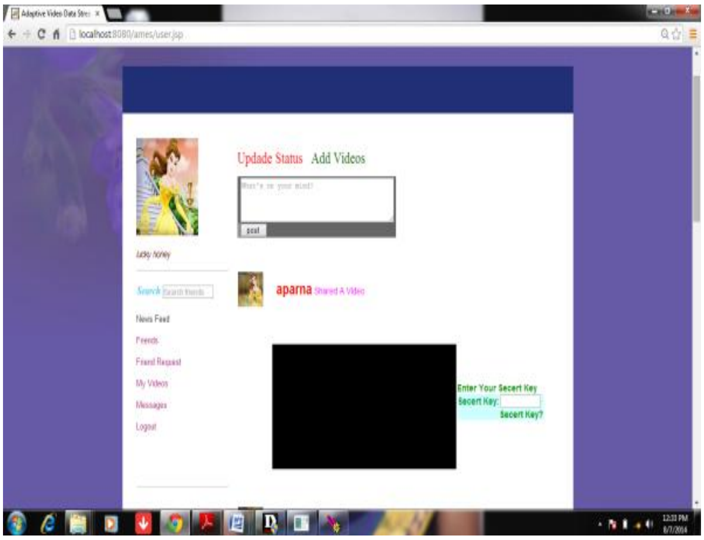
User can upload the videos , then that videos can only seen by other users when that videos can accept by the admin, and the user provide private key to that user.

Admin acceptance page:



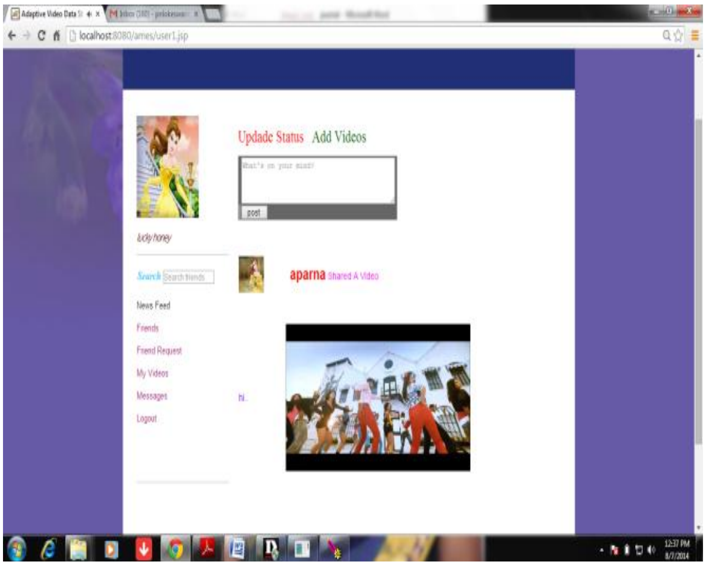
Here the videos are accepted by the admin, only when the user is authorized person.

Video downloading page:



The video will be play only the other user got the secret key.

The video playing page:



The video will be played without any buffering time finally..

ALGORITHM

Matching Algorithm between BW and Segments

1 . i = 0
2. BW0 = RBL
3. Transmit BL0
4. Monitor BWpractical
5. repeat
6. Sleep for Twin
7. Obtain pi, RTTi, SINRi etc., from client's report
8. Predict BWestimate
9. i+1 (or BWestimate
10. i+1 = BWpracticali)
11. k=0
12. BWEL=0
13 repeat
14 k++
15 . if k >= j break
16 .BWEL=BWEL + RELk
17. until BWEL >= BWestimate
18 . i+1
19. ☐ RBL
20. Transmit BLi+1 and EL1
21 . i+1, EL2
22 . i+1,..., ELk□1
23 . i+1
24 . Monitor BWpractical
25. i+1
26. i++
27. until All video segments are transmitted

Assume that the segmentation/adjustment interval is Twin seconds, the procedure of throughput estimation and bit rate adjustment is shown in Algorithm. Note that in Seg i means the i th segment, and, in Seg∗ i , ∗ indicates either low, mid or high quality version of the video stream of i the segment. Likewise, S∗i means the size of the corresponding quality version (*) of the i th segment. Self t means the remaining bytes of the currently downloaded segment that have not been received yet. BW practical i is the estimate bandwidth of the link during the i th interval, and Q next is the estimated link quality for the next interval.

VI. CONCLUSION

In this project, we shown the usefulness of an adaptive mobile video streaming and sharing framework, here mainly the videos are stored in cloud. Scalable Video Coding techniques offer non terminating and non buffering video streaming experience for mobile network consist limited bandwidth and long buffering time.

Cloud computing technique brings significant improvement on the adaptivity of the mobile streaming. Cloud computing can improve the transmission adaptability and prefetching for mobile users. The prefetching of videos can be improved by using scalable video coding efficiently and also by predicting users behavior.

VII. FUTURE WORK

Way forward for this project is large scale implementation with the consideration of saving energy , reducing cost and improving the security and also reducing the buffering time for downloading all types of video's. And it will be an enhanced mechanism in all social networks where we can download the videos without any buffering.

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