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Efficient Video Sharing, Streaming System for Mobile Devices

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Abstract— Mobiles usage ratio in day to day human life tremendously more especially Smart phones, Tablets etc. is to give much user friendly and more interactive. In terms of the quality and services offered to mobile users is not so realistic due to the life span of battery lifetime of mobile devices and also the wireless connectivity is not reliable. So the cloud computing Technology helps us to overcome from the problem of these limitation of mobile devices and connectivity, it provide a right platform to provide the services to mobile. The key challenge is to how we are using these cloud computing resources to enhance the best mobile service, more importantly user interaction and life of the battery. This paper, we introduce for the design of mobile Social TV system using cloud based novel. The Services we used here is Paas (platform as a service) and Saas (software as a service) cloud services. In this services a mobile users who want to interact socially when sharing a particular video with a group in a living room experience of video watching. In order to give the best streaming of video and clarity experience to the mobile users with wireless connection.

Keywords—mobile Social TV, view videos using cloud, video streaming, portable television

I. INTRODUCTION

Smart phones usages are very popular nowadays with good configuration, multiprocessor cores gigabytes RAMs; in this generation the mobiles phone configuration are higher than the computers of few years ago. Mobiles are supporting 3G network and broadband cellular infrastructures to enhance and support the new trends like emails, gaming, and web browsing, Smartphone's are still need strengthen the more challenging parts like streaming the real time video and online gaming, and also to provide services for social exchanges.

There are several mobile and media application are exist with low cost, agile and many services are offered. But still there are no applications supporting whatever we are going to propose the system using the cloud computing. This is very important and big challenge how we can use the cloud service where it reaches to user's expectation. Cloud computing provides the rich experience to the end users. Virtually with more battery life and if we want to introduce an idea, proper design to deal with situation is a big challenge how to apply the ideas to cloud services for mobile application. When there are many studies available for designing mobile cloud computing system but none of them have done research to provide the solution for continuous or spontaneous social interactivity for mobile users.

The main focus is to design mobile social TV streaming system, to enhance and provide the rich experience to the user by utilizing cloud computing services for spontaneous social interactivity between the different mobile users.

II. RELATED WORK

A. Amigo TV: towards a social TV experience

In [1] the concept of Amigo TV allows users to communicate over favourite TV broadcast content in real time with friends in a simpler manner on television. The most common part of interacting in most cases, Amigo TV users are voice interaction as the primal way of communication with their buddies. Indeed, interaction with selected possible friends that are on the same channel at same moment as the concept of a private room associated to a certain channel is very important to provide a special content related experience.

A number of mobile TV systems have sprung up in recent years, driven by both hardware and software advances in mobile devices. Some early systems bring the "living room" experience to small screens on the move. But they focus more on barrier clearance in order to realize the convergence of the television network and the mobile network, than exploring the demand of "social" interactions among mobile users. There is another trend in which efforts are dedicated to extending social elements to television systems [4] [5]. Coppens et al. [4] try to add rich social interactions to TV but their design is limited to traditional broadcast program channels. Oehllberg et al. [5] conduct a series of experiments on human social activities while watching different kinds of programs. Though inspiring, these designs are not that suitable for being applied directly in a mobile environment. Chuahetal. Extend the social experiences of viewing traditional broadcast programs to mobile devices, but have yet to deliver a well-integrated framework.

B. Introduction to social TV: Enhancing the shared experience with interactive TV

Here [10] World Wide Web is a huge memory for all the human daily activities and personnel experiences, these are backed up in the form of huge network connectivity of various sorts. It's not that only online newspapers on various

schedule the people are interested in but there are other things like personal blog posts and tweets reflect different personal activities experiences that can be interconnected to events or activities which internally and external. In this way, I introduce our ongoing efforts to capture activity level which comes from people experiences and social media is the language processing techniques. And also discussed is an attempt to semantic social media networks.

C. Social TV: Designing for Distributed, Sociable Television Viewing

The subtle aspects of group television viewing we have just described can powerfully shape the design of future social television technology. Moving from observations to design, we will now briefly describe some possible features that could be implemented to support and encourage sociable, distributed television viewing. We want to emphasize that, while we plan to implement and test some of these features, our main focus so far has been on observing group behaviour, not prototyping. We hope, however, that the design possibilities we describe might inspire future research in this domain. Our experiments using two rooms show that groups can socialize remotely while watching TV using a simple, always-on audio channel. There were no major differences in behaviour whether or not our participants were Co-located. Therefore, this basic communication Infrastructure provided us with a foundation to start from. Currently, we envision Social TV as a Communication module that could be added to a PVR (e.g. TiVo), another piece of audio/video Equipment (e.g. a receiver), or maybe the television

III. PROPOSED SCHEMA

All the above system which we discussed till now have the disadvantages one common disadvantage we are facing in every system is privacy for health data which can be overcome in our proposed paper, in this paper we are using identity based encryption for role based cryptographic access control. We propose the design cloud dependent portable mobile social TV streaming system. The system effectively uses the cloud services like platform-as-service and infrastructure-as-service which will offer the living-room experience of video watching in a group of disparate mobile users where they interact socially. The interaction among the users, in conditions of natural textual exchanges, is effectively attained by efficient designs of data storage with energetic handling of large amounts of concurrent messages in a typical PaaS cloud. These various designs for flexible transcoding capabilities, electric battery efficiency of mobile devices and spontaneous social interactivity together provide an excellent program for mobile social television services.

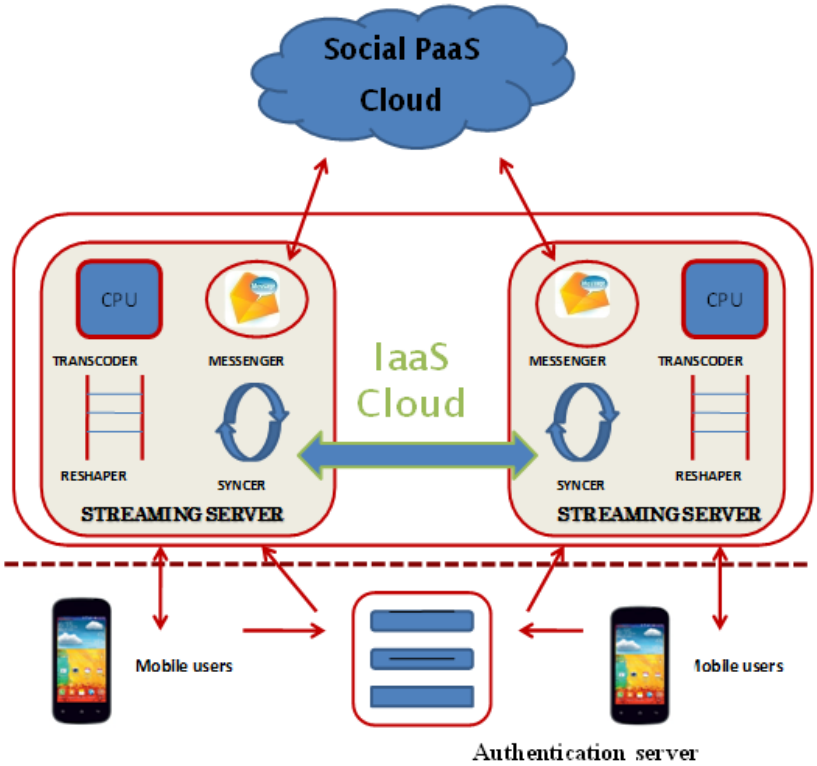

Fig. 1.1: Architecture of cloud dependent portable television buffer streaming

A. Methodologies

Social TV provides two major functionalities to participating mobile users.

1) *Universal streaming:* A user can stream a live or on-demand video from any video sources he chooses, such as a TV program provider or an Internet video streaming site, with tailored encoding formats and rates for the device each time.
2) *Co-viewing with social exchange:* A user can invite multiple friends to watch the same video, and exchange text messages while watching. The group of friends watching the same video is referred to as a session. The mobile user who initiates a session is the host of the session. The detailed designs of the different modules in the following.

In the proposed paper we have three modules.

1) *Mobile client:* A mobile client provides following features to the user.
   - Provides option to select video.
   - Shows streaming video.
   - Allows user to chat with the friends online.
   - Allows user to invite friends to watch video that user is watching
   - A mobile client is a user interface. It allows mobile users to login in to cloud, and provides following features.
   - Allows user to view available videos.
   - Allows user to view live videos.
   - Allows user to invite other users to watch same video.
   - Allows user to accept invitation and synchronize video with invitee.
   - Allows user to chat in group.
   - Allows users to upload videos

2) *Authentication server/gateway:* The authentication server provides authentication services for users to log in to the cloud dependent portable social television streaming system, and stores user's credentials in a permanent table of a MySQL database it has installed. The gateway provides authentication services for users to log in to the CloudMoV system, and stores users' credentials in a permanent table of a MySQL database it has installed. Content provider acts as a proxy between the mobile device and the video sources, providing transcoding services as well as segmenting the streaming traffic for burst transmission to the user. Besides, they are also responsible for handling frequently exchanged social messages among their corresponding users in a timely and efficient manner.
3) *Streaming server:* In this module video resources and mobile users behaves as a main part but the module is a proxy between video resources as well as mobile users. This module has following sub modules.
   - *Transcoder:* It resides in each surrogate, and is responsible for dynamically deciding how to encode the video stream from the video source in the appropriate format, dimension, and bit rate. Before delivery to the user, the video stream is further encapsulated into a proper transport stream. In our implementation, each video is exported as MPEG-2 transport streams, which is the de facto standard nowadays to deliver digital video and audio streams over loss medium.
   - *Reshaper*: The reshaper in each surrogate receives the encoded transport stream from the transcoder, chops it into segments, and then sends each segment in a burst to the mobile device upon its request (i.e., a burst transmission mechanism), to achieve the best power efficiency of the device. The burst size, i.e., the amount of data in each burst, is carefully decided according to the 3G technologies implemented by the corresponding carrier
   - *Messenger*: The Messenger queries the cloud infrastructure for the social data on presence of the mobile consumer and processes the info into a normal text files, by a lower rate of reoccurrence. The normal text documents (in the XML formats) happen to be a delivered from the streaming server for the user in a friendly manner, bit traffic is definitely incurred. In the inverted direction, the messenger defines to other users via the data store of the cloud.
   - *Synchronizer*: The synchronizer keep the assurance that result of this user is consider between time limit of the other users at the accurate time period to reach, the synchronizer will find out the current session host and kind it mobile device user to adjust the position. This are the where friends can enjoy the co-viewing experiences that is "setting together". Apart from the design of communication among messenger, synchronizers is different on streaming server to exchange the messenger.

4) *Functional and non-functional Requirements:* Functional requirement characterizes the elements of the product framework and it additionally tells about how the framework carries on when given particular inputs. The usefulness' it incorporates are figuring's, information control, handling and other particular usefulness of the framework.

   In this paper, the following are the functional requirements of the proposed system.
   - The system should save all registered users information in cloud.
   - The system should provide access to IAAS cloud after verifying user credentials.
   - The system should exchange messages among users.

IAAS cloud includes the following.
- The system should save all uploaded files in cloud.
- The system should encode and reshape requested file.
- The system should provide all available services to users when requested

Non Functional Requirements:

These requirements are the prerequisites related with the particular capacity should be conveyed by the proposed framework. They indicate the method which is used to analyse the operation of the framework developed as to particular

practices. These requirements emerge through the client needs, spending plan limitations, and authoritative approaches, some of the other components such us: .The systems complete the variation Other terms of non-functional requirements are "constraints", "quality attributes", "quality goals", "quality of service requirements" and "non-behavioural requirements". Informally sometimes these are referred the "ileitis", from entity like stable and portable. Qualities that are non-functional requirements can be divided into two main categories:

- Delivery qualities, like security and usability which are visible at run time.
- Evolution qualities, like testability, maintainability, extensibility and scalability that happen to be embodied in the static structure of the software system.
- Security and Reliability

User Characteristics:

- User can chat, upload video, and watch video anywhere with living room experience. User need have a smart phone and internet connection/Wi-Fi to access the cloud services. Each user is associated with one private cloud. Cloud based mobile social TV system. The system effectively utilizes both PaaS and Iaas.
- Good streaming quality and we employ a streaming server for each user in the IaaS cloud for video downloading and social exchanges on behalf of the user.
- security requirements
- Internet facility is required to get the services from the system.
- Android operating system version should be above 3.0 (SDK 11).
- Each and every user is associated with cloud.

IV. CONCLUSIONS

This paper, we are introducing system which incorporates the co-viewing rich experience to mobile users by using cloud services. We also have developed a different idea of sharing user thoughts with their friends and family members by uploading video, chatting, viewing and inviting the multiple friends to view videos using cloud. The application will also provide rich users experience to exchange messages when watching a video so that it easy to share anything immediately.

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