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Cloud-Based Mobile Social TV with VoD

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Abstract: Cloud computing is an attracting technology because of its significant usage in today's era of technology. The cloud will bring changes to the IT industry and it's also changing our life by providing users with new types of services. Today's Cloud computing systems are appealing for their optimal cost, amazing scalability and flexibility, seamless access of resources and VoD (Video on Demand) functionality. Because this is a promising technology able to strongly modify the way computing and storage resources to be accessed. Through the provision of on-demand access to virtual resources available on the Internet, cloud systems offer services at three different levels: Infrastructure as a Service (IaaS), Platform as a Service (PaaS), and software as a service (SaaS) [7].The goal of this study is to discuss the consequential challenges involved in Cloud-Based Mobile Social TV to build successful systems that can be employed in the real world. This techniques with the help of VoD and good streaming quality can be used in Miscellaneous Platforms like PC, TV, and Smartphone etc. This review also discusses what are the technologies are used in the Cloud-Based Mobile Social TV and application of this system. It proposes several possible future directions and challenges in front of this system. Thus, it will be a good starting point for research projects on Cloud-Based Mobile Social TV with VoD as a useful technique can be isolated and applications, as well as future challenges, are focused.

Keywords: IaaS, PaaS, VoD, Adaptive Streaming

I. INTRODUCTION

Today's Cloud computing systems are appealing for their optimal cost, amazing scalability and flexibility, seamless access of resources and VoD(Video on Demand) like functionalities. Mobile, Laptop different types of device users need the fastest technology like 3G/4G and Wi-Fi for fast internet access and chatting these technologies focus more on real time video stream & online game, social application. Also user need low cost, scalable resource supply and power efficient mobile communication. Users get service from a cloud without paying attention to the details, this gives convenient, on-demand network access to a shared pool of configurable computing resources that can be rapidly provisioned and released with minimal efforts or service provider interaction. This technology able to strongly modify the way computing and storage resources will be accessed in the near future. Cloud systems offer services at three different levels: Infrastructure as a Service (IaaS) which provide users with computational resources in the form of virtual machine (VM) instances deployed in the provider data center, Platform as a Service (PaaS) clouds offer services in terms of specific solution stacks, and Software as a Service (SaaS) application software suites, respectively. Cloud-Based Mobile Social TV offered the real-time experience of video watching by using resource to multiple mobile users with spontaneous social interaction. In this it gives the importance of on-demand or live video watching to mobile users from any video streaming area, invite and chat their friends at the same time as enjoy the video. As observing about watching experience and social awareness among friends on this procedure [5]. Performance evaluation of Cloud-Based Mobile Social TV infrastructures is required to predict and quantify the cost-benefit of a strategy portfolio and the corresponding Quality of Service (QoS) experienced by users. Such analyses are not feasible by simulation or on-the-field experimentation, due to the great number of parameters that have to be investigated [7]. In this paper, we present an analytical model that is both scalable to model systems composed of thousands of resources and flexible to represent different policies and cloud-specific strategies. Cloud-Based Mobile Social TV seamlessly utilize agile resource support and attractive functionalities offered by both an IaaS(Infrastructure-as-a-Service) cloud and a PaaS (Platform-as-a-Service) cloud. This system achieves the following goals.

A. Encoding Flexibility**:** Different mobile devices have differently sized displays, customized Playback hardware's, and various codec's. Cloud-Based Mobile Social TV with VoD unloads the transcoding stream of different devices at real time in an IaaS Cloud. A surrogate is employed for each user, which is a Virtual Machine (VM) in the IaaS cloud [6]. The surrogate downloads the video and transcodes it into the proper formats, while considering particular configurations of the different mobile devices as well as the current connectivity quality.

B. Battery Efficiency**:** As analysis that the display and network modules both 3G/4G or Wi-Fi absorb large power in video streaming device to efficient use of energy coming from the network module of Smartphone through and efficient data transfer mechanism design is the main goal we are focus on 3G/4G, wireless networking as it is getting

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more widely use and challenging in our design than Wi-Fi base transmission we investigate the key 3G/4G configuration parameter such as power steps and the in activity timer & design a novel Burst transmission mechanism for streaming from the surrogate to the mobile devices. This mechanism makes careful decisions on burst sizes and opportunistic transitions among high/low power consumption modes at the devices, in order to effectively increase the battery lifetime. To save energy coming from the network module of Smartphone through an efficient data transmission mechanism design is the main goal [6].

C. Spontaneous Social Interactivity: Multiple mechanisms are included in the design of Cloud-Based Mobile Social TV to enable spontaneous social, co-viewing experience.

D. Portability: A prototype Cloud-Based Mobile Social TV system is implemented following the philosophy of "Write Once, Run Anywhere" (WORA): both the frontend mobile modules and the backend server modules are platforms implemented in Java, PHP and MySQL database is used for storing user data.

II. RELATED WORK

The latest different types of devices such as mobile devices (Smart phone, tablets, etc.), laptop need the fastest technology like 3G/4G and Wi-Fi for fast internet access , chatting ,live video streaming & online gaming for social applications. These are the most advanced features in more in demand. This development of the devices however is suppressed by the limited battery lifetime and very much variable wireless connectivity, which makes the highest possible quality of service experienced by mobile users not viable. The current cloud computing technology, with its significant resources to offset for the limitations of mobile devices and using these connections the technology can potentially provide an ideal platform for the support the desired mobile services.

Nowadays Broadcasting video over wireless networks has become more popular. Video-on-demand (VoD) [2] is a multimedia system which adequate clients to access and play video from the remote media server through wired or wireless networks. This system is based on client server architecture. This allows users to select and watch video as per their requirement. It provides users with a menu of available videos from which to choose and also allows viewers to request immediate access to video content on their PC, TV and Smartphone etc.

By considering the problem of providing users playing one streaming video the option of instantaneous and seamless playback of alternative videos. Today's different systems can easily provide a list of alternative videos, but there is little research on how to best eliminate the start-up time for these alternative videos. The problem is recognized by services that want to retain increasingly impatient users, who frequently watch the beginning of multiple videos, before viewing a video to the end. The HTTP-based Adaptive Streaming (HAS) [3] that provides careful prefetching and buffer management. Solution allows users to reduce the start-up times of alternative videos by an order of magnitude and effectively adapt the quality such as to ensure the highest possible playback quality of the video being viewed.

The new challenges that are introduced in adaptive streaming. A multi-viewpoint (MVP) 360-degree video streaming system [8], where a scene is simultaneously captured by multiple video cameras from all direction. In existing system user can only switch positions to predefined viewpoints (VPs). There are several options for video encoding with existing technologies, such as High Efficiency Video Coding (HEVC) and for the implementation of VP switching.

III. KEY MODULES

A. Transcoder : Transcoder resides in every surrogate. Transcoder is helps for dynamically deciding how to encode the video streaming from the video in the proper format, dimension, and bit rate. Before delivery to the user, the clip stream is encapsulated into a proper transporting stream. Each and every video is exported as MPEG-2 transporting streams, which is the in fact, standard nowadays to delivering digital video and audio streams over having medium.

B. Reshaper: The reshaper in every surrogate receives the encoded transporting stream from the transcoder, it divides it into segments, and then sends every segment in a burst to the mobile depends on its request (i.e., a burst transmission mechanism), to achieve the best power consuming of the device. The amount of data in each burst, is carefully decides according to the 3G/4G technologies implemented by the corresponding carrier.

C. Messenger**:** The messenger of the client side of social cloud, resides in each surrogate of IaaS cloud. It uses queries the social cloud for the social data on from the mobile user and pre-processes the data into a plain text files, at a much lower frequency. The XML formats are asynchronous delivery from the surrogate to the user in a little traffic is

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incurred. In the reverse, the messenger disperses this user's invitations and chat messages to other users through the data store on the social cloud.

D. Syncer: The syncer on a surrogate give the guaranty that viewing progress of the user is within a time window of other users in the same session chooses to synchronize with others. It is after a session retrieves the current playback progress of the session host's and to instructs it's mobile user to adjust its playback position of the screen. In this way, buddies can enjoy the "sitting together" co- viewing experience. It is different from the design of communication among massagers, syncer on various VM surrogates communicate direct to with each other user as only limited traffic are involved.

E. Social Cloud: The social cloud is built up on top of any general PaaS cloud services with data store to provide better economies of scale to any specific proprietary platforms. Despite its implementation on Google App Engine (GAE) as a concept, our prototype can be ported to other platforms. It stores all the social data in the system, and including the online statuses of all users, records of the existing sessions, and messages in each session. Data is categorized into different kinds and split into different entities. This is queried from time to time by the VM surrogates

IV. CONCLUSION AND FUTURE WORK

By the survey of Cloud-Based Mobile Social TV with VOD, the system can overcome various limitations and challenges in it. The technologies introduced in this paper will gives very significant changes in all fields of Social TV like video streaming, sharing, downloading and many more. In coming days this will help out to many problems related to the system.

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