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Adaption Of Cloud Computing On Smart Phones To Enable Efficient Multimedia Applications

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Abstract

The survey says that the desktop users are shifting their usage to mobile/tablet for the past 8 years. The mobile networks are doing their work to enhance their speed from 2G to LTE networks. The speed of packet delivery to the mobile network increases, leads to the increasing usage of mobile phones. In CMM applications, the cloud providers are facing the challenges in the cost factors. This issue causes the need to change something of videos on the user mobile; we propose to work on two factors. One, to make the video stored in the RAN cache through UPP caching. Second to adapt the bit rate of the user mobile by Adaptive Transmission of Bit Rate(ATBR). By using these two factors, the Quality of User Experiencing a video is increasing and the cost factors are also reduced as per the cloud provider and the mobile user expectation.

Keywords: **LTE Networks, RAN Cache, UPP, Bitrate, Transmission, User Experience.**

1 Introduction

Mobile Cloud Computing is in the technology to fix the issue of resource poverty that happens majorly on the mobile devices. This MCC is becoming an asset to make products run better in the manufacturers' point of view. In the point to make the technology to reach everyone's hand, manufacturers are shifting their focus onmobile phones.70% of population are going to use Smart phones, survey says.In the process to develop MCC applications, there is a major need to support the Multimedia applications. Making the mobile devices fit for the multimedia applications is not as easy. Because every mobile has its own specifications and features.

Mobile phones are working with the Networks from their specific Nodes. Nodes can be say as the local Network Providers. Every node has some number of mobile phones connected and they are needs to be continuously supplied with corresponding response. When users in a particular node may increase so that node should be capable of performing scalability function.The ability of a network to provide a packet delivery declares a familiarity of that particular network. In this paper, we try to focusing on a streaming technique of a video that is renderingon mobile devices. There is lots of streaming engine to stream a video from the cloud to the mobile devices. Rendering here generally refers to a process that sends a video signal to the mobile display device.

In mobile cloud computing environment from fig 1, the path of sending and receiving signals to/ from a cloud and mobile device through Content Delivery network and RAN devices. Managing the data between these barriers is difficult to achieve the maximum level of attainment. Especially in the video delivering process all networks are facing challenges with the varying bit rate for different types of mobile devices. Analysing some protocols of changing bit

rates, Adaptive Bit Rate Algorithm (ABRA) is doing better

These types of algorithms are working on the caching techniques. The concept of caching here used in

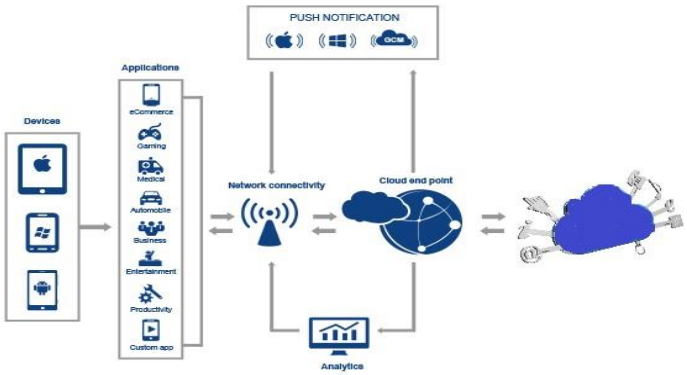

Fig. 1 Mobile Cloud Architecture Diagram

order to deliver the data with the reduced response time (latency). Overall concept of this paper is just to make the caching video stored with the high bit rate and by the algorithm, the cached videos are stored with highest bit rate and some CODEC techniques used to change the video with the respect to the corresponding mobile device request.

2 Problem Statements

While in a particular network or some Wi-Fi area, highly watched videos will be displayed in everyone's browser. YouTube is a widely using video streaming website which is having a capacity of making some caches on the network. It helps in fast rendering of videos to the requesting device. To make this idea flexible with some other websites like Hulu, Vimeo and so on. YouTube is famous among the viewers because of its enhancing caching mechanism among different networks. But it's still a problem that the cached videos are always not compatible with the user mobiles. So to make it efficient, Adaptive Bit Rate Algorithm is used. This algorithm will codec the video according to the user mobile bit rate and bandwidth. In a particular network not all the devices will be having a same bandwidth frequency. So this algorithm will helps in conversion of video from highest to several level of bit rate according to the mobile constraints. It took time to make this conversion at every requesting bit rate. So, in order to solve role in the streaming technique.

all this problems we are approaching a technique on ABR algorithm to make the video conversion and storage easier. By, enabling cache with the highest bit rate video and also with highly used bit rate. It may cause some more memory on the cache but in the aim of increasing the Quality of User Experience (QOuE's).It can be expected to provide a set of users to experience the video quality without any high level of latency.

3 Literature Survey

The author describes the Dynamic Adaptive Streaming over HTTP (DASH) [1] to estimate the bandwidth of network and to predict on which transmission rate it can be travelled. QOE enhanced DASH (QAAD) algorithm is constructed and demonstrated to estimate the frequently changing bandwidth. DASH along with QAAD helps to make the streaming function easier with different types of bandwidth requirements. As a whole it is difficult to handle the delay happening in the network.

HTTP is playing its major role on streaming a video to any type of device[2], and the author discussed that network should overcome the fluctuations and should also get adapt for the varying resources. This perceptual quality assessment focused on two cases as adaption logic in keeping the constant throughput and indexing the previously used data. Subjective evaluations of video quality should made as relevant for the frequently changing index.

A prototype based on the DASH MPEG standard[3] for the client is implemented. The author focused on the following factors 1)reaction time for the bandwidth changes, 2)behaviour of algorithm on unstable conditions and 3)buffer management. The focus on unstable environment helps well on the mobility of the user. It emerges the idea to work on the mobile networks. It still fails on satisfying the average streaming client.

The author in Rate adaption in Dynamic Adaptive Streaming[4] over hypertext transfer protocol (DASH) applied to be versatile with the rate of transmission for dynamical network. For rate adaption on variable bit-rate

(VBR) encoded video, it is still a drawback to properly identify and realize the information measure and phase bitrate. Then, a partial-linear trend prediction model is created to precisely estimate TBLV. It has expected to keep up the typical quality of video, it has achieved 47.3% increase in smoothening of rate adaption.

The virtual decoding is termed as the hypothetic reference[5] decoder (HRD) in H.263 and the video buffering verifier are going to be in MPEG format. The encoder created a bit stream which leads the hypothetic decoder buffer shouldn't overflow or underflow. The author in decoder models assumes that a given bit stream will be transmitted through a channel of a noted bit rate and can be decoded (after a given buffering delay) by a tool of some given buffer size. Therefore, these models are quite rigid and do not address the necessities of the many of today's necessary video applications like broadcasting video live or streaming pre-encoded video on demand over network methods with varied peak bit rates to devices with varied buffer sizes. In this paper, we gift a new HRD for H.264/AVC that is more general and versatile than those outlined in previous standards and provides vital extra edges

4 Conclusion

Some streaming software's are having these techniques. In that, analyzed about the WOWZA streaming cloud and its functions. Every video is passing through the barriers of Content Delivery Network, RAN and finally it reaches the mobile client. This basic working function can be enhanced with the UPP Caching approach; so that the user's frequent requests can be recorded in that caching. Once they recorded, they should be continuously checked for the modifications if it is needed. The videos that are stored on the caching can be stored with the highest bit rate so that the encoding and transcoding can be done on a path with respect to the mobile devices. This process of streaming a video helps to increase the Quality of Experience of the user (QoE). It is desired to make the progress to implement on the mobile cloud and to enable the algorithms to work properly in the mobile environment. It can be continued, to make this algorithm and the caching technique to be implemented directly on the RAN and to see the output on the Mobile device.

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