# Considering Mobile Configuration and Bandwidth for Video Transfer to Mobile

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***Abstract-*** Video streaming is gaining popularity among mobile users. The latest mobile devices, such as smart phones and tablets, are equipped with multiple wireless network interfaces. How to efficiently and cost-effectively utilize multiple links to improve video streaming quality needs investigation. In order to maintain high video streaming quality while reducing the wireless service cost, in this paper, the optimal video streaming process with multiple links is formulated as a Markov Decision Process (MDP). The reward function is designed to consider the quality of service (QoS) requirements for video traffic, such as the startup latency, playback fluency, average playback quality, playback smoothness and wireless service cost. To solve the MDP in real-time, we propose an adaptive, best-action search algorithm to obtain a sub-optimal solution. To evaluate the performance of the proposed adaptation algorithm, we implemented a test bed using the Android mobile phone and the Scalable Video Coding (SVC) codec. Experiment results demonstrate the feasibility and effectiveness of the proposed adaptation algorithm for mobile video streaming applications, which outperforms the existing state-of-the-art adaptation algorithms.

***Keywords-*** Qos, SVC, mobile configuration

## I. INTRODUCTION

With the explosive growth of the demands for online video streaming services video service providers face significant management problems on the network infrastructure and computing resources. As reported in the world-wide video streaming traffic will occupy approximately 69% of the total global network traffic in 2017. Therefore, the video data is becoming the "biggest" big data that contributes to a huge amount of IT investments such as networking, storage and computing. Besides, online real-time video streaming services such as online conferencing live TV and video chat have been growing rapidly as the most important multimedia applications.

Considering that the mobile devices have limited computational capacity and energy supply, and the wireless channels are highly dynamic, it is very challenging to provide high quality video streaming services for mobile users consistently. It is a promising trend to use multiple wireless network interfaces with different wireless communication techniques for mobile devices. For example, smart phones and tablets are usually equipped with cellular, WiFi and Bluetooth interfaces. Utilizing multiple links simultaneously can improve video streaming in several aspects: the aggregated higher bandwidth can support video of higher bit rate; when one wireless link suffers poor link quality or congestion, the others can compensate for it.

## II. RELATED WORK

In [1] the Media cloud provided a cost-effective and powerful solution for the coming tide of the media consumption. Based on previous summary of the recent work on media cloud research, in this section, we first make some suggestions on how to build the media cloud, and then propose some potentially promising topics for future research.

In [2] they introduced the principal concepts of multimedia cloud computing and present a novel framework.. First, we present a multimedia-aware cloud, which addresses how a cloud can perform distributed multimedia processing and storage and provide quality of service (QoS) provisioning for multimedia services. To achieve a high QoS for multimedia services, we propose a media-edge cloud (MEC) architecture, in which storage, central processing unit (CPU), and graphics processing unit (GPU) clusters are presented at the edge to provide distributed parallel processing and QoS adaptation for various types of devices.

In [3] developed a cross-layer architecture which offers always-connected services by exploiting all the networks available to the user, and by dynamically adapting their use on the basis of their performance and costs. In addition, we would like to extend our study on this class of architectures to investigate the impact of dependability issues, such as fault tolerance and security, on their design.

In [4] They developed fully distributed scheduling schemes that jointly solve the channel-assignment, rate allocation, routing and fairness problems for video streaming over multi-channel multi-radio networks. Unlike conventional scheduling schemes focus on optimal system throughput or scheduling efficiency, our work aims at achieving minimal video distortion and certain fairness by jointly considering media-aware distribution and network resource allocation. Extensive simulation results are provided which demonstrate the effectiveness of our proposed schemes.

In [5] They proposed a clustering-based cloud node selection approach for communication-intensive cloud applications. By taking advantage of the cluster analysis, our approach not only considers the QoS values of cloud nodes, but also considers the relationship (*i.e.*, response time) between cloud nodes. Our approach systematically combines cluster analysis and ranking methods. The experimental results show that our approach outperforms the existing ranking approaches.

In [6] They proposed cross-layer playback-rate based streaming services, which can maintain network transmission quality and receive data before playback reliably in IMS networks with many users. The experimental results show that the services could reduce the overall network load without the occurrence of dropped packets.

## III. IMPLEMENTATION

Video data streaming in the network contributes the largest portion of global traffic nowadays and in future. So previously DASH over HTTP is introduced.

Dynamic Adaptive Streaming over HTTP (DASH) is an adaptive bit rate **streaming** technique that enables high quality **streaming** of media content over the Internet delivered from conventional HTTP web servers.However, it does not impose any adaptation logic for selecting the quality of the media segments requested by the client, which is crucial to cope effectively with bandwidth fluctuations, notably in wireless channels. So it results some limitations.

Video communication over mobile broadband networks today is challenging due to limitations in bandwidth and difficulties in maintaining high reliability, quality, and latency demands imposed by rich multimedia applications.

Increasing in network traffic by the use of multimedia content and applications. Progressive download typically does not support transmitting video data over multiple links.

.so to overcome above disadvantages this system refer the transcoding services that transcode live video data from source within a short delay.

Cloud computing is the latest trend of internet world. Smart mobile devices made the internet usage ubiquitous. Due to this, the user is attached to the internet world easily via the mobile devices such as smart phones, laptops, tablets, etc. Nowadays, the number of people retrieve videos through their mobile devices are increased and they anticipate a high-quality videos according to their device pixel sizes and resolutions. So we propose dynamic adjustment to stream the videos according to the user requirements.

The proposed system provided an efficient interactive streaming service for diversified mobile devices and dynamic network environments.

When a mobile device requests a multimedia streaming service, it transmits its hardware and network environment parameters to the profile agent in the cloud environment, which records the mobile device codes and determines the required parameters.

Then transmits them to the Network and Device-Aware Multi-layer Management (NDAMM). The NDAMM determines the most suitable SVC code for the device according to the parameters, and then the SVC Transcoding Controller (STC) hands over the transcoding work via map-reduce to the cloud, in order to increase the transcoding rate.

The multimedia video file is transmitted to the mobile device through the service.The network bandwidth can be changed dynamically.

This method could provide efficient self-adaptive multimedia streaming services

## IV. SYSTEM ARCHITECTURE

The system architecture which consists of three components: video consumer, video service provider and cloud cluster.

Generally, video consumers request their favored videos from the service provider who is responsible to stream the transcoded video contents to consumers. The service provider reserves and manages computing resources from clouds to comprise a transcoding cluster. The cloud cluster transcodes the source videos into targeted videos with a certain video specification (including format, resolution, quality, etc) with some QoS constraints.

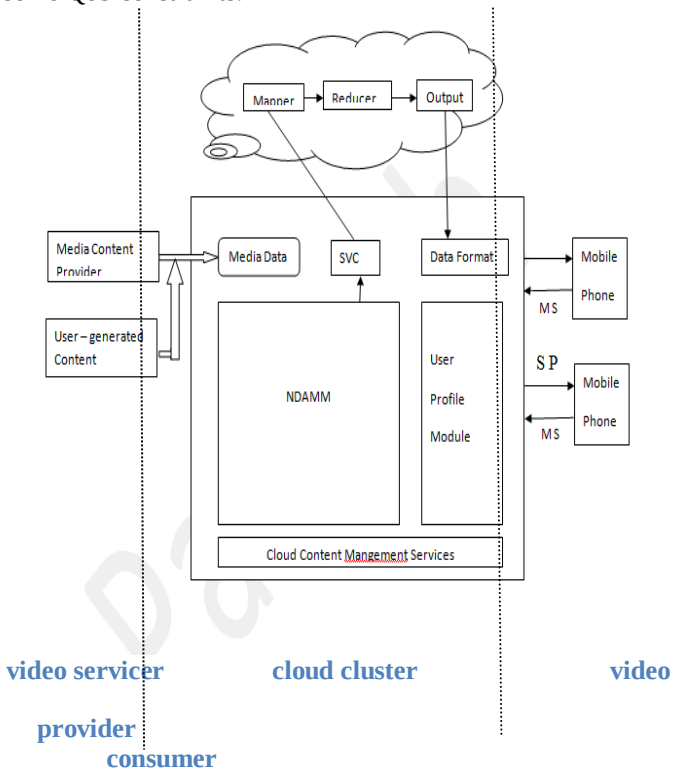


Fig.1: System architecture

## V. RESULT

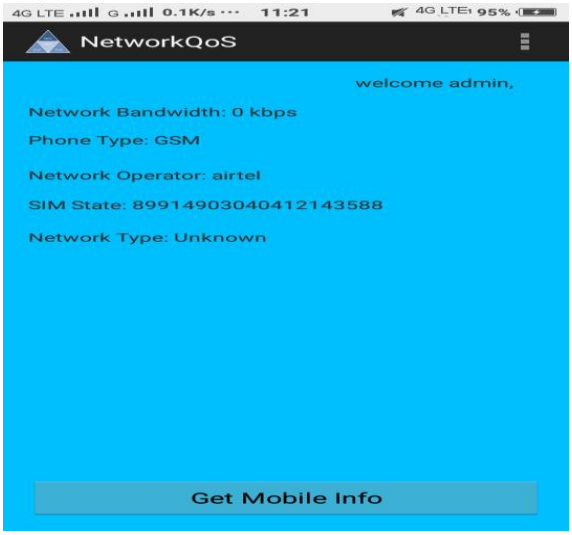


Fig.2: Details of Bandwidth and device parameters

In this, we collect both network and mobile configuration before transferring the video for better user experience.In this we overcome the existing system drawback and finally we get the quality of video by using the less bandwidth.based on our mobile configuration the video is transmitted.

## VI. CONCLUSION & FUTURE SCOPE

For mobile multimedia streaming services, how to provide appropriate multimedia files according to the network and hardware devices is an interesting subject. In this study, a set of adaptive networks and a device aware QoS approach for interactive mobile streaming was proposed. The DNEM and DBPM were used for the prediction of network and hardware features, and the communication frequency and SVC multimedia streaming files most suitable for the device environment were determined according to these two modules. In the experiment, the overall prototype architecture was realized and an experimental analysis was carried out. The experimental data proved that the method could maintain a certain level of multimedia service quality for dynamic network environments and ensure smooth and complete multimedia streaming services. Cloud services may accelerate research on SVC coding in the future. this study presented a network and device-aware Quality of Service (QoS) approach that provides multimedia data suitable for a terminal unit environment via interactive mobile streaming services, further considering the overall network environment and adjusting the interactive transmission frequency and the dynamic multimedia trans coding, to avoid the waste of bandwidth and terminal power. Finally, this study realized a prototype of this architecture to validate the feasibility of the proposed method.
In this work, we just consider a single flow scenario and ignore the interference from the other flows as well as the competitive bidding for spectrum usage from the other flows. In a CRN with multi flows, the CR source nodes need to develop sophisticated bidding strategies considering the competition from the peer flows, and the SSP should jointly consider the cross-layer factors and the bidding values to determine the sharing of the harvested spectrum.

## VII. REFERENCES

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