International Journal of Emerging Technology in Computer Science & Electronics (IJETCSE)
ISSN: 0976-1353 Volume 20 Issue 3 – MARCH 2016.

EFFECTIVE CONTENT DELIVERY AND CACHING AMONG MOBILE USERS THROUGH MULTIMEDIA CLOUD

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***Abstract*--New era began in computing that is cloud computing which provides resources as a services via internet. It is providing more benefits to individual users and organizations, minimizes investment cost and provision of measured service. Now we introduce multimedia cloud which provides Transcoding as a service. Transcoding technique delivers video based on available bandwidth to different users. We propose job dispatch algorithm which forwards transcoding jobs to service engine finally it provides multimedia content to requested mobile user with reduced delay and energy. Now we are introducing media data content caching technique in mobile devices which provides content sharing among mobile devices without contact of content provider. The proposed techniques are effective in multimedia content cloud.**

Keywords: Energy Efficiency, Transcoding as a Service, Job dispatching.

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I. INTRODUCTION

The goal of cloud computing is to apply standard supercomputing, or first class figuring influence, consistently used by military and examination workplaces, to perform numerous trillions of counts each second, in customer arranged applications, for instance, cash related portfolios, to pass on altered information, to give data stockpiling or to impact significant, immersive PC preoccupations.

The disseminated figuring uses frameworks of broad social events of servers ordinarily running straightforwardness buyer PC development with particular relationship with spread data planning errands across over them. This normal IT structure contains inconceivable pools of systems that are associated together. Routinely, virtualization methodology are used to open up the power of conveyed figuring.

Cloud computing is the utilization of figuring assets (equipment and programming) that are conveyed as an administration over a system (commonly the Internet). The name originates from the regular utilization of a cloud-formed image as a deliberation for the perplexing framework it contains in framework charts. Distributed computing depends remote administrations with a client's information, programming and calculation. Cloud computing comprises of equipment and programming assets made accessible on the Internet as oversaw outsider administrations. These administrations regularly give access to cutting edge programming applications and top of the line systems of server PCs.

Cloud computing includes three distinctive administration models, in particular Infrastructure-as-a-Service (IaaS), Platform-as-a-Service (PaaS), and Software-as-a-Service (SaaS). The three administration models or layer are finished by an end client layer that epitomizes the end client point of view on cloud administrations. The model is appeared in figure beneath. On the off chance that a cloud client gets to benefits on the framework layer, for occasion, she can run her own particular applications on the assets of a cloud foundation and stay in charge of the bolster, support, and security of these applications herself. In the event that she gets to an administration on the application layer, these undertakings are regularly dealt with by the cloud administration supplier.

MOTIVATION

The main motivation of the project comes from the YouTube and social networking sites. When the user wants to play a video to his required format where it takes lot of time get played in required format to and the main objective of our proposed system is to provide the video to the user in required format without getting any delays by transcoding the video.

CONTRIBUTIONS

In this paper, we mainly focus on the content delivery and caching in between the users in the multimedia cloud and we also focus here on the transcoding of videos from one format to other where the video has to be played in all the devices.

II. EXISTING SYSTEM

In existing system Transcoding technique is applied in distributed systems in these tasks are scheduled for a cluster-based web server to process to minimize the total processing time by predicting the processing time per individual task. The transcoding time is estimated, and an estimation model for load distribution among distributed servers is imported. Those two works did not investigate the robustness of the scheduling algorithms for the case that the estimation model is not accurate.The effectiveness of the scheduling algorithms of these two works for the estimation model is inaccurate

III. DISADVANTAGES

- Energy consumption is more
- Delays are not reduced while transmission of media content to mobile users
- No caching strategy of video content among mobile users.

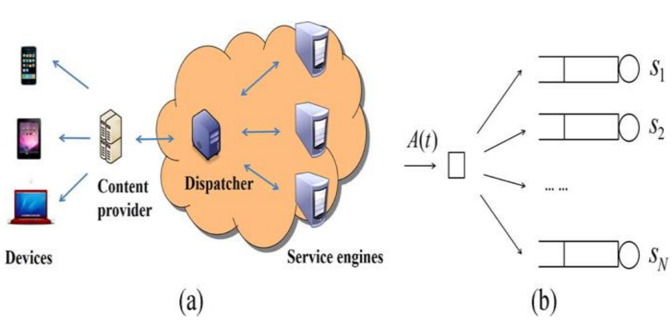
IV. PROPOSED SYSTEM

In proposed system when a mobile user media content request sent to content provider .if it is available with CP that is transmitted if not the request pass to dispatcher then dispatcher sends that request to service engines which provides content delivery to mobile users with energy efficient and reduced delay. Now we are introducing content cache technique in which reduces load in content provider along with multimedia cloud. If a mobile user request media content data first it searches in near by mobile devices. If it is available then content is shared to requested mobile user.

V. ADVANTAGES

- Energy consumption is less
- Delays are reduced while transmission of media content to mobile users
- Caching statergy of video content among mobile users.

VI. SYSTEM ARCHITECTURE



System architecture

VII. ALGORITHMS AND TECHNIQUES

Algorithm: **REQUEST Algorithm**

Input: Q(t) – Length of the queue

Output: u(t)

u(t) = arg min if Ai(t)(Qi(t) + V _s_i)g

Procedure:

1: At the beginning of each time slot t, observe the queue length Q(t).

2: Determine u(t) that minimizes the bound of drift-plus penalty function

For all where i=1 to N

Qi(t)Ai(t)1 {u(t)=i}+VAi(t)ks_i1{u(t)=i}

3: Update the queue Q(t) according to

Qi(t + 1) = max[Qi(t) – T, 0] + Ai(t)1{u(t)=i}

VIII. MODULES

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

1. Arrival Module
2. Energy Consumption Module
3. Dispatching Module

1. **Arrival Module** :

In this Module, we need Transcoding time needed for an arriving job at each time slot is associated with the CPU speed of the service engine. We consider a discrete time slot model. The length of a time slot is τ. We assume that τ is small such that there is at most one transcoding job arriving to the dispatcher for each time slot. We denote p as the probability of one arrival to the dispatcher for each time slot and $1 - p$ if there are no arrivals.

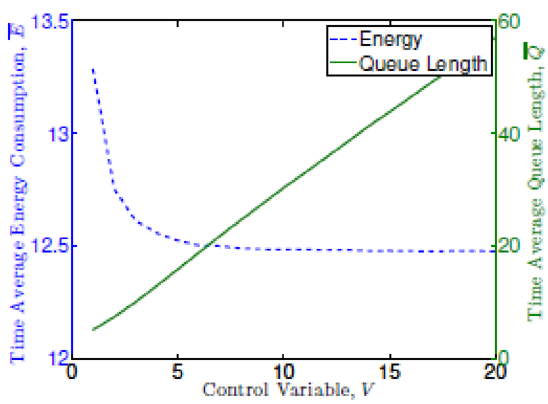
2. **Energy Consumption Module**:

In this Module, We consider each service engine as a physical machine and computation energy consumption in the service engine, which is a dominant term for the energy consumption in the distributed servers. As such, we ignore other sources of energy consumption in the service engine, e.g., memory and network. We assume that each service engine operates in a constant CPU speed when processing transcoding jobs. Its resulted energy consumption is assumed to be a function of CPU speed.

3. Dispatching Module:

In this module, we propose the control algorithm REQUEST to dispatch transcoding jobs. We characterize the energy–delay tradeoff of the REQUEST algorithm numerically and derive the performance bounds theoretically. We compare the performance of the REQUEST algorithm with Round Robin and Random Rate algorithms using simulation and real trace data

IX. GRAPHS



The graph shows the average energy consumption and control variable in the length of the queue.

X. CONCLUSION

We investigated dispatching algorithms on how to route transcoding jobs in the multimedia cloud. To minimize the energy consumption by cloud service engines, we formulated the job-dispatching policy as an optimization problem under the framework of Lyapunov optimization. We characterized the energy–delay tradeoff and the robustness of the REQUEST algorithm. The simulation results showed that the REQUEST algorithm is more energy efficient than Round Robin and Random Rate algorithms. The insight is that the cloud operator can dynamically tune the control variable of the REQUEST algorithm to reduce the energy consumption while maintaining the queue stability. In the future, we will build up a more general transcoding time model by considering the bit rate adaptation. In addition, we will take virtual machines into consideration for virtualized services. Finally, we will evaluate the performance of the proposed algorithm in the real multimedia platform.

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