Prediction based Outcome for Media Streaming Applications

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ABSTRACT
Media Streaming applications have attracted large amount of users in the internet. Due to onset of these bandwidth-intensive applications, it became economically inefficient to provide distribution of streaming with guaranteed QoS dependent only on central resources at a Media content provider. Cloud computing offers an elastic infrastructure so that media content providers (e.g., (VoD) i.e Video on Demand providers) can use to obtain streaming resources that matches the demand or requirement. Media content providers are debited for the resources allocated or reserved in the cloud.

Most of the existing cloud providers use to employ a pricing model for the reserved. Such pricing schemes offers an discount rates depending non-linearly on the period of time the resources are reserved during this time in the cloud. In this case, to decide that the right amount of resources reserved in the cloud and their reservation time is an open problem such that the cost on the media content provider is minimized.

General Terms
Cloud, media content provider, cloud providers, bandwidth, media streaming, prediction, algorithm, VoD

Keywords
Media Database, Media Information Retrieval, Genetic Algorithm, Query ranking.

1. INTRODUCTION
Streaming media is compressed video or audio content over the Internet and played immediately. In this streaming media the use does not have to wait for download the file or play the file, because the media is sent in a continuous stream of data it can play. Video file does not exchanged peer to peer file sharing. Everyone can easily access the data from cloud anywhere and anytime. Also you can upload and download the videos on cloud to access. In this case, an open problem is to decide that, the right amount of resources reserved in the cloud and time taken for their reservation; so that the financial cost will be minimized on the media content provider.

Based on the prediction of demand for streaming capacity, our algorithm is attentively designed to reduce the risk of making wrong decisions while allocating resources. The results of numerical evaluations and simulations made, shows that - our proposed algorithm significantly reduces the financial cost of resource allocations in the cloud as compared to the other conventional schemes.

Cloud computing creates the probability for media content providers to convert the up front Infrastructure investment to operating expenses which is charged by cloud providers (e.g., Netflix moved its streaming servers to AWS i.e Amazon Web Services). All the needed processing power and resources storage space is provided by the cloud and can be extended depending upon the service.

2. RELATED WORK
With the Internet and communication technology, the people for multimedia communications in daily life is growing, more and more users are getting multimedia communication services through different networks and, which directly resulted in the multimedia communication network environment. Cloud Computing Technique:- For providing scalable resources to content providers, service providers and process offloading to users flexibly, these Cloud Computing techniques are used. Thus, the cloud data centers can be easily provided for large-scaled video services which works in real time as Quality for video services: When the user update the video, the original video can be loaded on the cloud with same quality.

Streaming media is multimedia that is constantly provided to an end-user which is delivered by aowner . The “to stream” is the verb which means that process of delivering media; and the delivery method of the medium, and is an alternative method for downloading media . A user media player can begin to play the media (such as a movies, video songs) before the entire file has been transmitted.

The delivery method applies specifically to telecommunications networks from the media distributed systems, as most of the delivery systems are inherently streaming. The server application is used for transmitting the stream media and received and displayed by a user application in a real time also called as a media player .

This media player can be either an part of many systems like a browser or it can be a part of a plug-in systems, a separate program, or a dedicated device, such as an iPod. embedded players also contain the video files. YouTube videos, for example, run in embedded Flash players

3. METHODOLOGY

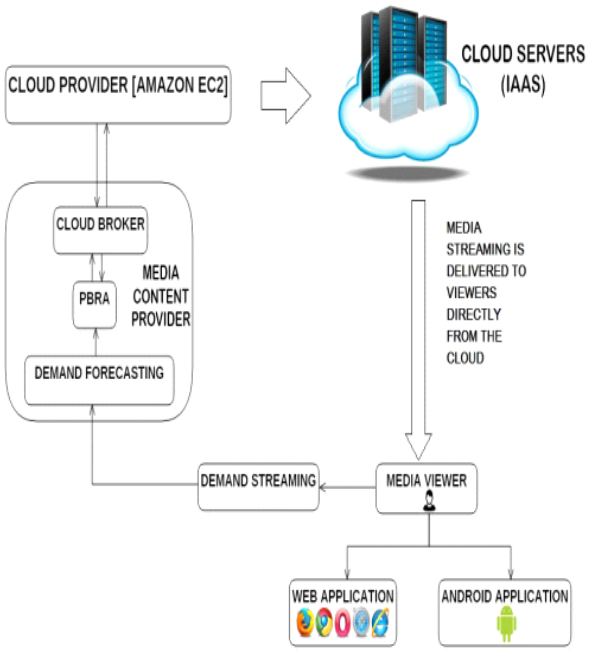

Fig :1 - System Architecture

Above diagram shows a simple architecture of system. Media viewer will request for media and media streaming is delivered to viewer directly from the cloud. Viewer can request media from web browser Android application. To address this problem, the future demand for streaming capacity prediction is required to help with the reserved resource planning.

During future period demand forecasting module predicts the demand of streaming capacity of every video channel. The Cloud broker is responsible on place of the media content provider for allocating the appropriate amount of resources and for reserving the time in cloud over which, the required resources are allocated.

On the basis of given demand prediction, cloud broker will implement our proposed algorithm to make right decision on resource allocations in the cloud. Both of these demand forecasting modules and cloud brokers are located at media content provider site. Cloud providers are those who provides streaming resources and they delivers streaming traffic directly to media viewers.

The owner of cloud charges media owner for the resources reserved according to the time during which the resources are reserved in the cloud. In this case, the cloud provider offers high amount of discount rates to the resources reserved in the cloud for longer times.

Resource provisioning plan that is offered by cloud providers is referred to as on-demand plan. Due to the plan explained above the media content provider have the permission to purchasing resources upon needed. The on-demand plan is the pay-per-use. Lots of streaming resource provisioning plans which are offered by many cloud owners is based on reservation of resource. With the reservation plan, the media content provider allocates resources in advance and cost is charged before the resources are used The streaming resources which are reserved are basically the bandwidth (data-rate of streaming) at which the cloud owner guarantees to deliver the media to user of the media content viewers according to the required Quality of services. In general, the tariffs of the plan of reservation are cheaper than those of the on-demand plan (i.e., discount to time rates are only offered to the prepaid or reserved resources).

3.1 Algorithms PBRA(Prediction-Based Resource Allocation) Algorithms:

In this System the algorithm called PBRA algorithm which is used for minimizing the monetary cost of resources reserved in the cloud by exploiting discounted rates offered in the tariffs, while ensuring that sufficient resources are reserved in the cloud. We first describe the system model. We formulate the problem which is based on the prediction of future demand for streaming capacity . We then describe the design of our proposed algorithm for solving the problem Theresults of our numerical evaluations and simulations show that the proposed algorithms significantly reduce the cost of resources allocated in the cloud as compared to other conventional schemes.

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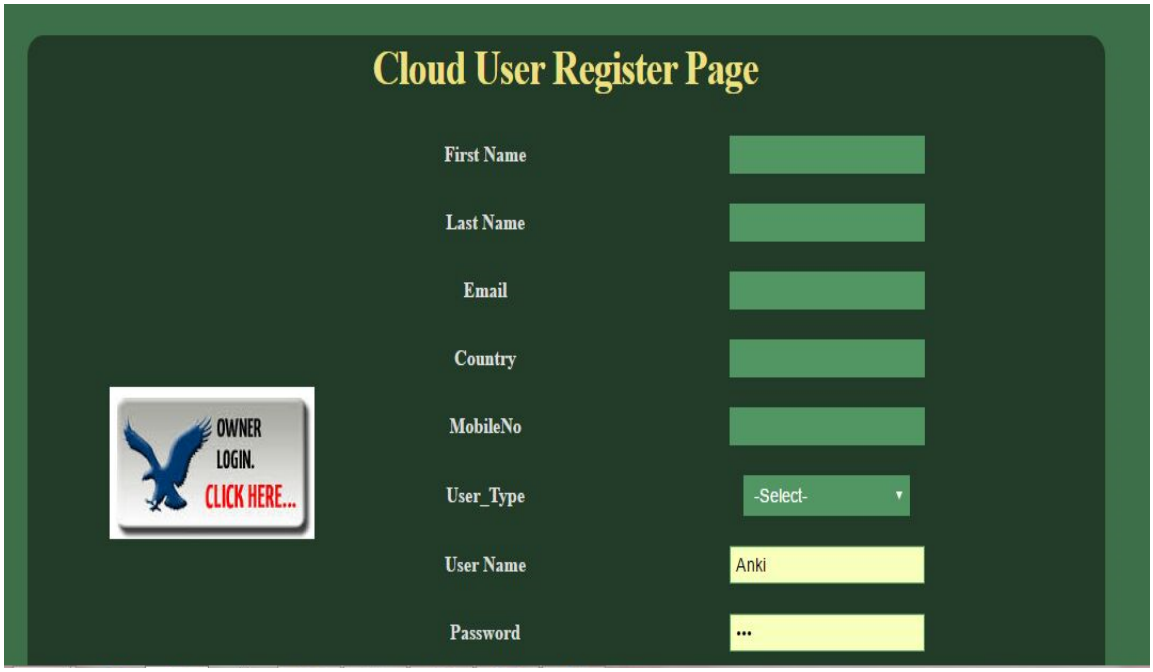
4. EXPERIMENTAL RESULTS

Fig 4.1 : Home Page

4.2 : User Login Page

4.3 : Owner Login Page

4.4 : Cloud Login Page



4.5 : Registration Page

User will request for media and media streaming is delivered to viewer directly from the cloud. User can request media from web browser Android application. Owner then login into cloud for providing service to user .After connecting the user with cloud then owner directly gives access to user .Cloud directly sends the media to user .Saves this user id for further using and also there is a facility of ranking for each user**. In** System Demand forecasting module is used which predicts the demand of streaming capacity for every video channel during future period of time

5. CONCLUSION

In this project we have focused on quality to improve and reducing the original cost of the system which is deliver. The thesis spans the areas of cloud computing, multimedia delivery, and economics. The cloud environment provide optimal infrastructure to any use. It also provide better video sharing in social media, where the transmissions of video are highly carried out. This paper gives the overview of the streaming and sharing used by various techniques. The perfecting of videos can be improved by using scalable video coding efficiently and also by predicting users behavior.

We also studied the complexity and dimension reduction issues related to such statistical learning, in the presence of a large number of video channels. Furthermore, based on automated demand forecast, we proposed predictive resource reservation schemes together with optimized load direction schemes in a multi-data center network, analyzing the most cost-effective solutions both in theory and in practice. Finally, we investigate the bandwidth resource pricing issues and related business models for VoD providers to use the cloud services, with two approaches adopted. In the first approach, we use game theory to characterize the economic properties of the bandwidth reservation market when multiple VoD providers rely on multiple cloud providers for services.

In the second approach, we formulate the bandwidth pricing as a distributed optimization problem, for which we propose new distributed algorithms other than the traditional gradient algorithm, to ensure fast and robust convergence in very large systems. In addition, the second approach also turns out to bring new technical contributions to distributed and parallel optimization techniques in large-scale systems.

5.1 Future Scope

In this paper, we aim to leverage the auto-scaling ability of the cloud to save the operational cost for multimedia delivery services, while providing quality assurance. Since bandwidth, as compared to CPU and memory, is a major factor that affects the video delivery cost and quality, we focus on bandwidth auto-scaling. The benefits of bandwidth auto-scaling can be intuitively envisioned. Maximum data is available on the cloud to upload and download the videos. A simple and easy to implement algorithm for resource reservation is proposed which will maximally exploit the discounted rates which are offered in tariffs, while assuring that sufficient amount of resources are reserved in the Cloud. On the basis of prediction based demand for streaming capacity, the chosen algorithm is designed carefully to reduce the risk of making wrong decisions over resource allocation. The results occurred after performing numerical evaluations and simulations shows that the proposed algorithm significantly reduced the budgetary or financial cost of resource allocations in the cloud as compared to the cost of other conventional schemes.

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