Android Mobile Application for Video Streaming using Load Balancing

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Abstract -The project is designed to develop the android application for video streaming using load balancing. Cloud Computing means it includes web services, networking, distributed computing, software and virtualization. Virtualization means it is the act of creating a virtual version of something, including virtual computer hardware platforms, storage devices, and computer network resources. Streaming video is very necessary part for multimedia. Due to vast growth of internet and demand for multimedia information on the web which is increasing day by day.Load balancing will divides the load to available multiple of servers. The goal of load balancing is to improve the performance of video.

KeyWords: VideoStreaming,LoadBalancing algorithm,Cloud Computing,Android App,Multimedia.

I.INTRODUCTION

The use of mobile devices is increased very rapidly and becomes important part of our life.The use of android devices is for sharing multimedia videos on social networking sites e.g., streaming on website e.g., YouTube Fb. The cloud computing provides good platform for other advanced technologies like big data, meta data of mobile computing to implant its service and provide the quality of operating system to customers. Mobile cloud computing refers to the infrastructure where data storage and processing of data happen outside of mobile devices. User can store and process to the video applicatin data in cloud by distributed way and for saving the battery of mobile devices.

This service provides the capability of storing video in the cloud and access to that video from any android mobile devices anywhere. The streaming stands for the real-time transport of live or saved media like video and any associated data over the Internet, between the client and server computers. Streaming technology uses the delivery of audio and video over the Internet and it reaches to many people using their personal computers and gives live sport, music, news, entertainment and on-demand content.

II.EXISTING SYSTEM

For our project system, the previous system was Centralized Hierarchical System. In this centralized hierarchical CMS i.e., Cloud based Multimedia System, it consist of three modules of a Cluster heads, Resource manager and Server clusters. Resource manager will gives the clients requests for multimedia service tasks to server clusters according to the task characteristics. Then, each cluster head will distributes the assigned task to the servers with its server cluster. In existing system, it was challenge to design a effective load balancing algorithm. Load balancing will spreads the multimedia service task to load on servers with the minimal cost for transmitting multimedia data between server clusters and clients.

The system is centralized system in which it support a huge number of clients simultaneously to store and process their multimedia application data in a distributed manner and meet differents multimedia. In Centralized hierarchical system of CMS, composed of a resource manager and a number of server clusters each of is coordinated by a cluster head and assume the servers in different server clusters provide different services.

III.PROPOSED SYSTEM

Consider distributed cloud-based multimedia system consisting of android device. Number of servers and load balancing algorithm to perform the task.In this distributed system there is android mobile, in which user can upload and store video by registration. Distributed system having number of servers. For number of servers, this system performs load balancing algorithm. The load balancing algorithm is main concept in this system. Load balancing algorithm will distribute the equal load or task to available number of servers. The result in the form of "Streaming Video".The Streaming video is creating, managing, delivering high quality and also on demand streaming live video directly to the users. Streaming also called as playing media on one device when it stored on another device. The main aim of streaming video in this system to deliver the "non-buffering" video to user.

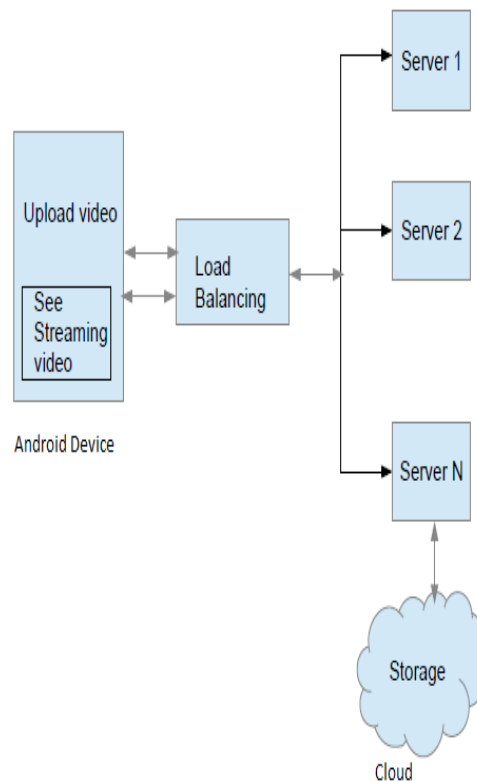*Fig 1. Architecture of system*

Mathematical Model:

- Let S be the system for implementation

S={U,I,O,D,P}

Where,

 - U is the number of users

U=u1,u2...un.

- I is the number of inputs

I=i1,i2...in.

Ex., input will be in the form details of registration, e.g., log in users, video upload and download request by user. etc

- O is the exact outputs

O=o1,o2..on.

Ex.,Output will be in the form of Registraion is Successful or unsuccessfull and Video upload download is successfull or not.

- D is the set of devices

D=d1,d2..dn.

Ex., D will be android device,web server,data base server,etc.

- P is the number of processes

P=p1,p2..pn.

V. IMPLIMENTATION:

In our project we are developing the load balancing application. It works based on server capacity, current load, priority and load in percent. So actual intention of our project to Expand the load on multiple server extend the rate of uploading video. We are providing the facility of adding multiple server on Admin side. It will give actual working of our system so that user obtain fast speed of uploading videos. Actually we can built two portal for managing the application- Web application and android mobile application purposed. Web application is Admin portal and is nothing but one kind of cloud for storage purpose. admin can add multiple server on cloud, so that load can be distributed over the server and user gain high rate of uploading videos. Mobile application is fronted of project, it is like a GUI, user friendly GUI can be provided to user convenience like create new account or login facility.

User wants unlimited uploading the video and our application serve this facility to user, large amount of data can be store. We can check the load on a server, when multiple request comes on server side server- load is full then automatically server indication color is change i.e.it gives alert and indicates in RED colour. Then another server is free so next request is comes then allocated to these free server.

Multiple request comes on server side is work on server capacity and priority vise request allocated, even as server can not be overloaded then allocate to next free server is based on priority.

PRIORITY BASED SCHEDULING:

-This is a non-preemptive scheduling algorithm.

-In priority algorithm each process is assigned for priority.The process is executed first having highest priority.

-Process having equal priority are executed on first come first served basis.

-Priority can be assigned based on time requirement,memory requirements or any resource requirement of any process.

if PROCESS=P0,P1,P2,P3.

ARRIVAL TIME=0,1,2,3.

EXECUTION TIME=5,3,8,6.

PRIORITY=1,2,1,3.

SERVICE TIME=9,6,14,0.

Also the main concept is to develop an efficient Load Balanced Algorithm using divisible load scheduling concept to maximize or minimize number of performance parameter e.g., latency and throughput for different size of clouds. Latency is the delay of input for a system for required output. along with these we use the Priority based and round robin algorithm.

LOAD BALANCING ALGORITHM:

if($load!=$capacity) {

$load_per = ((double) ($load + 1) / $capacity) * 100;

} else{ echo "All servers are busy at the moment. We apolosize for inconvenience.";

}

if ($load_per > 70) { $query="update servers set   status='overloaded' where sid=$serverId";

$result = mysqli_query($con, $query);

}

    return $load_per;

}

VI. LITERATURE REVIEW

Cloud Based Interactive Mobile Multimedia Streaming

This paper analyze issues of delay at the time of storing the multimedia file from cloud. The concept of this paper was to examine unexpected obstruction of users device like android mobile device and automatic re information from the cloud. The data of multimedia can be accessed easily by mobile devices. It permit us to enjoy pervasive network services. The user device and network limitations are considered here. The proposed system must be network and device aware of quality of operating system. It will interact with the user device when they request for special multimedia data.

User Adaptive Mobile Video Streaming and User Behavior Oriented Video Pre-Fetching In Cloud

Video streaming increases very rapidly in mobile network. It is a important need for the quality of video which is delivered to mobile network. The system shows result the poor service quality of video streaming over mobile network. The system takes the buffering time and interrupt happen in the streaming video. For this, in the propose system a new mobile video streaming method using cloud. In cloud here the use of user-Adaptive Mobile Video Streaming i.e., (AMOS) and the User Behavior Oriented Video Pre-Fetching i.e., (UBOP). In this private agent is created for video distribution. It adjusts the streaming and reduces the traffic using SVC (Scalable Video Coding). It shows the social interaction in the mobile users. Efficient perfecting video content done in cloud. Prefetching is occured based on user resolution and bandwidth.

Dynamic Multi-Service Load Balancing in Cloud-based Multimedia System

In this paper the centralized hierarchical system is considered for the cloud-based multimedia system i.e (CMS). It consist of three components of a Cluster heads, Resource Manager and Server Clusters. In this the resource manager gives client requests to server clusters for multimedia services. It is according to the task properties. After this each cluster head will distribute the given task to the servers within its server cluster. This is very complicated system due to centralized view. For this complicated cloud based multimedia system i.e CMS, it is challenge to research to design an resulting load balancing algorithm which spreads the multimedia service task load on servers with the minimum cost for transforming multimedia data between clients and server clusters in distributed manner. This paper takes into more practical dynamic multi-service scenario in which each server cluster handles only a specific type of multimedia tasks and each client requests a different type of multimedia services at different time.

CONCLUSIONS

We successfully implemented Load Balancing Alorithm in our Project of Android Mobile Application for Video Streaming for distributed system. The main difference of our project module and previous project module is that we are developing the distributed system for Video Streaming using load balancing instead of Centralized hierarchical system. This system is successfully implemented based on load balancing algorithm and Priority Algorithm. Hence on any server there will be no load generated and faster video will shown to the user.

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