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Cloud Computing On Mobile Multimedia Application

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***Abstract* – Could computing is the new technology that has various advantages and it is an adoptable technology in this present scenario. The main advantage of the cloud computing is that this technology reduces the cost effectiveness for the implementation of hardware, software and License for all. In the past decade, due to technological advancement in wireless communications, Mobile computing and multimedia steaming mobile multimedia has experienced on explosive development. This paper shows the key issues of Mobile Multimedia using cloud computing and the issues that need to take into consideration in the future.**

***Keywords* – Mobile Cloud Computing, Mobile Multimedia Database**

I. INTRODUCTION

Cloud computing has been one of the most booming technology among the professional of Information Technology and also the Business due to its Elasticity in the space occupation and also the better support for the Software and the infrastructure it attracts more technology specialist towards it. Cloud plays the vital role in the smart Economy, and the possible regulatory changes required in implementing better application by using the potential of Cloud Computing.

We are using our mobile phone as mini computers that travel with us and keep us connected 24 hours a day.

According to a new study from ABI research has revealed that cloud computing will completely transform future of mobile applications, development and their use. Cloud Computing will dramatically reduce the requirement of advanced handsets for running mobile applications, according to the study.

A mobile database system provides full database and mobile communication functionality. It allows a mobile user to initiate transactions from anywhere and anytime. Mobile database have enormous amount of information for communication in audio, video, text, graphics animation form.

In this paper we discuss issue and challenges of mobile multimedia applications.

1.1 *Mobile Multimedia Issues and Challenges*

As multimedia data is consist of images, audio, video and text is requires large amount of storage and fast speed for transferring data. For staring and managing data in heterogeneous mobile environment certain issues are there that need to be concern.

- Network latency and limited bandwidth in the mobile network.
- Restriction in utilizing handset features e.g. GPS, Bluetooth.
- Data base architecture and model.

The other issues related to providing multimedia content to mobile devices are frequent device disconnection as in mobile environment connection breaks frequently that leads to the issue of synchronization and consistency other issue is security and privacy of data.

88% agree to implement the cloud for education sector 94% believes that the cloud technology can reduce the cost of high quality education system and most of them are unaware that the cloud is also offered at low cost.

1.2 *Present Scenario*

In this scenarios cloud computing is being looked upon by experts in various domains because of its advantages. Cloud has been used in the business oriented unit and in the current education system in India the teaching via web is not so widely available and adapted. Even if it is available and adapted, it is provided at a very high cost. This is mainly because of the high cost of data storage and the software they make use of Cloud has generated many resources which can be used by various educational institutions and streams where their existing / proposed web based learning systems can be implemented at low cost.

A. Benefits of Cloud Computing

The advantages that come with cloud computing can help resolving some of the common challenges one might have while supporting an educational institution.

1) *Cost*

One can choose a subscription or in, some cases, pay-as-you- go plan – whichever works best with that organization business model.

2) *Flexibility*

Infrastructure can be scaled to maximize investments. Cloud computing allows dynamic scalability as demands fluctuate.

3) *Accessibility*

This help makes data and services publicly available without make vulnerable sensitive information.

4) *The Client – The End User*

Everything ends with the Client (Mobile) the hardware components the application and everything else developed for cloud computing will be used in the client. Without the client, nothing will be possible. The client could come in two forms the hardware component or the combination of

software and hardware component. Although it's a common conception that cloud computing solely relies on

The clouds (internet), there are certain systems that require pre-installed applications to ensure smooth transition.

Cloud computing always has a purpose. One of the main reasons cloud computing become popular is due to the adoption of business as the easier way to implement business processes. Cloud computing is all about process and the services launched through mobile cloud computing always has to deal with processes with an expected output.

B. Cloud Computing Usage

The cloud plays the main role in the business role and also it is the only elastic data centre which wrapped around various new technologies into it. The technology is most probably used in the business oriented scenarios than the service motivated organization as per the survey did by us. According to the Survey made during the month of October 2010 based on the questionnaire prepared by us we found that a major part of the survey group knew about cloud computing (Figure 1) 69% knew that cloud is used in business 12% knew it is used in education, services (application software etc) but server, memory and other platforms can be used and subscriber needs to pay as per terms and conditions.

C. Requirements for Cloud

In the previous generation of the information technology the data sharing which led the path for the knowledge sharing was not used by the users globally, in this generation the various streams have the knowledge of e-Learning and the Mobile Multimedia Entertainment. In this present context the usage of the central data storage space and also the load capability also software licensing depends on the real time usage of these systems. Business streams can make revenue out of those expenses This can be Implemented by the present cloud computing technology that is "Pay as Use" (PAU).

II. FUTURE OF MOBILE MULTIMEDIA DATABASE

Cloud computing is the next big thing in the current market scenario. Cloud computing is not only related to personal computers, it also affects and heavily impact the mobile technology. In Mobile Cloud Computing both the data storage and the data processing happen outside of the mobile device i.e. when we combined concept of cloud computing in mobile environment. In MCC scenario all the computing power and data storage move into the mobile cloud. MCC will not provide benefits only to the smart phone users but for will help a broader range of mobile subscriber.

With MCC mobile phone user will get benefit in number of ways and help them to run their business application without large amount of capital investment in infrastructure and services.

2.1 *MCC Services and Modes of Cloud Computing Considerations:*

In cloud computing there are different categories of cloud services. These services delivered to the users in real time via internet.

2.1.1 *Software as a Service [SaaS]*

In this model an application is hosted as a Service to customer who accesses it via the Internet [7]. For example web user can use Google doc and they do not need to install any application for that. Other providers like Amazon provides cloud services and subscriber need to pay only for the amount of services they want to use

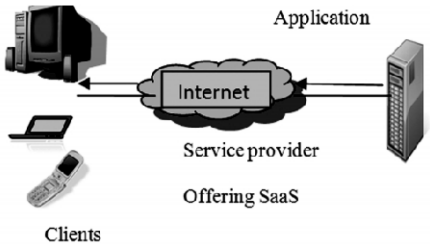

Fig. 1 : Software as a Service [SaaS]

2.1.2 *Platform as a Service [PaaS]*

PaaS services include application design, development, testing, deployment and hosting [7]. In this not only services (application software etc.) but sever, memory and other platforms can be used and subscriber needs to pay as per terms and conditions.

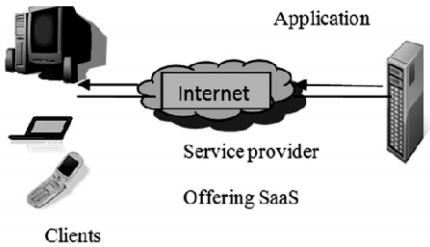

Fig. 2 : Platform as a Service [PaaS]

III. DELIVERING MMMDB CONTENTS

Generally MMMDB contents are either Interactive or Non-interactive. The Interactive multimedia also known as non linear multimedia. In interactive multimedia end user interact with the content with some appropriate user interface. All e-learning materials are example of interactive multimedia. Thus in interactive multimedia processing consumption of power is much high as compare to non interactive multimedia. In non interactive multimedia user has no control on information flow i.e. it runs without any human intervention.

The following Fig. 3 illustrates the MMMDB interactive and non interactive contents retrieval and delivery with the mobile cloud computing. Non-interactive contents can be treated as a non interactive mobile TV contents. Of course a

mobile device needs a receiver like a mobile TV to receive broadcasted Non- interactive multimedia contents [3].

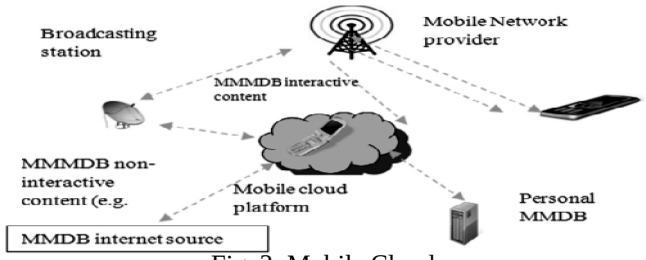

Fig. 3: Mobile Cloud

IV. Mobile Cloud Computing: Future Scope and Challenges

In near future because of MMC there will be no need of Downloading and installing applications on the mobile handsets (smart phones, tablets, etc) users can access them directly in the cloud and display through the mobile browser, it is analogous to Software –as –a service provisioning. Other predictions includes according to Gartner's 2010 key IT predictions for organizations, in near future mobile phones expected to overtake PCs as the most common Web access device worldwide by 2013.

ABI Research predicts that there will be nearly one billion end users accessing the "mobile cloud" by 2014. Smart phone applications will move from the handset itself to the cloud – creating an ecosystem for new kind of smart phones – sometime termed "Mobile Cloud Phones" [8].

Although future of MCC is full of opportunities, but it has certain challenges as:

4.1 A key challenge for Cloud Computing is Network Availability and Intermittency. Because all Services will Provide Via Internet.

4.2 Environment Challenge

The spaces in which mobile client and server that want to communicate are also an issue to be considered. This affects many other factors like delays and connectivity issues.

4.2.1 One Dimensional Metric Space

Mobile Target Server or Mobile Target Client on the road network can be considered as One Dimensional metric space. Here transit – time delay is to be considered as the major obstacle in delivering MMMDB contents. For example, on festive seasons, the mobile network will have relatively heavy traffic which will affect the transit time. Similarly, another issue which can be considered in relation to transit- time delay is frequent access of current hot talks for certain periods of time. (Michael Jackson's ring tone, wall paper MP3 and streaming videos) These sudden unexpected frequent accesses will affect the MMMDB's performance, scalability, integrity and availability [5].

4.2.2 *Two Dimensional Metric Space*

Mobile Target Server or Mobile Target Client on the plane like manner representation used in GIS can be considered as Two Dimensional metric space [5].

4.2.3 *Three Dimensional Metric Space*

"System involving control of aircraft or submarine can be considered as Three Dimensional metric space" [5].

4.2.4 *Four Dimensional Metric Space*

"System which concern themselves in the possibility of intersecting vehicles trajectories (usually trying to avoid collisions) may need to operate in four dimensions (3 spatial dimension and 1 temporal) can be considered as four dimensional metric space" [5]

Systems involving tracing device movements in incessant areas (at sea, in the air, fast moving wild fires, forest fires, strong wind, etc) in which both devices and environment as mobile [5]. To represent this settings temporal dimension can be used.

4.2.5 *Green Cloud*

The core principle of the green cloud is to bring new business opportunities to Telco and in the same time be as economically / energy efficient as possible [2].

Concept of green cloud is to perform all cloud computing function in any energy efficient environment. Although many architecture are proposed for this but still it requires improvement.

Conclusion

In this day to day changing technology environment demand of the users also changes. Users demands quality service at anytime and anywhere with speed and accuracy. In this paper author discussed various issues including current problems and the problems that may arise in future. Author has discuss challenges that may encounter in implementation of MMMDB.

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