

Mobile Cloud Computing: Issues and Challenges

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Abstract— we are no longer restricted to saving all of our mission critical information on one physical device such as CD, USB, etc. There is a cloud computing that forever changed the way of companies to store and access the data. But for access the file whether employee in the office, home or road need the ability to securely access vital technology resources and data. The solution of this is mobile cloud computing .which is similar to cloud computing but in a mobile. By which we can access the file and data of company anywhere, anytime and anyhow. Like apps, email and so much more.

Keywords: Cloud Computing

I. INTRODUCTION

Cloud Computing offers such smartphones that have rich Internet media support, require less processing and consume less power. In terms of Mobile Cloud Computing (MCC), processing is done in cloud, data is stored in cloud, and the mobile devices serve as media for display .Today smartphones are employed with rich cloud services by integrating applications that consume web services. These web services are deployed in cloud.

A technology that is capable of providing an environment which enables the users to transfer data form one device to another devices without the use of any link or cable is mobile computing .Mobile computing helps user to access file and transmit to any remote location without being present there.

Mobile Cloud Computing is a simplest refers to an infrastructure where both the data storage and processing happen outside of mobile device. Mcc application move the computing power and data away from the mobile device and into powerful and centralized computing platform located in cloud accessed over the wireless connection.

There are several Smartphone operating systems available such as Google's Android, Apple's IOS, RIM BlackBerry, Symbian, and Windows Mobile Phone. Each of these platforms support third-party applications that are deployed in cloud.

A. Why Mobile Cloud Computing

Mobile devices faces many challenges like battery, storage, bandwidth etc. cloud computing offer advances to users by allowing use infrastructure ,platform , software by cloud provide it in low cost and elastically in on-demand fashion. Mcc provides mobile users with data storage

And processing service in cloud the need to have device configuration as all resources intensive computing can be performed in the cloud.

II. MOBILE CLOUD COMPUTING ARCHITECTURE

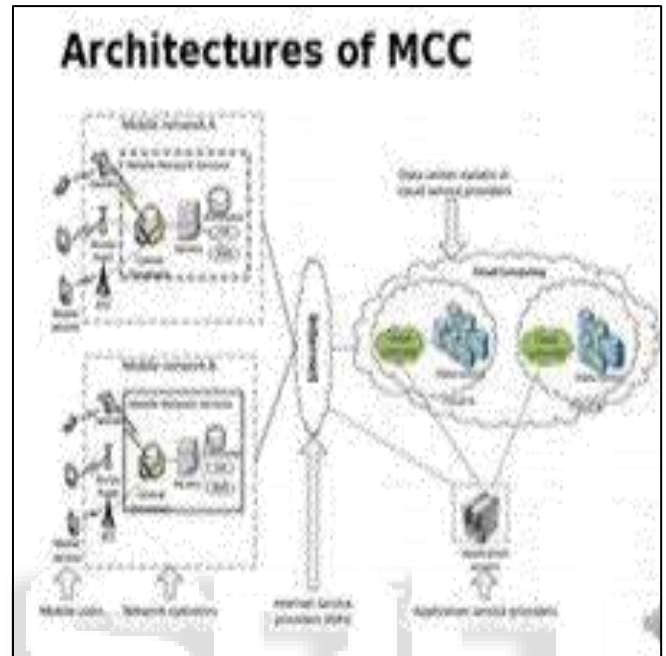


Fig. 1

In mcc architecture mobile devices are connected to networks via station that established and control the connection and function interface between network and devices. Users request and information are transferred to the central processor that are connected to server provide mobile network service. The user request are delivered to a cloud through the internet.in the cloud,it controller process the request to provide mobile users with the correspond cloud services.



Fig. 2: Mobile Cloud Computing Architecture

III. ADVANTAGES OF MCC

- 1) Extending battery lifetime: Remote application execution can save the battery or power.
- 2) Improving data storage capacity and processing: Mcc helps to users to store data in cloud. Or it helps to reduce the running cost computation application.

- 3) Reliability and Availability: Mcc store data in cloud which reduces the lost or change of data. In cloud data is saved or available when user are moving.
- 4) Scalability: Mcc service provider can easily add and delete the services. Applications can be easily performed and scale to meet the unpredictable demands of users.
- 5) Multi tenancy: Provider can share the resources and cost to support different variety of application and large numbers of user.
- 6) Mobile commerce

IV. MCC APPLICATIONS

Some are the major fields where the mcc applied:

- Mobile gaming.
- Web or internet access
- Global position system
- Assistive technologies
- Emergency services
- Education services
- Entertainment

V. ISSUES AND CHALLENGES OF MCC

1) Mobile communication:

- Low bandwidth: because this radio resources for wireless network is much scarce than wired network.
- Heterogeneity

2) Computation offloading:

It is also the feature of mcc but offloading is not always effective in energy saving, it is critical to determine to whether it offload and in which portions to the service code to offload. It has basically two types:

- 1) Offloading in a static environment: In static offloading application is partitioned during development. In static environment parameter like data, size and time which act as a decided factor for offloading are beforehand. It is difficult to know its correct execution time before it actual time place and the inaccurate data can be result into inefficient offloading result.
- 2) Offloading in a dynamic environment: Dynamic environment means changing the status of connection and bandwidth that affect the process of offloading. by this we can know that the module may be transferred for execution onto cloud when application is running.

3) Security Issues:

Saving and protecting privacy of data of user and its application. It has two categories:

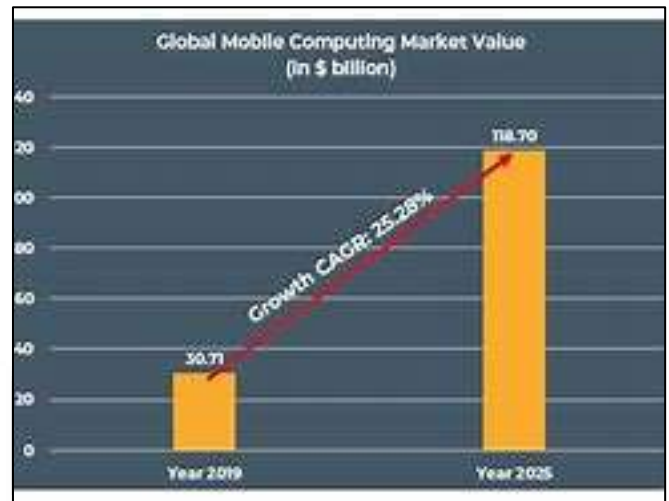
- 1) Security of mobile users: GPS can cause privacy issue for users. Installing security software are the simplest way to detect security. LBS faces a privacy issues on users mobile give the private information like their current location, this problem even worse if an adviser Known user information which is very important.
- 2) Secure data on cloud

4) Open Issues:

- 1) Network access management: An efficient network access management not only improve links performance but also optimizes bandwidth usage.
- 1) Quality of service: To ensure the quality of service is a still a big issues on network delay Clone cloud and cloudlet are expected to reduce the network delay.
- 2) Pricing: Mcc involves with both mobile service provider and cloud service provider with different service management methods of payment and prices.

VI. LITERATURE REVIEW

A. Market review:



The mobile cloud market has registered a value of USD 30.71 billion in 2019, and it is expected to reach USD 118.70 billion by the end of 2025, recording a CAGR of 25.28% during the forecast period (2020 - 2025). The cloud segment across the enterprises continues to make notable progress in environment-friendly innovations that meet consumer demand for a more sustainable community. There is a noticeable rise in awareness about high-performance mobile cloud platforms that have catered the growing need across various end-user segments.

- With the continuous evolution of cloud computing, coupled with the increasing adoption, leads to the upsurge in the mobile cloud.
- The mobile cloud offers access to cloud-based applications and services directly to portable devices. This creates an ease of accessing applications or services stored with desired data on any device.
- The substantial growth in smartphones and other portable devices is likely to create new avenues and opportunities for cloud service providers and application developers to penetrate the market.

B. Mobile Cloud Computing Popularity:

According to global public cloud computing market is set to exceed \$330 billion in 2020, providing data access from anywhere is the top reason for cloud adoption. Organization average yearly mobile cloud budget was

2.2million in 2018.third of companies it budget goes to cloud services. Privacy, security and lack of staff training are the top roadblocks. MCC is highly promising trends for the future of mobile computing.

VII. TRENDS OF MCC IN FUTURE

MCC is one of the hottest trend in cloud computing that is expected to play an important role in future.

By moving apps form pc to tablet enterprises are putting efforts on mcc service. Customers are buying larger from mobile commerce and also to their mobile wallets.it enables the mcc infrastructure. The social media are becoming popular among users and it has become a place for a business using mobile devices.

VIII. CONCLUSION

This paper describe the Mobile cloud computing is the integration of cloud computing with smartphone devices. It is a very bright future as the made it very easy to access data and application. It give the benefits that it provide to its users and businesses. In this paper we focus the most important fields of mcc that its issues and challenges of it. But there are so many challenges the cloud computing has to face and it must to find the solution of problem which mcc is facing for its better uses.

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