

# Cloud Computing Using Mobile

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**Abstract** – Mobile Cloud Computing (MCC) which join mobile computing and cloud computing, has become one of the industry buzz words and a major discussion thread in the IT world since 2009. As MCC is still at the early stage of development, it is necessary to grasp a thorough understanding of the technology in order to point out the direction of future research. With the latter aim, this paper presents a review on the background and principle of MCC, characteristics and recent research work. It then analyses the features and infrastructure of mobile cloud computing. The rest of the paper analyses the challenges of mobile cloud computing, summary of some research projects related to this area, and points out promising future research directions.

**Keywords:** Mobile Cloud Computing; Mobile Computing; Cloud Computing; Research Direction.

## I. INTRODUCTION

The merging of both mobile computing and cloud computing can be known as mobile cloud computing. Mobile cloud computing technology can be inherited from the cloud computing technology. Because of the bringing up in number of the mobile devices such as smart phones, PAD's, laptops, tablet PC's, the mobile cloud computing technology innovation is turned out to be one of the best most potential and effective innovation sooner rather than later. In this section we will see in brief about mobile computing, cloud computing and mobile cloud computing.

## II. AIM

The purpose of MCC is to provide flexible and available resources that are accessible online. Cloud resources include storage, processing, and functionality over the internet via mobile networks. Mobile cloud services like Microsoft Azure support the execution of rich mobile applications.

## III. OBJECTIVE

Private or public, the goal of cloud computing is to provide easy, Scalable access to computing resources and IT services. Cloud infrastructure involves the hardware and software components required for proper implementation of a cloud computing model.

## Application

Mobile cloud computing is a very important mobile technology since it combines the advantages of the integration of both cloud and mobile computing to provide the best services for mobile user. There are many applications supported by mobile cloud computing including mobile healthcare and other areas. Various mobile applications have taken the advantages of mobile cloud computing such as:

**1. Mobile Commerce** - Mobile commerce or M-Commerce is a business model for using mobile devices in commerce. The M-Commerce application generally applied for some task that require a kind of mobility e.g., mobile ticketing, mobile payments, mobile transactions and mobile messaging. Using M-Commerce application have open many challenges such as, high complexity of mobile device configurations, low network band width, security and information flow control. Thus M-Commerce application integrated into cloud computing environment to address these issues.

**2. Mobile Learning** - Mobile learning or in short m-learning is designed as a combination of electronic learning (e-learning) and mobility. In fact, that the traditional M-learning application have many limitation such as high cost of devices, network prices, and limited educational resources. Cloud based M-learning utilizes the cloud with the powerful processing ability and large storage capacity, where the application provide learners with richer services in terms processing speed, capacity of data (information) size and longer battery life.

**3. Mobile healthcare** - Mobile cloud computing is used in medical applications to reduce the limitations of traditional medical treatment e.g., medical errors, computation speed, small physical storage, security and privacy. Mobile health care (M-Healthcare) supports mobile users with convenient helps in easily accessing the required resources e.g., patient health records or medical staff profile). M-Healthcare offers many on- demand services on cloud to the hospitals and healthcare organizations rather than owning stand alone applications on their local servers.

**4. Mobile Banking** - Mobile banking (M-Banking) refers to any operation that related to banking services such as balance check, account transactions, payment and receiving banking

SMS via a mobile device. Cloud based M-Banking apps addresses many M-Banking today is most often performed via SMS or the mobile internet but can also use special programs, called clients, downloaded to the mobile device. Cloud based M-Banking apps addresses many M-Banking apps issues such as processing speed and storage capacity.

**5. Mobile Gaming** - Mobile game or (m-Gaming) is a potential market generating revenues for service providers. M-gaming can completely offload game engine requiring large computing resource e.g., graphic rendering to the server in the cloud, and gamers only interact with the screen on their devices demonstrates that offloading (multimedia code) can save energy for mobile devices, thereby increasing game playing time on mobile devices.

**6. Mobile Government** - Mobile government (M-Government), is the extension of w-Government to mobile platform to utilize the government services and applications using mobile devices integrated with wireless internet infrastructure. M-Government Involves the deployment of government’s services and administration on mobile devices to make the government services available anytime, and anywhere.

**Advantages**

There are many advantages come with mobile cloud computing to both end users and businesses of different sizes. The obvious and big advantage is that users are no more having to care about the infrastructure or have to know about the development and maintains of the infrastructure.

**IV. MOBILE CLOUD COMPUTING ARCHITECTURE**

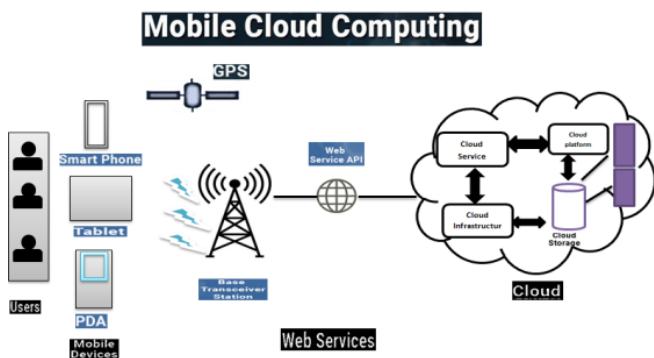


Figure 1: Mobile Cloud Computing Architecture

**V. RESEARCH METHODOLOGY**

The Mobile cloud computing is based on the internet computation that provides the shared processing of the resources and the data to the resources. The model is based on working over the ubiquitous demand with the on demand

access to the shared pool of the configurable computing resources.

**Future Scope**

Mobile Cloud Computing will be on demand in the upcoming 10 years. As the use of mobile devices and MCC based services will increase, the user data must be secured especially in the public cloud as data is vulnerable in the large public infrastructure. This technology is yet at its young stage so issue like security is a major concern to address.

**VI. RESULT**

The scalability of Mobile cloud computing allows companies to grow effectively. As the company expands, companies may increase their infrastructure and facilities without having to predict server needs or purchase additional storage capacity.

**VII. CONCLUSION**

This paper first review mobile cloud computing concepts, motivation, and classifies different mobile cloud services. Then the paper discusses the related research scope and its road map to mobile cloud computing. Particularly, it presents three generations of mobile cloud service infrastructures by comparing their key features and limitations Moreover, the paper discusses the issues, challenges and needs in mobile cloud computing for future research.

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**Citation of this Article:**

Prof. S.B. Bele, Pooja Vyawahare, Pallavi Deshpande, Pranavi Manekar, Lachi Paradhi, “Cloud Computing Using Mobile”  
Published in *International Research Journal of Innovations in Engineering and Technology - IRJIET*, Volume 6, Issue 10, pp  
113-115, October 2022. Article DOI <https://doi.org/10.47001/IRJIET/2022.610019>

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