

# Secure Data Transmission over Cloud using Mobile Technology

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**Abstract**— Mobile Cloud Computing (MCC) which consists of mobile and cloud computing, is one of the major breakthrough in industry and it has been improving in the IT industries since 2009. The MCC is still at the beginning stage of improvement or development, it is very important to grasp core knowledge of the technology in order to point us to the next-gen research. MCC has been involved to be a succeeding development for mobile technology. To overcome obstacles related to the performance MCC compiles the cloud computing into the mobile environment and security were observed in mobile computing. These outputs a short account on the background of MCC: starting from mobile computing to cloud computing and then followed with a discussion on recent research work. In this paper proposes mobile cloud computing security using one time password and whatsapp mechanism.

**Key words:** Cloud, Mobile, Data, Public Cloud, Security

## I. INTRODUCTION

The modifications in the network based computing and applications on demand have led to an explosive growth of application models such as cloud computing, software as a service, community network, web store, and so on. As a major application model in the era of the Internet, Commonly, cloud computing is described as a range of services which are provided by an Internet-based cluster system. Such cluster systems consist of a group of low-cost servers or Personal Computers (PCs), organizing the various resources of the computers according to a certain management strategy, and offering safe, reliable, fast, convenient and transparent services such as data storage, accessing and computing to clients. According to the top ten strategic technology trends for 2012 [1] provided by Gartner (a famous global analytical and consulting company), most of the time cloud computing has been on the top list, which means cloud computing will have an improved impact on the enterprise and most organizations in 2012.

Cloud computing (CC) has been often recognized as the next generation's computing infrastructure. CC offers some advantages by allowing users to use infrastructure (e.g., servers, networks, and storages), platforms (e.g., middleware services and operating systems), and softwares (e.g., application programs) provided by cloud providers (e.g., Google, Amazon, and Salesforce) at low cost. In addition, CC enables users to elastically utilize resources in an on-demand fashion.

Meanwhile, Mobile devices (e.g., smartphone, tablet pcs, etc) are increasingly becoming an essential part of human life as the most effective and convenient communication tools not bounded by time and place. Mobile users accumulate rich experience of various services from mobile applications (e.g., iPhone apps, Google apps, etc), which run on the devices and/or on remote servers via wireless networks. The rapid progress of mobile computing (MC) [2] becomes a powerful trend in the development of IT technology as well as commerce and industry fields. However, the mobile devices are facing many challenges in

their resources (e.g., battery life, storage, and bandwidth) and communications (e.g. obility and security) [3]. The limited resources significantly impede the improvement of service qualities.

The most considered devices are taken as the representative for the various mobile devices as they have been connected to the Internet with the fastly growing of wireless network technology. The two major features are Ubiquity and mobility in the next generation network which provides a range of personalized network services through numerous network terminals and modes of accessing. The core technology of cloud computing is centralizing computing, services, and specific applications as a utility to be sold like water, gas or electricity to users. Thus, the combination of a ubiquities mobile network and cloud computing generates a new computing mode, namely Mobile Cloud Computing (MCC). As a result, mobile applications can be rapidly provisioned and released with the minimal management efforts or service provider's interactions. With the explosion of mobile applications and the support of CC for a variety of services for mobile users, MCC is introduced as an integration of cloud computing into the mobile environment. Mobile cloud computing brings new types of services and facilities for mobile users to take full advantages of cloud computing[4]. As a development and extension of Cloud Computing and Mobile Computing, Mobile Cloud Computing, as a new phrase, has been devised since 2009. In order to help us grasping better understanding of Mobile Cloud Computing, let's start from the two previous techniques: Mobile Computing and Cloud Computing [5]

### A. Mobile Computing

Mobility has become a very popular word and rapidly increasing part in today's computing area. An outstanding growth has appeared in the technology of mobile devices such as, smartphone, PDA, GPS Navigation and laptops with a variety of mobile computing, networking and security technologies. Since with the development of wireless technology like WiMax, Ad Hoc Network and WIFI, users may be surfing the Internet much easier but not limited by the cables as before. Thus, their first choice of working and entertainment in their daily lives are mobile devices that have been accepted by more and more people as their first choice of working and entertainment in their daily lives. Mobile Computing is described as a form of human-computer interaction by which a computer is expected to be transported during normal usage. Mobile computing is based on a collection of three major concepts: hardware, software and communication. The concepts of hardware can be considered as mobile devices, such as smartphone and laptop, or their mobile components. Software of mobile computing is the numerous mobile applications in the devices, such as the mobile browser, anti-virus software and games. The communication issue includes the infrastructure of mobile networks, protocols and data delivery in their use. They must be transparent to end users.

### B. Cloud Computing

Since 2007 Cloud Computing has formed a famous topic. However, due to group of developers and organizations described it from different perspectives, there is no concrete definition on what a Cloud Computing or Cloud Computing System is. Hewitt [4] introduces that the major function of a cloud computing system is storing data on the cloud servers, and uses of cache memory technology in the client to fetch the data. Those clients can be PCs, laptops, smartphones and so on. R. Buyya [5] gives a definition from the perspective of marking that cloud computing is a parallel and distributed computing system, which is combined by a group of virtual machines with internal links. Such systems dynamically offer computing resources from service providers to customers according to their Service level Agreement (SLA) as shown in Figure1. However, some authors mentioned that cloud computing was not a completely new concept. L. Youseff [6] from UCSB argue that cloud computing is just combined by many existent and few new concepts in many research fields, such as distributed and grid computing, Service-Oriented Architectures (SOA) and in virtualization.

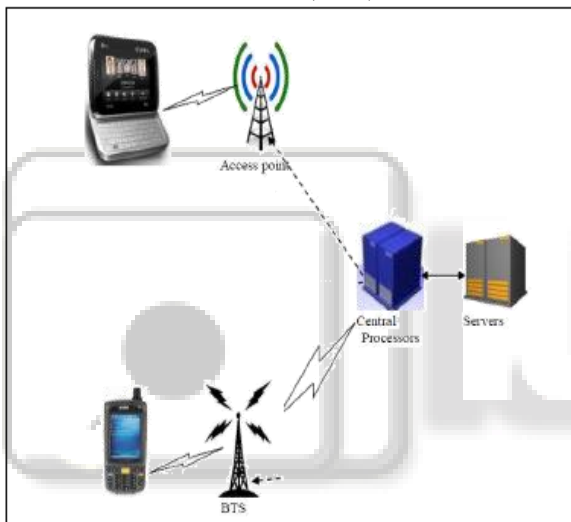


Fig. 1 Overview of the System

### II. LITERATURE REVIEW

Introduced the main improvement and development of the performance of hardware restricted smart phones by using their proposed clone cloud design to be used to enhance performance Fig. 2 explains a paradigm for mobile cloud computing. They have created virtual clones of the various number of the smart phone succession environment in the cloud (computer, laptop etc.) and send the accomplished operations to those virtual devices [13]. So they conducted off load accomplishment from smart phone to a computational infrastructure hosting a cloud of smart phone clones. If smart phones are lost or destroyed, the clone can be used as a backup. While another benefit is that hardware restriction of smart phone is coping – the task is transferred to effective and high computation devices in the cloud. It also facilitates and makes the developer’s job flexible and easy as there are no or few amendments needed for their applications.

A number of researchers have introduced service clouds for mobile cloud computing and named Mobile service clouds. A lot of their model enables dynamic

embodiment, installation, arrangement and rearrangement of services to be used by the mobile users.

A numbers of researchers created flexible applications that increase and enhance powerful smart phones, utilizing flexible computing resources from the cloud. A flexible application can have one or more weblets in it, while wallets have the most important feature of portability. Any given wallet can contribute+++ in switched between both mobile and stationary devices. One significant difficulty with this kind of application is the requirement of security for these app weblets. The weblets of single application usually can communicate independently or with other applets. Wallets can be interchanged between mobile devices and clouds. The researchers have also suggested a good solution for authentication; secure session administration, secure decampment between web lets implementation mobile devices and those on the clouds.

### III. PROPOSED METHOD

#### A. Operation

The proposed method is by otp(one time password) once you want to log in to the cloud computing site for data transfer, the random generated password message is sent to the phone. Since the normal sms messaging is not a good source of sending passwords because of traffic, there should be software like whatsapp which is interconnected to the sim of the phone. Once registered the sim is registered to a unique person and the so the privacy will be stronger compared to inputting a known or user password in the internet the messages or the notifications of the cloud login will be sent to the phone using net. As shown in figure [2] these can be accessed by using mobile cloud.

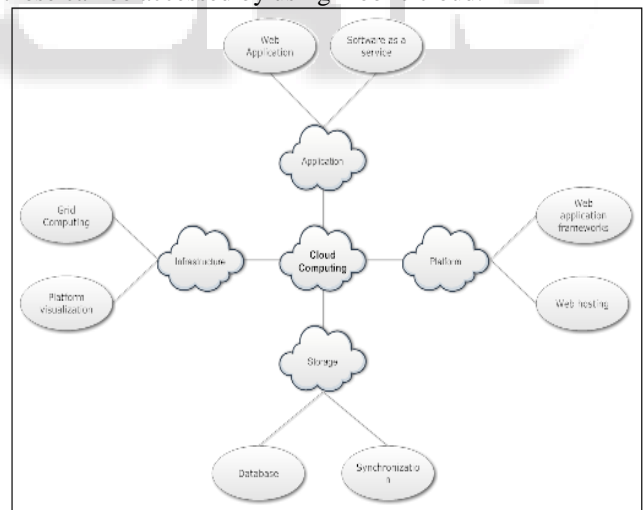


Fig. 2: Components of Cloud

As show in figure [3] the main key of the cloud is the mobile. It is an encrypted message which is decrypted once it reaches the destination. The password will be valid only a limited time period i.e. 2-3 minutes.it should be inputted in the login within that time. If you don’t receive the password within a period of time and if that exceeds there will be an option to send it to the email after that time period. This is linked to an email and a phone sim there will be constant notifications on your account of cloud to your phone once your logged in a success notification will be sent and vice versa for logout

### B. Recovery Process

if the phone is lost, a replica sim can be issued or if that's not possible then there will recovery option where they will ask you a series of personal questions and if that's approved then you'll be able to change the assigned phone number and input a new registered phone number. And once number is changed the random generated password will be sent to the specified phone for the login. Bluesnarf and bluejack attacks are based on Bluetooth. Avoid unknown bluetooth connections with unknown users. The new mod bluetooth have the privilege to check through all your files and folders in a specific phone which is a case of high vulnerability ATTACKS.

### C. Hacking Process

If someone does try to hack a cloud account. Then the notification will come as usual to the specific number. The user has the power to disable the account for a period of time for users choice .once this is done then **no one** can access the account for that period of time. It's like a temporary lockdown for that period of time. Once its open again the user will have to go through some personal question just to verify whether it's the user itself of not.

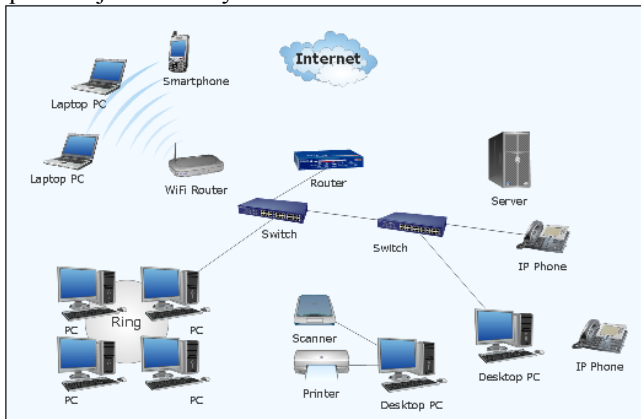


Fig. 3: Mobile Cloud Communication

## IV. CONCLUSION

The software is a type of whatsapp principle software which uses 2G or 3G and this is assigned to a number of a sim card. So everyone has a unique number and ID so there will be no common errors as such. Right now the mobiles or smart phones are the key locker for our cloud software but it's not only the Smartphone but also the unique sim each person has to get the base of the security stronger

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