Security Issues In Mobile Cloud Computing

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ABSTRACT

Mobile Cloud Computing (MCC) is a revolution in the field of mobile world. This paper presents the concept of mobile cloud computing which is a current gist in the field of computer. Beside this it acquaint with a new term called Mcloud that is still to be explored more. The various modules of this paper are MCC applications, major concerns and security concern with the preventive measures.

Keywords

MCC, MCC features, applications, cloud, authentication

I. INTRODUCTION

Mobile Cloud Computing (MCC) is an extent which integrate mobile computing and cloud computing, that has become one of the major theme. Mobile cloud computing syndicate the advantages of mobile computing, mobile internet and cloud computing. Therefore, mobile cloud computing can also be known as the cloud computing in mobile internet. Mobile Cloud Computing raises to an arrangement where both the data storage and the data processing transpire outside of the mobile device. Cloud computing arises when tasks and data are kept on the Internet rather than on individual devices, providing on-demand access. In mobile cloud computing, the former mobile device-based intensive computing, data storage and bulk information control have been relocated to 'cloud' and thus the requirements of mobile devices in computing capability and resources have been condensed. Mobile cloud applications transfer the computing control and data storage gone from mobile phones and place into the cloud, transporting applications and mobile computing to not just Smartphone users but a much broader range of mobile subscribers.

II Mobile Cloud Computing Technology Overview

Mobile computing is based on three major notions hardware, software and communication. The hardware can be measured as mobile devices. Software is the mobile applications in the devices. The communication includes the organization of mobile networks, protocols and data delivery

III Mobile Cloud Computing Architecture

Resources in mobile cloud computing networks are virtualized and assigned in a group of numerous distributed computers that actually form the cloud rather than in traditional local servers, and are provided to mobile devices such as smartphones, iPod, laptops etc. We have divided the MCC Architecture in two layers one is cloud service provider layer and the mobile link layer. Mobile users send service requests to the cloud through a web browser or desktop application
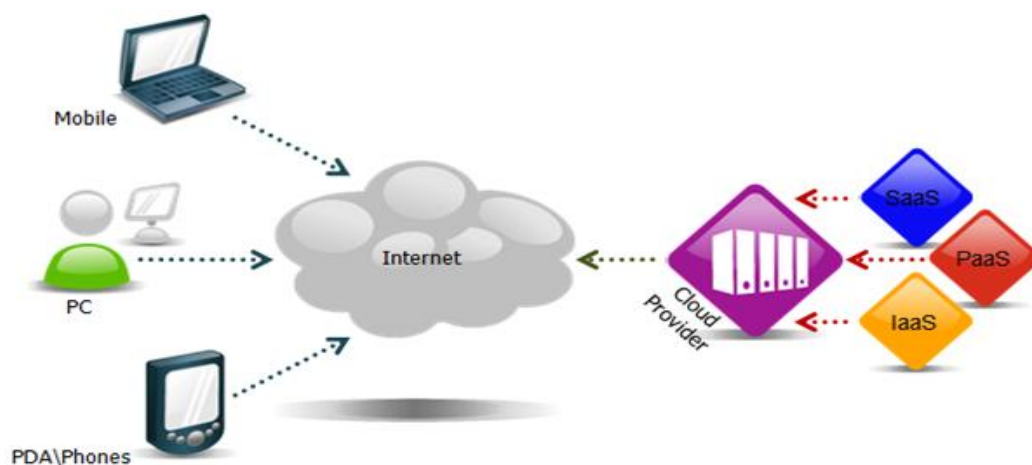

FIG:MOBILE CLOUD COMPUTING ARCHITECTURE

IV Applications of Mobile Cloud Computing

Some of the applications of mobile cloud computing are Google's Gmail drive, Maps and Navigation systems for Mobile, I- cloud from Apple Moto Blur from Motorola(with a special feature called remote wipe) Amazon 's new "cloud-accelerated" Web browser Silk. Silk is a "split browser whose software resides both on Kindle Fire and EC2. The applications reinforced by mobile cloud computing include mobile commerce, mobile learning, and mobile healthcare and other areas. Mobile applications extended extensive share in a global mobile market. Various mobile applications have engaged the recompenses of Mobile Cloud Computing. The following are the few inferences:

m-Commerce: Mobile commerce (m-commerce) is a buying and selling of products using mobile devices. The m-commerce applications normally used to achieve some tasks that necessitate mobility (e.g., mobile transactions and payments, mobile messaging, and mobile ticketing). The m-commerce applications have to face various complications (e.g., low network bandwidth, high complexity of mobile device configurations, and security). Subsequently, m-commerce applications are integrated into cloud computing environment to solve these issues [1].

m-Learning: Mobile learning (m-learning) is an electronic learning (e-learning) and mobility. However, traditional m-learning applications have limitations in terms of high cost of devices and network, low network transmission rate, and limited educational resources [2, 3, 4]. Cloud based m-learning applications are presented to solve these limitations, for example utilizing a cloud with the large storage capacity and powerful processing ability, the applications offer learners with much comfortable services in terms of information size, processing speed.

m-HealthCare: MCC in medical applications is used to minimize the limitations of traditional medical treatment (e.g., small physical storage, security and privacy, and medical errors [5]). Mobile healthcare (m-healthcare) offers mobile users with appropriate help to access resources easily. m-Healthcare provides healthcare organizations a diversity of on-demand services on clouds rather than standalone applications on local servers.

m-Banking

M-Banking is an uprising in traditional banking services, where user can avail the bank services provided to them through their mobile despite of location and time [6]. Transaction can be done even if user is busy in his routine work via SMS or the mobile Internet but can also use special programs, called mobile applications, downloaded to the mobile device.

m-Game

Mobile game (m-game) is a prospective market producing incomes for service providers. M-game 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 interface on their devices [7] demonstrates that offloading (multimedia code) can save energy for mobile devices, thereby increasing game playing time on mobile devices.

V Benefits of mobile cloud computing

Mobile Cloud Computing will help to upsurge the dispensation power and data storage of mobile devices. It also might help to increase the battery life by affecting the performance of commutation-intensive application 'to the cloud'.

Mobile Cloud Computing can upsurge security level for mobile devices attained by a unified monitoring and maintenance of software.

Its one-stop shopping option for users of mobile devices as Mobile Cloud Operators can act as virtual network operators, provide many e-services,

A new technical functions might be given by mobile clouds. Storing data or running applications on clouds is an operative way to improve the reliability.

VI Major Concern

Our two major concern in MCC is Portability and interoperability which is impossible between different Cloud Computing Service Providers, which handicaps the widely deploy and quick development of cloud computing.

Portability- All mobile agent runs on a place on the virtual machines called Mobile Agent Place (MAP). Mobile agents carry the application code that move from one MAP to another MAP independent of the CCSP (Cloud Computing Service Provider) there by realizing portability among heterogeneous CCSPs

Interoperability- Interoperability problem is condensed to the conciliation and association among agents which can be affected using agent interoperability standards

VII Mobile Cloud Computing Security

The one of the key issues that most cloud providers are given attention is securing mobile cloud computing is user's privacy and integrity of data or applications. Subsequently mobile cloud computing is a combination of mobile networks and cloud computing, the security related issues are classified into two categories:

- Mobile network user's security

- Cloud security

Mobile network security: Different mobile devices have numbers of security threats such as malicious codes. Some applications to these can cause privacy issues for mobile users .There are two main issues concerning the mobile user security

Mobile Application Security: - The easiest ways to check security problems is done by installing and running security software and antivirus on mobile devices. But since mobile devices are having limitation with processing and power, protecting them from these threats could be more difficult compared to regular computers. Several techniques have been introduced for transferring threat detection and security mechanisms to the cloud. Before mobile users could use an application, it should go through some level of threat evaluation. All file activities that are done on mobile devices will be verified if it is malicious or not. Instead of running anti-virus software or threat detection programs locally, mobile devices only performs lightweight activities such as execution traces transmitted to cloud security servers.[8]

Privacy: Revealing your private information such as giving geo location and user's important Information like date of birth, Credit card information etc. creates situations for privacy issues. For example, use of GPS on mobile devices. Intimidations for revealing private information could be reduced through selecting and analysing the enterprise needs and require only specified services to be acquired and moved to the cloud [8]

VIII Preventive Measures:

The following are the preventive to secure information on cloud

Integrity: Every user must guarantee the integrity of their information stored on the cloud. Every access they make must me valid and verified. Different methods in preserving veracity for one's information that is stored on the cloud is being proposed

Authentication: Different authentication techniques have been accessible and projected using cloud computing to secure the data access suitable for mobile environments. Some uses the open standards and even provisions the integration of various authentication methods.

Legal provisions: Distribution and piracy of digital contents such as video, image, audio, and e-book, programs should be criticized. The solutions to protect these contents from illegal access are applied such as encryption and decryption keys to access these contents.

IX Conclusion

Mobile Cloud Computing will give an environment for applications, providing an easy way for smaller developers to secure their services. It proposes on-demand network access to a shared pool of configurable computing that can be rapidly provisioned and unconfined with minimal management effort or service provider interaction. Mobile cloud computing is one of mobile technology trends in the future since it combines the advantages of both mobile computing and cloud computing, hence providing optimum services for mobile users. This paper have discussed security issues concerning to mobile cloud computing. Securing mobile cloud computing user's privacy and integrity of data or applications is one of the key issues most cloud providers are taking care off. Mobile cloud computing is a amalgamation of mobile networks and cloud computing, the security related issues are then divided into two categories: mobile network user's security; and mobile cloud security

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