Review of Mobile Cloud Computing Framework and Authentication Problems

Ms. Sangita Rase, Prof. Srinu Dharavath

Abstract: Now days there are many innovations coming every day in the mobile applications in order to serve end users in best possible ways as well as use of cloud computing is an also increase with mobile applications which is called as mobile cloud computing. The mobile cloud computing is uses the services of cloud into environment of mobile applications for overcoming the many issues such as bandwidth, battery life, most importantly storage, security etc. For the mobile security cloud, computing is well-suited approach. The use of cloud computing overcomes all the existing mobile handset issues like power limitations, storage limitations etc. As this is our review paper, during this paper we present first survey over the mobile cloud computing systems. In that, we discuss the architecture of mobile cloud computing at first. In addition to this, various applications of the same as discussed. In addition, the process of user authentication on mobile computing presented. This review paper is prepared by considering out future research approach in which the work will do over authentication of queries.

Keywords: Cloud computing, mobile cloud computing, spatial query, authentication, security & storage.

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I. INTRODUCTION

As a introduction, the mechanism of cloud computing delivers the facility of sharing the resources, accessing the shared resources, providing the web based infrastructure for information storage from any place in the world. The services offered by cloud are completely on demand services. Cloud computing solves the many issues of storing and monitoring of data for many business companies. The end user of cloud computing is not aware about the physical location of resources used [1]. In addition to this cloud, computing provides the facilities of designing, building, deploying and then managing their own applications remotely without need of any extra software or hardware. Following best examples of real time cloud service providers:

- Elastic Computing Cloud (EC2): This is the cloud framework of Amazon. This provides the computational services that allow peoples to use CPU cycles without buying more computers.
- Simple Storage Service (S3): Amazon also provides this service.

- Nirvanix Company which allowing organizations to store data as well as documents without adding a single on-site server.

Therefore, with such benefits the cloud computing is increasingly used by many business companies as well as individuals [2]. The use of cloud computing increasing day by day, the end users and the service providers are able to utilize the cloud resources with less cost and easily without owning

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all the resource needed.

However, the services of cloud computing is having many problems associated with it. The most common is security. Since from last few years, the problems like security, authentication, privacy preservation, access control etc studied more by various researchers [3]. The cloud services later introduced in mobile technologies as well which is called as mobile cloud computing. The user authentication in the mobile cloud-computing environment, especially the more important to them and high level of security certification is required.

In this paper we are taking the review of mobile cloud computing, the authentication in the same. In section II, the review of mobile cloud computing presented in which we are defining, advantages of mobile cloud computing, and its architecture. Later in section III we are taking the review of authentication problems in cloud computing. Finally, the conclusion made based on our study.

II. REVIEW OF MOBILE CLOUD COMPUTING FRAMEWORK

The term of mobile cloud computing was introduced not long after the concept of "cloud computing" launched in mid-2007 [3]. This section provides an overview of MCC including definition, architecture, and advantages of MCC.

What is Mobile Cloud Computing? The Mobile Cloud Computing Forum defines MCC as follows [4]: "Mobile Cloud Computing at its simplest refers to an infrastructure where both the data storage and the data processing happen outside of the mobile device. Mobile cloud application is used in power applications and data storage in the cloud computing and mobile phone and Smartphone users have a wide range of mobile consumers.Aepona [5] under which data processing and storage from a mobile device is powerful and centralized computing platforms in the clouds are transferred to a new paradigm for mobile applications describes as MCC. Centralized appli-

cations then the wireless connection on mobile devices a thin native client or Web browsers based.
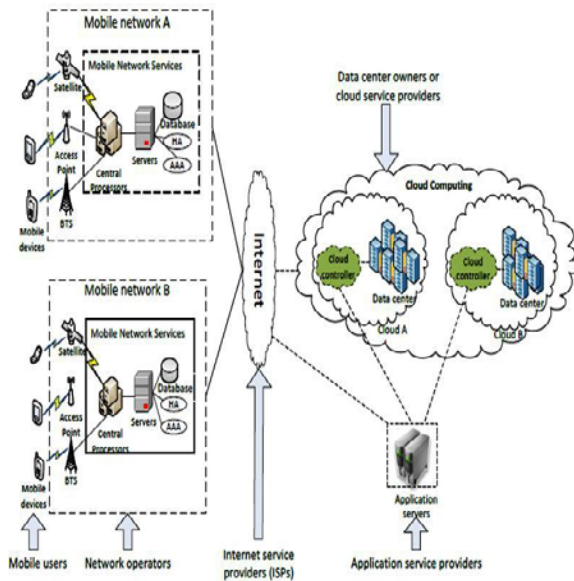

Figure 1: Architecture of Mobile Cloud Computing

The concept of MCC, MCC's general architecture fig. 1 can be shown in Fig.1, mobile devices through the mobile network base stations are connected (for example, base transceiver station (BTS), access point or satellite) and control (air) between mobile devices and networks and aims to Employment interface. Mobile user's requests and information (for example, ID and location) is the central processor that mobile networks provide services to connect to the server. Here, the mobile network operator's home agent (HA)-based mobile sub Yingkou as AAA (authentication, authorization, and accounting) and member data stored in a database can provide services. After that, through a member requests to Internet cloud, cloud controllers compatible with mobile users request for cloud services is the process of providing these services, utility computing, Virtualization, and service-oriented architecture (for example, Web, application, and database server) are developed with concepts.

Cloud architecture in different contexts, different details. For example, four-layer architecture [8] to compare with cloud computing, grid computing explained. Alternatively, service oriented architecture, Aneka, and developers with an application programming interface (APIs) and supports multiple programming models [9] .NET applications to enable to produce has been launched. [10] presents architecture of clouds Market-oriented, and to create business services [11] is a distributed Web architecture proposed in this paper. Cloud computing (fig. 2) focus on layered architecture [12].

Generally, a cloud computing is a large-scale distributed network that is implemented based on a number of servers in

data centers. The cloud services normally classified is on a layer concept (Fig. 2). In the upper layers of this paradigm, Infrastructure as a Service (IaaS), Platform as a Service (PaaS), and Software as a Service (SaaS) are stacked.

Data centers layer: This layer provides the hardware facility and infrastructure for clouds. In data center layer, a number of servers are linked with high-speed networks to provide services for customers
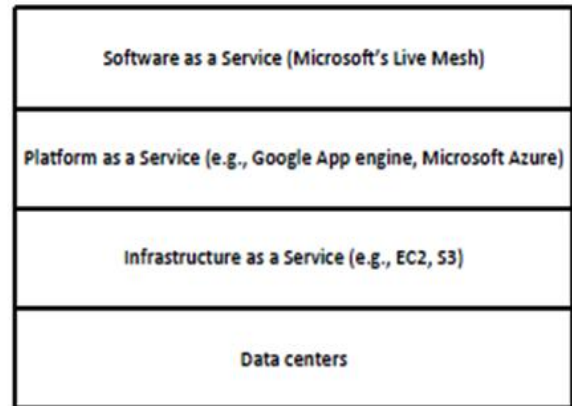

Figure 2: Service Oriented Cloud Computing Architecture

Infrastructure-as-a-service (annual): annual data center built on top of the layer. Annual storage, hardware, servers and enables the provision of networking components. Client usually pays a per-use basis. Thus, customers pay a cost based. Eval is how much resources they actually can save as. Infrastructure can be expanded or shrunk dynamically as needed examples of annual Amazon EC2 (elastic cloud computing) and S3 (simple storage service).

Platform-as-a-service (PaaS): PaaS, testing and deployment of custom applications for an advanced integrated environment. Google App engine, Microsoft Azure, Amazon Simple storage service map is example of PaaS.

Software as a Service (SaaS): SaaS supports a software distribution with specific requirements. In this layer, the users can access an application and information remotely via the Internet and pay only for that they use. Sales force is one of the pioneers in providing this service model. Microsoft Live Mesh is allows sharing files and folders across multiple devices simultaneously.

Although the cloud computing architecture divided into four layers as shown in Fig. 2, it does not mean that the top layer is must be built on the layer directly below it. For example, data storage service viewed as either in IaaS or PaaS.

Advantages of Mobile Cloud Computing: Cloud computing is known to be a promising solution for mobile computing due to many reasons (e.g., mobility, communication, and portability [13].

1) Extending battery lifetime: Battery is one of the main concerns for mobile devices. Many solutions CPU performance [14] [15] in an intelligent way to increase power consumption in order to reduce disk and the screen has been proposed to manage. However, these solutions require changes to the structure of the mobile devices, or they are the result of a new hardware that increased costs and may not be possible for all mobile devices. Computed technologies offloading large computations and complex processing resourceful machines (i.e., cloud server) resources Ltd. (i.e., mobile devices) equipment proposed to migrate for avoiding a long application execution, which results in power consumption while taking on mobile devices. [15] There are many experiments to evaluate the effectiveness of techniques through offloading. Displays the result is that enough energy in particular, remote applications can save to perform massive numerical computations evaluates and displays up to 45% energy consumption can be reduced for large matrix calculation. In addition, many mobile applications migration and take advantage of the remote resources. For example, a compiler optimization image [12] offloading 41% less energy consumption on a mobile device for processing. In addition, the mobile game components [13] Server to migrate to cloud memory arithmetic unit and interface (Maui) 27% of energy consumption and save up to 45% computer games using the game of chess.

2) Improving data storage capacity and processing power: Storage capacity is also a constraint for mobile devices. MCC developed to enable mobile users to store/access the large data on the cloud through wireless networks. The first example is Amazon Simple storage service (Amazon S3) [15], which support storage, file service. Another example image exchange, which mobile users [16] in the clouds for large storage space makes use of this mobile photo sharing service to quickly capture mobile users. After uploading the images to the clouds range to none of all the images, the user has access to device. All images sent and since the clouds on their mobile devices for users on energy storage space to save with a considerable amount of flicker [12] [13] but also the ShoZu mobile photo sharing applications based on MCC and cloud are processed. Book the most successful social Network application face today, and to share a typical example using images.

MCC also helps reducing the running cost for compute-intensive applications that take long time and large amount of energy when performed on the limited-resource devices. For example, clouds can be used for Trans coding, playing chess [10], [15], or broadcasting multimedia services [13] to mobile devices. In these cases, all offer an optimal coding or complex calculations for chess move that Trans for a long time is a processed on mobile devices when performing early on mostly because data is stored on the cloud now. Mobile applications are also constrained by storage capacity devices improving reliability:

3)Applications running on the cloud applications are stored and backed up large amount of data. Computer reliability is an effective way to avoid this data lost on mobile devices and applications. Furthermore, MCC is a comprehensive data security model is designed for both service providers and users. For example, abused and unauthorized distribution cloud [12] from being copyright David Rothman: getting local digital content (for example, video clips, and music) of Flanders and can be used to sha. Moreover, clouds away from such virus scanning, malicious code detection. Authentication [16] security services can provide to users with mobile. In addition, a cloud-based security services to improve the effectiveness of different users can make efficient use of data collected from records. In addition, MCC also mobile services inherit some benefits of clouds such as Dynamic on demand provisioning of resources on a fine-grained, self-service basis is a flexible way for service providers and mobile users to run their applications without advanced reservation of resources.

III. REVIEW OF AUTHENTICATION PROBLEMS

The most common login form used today, not only for cloud services, is to use static passwords. Many can agree that static password have many security problems. Static passwords are often very easy to crack, since users prefer non-complex passwords. Users also rarely change their passwords or to access multiple services use the same password, therefore, different cloud providers recently two factor certificate Starting with a password with Kieran. The problem with them is that it costs money, users or providers, it can be complicated to use, or the user to move him all of the time is a separate certification with regard to cloud services security device. One of the main concerns to migrate to the cloud storage media companies sue their services and are a big factor for clients hesitate. at the same time, recognize that security and technical knowledge of all kinds of customers to appeal should be easier with people and Lastly The solution is very cheap or free, providers and clients, clouds and more people to apply. Therefore, in the end, moreover, it is a simple and inexpensive to develop cloud services security solutions.

3.1 Authentication

Create authentication in General Act or something (or someone) as authentic, valid and were about the subject are true claims. a person's identity may prove to be, it's a product wrapping and tagging claims to trust that a relic or a computer program is a trusted one tracing the origin of the guarantees. Computer networks and the Internet or any Web-based services; Certification is usually the user's login password using the password authentic knowledge. Ensure that each registered user prior to ordering. Alternatively, registered by someone else and assign one or self-display using the password specified. Retake after use, the user and password previously announced. the weakness of the system passwords are

often stolen, inadvertently revealed can be forgotten or there are a couple of possible authentication attacks: attacks the Eavesdropper: an attacker gains an authentication exchange information and authentication key values such as restoring data can be used to authenticate.

Man-in-the-middle attacks: - Where an attacker inserts himself in between the client and the Verifier impersonation attacks: Where the attacker pretends to be the verifier to the customer to obtain authentication keys or data that may be used to authenticate fallaciously to the verifier. Session hijacking attacks: - Where the attacker hijacks a session following successful authentication by stealing session key or session cookie. Verifier impersonation attacks, Customer fraud attack, Key logger attacks etc.

Following are encryption standards being used by the cloud providers:-
1. AES (advanced encryption standard)
2. RC4Two - factor authentication with OTP
3. One time passwords
4. Time-based OTPs
5. Counter-synchronized OTPs

Define certification standards on top of two factor authentication has been used the most reliable method yet. Two-factor authentication to authenticate the user it supplied of two words. Twenty-four users something to let you know that some of you have used together with required. For example, when a user login to web page, which is your static IP and a series of random numbers from an authentication device, is the most common implementation writes a person withdraws money from an ATM. [5] on the Internet most online implementations, static password authenticating a PIN code that you have a device, which will generate an OTP. The only thing sent over the Internet to authenticate the user for OTP No use of a sniffing attacker.

IV. CONCLUSION AND FUTURE WORK

In this review paper, we have introduced the concept of mobile cloud computing in details. This study done by considering our future research over authentication in mobile cloud computing. The future work which we suggest here is over the query authentication method for mobile cloud computing in which spatial query integration performs. In section II above, we have discussed the detailed architecture of mobile cloud computing, its different advantages and problems presented. In section III we are presenting the various authentication problems in cloud computing.

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