

Analysis of behavior of Security as a Service in cloud for Smart phones

Rasnam Kaur

MTech, Department of Computer Science

Punjabi University Regional Centre for IT and Management, Mohali

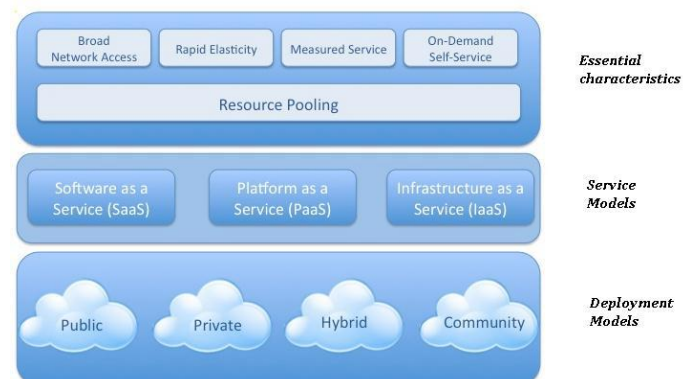
Abstract

Cloud computing providing the answer for every type of scalability and portability demanded by the users in different areas. Usage of cloud services in Smartphones has increased significantly from last decade as Smartphones provide great feasibility in term of acting as pc or provides processing just similar to pc. Smartphone can be carried to many places easily, sometime these devices act as sort of threat for some scenario where information cannot be shared with outside world. Security breaching through Smartphone can be a sort of threat for those types of scenarios and Smartphone are limited with their battery power and these devices consumes battery in great deal. Due to limitation of resources of Smartphones, security services in the form of a cloud offering seems to be a natural fit (anything as the services could be provided in a very scalable form in the cloud while off-loading or running applications on the Smartphone). Still the research done is in very early stage to achieve exact results which were proposed in that research so as a part of our research we are testing concept of security as a service on different versions of android (2.0 eclair version, 2.2 froYo version, 2.3 gingerbread, 3.0 honeycomb version) and some other operating systems. We will provide great vision for future to use security in term of service for different versions of Smartphone as in Smartphone, frequent changes are introducing day by day and we need to focus on compatibility and feasibility for those changes. Our research will be helpful for different Smartphone companies as we are providing them good vision for saving resources and providing solutions to security.

Keywords: Cloud server, Smartphone, VMware, Virtualbox.

Cloud computing portends a major change in how we store information and run applications. Instead of running programs and data on an individual desktop computer, everything is hosted in the “cloud”—a nebulous assemblage of computers and servers accessed via the Internet. Cloud computing lets you access all your applications and documents from anywhere in the world, freeing you from the confines of the desktop and making it easier for group members in different locations to collaborate [2].

Cloud computing has emerged as a new computing paradigm providing hosted services by exploiting the concept of dynamically scalable and shared resources accessible over the internet. A cloud service is rented on demand, i.e. based on the customer’s current requirements. By utilizing subscription based payment for resources and services a customer can substantially reduce their operational and capital costs. Cloud computing caters to the customer’s needs by offering a way to rapidly increase capacity when needed or to add new capabilities on the fly while minimizing investments in new infrastructure, training new personnel, licensing new software, etc. Figure 2 presents the U. S. National Institute of Standards and Technology (NIST) visual model of cloud computing.



Service Models

1. INTRODUCTION

Cloud computing can be classified based on the service model it offers, specifically: software, platform, or infrastructure.

IaaS

In Infrastructure as a Service (IaaS), storage, computation, and network resources are the major components that are provided as a service to the customer. Customers can run their choice of operating system and other software on the infrastructure provided by the cloud provider. It is not possible for the customer to modify the physical configurations of the underlying infrastructure, although the user can request changes from the cloud provider.

PaaS

In the Platform as a Service (PaaS) model, the cloud provider provides a platform for developing and running the web based applications. This platform provides all the facilities to support the complete life cycle of building and delivering the applications to end users. Software and service developers are the main users of PaaS.

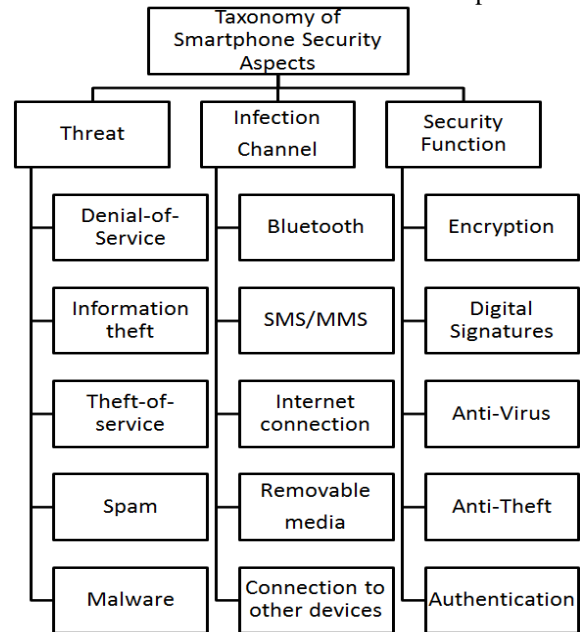
SaaS

The end user is the customer for Software as a Service (SaaS), since SaaS provides a complete software application running in the cloud. Logically underlying this are PaaS and IaaS. Generally, the customer will access the services through a web browser, but the service could also be serving end users that are “things” rather than people

Cloud computing emerged as the great technology in term of scalability and portability. It has changed our view of carrying data and communication. Cloud services are much indulged into mobile networks as most of the smart phones have the capability to support cloud computing environment. Over last few years, the usage and boost of handled devices such as Personal Digital Assistants (PDAs) and smart phones have increased rapidly. Gartner forecasts that the number of smart phones will exceed the number of Personal Computers (PCs) by 2013 [2]. Estimates suggest that the United States (U.S) smart phones sales are expected to grow from 67 million units in 2010 to 97 million units in 2011 [2].

Further are the taxonomy for Smartphone security model. This model described about the measurements which are been used for providing security in Smartphone. It also includes the hierarchy in which Smartphone security goes with different applications of Smartphone. This model also suggests the security threats which can be considered for Smartphone in real terms. Model suggests us about the possible solutions available for security and possible threats to

be prevented.

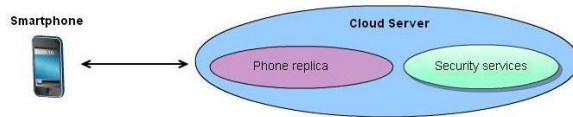


2. PROBLEM FORMULATION

Smartphones have capability of a computer now a day as smart phones are capable of producing great computing and processing output. Over the last decade security breechings and threats to smartphones increased due to the popularity of these devices. These devices have in built operating system which act equivalent to a computer in some sense and it is quite an attractive cake for hackers. Moreover power consumption by these devices is also a prime factor when attacked by some malware. Many solutions for protecting these devices from threats but power consumption increased dramatically while we are scanning devices through antivirus software.

Cloud services could provide great service to save this type of power consumption and also provides security to devices on the same time. Much research has been done while considering this vision like Clone Cloud Architecture [3], Smartphone mirroring architecture [4], Lakshmi Subramanian proposed a architecture “Security as a service in cloud for smartphones” [1]. In our research we will Analyze the behavior of security as a service in cloud for different smartphones environments like Android versions (1.6, 1.8, basic, sandwich, ginger bread etc), Blackberry platform, Nokia symbian. Much of work has been done in proposing this security as a service by very less work had been done on analysis and testing of these technologies on different platforms so

we are going to analyze the behavior of Smart phones while implementing security as a service in cloud.



3. RESEARCH METHODOLOGY

To achieve the set objectives, we will do the research in following steps

Step 1: Cloud services can be virtualized in Virtual box or VMware tools. Otherwise cloud services will be considered from some good vendor like Amazon, Google etc.

Step 2: Web Services will be used to simulate a cloud environment [5], [6]. In cloud, different SDK's for different platforms will be considered so that we could have simulated view for Smartphone in different versions

Step 3: Same platforms and versions will be considered in physical Smartphone so to compare the results of cloud and real devices for security and resources consumption.

4. CONCLUSION

The purpose of this Research is to provide some solution to better resource consumption in Smartphone. There is an ample scope of research in the stated area of Smartphone security. Present Analysis will reflect the effectiveness of the cloud services such as security as a service in Smartphone security. It will also explore the resources consumption like battery and cpu consumption for different vendors and for different versions of Smartphone's software (operating systems). Better results will be motivated through these analyses. Our research can be used in providing cloud services as security for different vendor's devices so that maximum resources can be saved without compromise to security in Smartphone devices.

5. REFERENCES

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