

MOBILE CLOUDE BASED COMPUTING

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Abstract: *The demand and use of mobile phones, PDAs and smart cellular phones are constantly on the rise as such, manufacturers of these devices are improving the technology and usability of these devices constantly. Due to the handy shape and size these devices come in, their processing abilities and functionalities, they are preferred by many over the conventional desktop or laptop computers. Mobile devices are being used today to perform most tasks that a desktop could be used for. On this logic, mobile devices are also used to connect to the resources of cloud computing hence, mobile cloud computing (MCC). The seemingly ubiquitous and pervasive nature of most mobile devices has made it acceptable and adequate to match the ubiquitous and pervasive nature of cloud computing. Mobile cloud computing is said to have expanded the challenges known to cloud computing due to the security loop holes that most mobile devices have.*

Keywords: *Cloud Computing, Mobile Based Cloud Computing, Mobile devices, Security.*

1. INTRODUCTION:

Mobile Cloud Based Computing is the fusion of cloud computing, mobile computing and radio set networks to conduct opulent computational resources to mobile users, network operative, as well as cloud computing providers. The ultimate goal of MCC is to allow execution of rich mobile applications on a plethora of mobile devices with a rich user experience .MCC provides business opportunities for mobile network operators as well as cloud providers. More totally, MCC can be explained as "a rich mobile computing technology that leverages unified elastic resources of varied clouds and network technologies toward absolute functionality, storage, and mobility to serve a mountain of mobile devices anywhere, anytime through the channel of Ethernet or Internet regardless of different environments and platforms based on the pay-as-you-use principle."

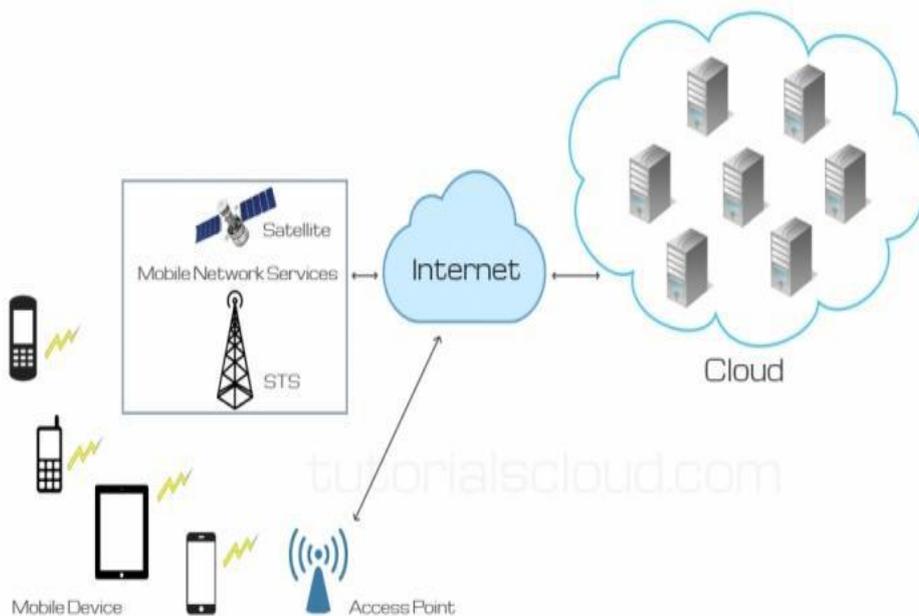
1.1 WHAT IS MOBILE CLOUD COMPUTING?

Mobile Cloud Based Computing refers to an under structure where both the data storage and data processing happen outside of the mobile device. Mobile cloud Based applications precede the computing power and data storage away from the mobile devices and into robust and focused computing policy discovered in clouds, which are then accessed over these wireless connection based on a thin native client.

MOBILE CLOUD COMPUTING = MOBILE COMPUTING + CLOUD COMPUTING.

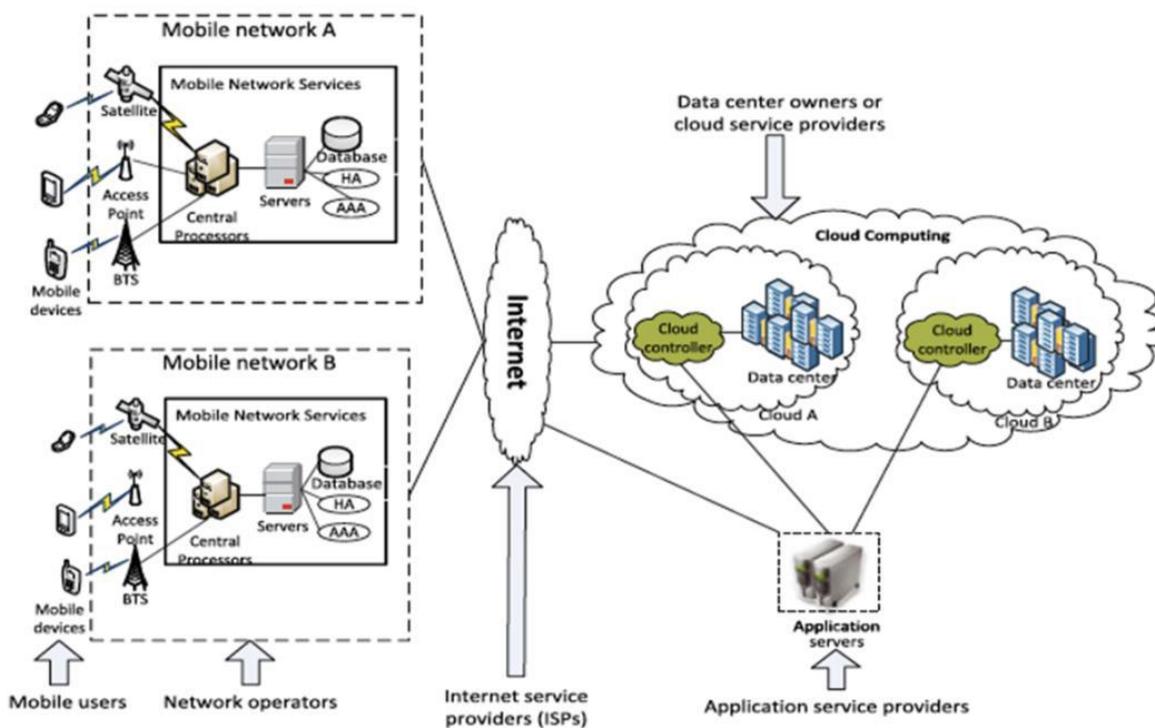
1.2 WHY DO WE NEED MCC?

Mobile devices face countless resource challenges like battery life, storage, bandwidth etc. Cloud Based computing offers control to users by allowing them to use infrastructure, platforms and software by cloud contribute at low cost and elastically in an on-demand fashion. Mobile cloud based computing provides mobile customers with data storage and handling services in clouds, obviating the need to have a powerful device configuration like CPU speed, memory capacity as all resource-intensive computing can be implemented in the cloud.



[Figure 1: Working of MCC]

ARCHITECTURE



[Figure 2: Architecture of MCC]

2. APPLICATION AREA:

The need and value of mobile cloud based computing cannot be over-emphasized considering its wide application and its unique empowered advantages (Fernando, et al. 2013). The application of mobile cloud based computing cuts over most of our daily human activities and in most cases comes in very handy to meet the need of its users in providing freedom, information on the go; anywhere, anytime with very little financial implication, considering that cloud services are priced on a pay per usage scheme. Its application as seen in much documentation is briefly described below:

2.1) Image Processing

Graphical Optical Character Recognition (GOOCR) program was (Chang, 2005) managed on mobile devices by a group of researchers. Its factual life application can be sighted by an instance where a tourist in a foreign country takes pictures of road signs and performs Optical Character Recognition (OCR) to translate the words to a language he/she understands. A mobile device based on its probable and resources might not have sufficient data processing ability to successfully perform the OCR, but given access to a mobile cloud, this task can be easily and quickly achieved.

2.2) Mobile Healthcare (M-health)

Health they say is wealth (research2guidance, 2013) so comparing how important it is to stay healthy and wealthy, having access to these basic human needs has never been more important comparing the various health challenges people are exposed to due to the high level of industrialization as seen in our world today. M-health applications assumes (but is not limited to) the use of mobile devices in collating community and clinical health data, delivery of healthcare information to professionals, researchers and patients, real-time detecting of patient vital signs, and direct provision of care (Kohn, et al. 2003). The application of MCC comes in handy to reduce the limitations of conventional medical treatment like storage capacity, security and privacy.

2.3) Mobile Learning

Mobile learning also written as m-learning is an off-shoot of electronic learning (eLearning) exploiting the advantages of mobile devices like compactness and mobility. In view of the control of conventional m-learning technology, like increased cost of network devices, slow data transmission rate (Chen, et al. 2010; Li, 2010), we are donated with Mobile Cloud Learning (MCL) as a solution to the challenges that face orthodox m-learning technology (Yin & David, 2009). This enhancement provides learners with better services like information processing speed and longer battery life.

3. TECHNIQUES

The growth of the mobile computing market will be increased by a wide range of enabling technologies. The impact of the broad introduction of tablet computers throughout 2011 could be an added creator for advancements, as well.

3.1) 4G:

Certainly, one of the biggest assistant will be the full roll-out of 4G technology, which will help with issues of latency and bandwidth. For example, Samsung established the Yes Buzz 4G cloud phone in Malaysia in January 2011. It has no SIM card and allows contacts to be saved and concurred on the Internet. In February 2011, Motorola founded the Atrix, A 4G phone with a fingerprint reader for use in unlocking the phone. It also fits into an elective dock that connects to a keyboard and mouse, converting the phone into a laptop. Reports say this new phone is buggy, but Motorola declare that it shows how we'll be using mobile devices in 10 years. The Atrix start shipping in March 2011, following pre-orders in February.

3.2) HTML5 and CSS3:

HTML5 is a useful step for mobile web applications. HTML is a document producing markup language that provides a means of identifying web page elements such as headings, text, tables, lists, and photos. Improvements that HTML5 introduces address the need for web application support. HTML5 also allows identification of offline support, which makes local storage possible, helping with connectivity interruptions. It also adds canvas and video features, Authorizing graphics and video without plug-ins. HTML5 features improvements in forms specifications that advantage mobile applications. In addition, HTML5 often comes with a geolocation API.

CSS3 works with HTML5 to identification how elements of a page should be rendered. HTML identification tells a web browser what to display, and CSS identification tells the web browser how to display it. New elements in the HTML5 identification require new guidance to display them—hence the need for the new version of the CSS standard.

3.3) Hypervisor:

Another enabler for cross-policy applications is an inserted hypervisor, which allows a web application to run on any smart phone without being aware of the underlying architecture. The hypervisor allows other software to run in an indirect environment. Mobile platforms proper the hypervisor to be built in. For example, the Motorola Atrix has an insert hypervisor that allows it to run a wider range of applications, not just those developed specifically for it.

3.4) Cloudlets:

A *cloudlet* is a small, simple device that inhabits nearby—maybe in a coffee shop. When needed, the device downloads user data from a focused location, permitting local access by the user and thereby reducing latency. When finished, the user data can be returned to the focused location, if necessary. This process occurs invisibly to the user, except that the user is pleased with faster reaction.

4. CONCLUSION:

Through our action with people in various works of life; academia, information technology investors, students, lecturers and tech savvy people, we found out that there is much hype and controversy surrounding both mobile cloud computing and cloud computing. Yes it is true that there exist actual issues that call for concern in connection with this new breed of technology but some of these concerns are mere rumors without any basis of justification. . In conducting this research we have made an effort to demystify the security challenges that plague this evolving technology and have gone a step further to proffer possible mitigation plans or solutions to debunk these security concerns.

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