PALGO JOURNAL OF EDUCATION RESEARCH

MOBILE CLOUD COMPUTING FOR HEALTHY SOCIAL COMMUNICATION- GROWING IMPORTANCE AND DOMAIN BASED APPLICATIONS

P. K. Paul [1]**, A. Bhuimali** [2] **and K.Kumar** [3]

FBAS, Indian Institute of Engineering Science and Technology [IIEST], Shibpur- An Institute of National Importance, WB, India[1]
Vice Chancellor, Raiganj University, Raiganj, West Bengal[2]
Vice Chancellor, VMS University, Sikkim, India[3]

Cloud Computing is a kind of Technology which is mainly responsible for the virtualization. In Cloud Computing hardware, software, application, and packages are possible with Virtualization Technology. Cloud Computing is actually promotes Mobile Computing and integration of these two creates a new domain called Mobile Cloud Computing. Mobile Cloud Computing is the ability to use Computing services without any specification or predefined place or location. The increasing number of Mobile Cloud Computing creates a new virtualization zone with number of application with the backup of several facilities. This is a conceptual paper which discusses so many aspects of Mobile Cloud Computing with features and advantages. Paper is also discusses about the challenges and issues related to Mobile Cloud Computing.

KEYWORDS: Mobile Cloud Computing. Cloud Computing, Virtualization, Application, Information Services, Application Programmes

INTRODUCTION

Mobile Cloud Computing is actually the combination of Cloud Computing and mobile networks to bring several services to the mobile uses including network operations and obviously cloud providers. Today Mobile Cloud Computing is become an important term for all most all sector such as business, industries, education and Governmental practice. Cloud computing in mobile services integrates so many add on or additional features which ultimately helps in better performance, working environment and security (P. K. Paul, K L Dangwal and R.Chettri, 2013 and P. K. Paul, S Govindarajan, D. Chaterjee, 2013). Mobile Cloud Computing services own hardware requirement and additional software and hardware specification. Today various application based on mobile has developed and uses for several purposes; among such application E-Mail, Navigation Map, Voce Search, Remote software and packages uses are most important and valuable. In short, Mobile Cloud Computing is also refer as MCC (Paul, P. K. et.al., 2013, Paul, P. K. 2013).

OBJECTIVE

The main aim and objective of the paper is includes but not limited to as follows—

- To know basic about Mobile Cloud Computing; including its features as well as wider benefits;
- To learn about the Mobile Cloud Computing; its trends and future potentials;
- To know about the current and future possible application and packages with Cloud Computing;
- To learn about the possible application and domain specific application of mobile cloud computing in very brief manner;
- To learn about the emerging challenges and issues related to Mobile Cloud Computing;

- To know about the potentiality of Mobile Cloud Computing to promote Green and Eco friendly infrastructure.

Mobile Cloud Computing and Features

In simplify manner we can say that, Cloud Computing is actually a technology that uses the internet and central remote server to maintain data and applications. Cloud Computing is actually provides much more efficient computing with centralize storage, money, processing and bandwidth and hence Mobile Cloud Computing is a kind of form of Cloud Computing (Paul, P. K., 2013, P. K. Paul, et.al, 2014).
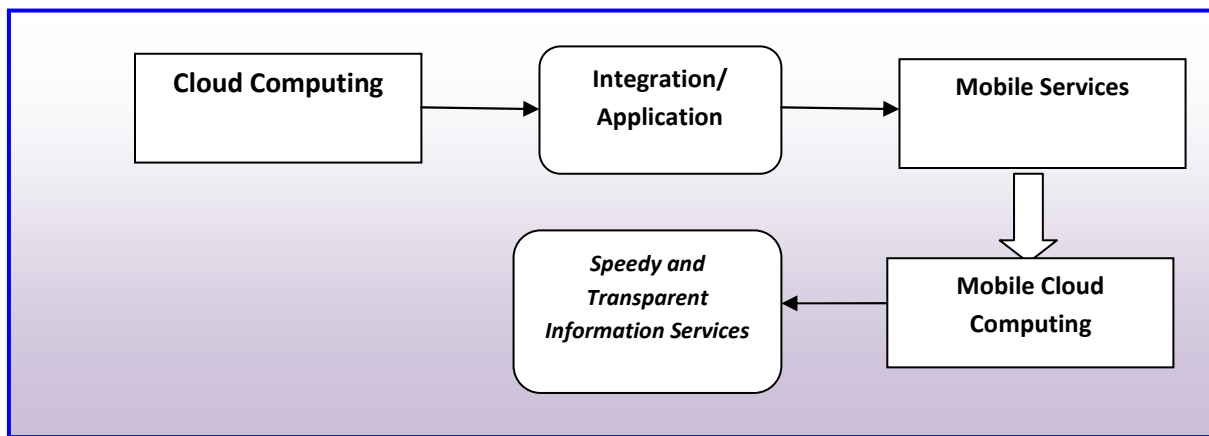
Fig: 1-Depicted Cloud Computing based Mobile Systems and its benefits

Mobile Cloud Computing is an important domain and industrial buzzword and a major discussion thread in the IT world during some years. According to Mobile Cloud Computing Forum, "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 applications move the computing power and data storage away from Mobile phones and into the cloud, bringing applications and mobile computing to not just smart phone user but a much broader range of mobile subscribers (Reichman, F. 1961 and Saracevic, T., 1996). As far as features is concerned, Mobile Cloud Computing deals with following features—

Higher Performance-Which ultimately provides heavy battery life as well as storage and bandwidth;

Healthy Environment-Which ultimately provides heterogeneity, scalability and complete availability;

Security- Which including user, industrial availability and privacy (Saracevic, T. (1975 and 1975b).

Mobile Cloud Computing: Advantages

Mobile Cloud Computing deals with so many advantages and benefits and some of them are illustrated as follows—

- Extending battery service is one of the main benefits of mobile devices powered by the Mobile Cloud Computing. There are so many reasons for which Mobile Cloud Computing is helpful in reduction in power consumption (Reichman, F. 1961). Mobile based services is allows avoiding talking a large application execution time on mobile devices which results heavy power consumption;

- As Mobile Cloud Computing comes with several cloud based facilities and thus it allows several storage facilities and which ultimately helps in remote based content uploading and downloading without own Data storage or Database. Many companies such as Amazon S3, Flickr, Shozu are prime example of such applications;

- Mobile Cloud Computing improves the reliability of data and content including audio, video and information and text. Mobile Cloud Computing is reduces the chance of data and application lost on the mobile devices. Ultimately integrated data integrity model saves power consumption by reducing several security machines;

- As Mobile Cloud Computing is comes with so many application and remote based and reduce own broader and software cost thus also promotes cost effective IT policy and service system (Saracevic, T., 1996).
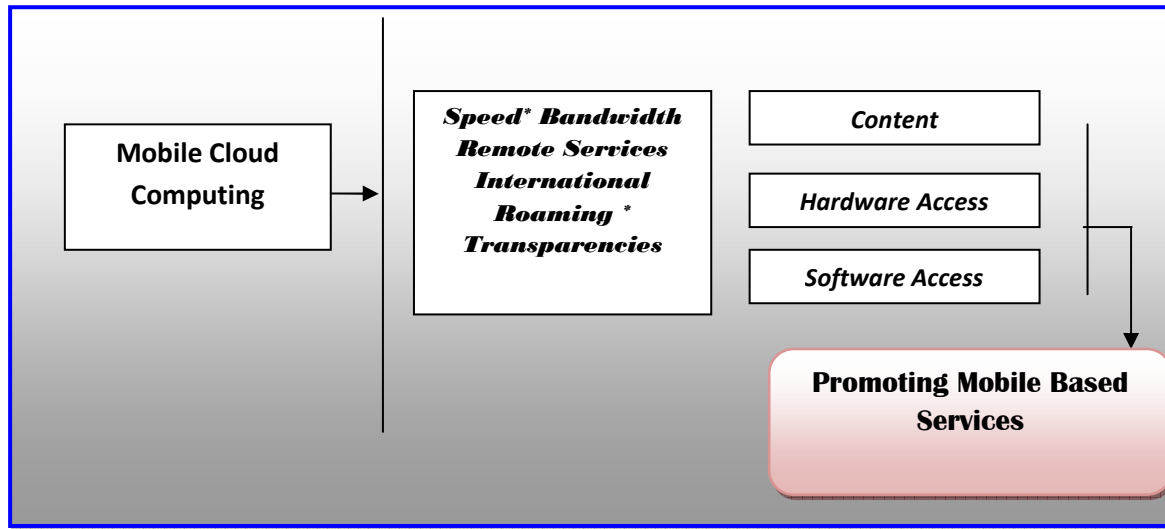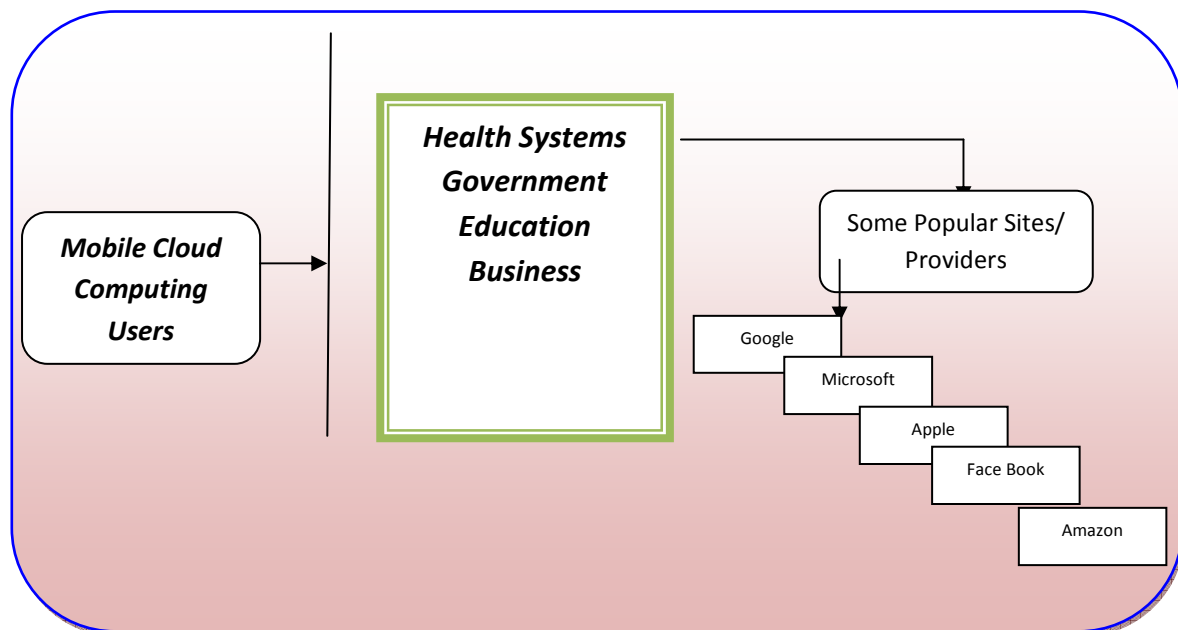

Fig2:Depicted Mobile Cloud Computing and wider benefits

Mobile Cloud Computing: Domain and sector based Application

Mobile Cloud Computing is applicable in so many organization and institutions regardless of types of profit making or non-profit making; Government and Non Government and so on. Sector wise, Mobile Cloud Computing is also important to apply. Today we can see its uses in Commerce, learning and Education, Healthcare and Medicine, Entertainment and so on. And thus so many new domain and fields are increased such as E-Commerce, E—Education, E—Healthcare, E-Entertainment , E-Government and so on powered by Cloud Computing or more clearly, Mobile Cloud Computing (Saracevic, T., 1996 and Saracevic, T. 1979b).

✓   Mobile Commerce is now a day's most popular business mode powered by IT, Purchasing, selling, supply chain management, ERP and so on. Recently the application of Mobile Cloud Computing rejuvenate commerce and business sector more rapidly; and today Mobile Cloud Computing is responsible for building finance, advertising, and shopping environment creation. Ultimately,   Mobile commerce with Cloud Computing comes with so many utilities such as transportation, payment, mobile message, mobile ticketing and so on.

Fig3: Depicted some Mobile Cloud Computing service providers and its applied domain

✓ Today Education with support from IT and computing in important stage. Today many mobile learning is designed based on Electronic Learning and mobility. The Education with support from IT and computing in important stage. Today Based education is deals with potentiality of large storage capacity and variety of content delivery including recorded and live audio, video, faster information and content processing, power consumption and battery life. However some problem may be arises during E-Learning with cloud backup such as—

-Low Network Bandwidth;
-High Complexity of Mobile devices configuration;
-Network Security and so on.

Though, Mobile Learning may deals with some healthy benefit compare to conventional network services such as reducing cost of devices and hardware, low transmission rate and very minimum educational resources (Paul,P. K. ,2013).

✓ Mobile based Health System with Cloud Support may offer several new services and old services with new look and benefits. Ultimately Mobile Cloud Computing is helpful in minimizing the limitation of tradition and even IT supported Medical system. Some services such as Patient and user health data management, medical informatics promotion and web 2.0 applications in the context of health and medicine become most valuable example of Mobile Cloud Computing uses in healthcare. Such services are but location depended and one can access the services from any place and any time including textual consultation of doctor. Apart from these, Mobile Cloud Computing promotes onsite healthcare administration and hospital management;

✓ Entertainment industries are another important name in Mobile Cloud Computing. Today several applications are directly and indirectly deal with entertainment such as Amazon Simple Storage Service, Flickr, Shozh, Facebook and online Game and so on. Mobile based Game can completely offload game engine requiring large computing resources to the servers in the Cloud (Paul, P. K. 2013a and 2013b).

FINDINGS

• Mobile Cloud Computing is comes with the extending battery lifetime, data storage, processing power and improving reliability;
• Some key issues in Mobile Cloud Computing is integrity, authentication, and digital right management;
• Regarding security, it is very much essential that data should be encrypted before sending data on the cloud;
• Education, Government application powered by Cloud is also an important place like- Industrial sector.

SUGGESTION

• Mobile Cloud Computing needs to initiated in the common services places like- Health and Government for theirs wider uses;

• Common people, small organization and corporate houses can use Cloud powered data storage and with remote backup;

• Mobile Cloud Computing needs to initiated in the existing IT systems for better reliability, data storage and capacity and power consumption;

• For cost reduction and time saving it is important name and most valuable in several concerns.

CONCLUSION

Though, Mobile Cloud Computing is comes with so many advantages and benefits but it deals with so many challenges and issues such as a low network bandwidth, higher complexity of mobile devices configuration and security (Paul,P. K. , R Rajesh, D Chatterjee, M K Ghose, 2013 and Paul, P. K., 2013). Today, Mobile Cloud Computing is useful in so many cases and places which includes electronic- healthcare, industries, business and other sector over the last few years, there have been an increased number of applications that have migrated to the cloud and new cloud based application that have become popular. E-Mail, Maps, Navigation systems, voice search, tele-medicine are the prime and emerging

example of mobile based Cloud Computing.

REFERENCES

Cohen, E. B. (2004). Applying the Informing Science Framework to Higher Education: Knowledge Development, Management, and Dissemination. Konferencja Pozyskiwanie wiedzy i zarządzanie wiedzą (Proceedings of the Knowledge Acquisition and Management Conference) May 13-15, 2004 Kule, Poland.

Cohen, Eli B. and Nycz Malgorzata (2006). Learning Objects and E-Learning: an Informing Science Perspective. Interdisciplinary Journal of Knowledge and Learning Objects 2: 12-19

Martin, S.B. (1998). Information technology, employment, and the information sector: Trends in information employment 1970–1995. Journal of the American Society for Information Science, 49(12): 1053–1069.

Michael Buckland and Ziming liu (1995).History of information science. Annual Review of Information Science and Technology. 30: 385-416.

P. K. Paul (2012), Information Scientist: Roles and Values with special Reference to their Appropriate Academic Programme and its availability in India. International Journal of Information Dissemination and Technology. 2 (4): 245-248

Paul,P. K., D Chaterjee,R Bhatnagar and Uma Pricilda (2012). Information Scientist: Contemporary innovative techno management roles with special reference to Information Scientist Vs Information Technologist: A Study. Indian Journal of Information Science and Applications. 2 (1): 47-50

Paul,P. K. , D Chatterjee and M Ghosh (2012) Neural Networks: Emphasizing its Application in the World of Health and Medical Sciences Journal of Advances in Medicine. 1 (2):17-23

P. K. Paul, Ashok Kumar and Dipak Chaterjee (2012). Health Informatics and its Practice: Emerging Domain of Information Science-Indian Scenario. Current Trends in Biotechnology and Chemical Research 2(2): 83-87

P. K. Paul, K L Dangwal and Asok Kumar Garg (2012). Education Technology and Sophisticated Knowledge Delivery. Techno-Learn-International Journal of Education Technology, 2 (2): 169-175

P. K. Paul, K L Dangwal and Dipak Chaterjee (2012). Information Technology and Advance Computing and their interaction for healthy Education, Techning, and learning: The IKM Approach. Asian Journal of Natural and Applied Sciences. 1 (4): 70-77

Paul,P. K. and M K Ghose (2012) Cloud Computing: Possibilities, Chalenges, and opportunitities with special reference to its emerging need in the academic and working area of Information Science. CMOC, Procedia Engineering, 38: 2222-2227

P. K. Paul, K L Dangwal and Ramana Chettri (2013). Quadrple Play Network: Emphasizing its possibilities for smarter University Educaation especially online knowledge delivery model. Learning Community- International Journal 4(1): 15-25

P. K. Paul, S Govindarajan and Dipak Chaterjee (2013). Cloud Computing: Emphasizing Hybrid Cloud Computing on Android Computing Platform-An Overview. International Journal of Applied Science and Engineering 1(1): 21-28

Paul,P. K. , R Rajesh, D Chatterjee, M K Ghose (2013) Information Scientist: Technological and Managerial Skill requirement in 21st century. Information Studies. 19(1): 29-36

Paul, P. K., (2013) MSc-Information Science [Geo Informatics]: Overview emphasizing twoproposed curriculum for sophisticated Geo Spatial development. International Journal of Pharmaceutical and Biological Research. 4 (5): 218-227

Paul, P. K. (2013). Environment and Sustainable Development with Cloud Based Green Computing:A Case Study. Scholars Academic Journal of Biosciences. 1(6):337-341

Paul, P. K., (2013). Nutrition Information Networks: Possible domain and Future Potentials. Scholars Academic Journal of Biosciences 1(6):342-345

Pau1, P, K, K L Dangwal (2014). Cloud Computing Based Educational Systems and iits challenges and opportunities and issues" Turkish Online Journal of Distance Education 15(1): 89-98

P. K. Paul, K L Dangwal, B Karn, (2013). Engineering Academics, Departments and Community : Emphasizing Some Educational Perspective of Information Science [IS], EDUCATIONAL QUEST. 4(2): 141-146

Pau1, P K, K L Dangwal, A Kumar (2013). Information Infrastructure and Academic and Education World: The Role and Opportunities in Contemporary Perspective. International Journal of Education for Peace and Development. 1 (1): 31-36

Reichman, F. (1961). Notched Cards. In R. Shaw (Ed.), The state of the library art. 04(01): 11–55

Saracevic, T. (1996). Relevance reconsidered. Information science: Integration in perspectives. In Proceedings of the Second Conference on Conceptions of Library and Information Science: 201–218

Saracevic, T. (1975). Relevance: A review of and a framework for the thinking on the notion in information science. Journal of the American Society of Information Science, 26(6): 321–343.

Saracevic, T. (1979a). An essay on the past and future of information science education. I. Historical overview. Information Processing andManagement, 15(1): 1–15.

Saracevic, T. (1979b). An essay on the past and future of information science education. II. Unresolved problems of 'extemalities' of education Information Processing and Management, 15(4): 291–301.

Vakkari, S.P. (1996). Library and information science: Content and scope. In J. Olaisen, E. Munch-Petersen, and P. Wilson (Eds.), Information science: From development of the discipline to social interaction. Oslo, Norway: Scandinavian University Press.

Vickery, B.C., and Vickery, A. (1987). Information science in theory and practice. London: Butterworths: 110

Wersig, G., and Neveling, U. (1975). The phenomena of interest to information science. Information Scientist,. 9: 127–140.

White, H.D., and McCain, K.W. (1997). Visualization of literatures. Annual Review of Information Science and Technology. 32: 99–168.

Information Science-Home (2016). Official Website [Online] available at: www.infosci.cornell.edu/ [Accesed 20th June, 2016].

iSchools (2016). Official Website on iSchools Organization [Online] available at: www.ischools.org [Accesed 20th June, 2016].

Colege of Information and Communication (2016) Official Website of University of South Carolina [Online] available at: http://www.libsci.sc.edu/bob/istchron/iscnet/ischron.html [Accesed 20th June, 2016].