Review of Global Access to Cloud Emergency Medical Services

JayashreeGuthe
PG Scholar
Department of computer Engineering
Dr.D.Y.Patil School of Engineering & Technology
SavitribaiPhule Pune University
Pune,India

AlkaVishwa
Assistant Professor
Department of computer Engineering
Dr.D.Y.Patil School of Engineering & Technology
SavitribaiPhule Pune University
Pune, India

ABSTRACT
Recently there has been animpressiveimprovement in the activity around maintenance of the personal health record (PHR) systems for patients and customers. The co-medical past data has not yet sufficiently describe the possibleefficiency and service of PHR systems. Since PHRs in it havinguniversal patient information and not certain samplesindividually collected by healthcare providers, they can used this samples as abasic infrastructures for constructing framework and operating different significant systems for both healthcare and also for the tax payers. Crisis restorative frameworks (EMS) are among the most urgent ones as they include an assortment of exercises which incorporates calling a rescue vehicle administration till the season of tolerant release from the causality of a doctor's facility and are firmly interrelated so that joint effort and coordination turns into a key issue for patients and for crisis social insurance administration execution. Individual wellbeing record frameworks are more than simply static vaults for patient information; they consolidate information, learning, and programming devices, which help patients to end up dynamic members in their own particular consideration. At the point when PHRs are coordinated with electronic wellbeing record frameworks, it gives more noteworthy advantages than would remain solitary frameworks for customers.

Keywords
Emergency medical systems, personal health record systems, cloud computing.

1. INTRODUCTION
Computing is being transformed to a model consisting of services that arecumulated and delivered. In this type of a model, clients access administrations in view of their necessities without respect to where the administrations are facilitated and how they areconveyed.

Distinctive figuring benchmarks have conveyed this utility processing vision and these incorporate bunches registering, Grid figuring, and the most as of late Cloud registering. The last term means the framework as a "Cloud" from which organizations and clients have the capacity to get to applications universally as and when the client needs to get to the information. Along these lines, the registering scene is quickly changing towards creating programming (EMS) for millions to devour as an administration, as opposed to keep running on their individual PCs.In the past many years, there has been a good and remarkable improvement in activity promoting to the adoption of electronic health records (EHRs). In practice all government agencies like federal government, state government, regional government, and local authorities and also the private sector, have been encouraged EHR adoption. Compare to the electronic health record the personal health record (PHR) systems have not received the same level of attention. EHR systems function to serve the information required by the health care professionals, while PHR systems capture health data of each patient's individually and provide information related to the medical health care of those individuals patients. Personal health records include tools to help patient to take more active role in their own health checkup. To some extent, PHRs speak to a focal area in which information is put away and oversaw for persistent information, yet PHR frameworks can likewise incorporate choice bolster capacities that can help patients in overseeing interminable treatment. Most buyers and patients get restorative data from numerous medicinal services suppliers, and hence their wellbeing information are scattered over numerous therapeutic reports and EHR-based record frameworks. A divided arrangement of putting away patient information and recovering crucial patient information obstructs ideal consideration.

The U.S. Secretary of Health and Human Services, and the National Coordinator for Health Information Technology, also in addition the Administrator of the Centers for Medicare and Medicaid Services (CMS) have every recognized PHR as an ideal arrangement over rest of the product utilized as a part of the medicinal social insurance. Keeping in mind the end goal to propel the examination of PHRs, the American Medical Informatics Association's College of Medical Informatics (in the future called "the College," whose formal lawful name is the American College of Medical Informatics), made out of chose colleagues from the United States and abroad, held a Panel dialog on PHRs in February 2005.

A PHR incorporates wellbeing data oversaw by the person. (Regularly the term patient is utilized when alluding to shareholders of PHRs, however we like to utilize the term individual to stress that the PHR is an apparatus that can be useful in keeping up wellbeing record and health and in addition an instrument to help with sickness that the term understanding suggests.) This can be appeared differently in relation to the clinical record of patient encounter–related data (a paper diagram or EHR, otherwise called an electronic therapeutic record or the PC based patient record), which is overseen by the clinician and/or medicinal services establishment. There are a few method for making a useful PHR in the first approach, an individual may make his or her PHR utilizing industrially accessible applications differing from stand-alone frameworks to Web-based applications. The patient can enter and access his or her wellbeing data through such frameworks. In its least complex frame, the PHR is a stand-alone application that does not unite with some other framework. At the flip side of the range, PHR usefulness can

be given to patients to view and access their own particular wellbeing data that is put away at their medicinal services supplier's EHR. The EHR-based frameworks may incorporate extra usefulness, for example, permitting the patient to demand arrangements and remedy reestablishments and furnishing a correspondence channel with the medicinal services clinicians. Now and again, patients may include supplemental data that might possibly consequently be joined into the supplier's EHR. Despite the fact that up till now there is insufficient information accessible that can evaluate the present utilization of PHR frameworks, consequently we trust that the greater part of buyers utilizing a PHR today utilize, one that is incorporated with the supplier's EHR in some or the other way. Some half and half PHR frameworks can interface with different human services information sources to get and transmit information for an individual client needs. This up and coming methodology overwhelmed the impediments that the outcomes from utilizing a PHR incorporated as a part of a solitary social insurance supplier or association, however this procedures is significantly more unpredictable to store and get to all information

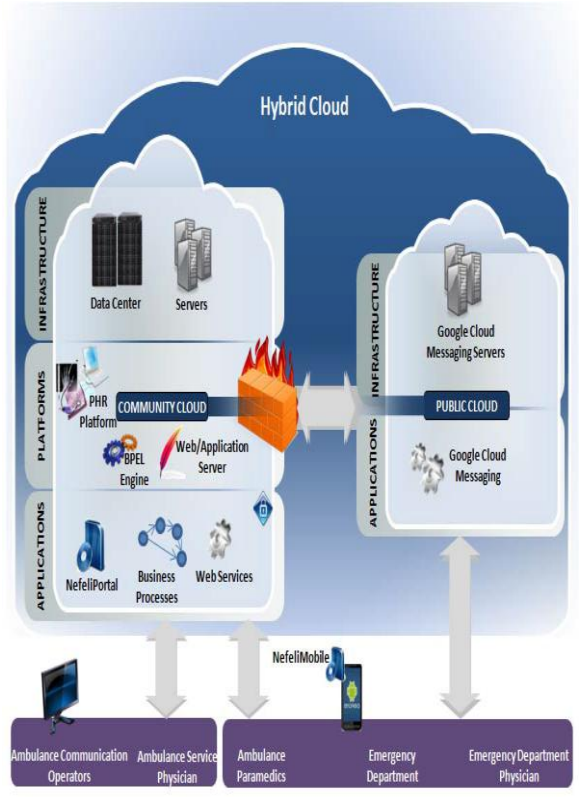

Figure No :01

2. LITERATURE SURVEY

In this section survey was carried on the literature which is previously done in this field is addressed

Although patients are the primary beneficiaries and users of PHRs, healthcare providers may benefit from their use as well as they have both economic and quality impact [1][2].

In particular, healthcare professionals, due to the high level of mobility they experience, require ubiquitous access to relevant and timely patient data in order to make critical care decisions [3].

Cloud computing signs a new era where wider sharing (sending and receiving),resource allocation, storage, access and manipulation of data can be achieved in a cost-effective manner, which is secure and user-friendly to health care provider [4][5]. More specifically, it provides a new information delivery as per requirement and consumption model in which applications and information are accessed from a web browser while software and patient data are stored on the servers [6].

Mobile Cloud Computing (MCC) has been emerged as a new computing technique stemming from the combination of mobile and cloud computing, whereby previously infeasible mobile applications are finding their ways into mobile devices. As MCC offers freedom in accessing electronic health record management systems, it may assist in developing mission critical applications for healthcare delivery in all levels of care (e.g. emergency care) [7][8]. Thus, healthcare providers and organizations are increasingly considering and migrating to MCC in an attempt to increase flexibility and agility of their healthcare systems and services and also enhance quality of patient care by using this system [2][9].

During the last few decades, the design and implementation of Android-enabled mobile healthcare applications are been used on large scale [11][12] [13] [14]. Some of software applications are concerned with providing mobile access to PHRs by patients and also by healthcare professionals authorized by them [13][14].

Specifically, in [15], a coordinated EMS cloud-based construction modeling is recommended that permits approved clients to get to crisis case data in institutionalized report structure, as proposed by the Integrating the Healthcare Enterprise (IHE) profile, utilizes the Organization for the Advancement of Structured Information Standards (OASIS) standard Emergency Data Exchange Language (EDXL) Hospital Availability Exchange (HAVE) for trading operational information with doctor's facilities and joins a canny specimens that backings to organizing and selecting the most suitable ambulances and clinics for every case. Another methodology is proposed in [16], which is worried with the execution of a versatile framework that empowers electronic medicinal services information stockpiling, overhaul and recovery utilizing Cloud Computing.

3. EMS approach

In the Emergency medical service process, where the ambulance service and a hospital emergency department are involved, five user roles are identified: ambulance communication operators, ambulance service physician, ambulance paramedics, emergency department physician and emergency department nurse.

4. AMBULANCE COMMUNICATION OPERATORS

Ambulance communication operators are located in the ambulance center premises and use an Emergency medical service application to write into a Physical health record system emergency case data which is provided by either the patient or another person and to pass this data to ambulance personnel.

5. AMBULANCE SERVICE PHYSICIAN

In Ambulance service physicians are usually located in the ambulance center premises and use an Emergency medical service application to read from and write into a Physical health record system relevant medical data of the current patients (e.g. medical history, patient allergies and other

critical health factors) so that to give appropriate medical instructions to ambulance paramedics, regarding pre medical treatment, that are also recorded.

6. AMBULANCE PARAMEDICS

Ambulance paramedics use an Emergency medical service application, via a smart handheld device, to read authorized portions of medical data from a Physical health record system and write data regarding the paramedic activities performed on the patient at the site of incident and pre medical treatment given in the ambulance.

7. EMERGENCY DEPARTMENT PHYSICIAN

In Emergency department physicians use an Emergency medical service application to read from and write into aPhysical health record system relevant medical data of their current patients (e.g. medical history, patient allergies and other critical health factors).

8. EMERGENCY DEPARTMENT NURSE

Emergency department nurses use an EMS application to read authorized portions of patient data from a PHR system, to write a nursing assessment of patient's condition (triage) and to write data of the nursing activities performed on the patient.

9. CONCLUSION& FUTURE ENHANCEMENT

Now a days Healthcare organizations are facing a problem, with the challenge to improve quality by preventing medical errors, to reduce costs by improving administrative efficiencies, to reduce paperwork and to increase access to affordable healthcare delivery applications. One important healthcare delivery application is EMS system which has been modeled as an inter-organizational process involving ambulance services and hospital emergency departments based on the need for integrating pre-hospital and in-hospital emergency care activities into a virtual healthcare enterprise.

System evaluation is a task to be undertaken in the near future aiming at determining the system usability.

Thus, its potential weaknesses may be revealed suggesting alterations in the system design.

10. REFERENCES

[1] P. C. Tang, J. S. Ash, D. W. Bates, J. M. Overhage, and D. Z. Sands, "Personal health records: definitions, benefits, and strategies for overcoming barriers to adoption," Journal of the American Medical Informatics Association , vol. 13, no. 2, pp. 121-126, 2006. [Online]. Available: http://ukpmc.ac.uk/articles/PMC1447551.

[2] O. Shimrat, 2009, "Cloud Computing and Healthcare," San Diego Medical Society. [Online]. Available: http://www.sdcms.org/publications/cloud-computing-and-healthcare

[3] M. Tentori, J. Favela, and M. Rodriguez, "Privacy-aware autonomous agents for pervasive healthcare," Intelligent Systems, IEEE, vol. 21, no. 6, pp. 55 –62, Nov.-Dec. 2006.

[4] R. Buyya, C. S. Yeo, S. Venugopal, J. Broberg, and I. Brandic, "Cloud computing and emerging it platforms: Vision, hype, and reality for delivering computing as the 5th utility," Future Gener. Comput. Syst., vol. 25, no. 6, pp. 599–616, Jun. 2009. [Online]. Available: http://dx.doi.org/10.1016/j.future.2008.12.001

[5] M. Armbrust, A. Fox, R. Griffith, A. D. Joseph, R. H. Katz, A. Konwinski, G. Lee, D. A. Patterson, A. Rabkin, and M.Zaharia, "Above the clouds: A berkeley view of cloud computing," Tech. Rep., 2009.

[6] P. Bruening, and B. Treacy, "Cloud Computing: Privacy, Security Challenges," in The Bureau of National Affairs, 2009.

[7] M. Poulymenopoulou, F. Malamateniou, and G. Vassilacopoulos, "Emergency Healthcare Process Automation using Workflow Technology and Web Services," Medical Informatics and the Internet in Medicine, vol. 28, no. 3, pp. 195–207, September 2003.

[8] A. Rosenthal, P. Mork, M. H. Li, J. Stanford, D. Koester, and P. Reynolds, "Cloud computing: A new business paradigm for biomedical information sharing," Journal of Biomedical Informatics, vol. 43, no. 2, pp. 342 – 353, 2010. [Online]. Available: http://www.sciencedirect.com/science/article/pii/S1532046409001154

[9] S. Van der Burg, and E. Dolstra, "Software Development in a Dynamic Cloud: From Device to Service Orientation in a Hospital. Environment," in 2009 ICSE Workshop on Software Engineering Challenges of Cloud Computing, may 2009.

[10] V. Koufi, F. Malamateniou, and G. Vassilacopoulos, "Ubiquitous access to cloud emergency medical services," in Information Technology and Applications in Biomedicine (ITAB), 2010 10th IEEE International Conference on, nov. 2010, pp. 1 –4.

[11] Android medical apps. [Online]. Available: http://androidmedicalapps.com

[12] M. Mitchell, F. Sposaro, A.-I. Wang, and G. Tyson, "Beat: Bioenvironmental android tracking," in Radio and Wireless Symposium (RWS), 2011 IEEE, jan. 2011, pp. 402 –405.

[13] A. Kailas, C.-C. Chong, and F. Watanabe, "From mobile phones to personal wellness dashboards," Pulse, IEEE, vol. 1, no. 1, pp. 57 –63, july-aug. 2010.

[14] Minerva health manager. [Online]. Available: http://www.myminerva.com/

[15] M. Poulymenopoulou, F. Malamateniou, and G. Vassilacopoulos, "Emergency healthcare process automation using mobile computing and cloud services," Journal of Medical Systems, vol. 36, pp. 3233–3241, 2012, 10.1007/s10916-011-9814-y. [Online]. Available: http://dx.doi.org/10.1007/s10916-011-9814-y

[16] C. Doukas, T. Pliakas, and I. Maglogiannis, "Mobile healthcare information management utilizing Cloud Computing and Android OS," in Engineering in Medicine and Biology Society (EMBC), 2010 Annual International Conference of the IEEE, 2010, pp. 1037–1040.