

CLOUD COMPUTING IN HEALTHCARE MANAGEMENT FOR ELECTRONIC HEALTHCARE RECORD (EHR) IN M-HEALTHCARE APPLICATION

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Abstract - Cloud computing plays a vital role in our emerging life. It allows all peoples to access easily and to store all kind of information with high end security. Cloud based systems are user-friendly in nature and growing technology in this busy world. It is useful to store all personal health information in cloud based system and to maintain files and helpful to back up all the details when it is needed at any situation. Cloud based computing offers many benefits to all kinds of people effectively. Main benefit of health care cloud system is about digital transformation of personal health care information to various hospitals at the time of emergencies. By the privacy of patient, all the records are maintaining confidentiality by providing security. People should analyze the facility and safety measure about the secure cloud computing in health care management using electronic record system which is in digital format. In this paper, we are discussed about Electronic healthcare record and m-Healthcare application to secure all those information maintained by the patient.

Key Words: Cloud, Digital transformation, Electronic Record, Personal Healthcare Management.

1. INTRODUCTION

Cloud computing is the most important developing technology which are dominating field in healthcare management currently using in all hospitals. The personal records of patients are maintained in cloud system with efficiently. Although, all the patients are scared about their security which are provided by cloud computing system. They should analyze all the benefits of healthcare management system of cloud computing and concern in various fields. Health care management plays an vital role in day today life of all the patients. It rapidly developed under the cloud based solutions from the healthcare distributors.

An evolutionary development of healthcare management in cloud services having major benefits which are focusing on cost effective and secure process for all the peoples. The role of a cloud computing in healthcare services improving patient's care which are more concern about their personal

records. All the records are maintained securely which are called as electronic health records. Those records are stored digitally for down cost in cloud platforms. In this modern world, patients and doctors in hospitals are changed into this healthcare system to provide best healthcare management effectively. According to the report of cloud computing market, the healthcare service grown up to \$ 8.5 billion.

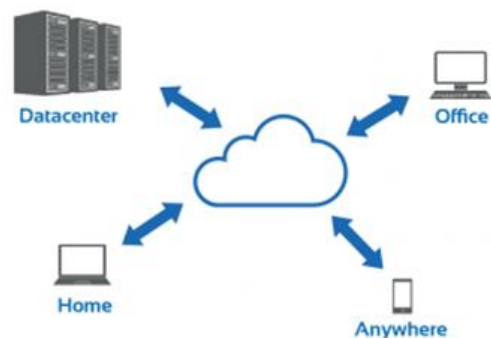


Fig-1 Applications of Cloud

It can be applied to other applications in cloud computing with huge organizations in future.

II. CLOUD COMPUTING:

There are huge definitions for cloud computing systems which provides different platform with hardware and software resources. Cloud computing in healthcare management plays financial model in current state market. It provides different services for the peoples with high end security model over the network. There are three types of service models in cloud computing. They are:

- (i) IaaS (Infrastructure as a Service)
- (ii) PaaS (Platform as a Service)
- (iii) SaaS (Software as a Service)

Here, **IaaS** is useful to storing and processing over the network with other infrastructure resources. In **PaaS**, it is helpful to the peoples by using all the applications which are developed under different languages with different frameworks provided in cloud. In other hand, **SaaS** is useful

to access through a web browser with developed applications by various end users.

According to the cloud computing resources, it processed under three kinds of services. They are:

- (i) **Public cloud:** This service provides framework for an organization or industry which are using publicly and widely managed with free of cost.
- (ii) **Private cloud:** This service provides private infrastructure for unique persons or individual organizations with some protocols.
- (iii) **Hybrid cloud:** It is the combination of both the private and public cloud sectors which having individual sector to access all the applications and data from the technology.

III. CURRENT STATUS OF HEALTHCARE IN CLOUD:

Currently, the health care service provides affordable data to store in cloud platform which is helpful to access the patient’s data from anywhere and from everywhere. It is useful for both patient and doctors in hospital at any emergency situation with digitally maintained record which is called as electronic cloud computing system. The digital records are shared widely through an internet among the clinics and hospitals for analyzing patient’s personal information.

Now-a-days, patients itself maintaining their own records perfectly and effectively. At the same time, all the record should maintain securely in cloud computing service. Current situation in healthcare management is great revolutionary technology in this emerging world. Two kinds of services provides in healthcare. They are: healthcare requestors and providers.

Those services are effectively provides to all the hospitals, clinics, health sectors and to the patient with low cost services. They are providing all the services under different platforms to satisfying all their requirements by sharing that information easily and in effective manner. That information may transfer to all over the world even if they don’t have

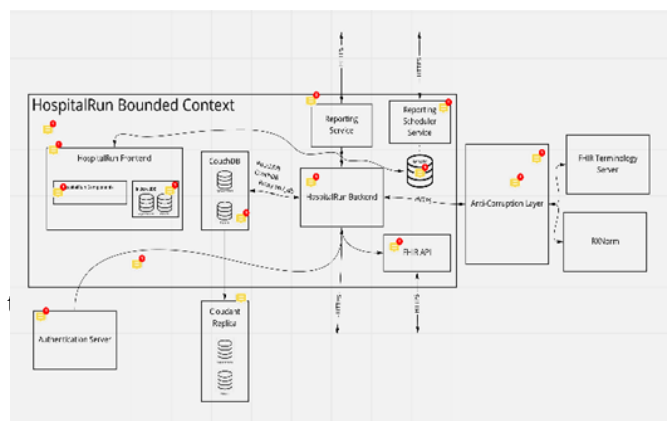


Fig- 2: Healthcare Cloud Marketing

IV. HCIPAA:

“Health care management Insurance Portability and Accountability Act (HCIPAA)” is mainly to protect their individual information about medical records. It can easily share all the information about the patient and also store their family information in single records.

It is useful in other industries in all over the world by maintaining personal details about the patients. Now it is a mandatory in all the industries to maintain personal healthcare information of their employees which is useful for any emergency situation.

This act was established at 2015 for the entire patient to securely protect their personal information with them by the help of cloud computing system and healthcare management service. If their employees are not maintaining their records properly, then they will be punishable with some penalties by the government under the act of HCIPAA.

V. EHR:

An electronic healthcare record is a collection of patient’s personal details and their medical history with prescriptions. Those details are maintained personally in cloud platform with securely. It usually maintained by the patient’s account in cloud and sharing to hospitals, clinics and doctors’ when it needed in emergency situation through the internet from anywhere.

Always it maintained in digital format which is called as electronic healthcare records and easy to retrieve by the user. The main advantage of maintaining patient’s record in cloud service is to share their personal records in the cloud drive by providing private key.

An electronic health care management plays an important role in modern technologies with patient details in digital format. This will helpful to access the patient’s details and their medical history through internet at any time without having in their hand. This may useful in any emergency situation without worrying.

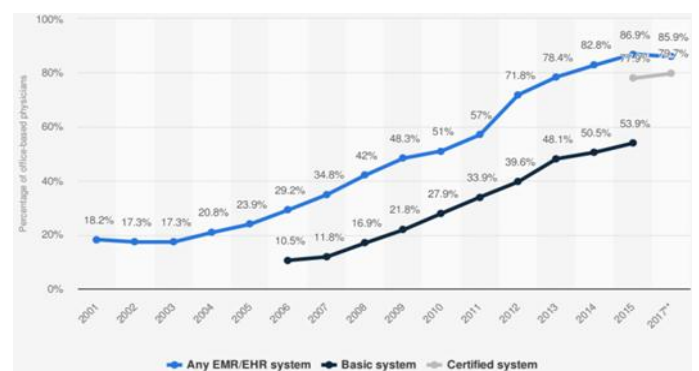


Fig- 3: Percentage of Physicians with EHR system

The percentage of people using this electronic healthcare record is increasing in this emergency world. The growth of this technology spread wider than the patient with medical file in their hands.

Benefits of Electronic healthcare management records:

- It gives lot of benefits to the patients.
- It is useful to share their details to the doctors.
- Easy to use cloud service by any kind of peoples.
- Low cost charging for maintaining electronic healthcare record in digital format.
- Patient can maintain their record with authentic way.
- An electronic healthcare record is useful to patient as safely and securely.
- It is also called as mobility of files about the history of patient.
- This technology provides fast access from our mobile with correct details which are maintaining by the patient's.
- The patient can update or modify or delete their personal healthcare details through online by the use of cloud computing system.
- Mainly, the healthcare records are maintained and stored in cloud service in digital format through internet easily by any kind of patient.

VI. ELECTRONIC HEALTHCARE SOLUTIONS:

Abundantly there are many requirements provided by the cloud platform to the users. They are:

- (i) Security**
 - Secure access
 - Network security
 - Data security
 - Regulatory
- (ii) High availability**
 - Downtime maintenance
 - Growing data volumes
 - Network latency and redundancy
 - Hardware and software redundancy
- (iii) Data management system**
 - DICOM/HLT
 - Metadata
 - IHE framework
- (iv) Scalability**
 - Plug-and-play growth
 - Performance
 - Scaling
- (v) Remote accessing**
 - Flexibility
 - Performance at accessing time
 - Capacity
- (vi) Assurance**
 - Without interrupting services
 - Privacy agreement
 - Service level

- Migration
- Scalability

VII. M-HEALTHCARE:

Mobile healthcare or m-healthcare is an application which is developed for mobile using by patient and doctors. This application is mainly designed for reliability may use anywhere from the world. The patient can retrieve their data or can update it by one single touch. This application

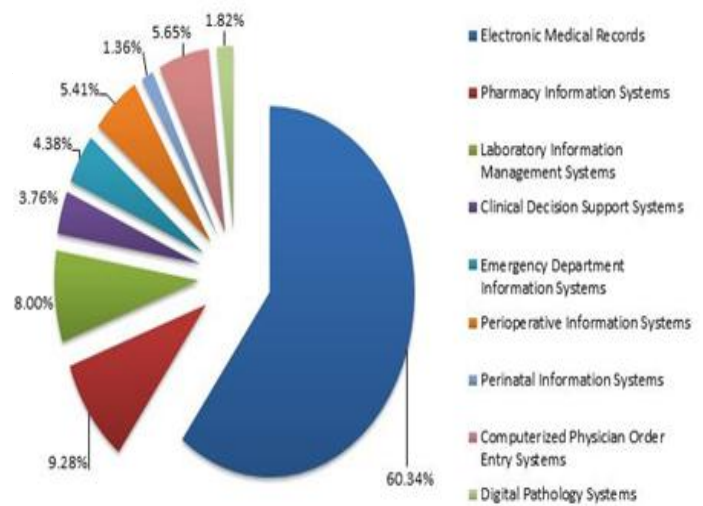


Fig- 4: EHR and Smart Phone Usage

The above figure shows the percentage of usage by the doctors and the patients by their smart phones. An EHCR has growing in technology by day-to-day life. It provides accurate details to the users perfectly. The patient may store their family member's details in a single account or various account in cloud platform. Still, there are many disadvantages in this m-Healthcare by some security reasons. This may overcome by lot of researches done in cloud services and provide security in this field. This may improve the usage of technology by lot of peoples.

The main benefit of these technologies with m-healthcare is easy to use and easy to share their personal health data with the doctors at the right time. This will be useful for all the persons and mobility to share the information.

VIII. CONCLUSION:

Cloud computing system in healthcare management has creating new pace for all the users with different technologies. The growth of healthcare system improves its performance in day-to-day life of every patient's life. All the details are maintained as electronic healthcare system inn digital format which is useful in all the hospitals to provide accurate treatment for the patients by knowing the history of them. The recent technology of m-healthcare system which is the new application developed for all the common persons

by maintaining their own health records easily. It may be concern the security issues in the cloud security issues in the cloud storage and it may overcome by researching in their related techniques. Overall, the performance of m-Healthcare system plays a vital role in all the patient's life for maintaining their own personal health record as in digital format. Still cloud computing is an emerging and growing technology in this modern world beyond our expectations.

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BIOGRAPHIES



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