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Comparison of Cloud Based CDA Generation and Integration Proposed System with Existing System

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Abstract: *The HL7 Version 3 Clinical Document Architecture (CDA®) is a document markup standard that specifies the structure and semantics of "clinical documents" for the purpose of exchange between healthcare providers and patients. It defines a clinical document as having the following six characteristics: 1) Persistence, 2) Stewardship, 3) Potential for authentication, 4) Context, 5) Wholeness and 6) Human readability. A CDA can contain any type of clinical content -- typical CDA documents would be a Discharge Summary, Imaging Report, Admission & Physical, Pathology Report and more. The most popular use is for inter-enterprise information exchange, such as is envisioned for a US Health Information Exchange (HIE). In general, hospital information systems are operated independently of each other. We propose an Advanced health facility data framework (HIS) based on the HL7 clinical document architecture (CDA) to empower the sharing of medicinal data among Hospitals using Cloud Computing Services In this paper we are showing the Comparison of CDA Generation and Integration system based on Cloud computing with existing system.*

Keywords: CDA, Cloud Computing, HL7, HIE, HIS

I. INTRODUCTION

Measure of clinical information is expanding as per the advances in medical Information system. This has supported the advancement of proficient approaches to exchange, trade, and offer clinical data. The execution of individual, lifetime EHR frameworks, with a clinical choice supportive network, would be keys to enhancing the nature of patient care and lessening medicinal blunders. In this examination, we exhibited that clinical data can be viably shared, along these getting most extreme use of the data, by saving and obtaining release data through a CDA.

CDA is an XML-based, electronic standard used for clinical document exchange that was developed by Health Level Seven. CDA conforms to the HL7 V3 Implementation Technology Specification (ITS), is based on the HL7 Reference Information Model (RIM), and uses HL7 V3 data types. It was known earlier as the Patient Record Architecture (PRA).

CDA is a flexible standard and is unique in that it can be read by the human eye or processed by a machine. This is due to its use Of XML language, which also allows the standard to be broken into two different parts. A mandatory free-form portion enables human interpretation of the document, while an optional structured part enables electronic processing (like with an EMR system). Text, images and even multimedia can be included in the document. A CDA document could be, for example, any of the following: discharge summary, referral, clinical summary, history/physicalexamination, diagnostic report, prescription, or public health report. In short, any document that might have a signature is a viable document for CDA.

II. CLOUD COMPUTING

Cloud computing is a computing paradigm, where a large pool of systems are connected in private or public networks, to provide dynamically scalable infrastructure for application, data and file storage. With the advent of this technology, the cost of computation, application hosting, content storage and delivery is reduced significantly. Cloud computing is a practical approach to experience direct cost benefits and it has the potential to transform a data center from a capital-intensive set up to a variable priced environment. The idea of cloud computing is based on a very fundamental principal of „reusability of IT capabilities'. The difference that cloud computing brings compared to traditional concepts of “grid computing”, “distributed computing”, “utility computing”, or “autonomic computing” is to broaden horizons across organizational boundaries



Figure 1 Cloud Computing

III. EXISTING SYSTEM

At the point when a patient is analyzed at a facility, a CDA Document recording the Diagnosis is created. The CDA record can be shared to different Hospitals if the patient concurs. it is regular for a patient to visit various diverse Hospitals. The trading of CDA record is activated in the accompanying cases: when a doctor needs to concentrate a patient's medicinal history; when referral and answer letters are drafted for a patient minded by numerous Hospitals; when a patient is in crisis and the restorative history should be looked into. It requires expanding measure of time for the medical personnel as the measure of sharing CDA report increments since more records implies that information are disseminated in various records. This altogether postpones the medical personnel in deciding. Consequently, when the greater part of the CDA reports are incorporated into a single record, the medical personnel is enabled to audit the patient's clinical history helpfully in sequential request per clinical area and the subsequent care administration can be conveyed all the more adequately.

A. Disadvantages of Existing System

- 1) It is not time efficient
- 2) There is a probability of interchanging of patient's document in the case of slack learning about the documentation procedure.
- 3) Missing of documents while gathering it from a patient.
- 4) The healthcare supplier's don't take care to the patient after release.
- 5) The HIS Proprietary software for hospitals change so incredibly that generation of CDA records in every doctor's facility constantly requires different CDA generation software. Likewise, doctor's facilities are exceptionally hesitant to embrace another system unless it is completely vital for arrangement of care.

IV. PROPOSED SYSTEM

In this plan we introduce a CDA record generation framework that produces CDA reports on various developing platforms and a CDA record integration framework that coordinates numerous CDA reports scattered in various doctor's facilities for every patient. CDA Software is outlined and keeps running under browser support; the documents are to be put away in the server. So it is centralized. CDA record is created in XML format so it is easy to run on any platform. So it is platform Independent. We furnishing every Patient with Unique Id so that, Duplication of CDA record for Single patient is limited. Doctors can download the Patient CDA report by giving their Doctors ID and Patients unique Id and Password. After Login, Doctor can View the well-being check history report and illness History and its identical Prescriptions and Treatments in total Report way. Added to that, Doctor can see the rundown of infection or Abnormalities the patient is confronting. The Doctor can see the Prescription in illness wise or Clinical wise. So the Doctor knows how to locate the direction in sickness intelligent or scientific astute the novel updates in the CDA document reflected in the cloud server. For Security Purpose, All the information in CDA archive is encrypted while putting away in the Cloud Server.

V. RESPONSE OF PROPOSED SYSTEM

Below graphs blue bubble represents number of virtual users Active and green bubble represents Virtual user Load time. Here graph shows as the number of Active users increases response time of system is constant it is not requiring high amount of time to respond if number of Active users increases. That means virtual users loading time is less with proposed system.

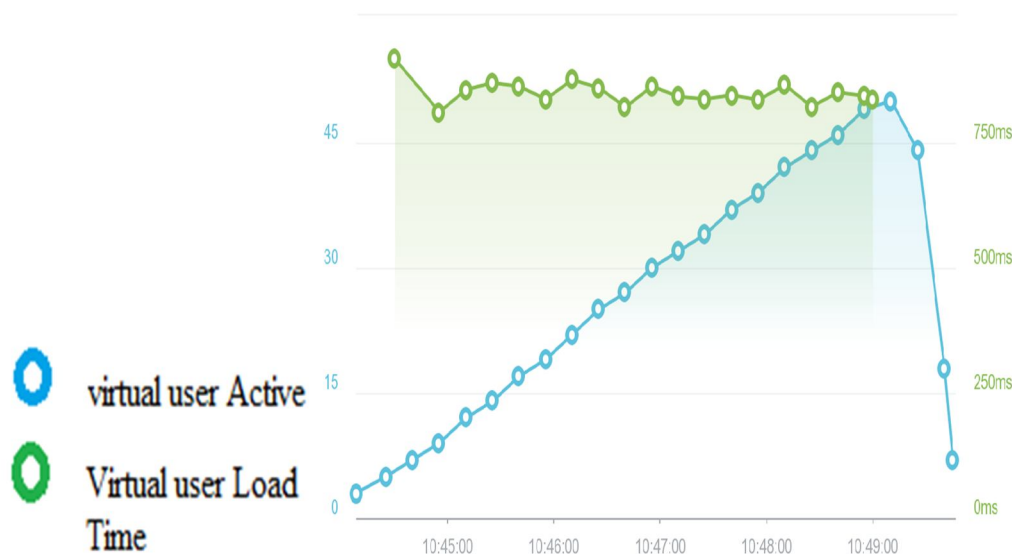


Figure 2 Response time of Proposed System

VI. CONCLUSION

The CDA report organize for clinical data in ordinary plan to guarantee interoperability between clinics, an extensive number of HIE projects that utilization the CDA record course of action have been under taken by number of nations. Our Cloud computing based CDA generation and Combination structure has a couple of enunciated points of interest over other existing activities. CDA document Generation and combination framework in light of cloud server is more valuable over open administrations for CDA record if the assortment of CDA document increments.

REFERENCES

- [1] Sung-Hyun Lee, Joon Hyun Song, and Il Kon Kim "CDA Generation and Integration for Health Information Exchange Based on Cloud Computing System" IEEE TRANSACTIONS ON SERVICES COMPUTING, VOL. 9, NO. 2, MARCH/APRIL 2016
- [2] Y. Kwak, "International standards for building electronic health record (ehr)," in Proc. Enterprise Newt. Comput Healthcare Ind., pp. 18–23, Jun. 2005.
- [3] M. Eichelberg, T. Aden, J. Riesmeier, A. Dogac, and Laleci, "A survey and analysis of electronic healthcare record standards," ACM Comput. Surv., vol. 37, no. 4, pp. 277–315, 2005.
- [4] T. Benson, Principles of Health Interoperability HL7 and SNOMED. New York, NY, USA: Springer, 2009.
- [5] J. L. Ahteenmaki, J. Leppanen, and H. Kaijanranta, "Interoperability of personal health records," in Proc. IEEE 31st Annu. Int. Conf. Eng. Med. Biol. Soc., pp. 1726–1729, 2009.
- [6] R. H. Dolin, L. Alschuler, C. Beebe, P. V. Biron, S. L. Boyer, D. Essin, E. Kimber, T. Lincoln, and J. E. Mattison, "The HL7 Clinical Document Architecture," J. Am. Med. Inform. Assoc., vol. 8, pp. 552–569, 2001.
- [7] S. Lee, J. Song, and I. Kim, "Clinical document architecture integration system to support patient referral and reply letters," Health In format. J., Published online before print Jun. 2014.
- [8] J. Walker, E. Pan, D. Johnston, J. Adler-Milstein, D. W. Bates, and B. Middleton, "The value of health care information exchange and interoperability," in Proc. Health Aff., pp. 10–18, 2005.
- [9] M. L. Muller, F. Uckert, T. Burkle, and H. U. Prokosch, "Cross institutional Data exchange using the clinical document architecture (CDA)," Int. J. Med. Inform., vol. 74, pp. 245–256, 2005.



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