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Distributing Fragmentations of Database to Promote Telemedicine Using Web Services

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ABSTRACT: Although the application of telemedicine evolutionary to cover a wide area of users' needs, data centralization is not achieved yet. Also, approach to patient data from any remote location, through a secure environment, is necessary to achieve doctor's collaboration and remote data handling. So web telemedicine database systems used for access to patient data from any location. The real world healthcare challenging application makes it hard to induce the database administrative staff. Traditional approaches for promote web telemedicine database systems focus on small networks involves minimum number of sites over the cloud. These are works on limited clustering algorithms. To overcome this Limitation, we need a new approach for promoting web telemedicine database system. In this project we proposed a novel Integrated Fragmentation clustering allocation approach for increase care admissions and decrease care difficulties on Approach that manages the computing web services that are required to promote telemedicine database system performance. Our approach focused on large scale networks involving large number of sites over the cloud. To perform more intelligent data redistribution, we apply different types of clustering algorithms and introduce search based techniques. The security concerns, need for addressing over data fragments will be taken into consideration for better results.

Keywords Fragmentation, clustering, Telemedicine, Database

I. INTRODUCTION:

There are shortages of medical resources in rural areas or geographically isolated regions, so many physicians may be reluctant to serve in these areas. Therefore, people who live there will receive lower medical care than those who live in urban

areas. There is an important need to develop a telemedicine system to improve the quality of medical services there and provide more educational opportunities to the physicians in these areas .Telemedicine can be defined as the providing of medical services over a distance. The Archiving and Communication System (PACS) will be used in the telemedicine process as this service requires patient history, medical images, and related information. By using PACS, we can find that the integrated telemedicine system consists of the following five subsystems: 1) Acquisition subsystem; 2) Viewing subsystem; 3) Teleconferencing subsystem; 4) Communication subsystem; 5) Database management subsystem. The first subsystem is the acquisition subsystem which collects multimedia information, then converts it to a standard format (e.g., DICOM 3.0). The second one is the viewing subsystem which displays and manipulates the images and other medical information The third one is the teleconferencing subsystem which allows face-to-face interactive conference between physicians in rural areas and medical centres, this subsystem is not included in a PACS. The forth one is the communication subsystem which includes the connectivity method; local area networks (LAN's)and a wide area network (WAN) to transmit and receive data .The patient medical record consists of the patient complaint, history of illness, results of physical examination, laboratory tests, and diagnostic images. The medical information may be of the following types: text, voice, image [e.g., x-ray, computed tomography (CT), or magnetic resonance imaging (MRI)], and dynamic video (e.g., videoesophagogram and endoscopy) Thus, it is essential to design a medical information database for managing a huge amount of heterogeneous data. In some studies however, this approach may complicate archiving operations and introduce an inconsistency problem while concurrently accessing the image data. This management approach may make it difficult to access the videotapes and share them simultaneously. Moreover, the integration of video with text and images in a telemedicine system is a problem. To solve these problems, a data management methodology is proposed which is the fifth subsystem, by which medical information can be organized based on the patient's complaint as well as the medical history. This will support a unified interface for manipulating and accessing the different types of all medical information mentioned above. The management of medical databases and the user interface has been implemented as major components of a telemedicine system through in Medical. Com web-Portal.

II. LITERATURE SURVEY

A. Web-Based Database Management TO SUPPORT TELEMEDICINE SYSTEM by Hafez Fouad Microelectronics Dept., Electronics Research Institute, Cairo, Egypt (2014) The transfer of the medical care services to the patient, rather than the transport of the patient to the Medical services providers is aim of the project. This is achieved by using web-based applications including Modern Medical Informatics Services which is easier, faster and less expensive. The required system implements the suitable informatics and electronics solutions efficiently for the Telemedicine care. We proposed an approach to manage different multimedia medical databases in the telemedicine system. In order to be efficiently and effectively manage,search, and display database information, we define an information package for both of doctor and patient as a concise data set of their medical information from each visit. The methodology for accessing various types of medical records will be provided, also we will design two web-based interfaces, highquality data and display for many medical service purposes.

B. Designing High Performance Web-Based Computing Services to Promote Telemedicine Database Management Systemby Ismail Hababeh, Issa Khalil, (2015) Many web computing systems are running real time database services where their information change continuously and expand incrementally. In this context, web data services have a major role and draw significant improvements in monitoring and controlling the information truthfulness and data propagation. Currently, web telemedicine database services are of central importance to distributed systems.However, the increasing complexity and the rapid growth of the real world healthcare challenging applications make it hard to induce the database administrative staff. In this paper, we build an integrated web data services that satisfy fast response time for large scale Tele-health database management systems.we present several experimental results to clarify the validness of the proposed algorithm.

C. An Adaptable Vertical Partitioning Method in Distributed Systems (May December 2003) by AUTHORS: J. Son and M. Kim Vertical partitioning is a process of generating the fragments, each of which is composed of attributes with high affinity. The concept of vertical partitioning has been applied to many research areas, especially databases and distributed systems, in order to improve the performance of query execution and system throughput. However, most previous approaches have focused their

attention on generating an optimal partitioning without regard to the number of fragments finally generated, which is called best-fit vertical partitioning in this paper. On the other hand, there are some cases that a certain number of fragments are required to be generated by vertical partitioning, called n-way vertical partitioning in this paper. The n-way vertical partitioning problem has not fully investigated. In this paper, we propose an adaptable vertical partitioning method that can support both best-fit and n-way vertical partitioning.

III. PROPOSED SYSTEM

The aim of the project is to move the medical services to the patient rather than moving patient to the medical services. In our project we develop a web based system in which a doctor does the patient registration and give him/her the prescription but in the case where the patient requires the special medical consultation which is available at a distance. The doctor send request to the online doctor about the special medical consultation and online doctor approves the request and give special consultation online. System also maintains patient health care records. The clustering is2 done according to the patient details, doctor details and condition of the patient. The fragmentation and clustering is done in order the search patient and doctor details efficiently and in real time. In our proposed system we develop a fragmentation computing service technique by splitting telemedicine database relations into small disjoint fragments. This technique generates the minimum number of disjoint fragments that would be allocated to the web servers in the data distribution phase. This in turn reduces the data transferred and accessed through different websites and accordingly reduces the communications cost. In the proposed system we introduce a high speed clustering service technique that groups the web telemedicine database sites into sets of clusters according to their communications cost. This helps in grouping the websites that are more suitable to be in one cluster to minimize data allocation operations, which in turn helps to avoid allocating redundant data.

IV. CONCLUSION

We proposed a new approach to promote telemedicine system performance. Our approach integrates three enhanced computing services' techniques namely, database fragmentation, network sites clustering and fragments allocation. We develop these techniques to solve technical challenges, like distributing data fragments among multiple web servers, handling failures, and making tradeoff between data availability and consistency. We propose an

estimation model to compute communications cost which helps in finding cost-effective data allocation solutions. The novelty of our approach lies in the integration of web database sites clustering as a new component of the process of WTDS design in order to improve performance and satisfy a certain level of quality in web services.

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