

Providing Advanced PACS Services for Application in Critical Situations of Trauma Centers, with Cloud Computing Approach

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ABSTRACT

PACS technology, although with a lot of advantages, is not economical for small clinical centers due to its great deal of expenses. Also, it has created a lot of problems in vast clinical centers as they are not connected to other clinics. Therefore, a lot of clinics do not use this technology. As such, trauma centers will not be able to be connected to other clinical centers and take advantage of information communication, sending or receiving images, or the like. In the last decade, some researchers have presented various methods and have tried to solve the problem with combining PACS with other hottest technologies. Among all the available technologies, Cloud computing has a lot of advantages as its use alongside with PACS technology results in access to clinical information at any time and place. However, investigation of previously performed researches showed that what has been considered in those researches has been the use of PACS in combination with the cloud computing and taking benefits from its advantages. Yet, paying no attention to problems like the development of some methods for clinical centers with no PACS technology, transferring from traditional PACS to the cloud PACS, and the necessity of using a safe way for information communication, and rendering adequate services and proper to the clinical applicants' needs have caused these researches not to be practical and the available problems to remain unsolved. The main goal of this research is to provide an architecture for connecting clinical centers to private cloud and the use of their information by trauma centers so that the users can access to the medical studies information, search through this information, and see the images related to these studies with the least delay and safe connection. In the present paper, it has been dealt with rendering all the required services by different groups of users through the development of a service oriented PACS system, and also, the previously mentioned problems that have resulted in the failure of the previous methods have been investigated and solved.

Keywords: PACS, Cloud Computing, Trauma Center Process, Cloud PACS Architecture, Service Oriented Architecture, Sharing Patient's Medical Information.