

Resource Sharing Issues of Distributed Systems Influences on Healthcare Sector Concurrent Environment

Authors : Soo Hong Da, Ng Zheng Yao, Burra Venkata Durga Kumar

Abstract : The Healthcare sector is a business that consists of providing medical services, manufacturing medical equipment and drugs as well as providing medical insurance to the public. Most of the time, the data stored in the healthcare database is to be related to patient's information which is required to be accurate when it is accessed by authorized stakeholders. In distributed systems, one important issue is concurrency in the system as it ensures the shared resources to be synchronized and remains consistent through multiple read and write operations by multiple clients. The problems of concurrency in the healthcare sector are who gets the access and how the shared data is synchronized and remains consistent when there are two or more stakeholders attempting to the shared data simultaneously. In this paper, a framework that is beneficial to distributed healthcare sector concurrent environment is proposed. In the proposed framework, four different level nodes of the database, which are national center, regional center, referral center, and local center are explained. Moreover, the frame synchronization is not symmetrical. There are two synchronization techniques, which are complete and partial synchronization operation are explained. Furthermore, when there are multiple clients accessed at the same time, synchronization types are also discussed with cases at different levels and priorities to ensure data is synchronized throughout the processes.

Keywords : resources, healthcare, concurrency, synchronization, stakeholders, database

Conference Title : ICDSA 2022 : International Conference on Distributed Systems and Applications

Conference Location : Sydney, Australia

Conference Dates : January 28-29, 2022