A Report

on

"MDCC: multi-data center consistency"

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Paper Review

This research is intuitive in a lot of ways meaning that it tries to shed light on the problems that solves multi data center problems which occurred with the previous protocols. The paper begins by giving us a brief idea of the architecture of multi-data center and the reason for the need of this multi-data center by giving examples of the recent data-center failures. The paper then starts forcing on the MDCC protocol by discussing about the different ways the transaction can be committed and types of components present in this kind of database.

The paper then goes into the details of the MDCC protocol by first giving the background of the different types of paxos protocol as the MDCC protocol is made up of different combinations of these paxos protocol. In this protocol the paper talks about avoiding deadlocks, failure recovery, app-server failure, transaction by-passing the master, collision recovery and finally discusses the MDCC Demarcation protocol to maintain atomic integrity. In the end of the paper it starts discussing the various guarantees the MDCC protocol meets like read committed without lost updates, staleness of the read and atomic visibility. Lastly the paper discusses its evaluation with different kinds of protocols in use like two-phase commit, megastore etc. Finally, the paper summarizes their main points in the conclusion.

Strong Points of the Paper

1. The paper takes a dive into realistic problems faced by distributed database management system and shows a way to solve it.

   The paper does a good job at pointing out the problems that the current architecture of database systems faces when functioning on a local system for global transactions. The idea of the research paper is to create awareness about how the current DBMS's transaction processing powers doesn't scale with the number of storage locations. Moreover, it shows how this DBMS will be able to achieve a lot if put into effect properly.

2. The paper proves its claims by evaluating the MDCC protocol with respect to other current transaction protocols

   The research paper does a great job at proving its claims by using an example of the performance of this protocol. The paper also uses different conditions where the other protocols fail but the MDCC protocol prevails. This helps the reader to understand the problems better.

3. The paper tries to be true to its research by providing pseudo-codes for the protocol thus making sure that the protocol can be achieved in real life scenarios.

   The paper puts forth two pseudo-codes which shows the working of the protocol in depth. Plus the paper also talks of the guarantees of the protocol which can be fulfilled if the protocol is implicated.

Weak Points of the Paper

1.In my opinion, the paper widely covers the different types of paxos and its working with the MDCC but it's not quite perfect on the terms of explanation of the storage nodes.

2. This paper does provide with the pseudo-code but it can be more useful if they could provide flowchart as it helps in better understanding of how things are moving in the database with the help of this protocol.

3. Even though the paper explains well about the MDCC Protocol, it forgot to mention one of the major things this protocol should be famous more that is replication of data across all data-centers. This paper doesn't explicitly mention how the data would be spread acroSss all the data center across the world.

My Thoughts on the Paper

The research paper is very well written and helps the reader get an in depth understanding of the underlying concepts of MDCC protocol. The simulations and graphical representation are helpful and facilitates in understanding. The background of paxos at a time when it would be used helped understand the paper at a faster rate. Overall, the paper is a great resource to understand the multi-data center consistency.