

Efficient Partitioner For Distributed OLTP DBMS

Wenkang Chen*

**Shanghai Key Lab of Scalable Computing and System, Shanghai Jiao Tong University, China*

nobody0702@sjtu.edu.cn

Abstract—Distributed online transaction processing(OLTP) database management systems(DBMS) are characterized with ACID properties, that is atomicity, consistency, isolation, durability. However, these OLTP DBMSs that handle massive data schema, need to be scalable that cannot give up strong transactional and consistency requirements. The large-scale schemas are deployed on distributed server and each server's memory is limited, in that case, how this system partition is the key factor to affect its performance. In this paper, we present a partition approach , that applies to general schema and taking care of load balancing and distributed transaction rates. Our method achieve this by periodically update the partition plan and migration hot data among the servers. OLTP workload are modeled as a graph and using a graph partition algorithm to partition set of data into same server that are often co-accessed by one transaction. To evaluate our method, our framework Assort is integrated into a distributed, main-memory DBMS and shows that it can partition schema in OLTP DBMS and enable the system to outperformance traditional method 3-4× throughput.

Keyword—OLTP, DBMS, partition, data migration



Wenkang Chen received the B.S. degree in software engineering from Xidian University in 2015. He currently purses the M.S. degree in the school of software engineering in Shanghai Jiao Tong University, Shanghai, China. His research interests are mainly focused on distributed system, software engineering, database.