An Aggressive Concurrency Control Protocol for Main Memory Databases

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Authors:
Mohammed Hamdi, Weidong Xiong, Feng Yu, Sarah Alswedani, Wen-Chi Hou

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Abstract

In this paper, we propose a concurrency control protocol, called the Prudent-Precedence Concurrency Control (PPCC) protocol, for high data contention main memory databases. PPCC is prudently more aggressive in permitting more serializable schedules than two-phase locking. It maintains a restricted precedence among conflicting transactions and commits the transactions according to the serialization order established in the executions. A detailed simulation model has been constructed and extensive experiments have been conducted to evaluate the performance of the proposed approach. The results demonstrate that the proposed algorithm outperforms the two-phase locking in all ranges of system workload.

References

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Index Terms

Computer Science Information Sciences

Keywords

Concurrency Control, Main Memory Database, Serializability, Serialization Graph, 2PL