

Commit Algorithms for Scalable Hardware Transactional Memory

Seth H. Pugsley, Rajeev Balasubramonian

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School of Computing
University of Utah
Salt Lake City, UT 84112 USA

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Abstract

In a hardware transactional memory system with lazy versioning and lazy conflict detection, the process of transaction commit can emerge as a bottleneck. For a large-scale distributed memory system, we propose novel algorithms to implement commit that are deadlock- and livelock-free and do not employ any centralized resource. These algorithms improve upon the state-of-the-art by yielding up to 59% improvement in average delay and up to 97% reduction in network traffic.