Building Efficient Distributed In-memory Computing Systems using RDMA

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Abstract

Remote Direct Memory Access (RDMA), a fast cross-machine memory access technique commonly seen in high-performance computing area, has recently gained increasing momentum in datacenter computing. In this talk, I will describe our recent efforts in leveraging RDMA to build efficient in-memory computing systems. Specifically, I will illustrate how to combine RDMA with hardware transactional memory (HTM) to build an efficient in-memory transaction processing system and how to provide fast and concurrent Queries over large RDF stores through RDMA-based distributed graph exploration. I will briefly describe the design, implementation and performance of such systems and overview future directions in this field.