Simultaneous OLTP And OLAP: The Splice Machine Database Management System

This talk describes the Splice Machine RDBMS designed to power today’s new class of modern applications that require high scalability and high-availability while simultaneously executing OLTP and OLAP workloads. Splice Machine is a full ANSI SQL database that is ACID compliant, supports secondary indexes, constraints, triggers, and stored procedures. It uses a unique, distributed snapshot isolation algorithm that preserves transactional integrity, and avoids the latency of 2PC methods. The talk will also present a variety of distributed join algorithms implemented in the Splice Machine executor and how the optimizer automatically evaluates each query, and sends it to the right data flow engine. OLTP queries such as small read/writes and range queries are executed on HBase, and OLAP queries such as large joins or aggregations are executed on Spark. The system can ensure that OLAP queries do not interfere with OLTP queries because the engines are run in separate processes each with tiered and prioritized resource management. We will also describe a few use cases where Splice Machine has been deployed commercially.