In-Memory Only

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Motivation

Enterprise applications have evolved: not just OLAP vs. OLTP

- Customer analysis shows a widening “read”-gap between transactional and analytical queries

Requirements

- Demand for real-time analytics on transactional data
  - More flexible, more dynamic data management
- High throughput transactions

Example – Real-time Available-To-Promise Check directly on transactional data during order entry, without materialized aggregates of available stocks.
Breaking The Memory Hierarchy

- Main Memory becomes cheaper and larger
- Main Memory sub-systems become faster and more scalable

- Disk is Tape, Flash is Disk (is Dead), RAM Locality is King
  - No more secondary storage!

In-Memory Only | Alexander Zeier | ADMS 2011

1In-Memory of Jim Gray
Approach

- Overall data management system changes
  - In-Memory Only
  - Vertically partitioned
  - CPU-Cache Optimized
  - Only one optimization objective – main memory access

- Rethink how enterprise application persistence is build
  - Leaner architecture (less layers)
  - Computational application logic closer to the database