

# SQL Server 2014 - A 60 Minutes Crash Course

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# Outline

- Live Plans for Long running queries
- Delayed Durability
- Cardinality Estimation
- In-Memory OLTP Optimization
- ColumnStore Indexes

# Live Plans for Long Running Queries

- How can you troubleshoot long running queries?
  - Query execution / statistics only after query finishes
  - Estimated Execution Plan
- SQL Server 2014
  - Introduces `sys.dm_exec_query_profiles`
  - Tracks execution stats at each operator level while query is still running

# Delayed Transaction Durability

- Delayed transaction durability is accomplished using asynchronous log writes to disk
- Transaction log records are kept in a buffer and written to disk when the buffer fills or a buffer flushing event takes place
- Scenarios
  - You can tolerate some data loss
  - You are experiencing a bottleneck on transaction log writes
  - Your workloads have a high contention rate

# New Cardinality Estimation

- Estimation Engine Changes in SQL 2014
- Previous Engine : 70
- New Engine: 120
- Viewed under:
  - ShowPlan XML
  - Execution Plan Properties
- Advantages:
  - Tries for better and closer estimations for queries
  - Since this is estimations – they can still be off to Actual

# In-Memory OLTP (In-Memory Optimization)

- New high-performance, memory-optimized OLTP
  - Integrated into SQL Server relational database
  - Full ACID support
  - Memory-optimized
  - Non blocking multi-version optimistic concurrency control (no locks or latches)
  - T-SQL compiled to native code

# ColumnStore Index

- Improves performance of specific queries
- Part of SQL Server in-memory family of technologies
- Contrasted with traditional row stores in which data is physically stored row-by-row
- Columnstore stores values for all rows *for a given column*

Thank you!