INTELIGENTNO PROCESIRANJE U SQL SERVERU 2019

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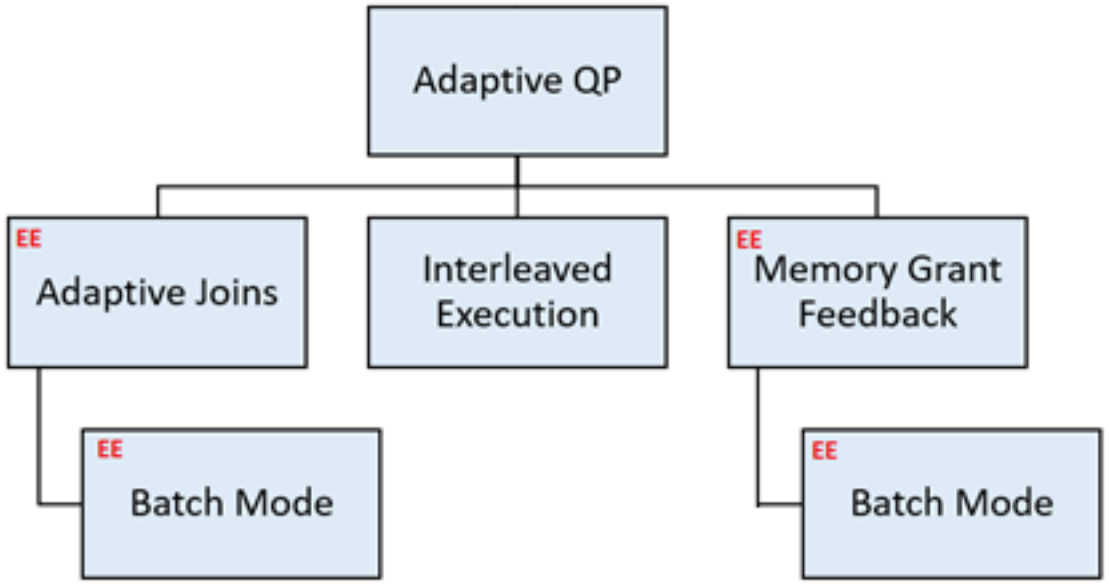
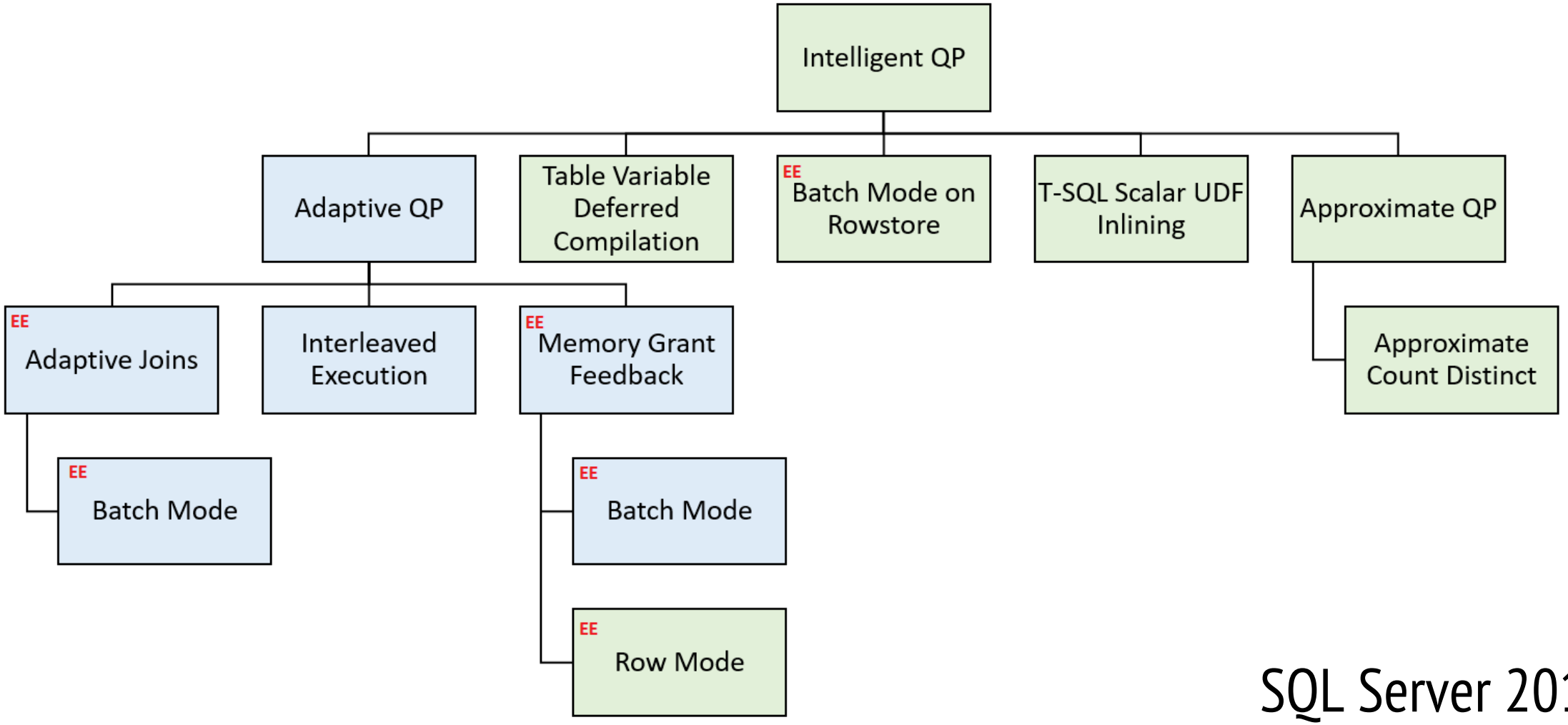
INTRODUCTION

ADAPTIVE QUERY PROCESSING



SQL Server 2017

INTELLIGENT QUERY PROCESSING



SQL Server 2019

INTELLIGENT QUERY PROCESSING IN SQL 2019

- The Enterprise Edition is required for 3 of 7 features
  - Batch mode for rowstore, memory grant feedback and adaptive join
- 6 out of 7 features can affect your existing code
  - All except Estimated Query Processing
- If the compatibility level of a database is set to 150, ALL features are activated by default!

- OLTP workloads in SQL Server 2019 interact significantly more with IQP features (in SQL Server 2017 only with Columnstore indexes)

INEFFICIENT EXECUTION PLANS

- Execution plans are sometimes suboptimal
- Affected Queries:
  - Queries using table variables
  - Queries with scalar user-defined functions
  - Queries referencing multi-statement table valued functions
  - Complex queries
  - Queries with tables with skew data distribution
- Issues:
  - Inappropriate operator choice (Nested Loops vs. Hash Match Join)
  - Memory Grant under- or overestimation

EXECUTION PLANS IN SQL SERVER

- SQL Server 2016 and prior
  - All plan decisions at the compile time (operators, memory)
  - Used “blindly” for consecutive query executions
  - No changes in cached plan (without recompiling)
- SQL Server 2017 Adaptive Query Processing
  - Creating a better plan for queries using MSTVF with the interleaved execution
  - Postponing decision about the join operator to the runtime (adaptive join)
  - Updating a part of the cached plan (memory grant)
- SQL Server 2019 Intelligent Query Processing
  - Additional adaptive improvements, but also some overall; therefore, new name => Intelligent QP