

Understanding Query Plans



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Have You Ever Been to the Doctor?



The execution plan IS the
blood test of your query,
YOU are the doctor who
reads and interprets it!



Overview



Estimated vs Actual execution plan

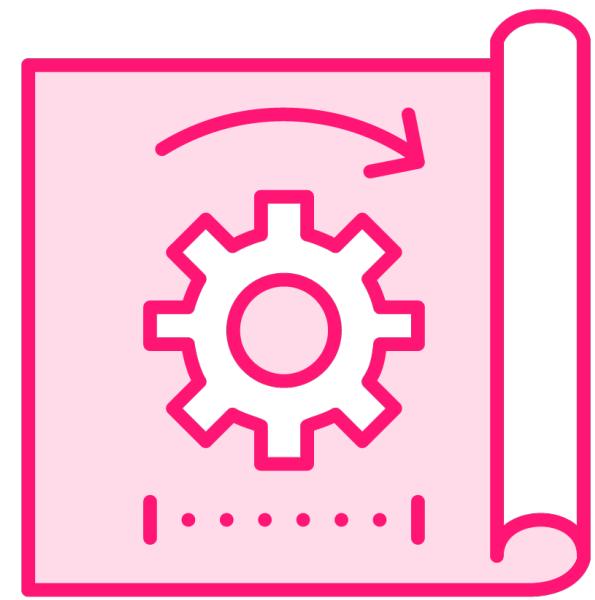
Reading and interpreting the execution plan

Important indicators in the query plan

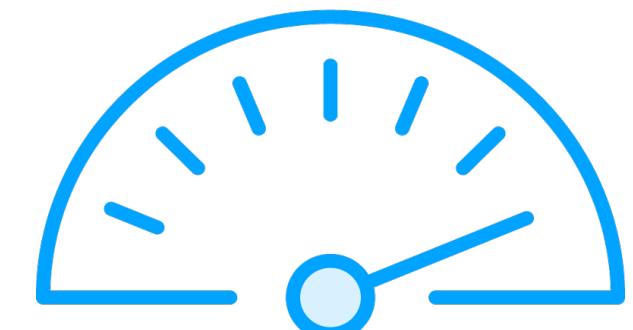
- Leverage SSMS for in-depth analysis



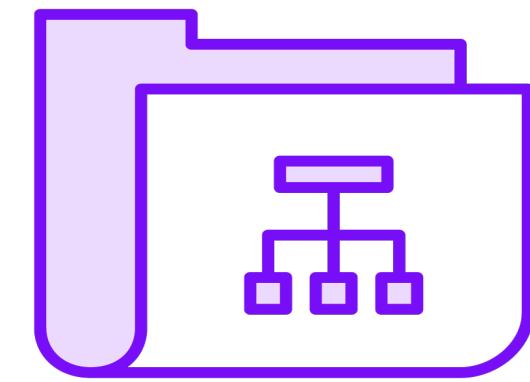
Capturing Query Execution Plan



**QueryTimeStats
property**



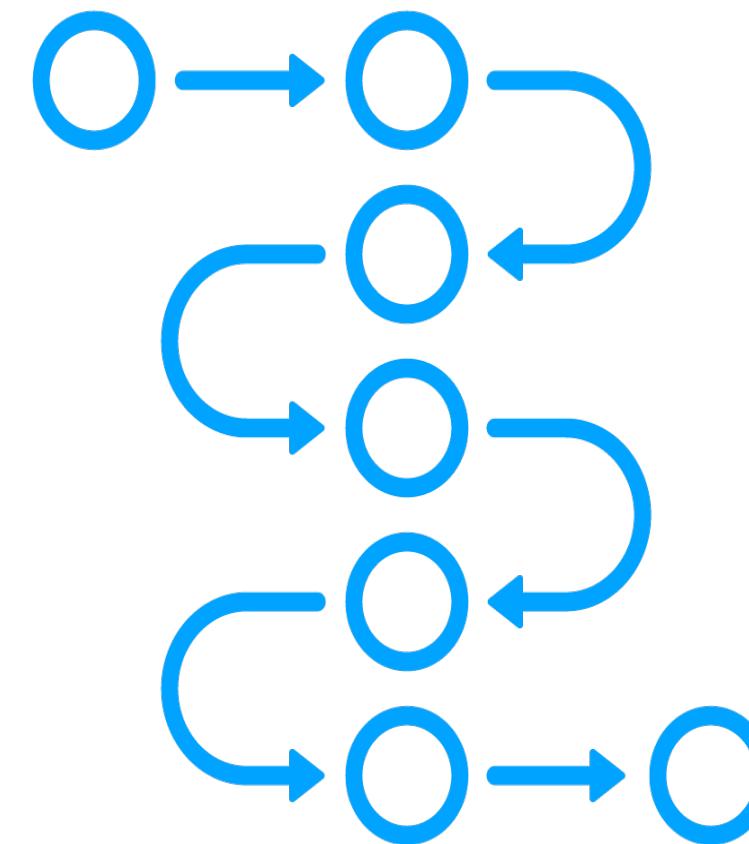
Querying DMVs



Query Store



Estimated vs Actual Execution Plan



There are no two execution plans!

It's the same execution plan...

...actual execution plan provides additional information about the runtime metrics

- Query duration
- Wait statistics
- Actual number of rows
- Actual number of executions

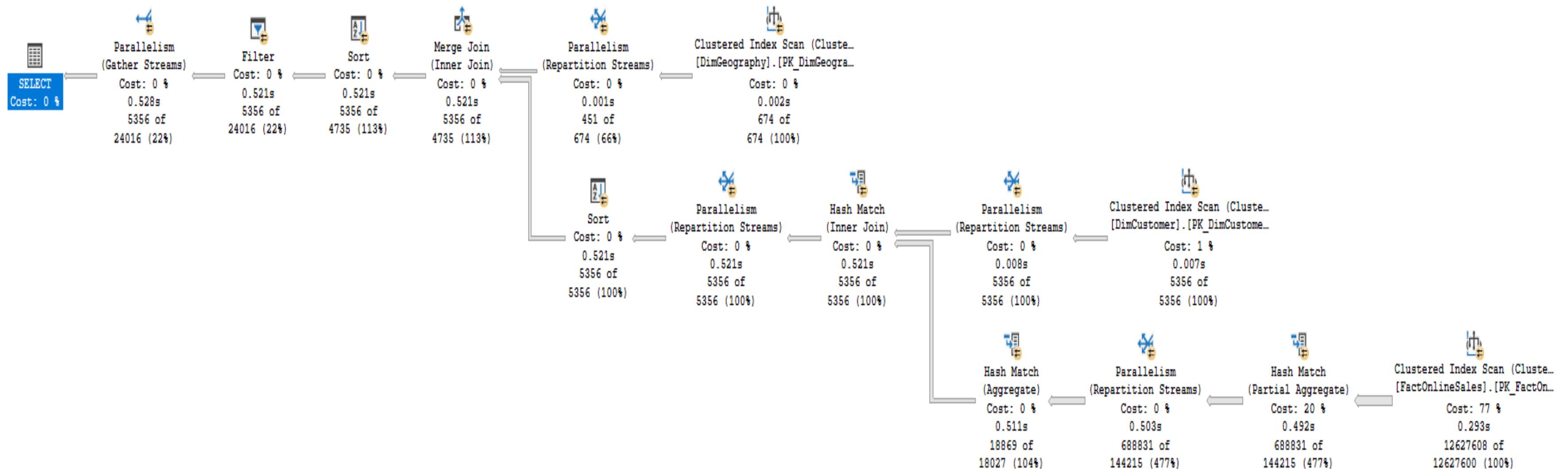
Different when there are query recompiles



Reading and Interpreting the Query Plan

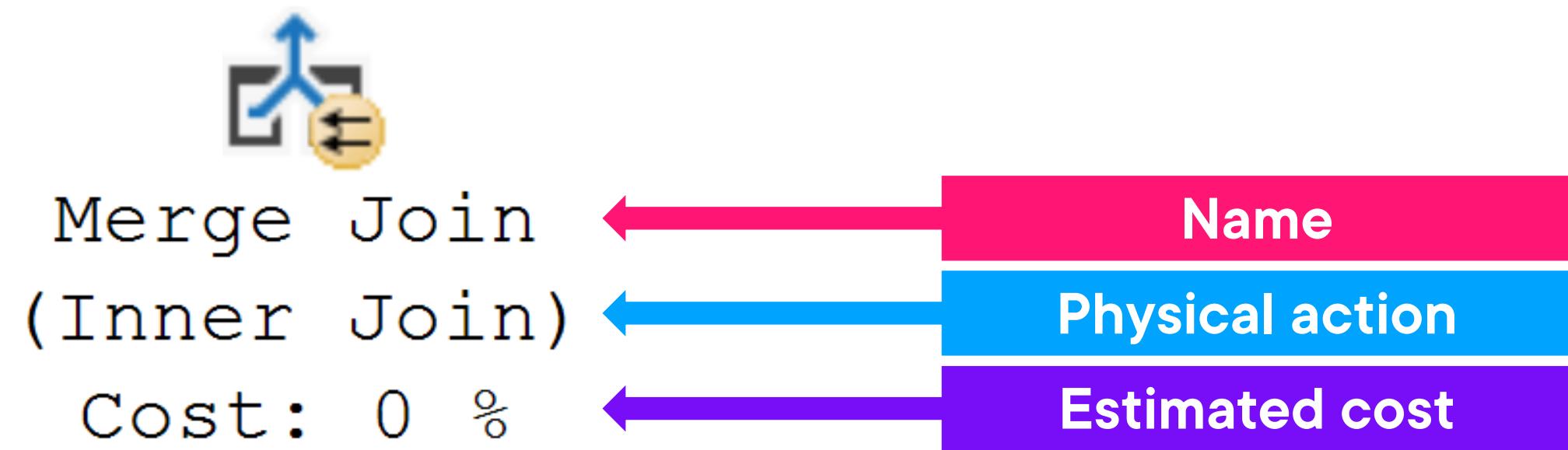


Reading the Execution Plan



Reading the Execution Plan (Estimated)

Estimated cost = CPU + memory + I/O



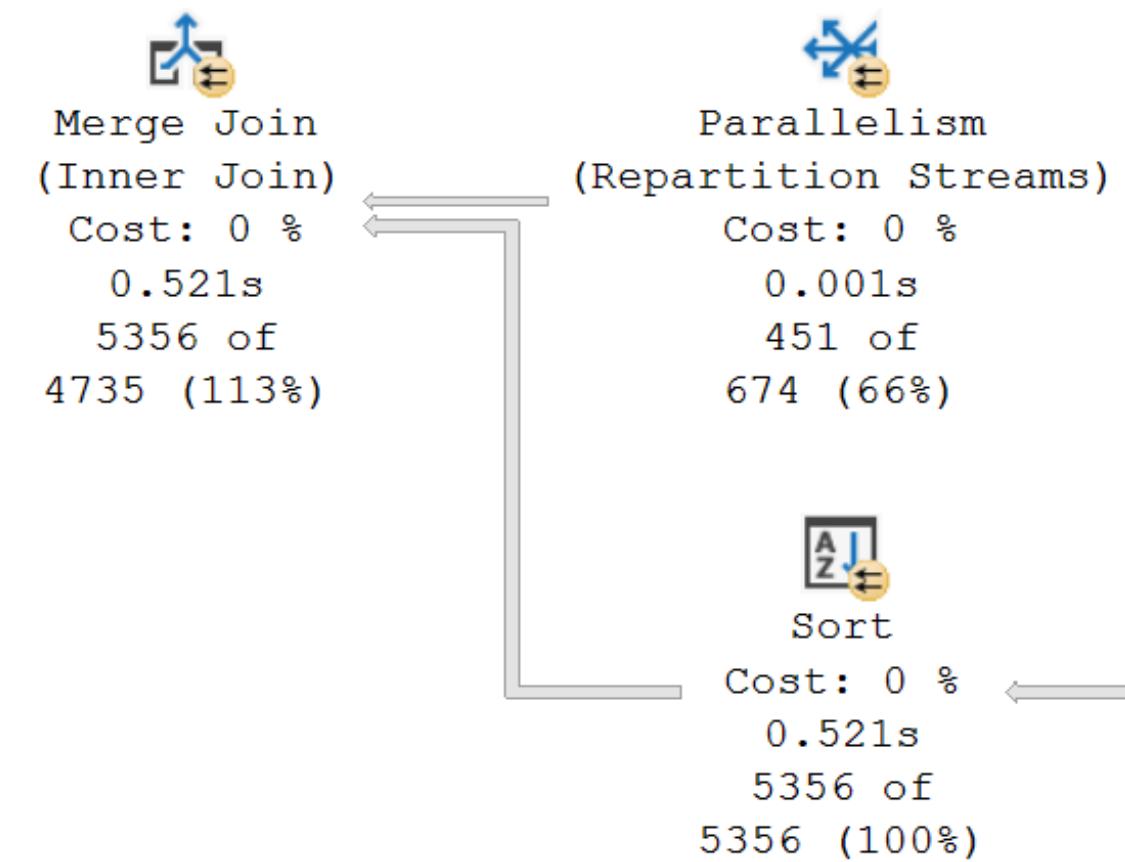
Reading the Execution Plan (Actual)

Estimated cost = CPU + memory + I/O

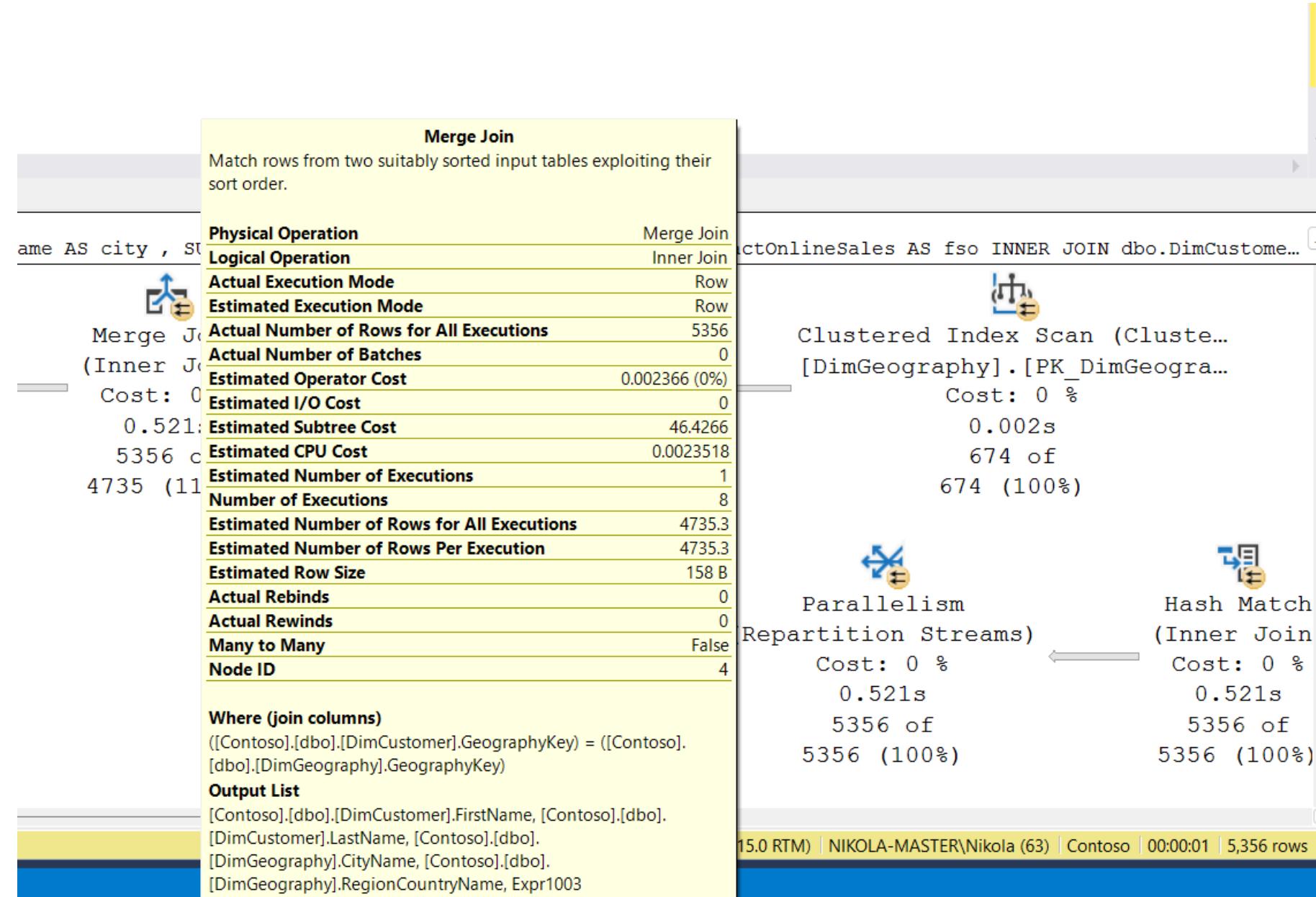
	Merge Join	Name
(Inner Join)		Physical action
Cost: 0 %		Estimated cost
0.521s		Time
5356 of		Number of rows
4735 (113%)		



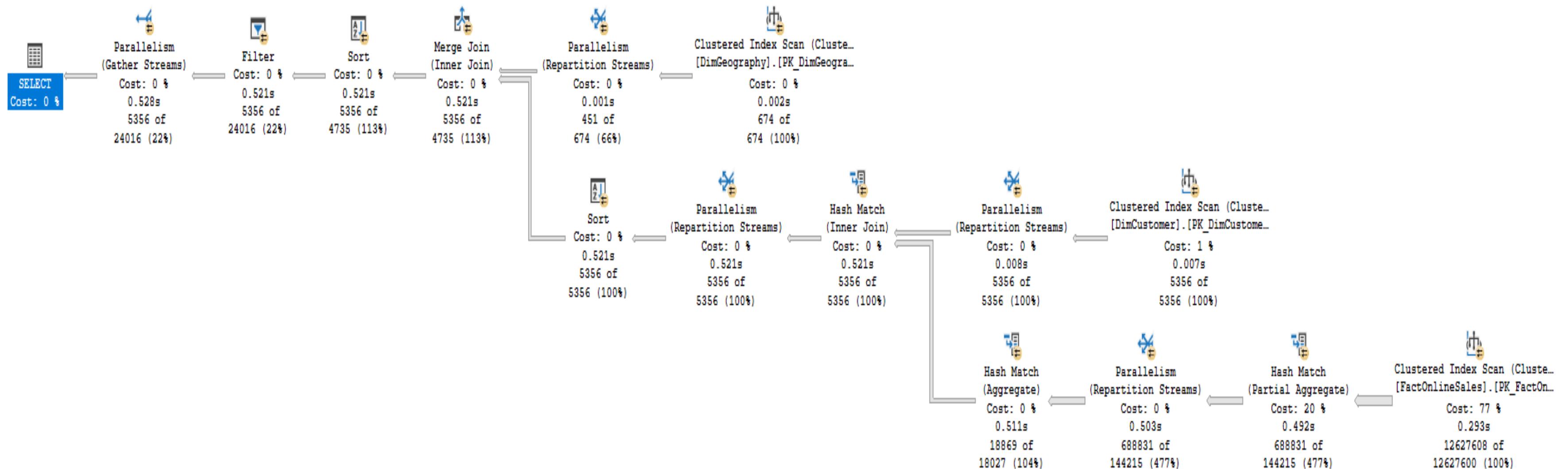
Reading the Execution Plan (Arrows)



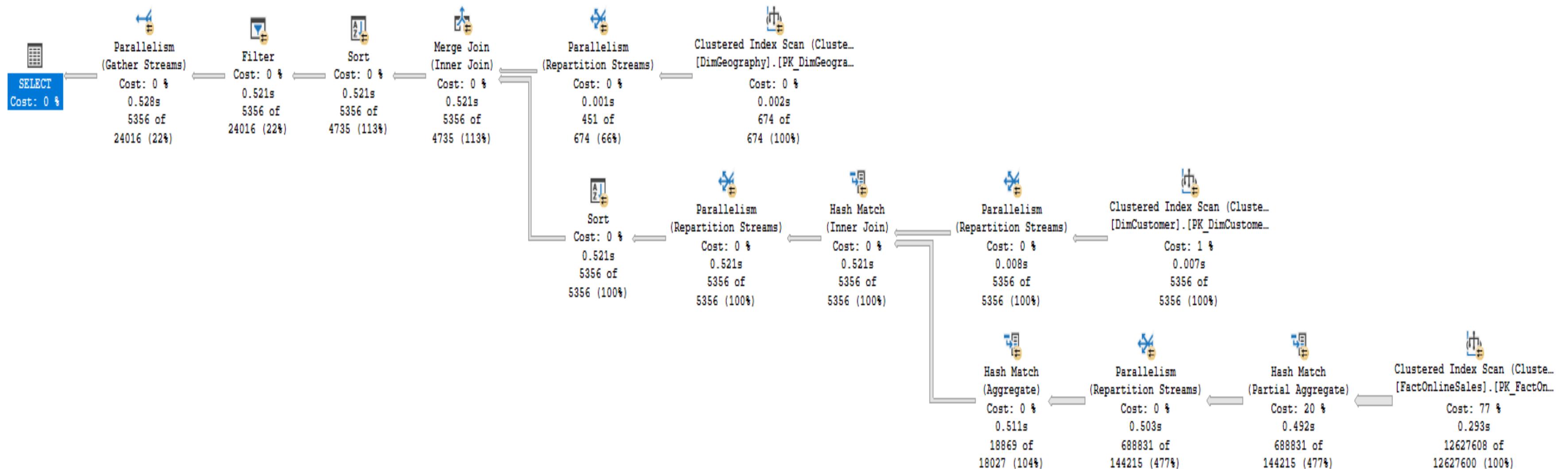
Reading the Execution Plan (Tooltips)



Reading the Execution Plan

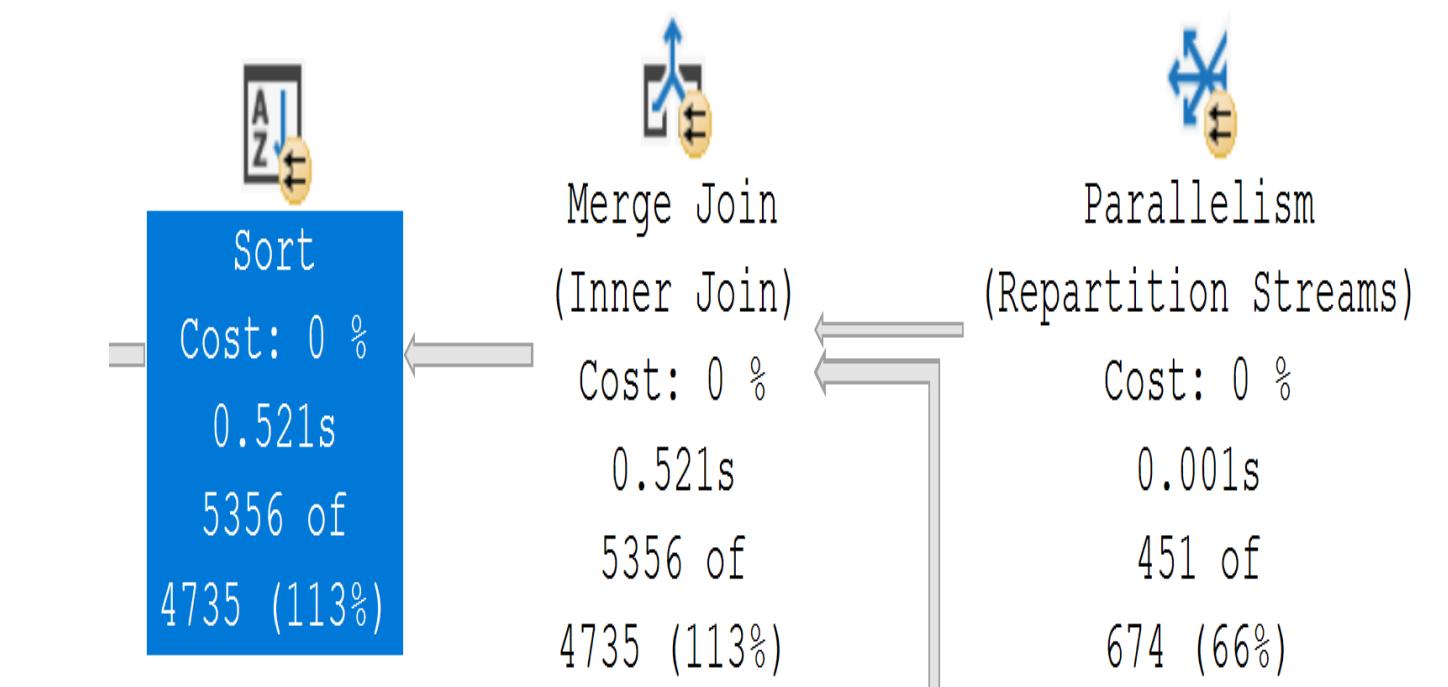


Interpreting the Execution Plan



Key Indicators in the Query Execution Plan

- 1 The 1st Operator
- 2 The most expensive operators
- 3 Warnings
- 4 Unknown additional operators
- 5 Thick arrows
- 6 Scan operations (not always an issue)
- 7 Estimated vs actual number of rows



Demo



**Read and interpret the query execution plan
by using SQL Server Management Studio**

Compare two query plans

Live Query Statistics in SSMS



Summary



Execution plan is the blood test and you are the doctor

Estimated plan = Actual plan

- Actual plan contains additional information from the query runtime

Logical flow starts from the top right operator

- Thick arrows = large amounts of data

Key indicators in the query execution plan



Up Next:

Understanding Plan Reuse and Plan Cache

