

# SQLServerFast.com

## Execution Plan Video Training

Block 1: Understanding execution plans

Level: Basic

Chapter 2: Requesting an execution plan

# Execution plan

Basic option: execution plan only

Management Studio: “Estimated Execution Plan”

Misleading term!

Query **WILL** use this plan

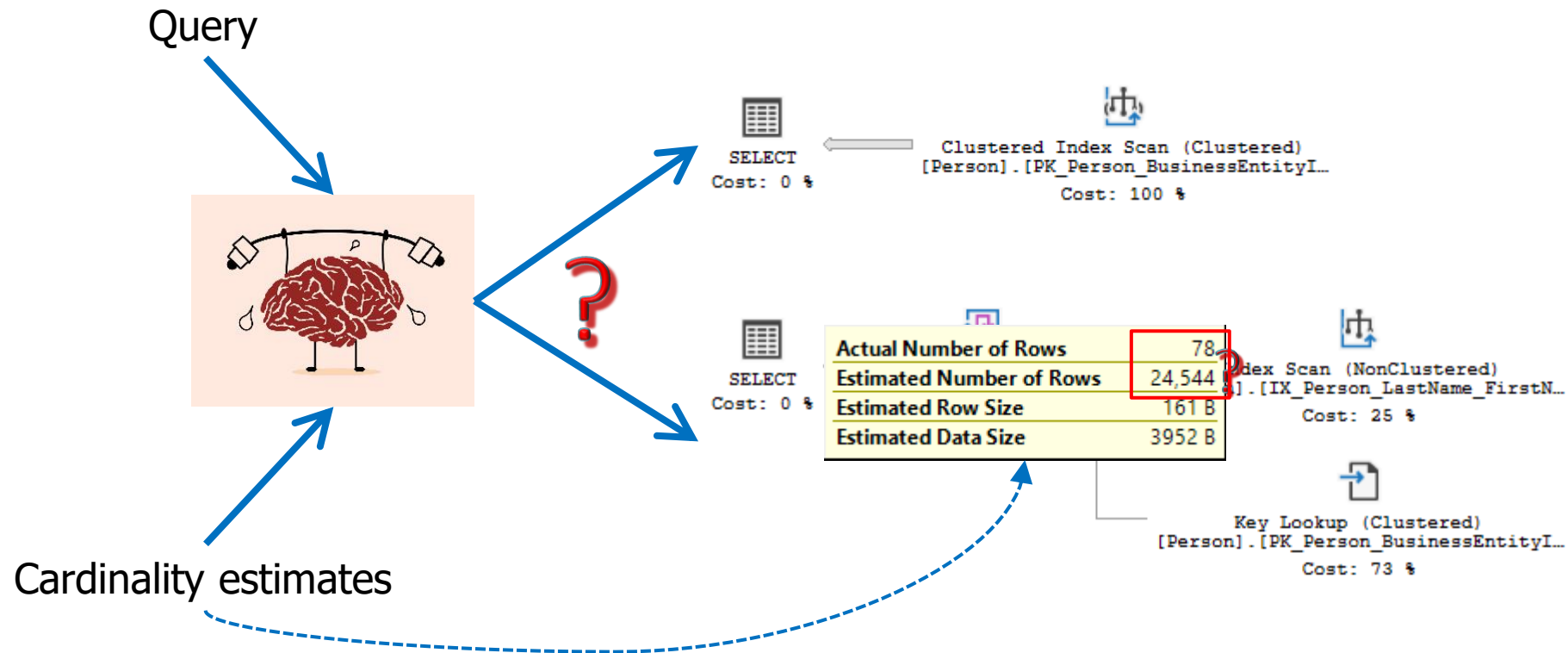
Except in case of (later) recompiles → new execution plan

Azure Data Studio: “Estimated Plan”

Same misleading term

# Optimization

*See also chapter 4: Properties*



# Execution plan plus run-time statistics

Short name: “execution plan plus”

Requires execution of query

Can be slow

Be careful with INSERT, UPDATE, DELETE, MERGE queries!

Benefit: incorrect estimates easy to identify

# Execution plan plus run-time statistics

Short name: “execution plan plus”

Requires execution of query

Management Studio: “Actual Execution Plan”

Misleading term, there is no “non-actual” plan

Azure Data Studio: “Enable Actual Plan” / “Disable Actual Plan”

Works the same as in Management Studio

Returned after query execution has finished

# Execution plan with live statistics

Show plan and update with run-time statistics as query executes

Short name: “live execution plan”

Available for SQL Server 2014 (SP1+) and higher

- Requires “new” Management Studio version

- Not supported in Azure Data Studio

- Less data than execution plan plus run-time statistics

# Feature comparison

Plan type	Execution plan only	Execution plan plus run-time statistics	Execution plan with live statistics
Alternative name	Execution plan	Execution plan plus	Live execution plan
Management Studio	“Estimated Execution Plan”	“Actual Execution Plan”	“Live Query Statistics”
Azure Data Studio	“Estimated Plan”	“Enable / Disable Actual Plan”	n/a
Available in	All versions	All versions	2014 SP1+ (better in later versions)
Query executed?	No	Yes	Yes
Includes	Plan and cardinality estimates only	Plan, cardinality estimates, actual row counts, spills, and other metrics	Plan, cardinality estimate, and live updating actual row counts

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How many shown?	Once for each query in batch		

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Trigger code	Not included	Included	Included

# Feature comparison

*Execution plans for cursors are explained  
in block 6, advanced level, chapter 4*

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Trigger code	Not included	Included	Included
Control flow code	Included	Not included	Not included

# Which one to use?

When possible, use execution plan plus run-time statistics

- Run-time statistics are invaluable tuning help

- Time-consuming for slow queries

- Unwanted data modifications / blocking

# Which one to use?

When possible, use execution plan plus run-time statistics

When necessary, use execution plan only

- May be misleading, especially when estimates are wrong

- At end of tuning, always run at least once with execution plan plus

# Which one to use?

When possible, use execution plan plus run-time statistics

When necessary, use execution plan only

Sometimes execution plan with live statistics is good alternative

- Watch activity and counters as the query is running

- Perhaps root cause is visible early in execution

- Worst case, you STILL need to wait for query to finish

- Do also include execution plan plus

  - (Has extra information that is missing from live execution plan)

# Summary

## Three ways to request an execution plan

### Execution plan only

Fast, but no run-time data

### Execution plan plus run-time statistics

Includes run-time data, but requires execution of query

### Execution plan with live statistics

Includes *some* run-time data, live updating during execution

# Next chapters

Chapter 3: How to read an execution plan

- Operators

- Flow of control

- Data flows

- Common misconceptions

Chapter 4: Properties

Chapter 5: Where to find execution plans

Chapter 6: Cardinality in the execution plan

Chapter 7: Percentages in the execution plan