Other Concerns and Considerations

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Overview

- **We've just touched on one of the most problematic areas of stored procedure performance: parameter sniffing**
- **There are other concerns**
  - Connection settings
  - Execution context
  - Resource governor pools
  - Coding practices
- **I'm going to cover these in greater depth in Part 2**

Demystifying Plan Caching for Bad Plans

- **Most common considerations around bad plans**
  - Parameter sniffing
- **How do you resolve parameter sniffing?**
  - Don't go straight to updating statistics
  - Try **sp_recompile <*procedure_name*>** first
  - Use OPTION (RECOMPILE) as an intermediate solution
    - Don't leave it there: FIX it with a more permanent solution that doesn't require EVERY execution to be recompiled
  - Find a more permanent solution that uses less CPU
    - Modular code / branching
    - If you have multi-purpose procedures then use **sp_executesql** with targeted recompiles

Secondary Concerns and Considerations

- **Plans go into cache based on many factors**
  - The application from which you connected
  - The session settings that you have established and/or changed
  - The resource governor pool in which you're a member
  - The use of temporary or "transient" objects
    - Local or global temporary stored procedures
    - Temporary objects created / used inside stored procedures
  - There are many other factors, see Part 2 for more information!
- **But, can you have too many recompiles?**
  - Yes: however, it's not as bad as SQL Server 2000 because only the statement is recompiled (from SQL Server 2005 onward), not the entire procedure
    - SQL Server 2000 had horrible problems with compile locks, see KB article 263889: Description of SQL Server blocking caused by compile locks
  - Yes: however, sticking to a variety of best practices can help to **DRASTICALLY** minimize that!

Optimizing Statement and Procedure Performance

- **Between these first two courses, you have a complete understanding of the most commonly problematic areas around caching, compilation, and performance:**
  - *SQL Server: Optimizing Ad Hoc Statement Performance*
  - *SQL Server: Optimizing Stored Procedure Performance – Part I*
- **There are still other areas that can frustrate you but there IS a rhyme and a reason to it and there is a methodology for tracking it down and resolving it**
  - Compiled plans aren't always best
  - Recompiling isn't always a bad thing
  - Check out Part 2 for additional stored procedure considerations
- **It depends!**
  - And now you know [*mostly*] what it depends on!

Just the Tip of the Iceberg

- **Data types: column size / row size / consistency**
  - **Released course:** *SQL Server: Why Physical Database Design Matters*
- **Ad hoc statements: plan cache / parameter sniffing**
  - **Released course:** *SQL Server: Optimizing Ad Hoc Statement Performance*
- **Stored Procedures: Parameter Sniffing / Recompilation**
  - **THIS COURSE**
- **Indexes: creation / overhead / maintenance**
  - **Coming soon:** *multiple courses on index internals, data access patterns, and indexing strategies*
- **Statistics: accuracy / cardinality estimation / skewed data / histogram limitations / uneven distribution and correlated columns**

Where To Go Next?

- **Check for new Pluralsight courses from me**
  - I'm going to stay within the developer/database development area for my first few courses
    - Targeting best practices and typically using a "problem/solution" approach
- **Check out these SQLskills courses on Pluralsight that are the most appropriate for you to consider next:**
  - *Developing and Deploying SQL Server ISV Applications*
  - *SQL Server: Common Performance Issue Patterns*
  - *SQL Server: Troubleshooting Query Plan Quality Issues*
- **Everyone using SQL Server should watch Paul Randal's course: *SQL Server: Myths and Misconceptions***
  - You'd be surprised at how many of these you might think you know
  - It gives you all sorts of great advice – across the entire product!

Course Summary

- **Performance doesn't just "happen"**
- **Do not expect the SQL Server defaults to perfectly support every environment and every use case**
  - It's not one-size-fits-all!
- **The effect on performance of using only one strategy for all of your procedures DOES NOT WORK**
  - Use the right method for the right request (and right data pattern)
  - Caching isn't ***always*** good… it isn't ***always*** bad either
  - Knowing what works and how to test it is the key to good statement execution as well as reducing plan cache pollution and CPU!
- **Thanks for watching!**