SolidQ

Milos Radivojevic, Mentor with SolidQ

T-SQL Performance Tips

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About Me

Dipl.-Ing. Milos Radivojevic,
Vienna, Austria

SolidQ Mentor

- 10+ years SQL Server experience: MCT, MCITP, MCP
- Workshops:
  - SQL Server for Application Developers
  - What's New in SQL Server 2012 (Co-author)
- Conference Speaker: SQLBits, SQL Saturday, SQLU Summit, SQL UG Austria

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PASS SQL saturday #115 | PORTUGAL 2012

sql bits

SQLUSUMMIT September 21-23 2011 Budapest

Microsoft CERTIFIED Trainer

Microsoft CERTIFIED IT Professional | Database Developer 2008

Agenda

- Query Execution
- Functions in the WHERE Clause
- Data Type Conversion
- Local Variables
- Database Constraints and Performance
- SQL Server 2012 Tips
- Other Tips

Query Execution

- Transact SQL is a declarative language
- SQL Server generates an execution plan (cost-based optimization)
- What can affect the query execution?
  - Which tables are involved in the query
  - Are there indexes available on the tables
  - Cardinality estimation by reading table statistics
  - **How the query is written**

Functions in the WHERE Clause

- **Tip: Avoid functions in the WHERE clause with table columns as arguments!**
  - An index will not be used at all or it will be used inefficiently
- **Tip: Avoid arithmetic operations against table columns in the WHERE clause!**

Data Type Conversion

- **Tip: Choose the right data type!**

- Otherwise:
  - Conversion overhead
  - String Conversion costs can be significant (a “non-unicode” value will be converted to a “unicode” value)
  - Estimation problem (for instance with the LIKE Operator)

Local Variables

- **Tip: Understand how local variables affect query execution**
  - When local variables are used the SQL Server optimizer cannot generate the optimal execution plan because the variable value is not known at the compile time
- **Tip: Use OPTION (RECOMPILE) to get a good execution plan**

Database Constraints

- **Tip: Database Constrains help SQL Server to make a better execution plan.**

– The main purpose is data integrity, but Unique Constraints, Check Constraints and Foreign Keys help SQL Server optimizer to make the right decision about query execution

SQL Server 2012 Tips

- **Tip: Use Window Functions!**
  - Great SQL Server 2012 Improvements
    - Running Totals, Current vs. Previous etc.
  - But use them also in SQL Server 2005, 2008/R2
- **Tip: The session "Writing Better Code with Windowing Functions on SQL 2012" from Fabiano Amorim today at 4 PM.**

Other Tips

- **Tip: SELECT Only Required Columns!**
  - Only required information should be requested. It sounds trivial, but there are lot of examples with unnecessary SELECT * or ORDER BY statements
- **Tip: Use ORDER BY only if it was explicitly required!**
  - An overhead can be significant when Sort Operator is involved

Other Tips

- **Tip: Use UNION ALL when you know that sets are not overlapped and when duplicates are allowed!**

- **Tip: EXISTS vs. COUNT(*) perform the same. Use what you are more comfortable with!**
- **The same tip for IN vs. EXISTS!**
  - From the version 2005 perform same

Other Tips

- **Tip: Execute multiple queries together!**
  - reduce network roundtrips between the application and the database server
- **Tip: Reduce logging overhead!**
- **Tip: Use SET NOCOUNT ON!**
  - After every query in batch or SP is executed, the server reports the number of rows affected => network overhead

Thank You!