Tackling Monster Stored Procs

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About Me

- Owner, Consultant, DataPerf Professionals
- 45+ years in IT
- Career covered multiple disciplines – operations, development, telecommunications, network design/administration and database design and administration
- Started using Sybase in 1992, MS SQL Server in 1995
- Microsoft Certified IT Professional: Database Administrator and Database Developer, Microsoft Certified Trainer (MCT)
- Awarded Microsoft MVP Award for SQL Server for 15 years
- PASS Director 2016 - 2018

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Agenda

- Overview of the process
- Review some poor coding practices
- Demonstrate better approaches
- Look for patterns

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Divide and Conquer

- Find logical breakpoints in the logic
- Reduce large queries to smaller ones
- Turn APPLY queries into separate queries feeding temp tables
- Separate queries so no more then about 4-6 tables per query

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Minimize I/O

- Most performance problems are based on excessive I/O
- Filter incoming data before processing results
- Eliminate unnecessary operations
- Use set-based operations
- Views can introduce unnecessary I/O and operations

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APPLY joins

- CROSS APPLY and OUTER APPLY are row-by-row operations
- Relocate the subquery to create a temp table
- Join (INNER or OUTER) to the main query

- DEMO

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FOR XML aggregations

- Introduced in SQL Server 2005
- Provided a convenient way to aggregate string values
- It's SLOOOOOOOW
- Use STRING_AGG instead (introduced in SQL Server 2017)

- DEMO

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IN() lists

- Convenient way to check multiple values
- It's an OR operator, so it must scan the table
- If you have many values
  - Create a temp table with the values
  - Join the temp table to the main table
  - Allows the use of indexes to speed up the operation

- DEMO

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Functions

- Developers love them
- They force row-by-row operations
  - SQL Server 2019+ can automatically in-line them
- Manually in-line the code to allow set operations

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Function Example

- DEMO

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Task List

- Filter incoming data
- Replace row-by-row operations with set operations
- Look for patterns
  - Merge operations that are repeated
  - Bring external data internal
- Reduce the number of joins in your queries

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Thank You!

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