

Sql Server Performance Tuning - Keeping it Simple

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Sql Malibu Users Group
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Who am I:

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- ▶ MCP, MCITP DBA Sql Server 2005/2008
- ▶ MCT (Microsoft Certified Trainer
- ▶ Oracle OCP DBA - 8.0 - 11g
- ▶ BA Managerial Economics, Marietta College, Ohio; MS IT - Information Assurance, University of Maryland University College
- ▶ 13 Years experience working with Databases and Solutions across a variety of ERP packages and platforms
- ▶ Now independent, but worked for Walt Disney Company, Warner Brothers, and Quest Software. Have worked on projects Internationally.
- ▶ Just relocated back to Orange County after seven years out-of-state
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AdminsDirect Inc

- ▶ Our Motto: Plan, Remove Obstacles, Deliver
- ▶ Founded with the concept of building peer circles of professionals across disciplines
- ▶ Keep a small physical office, but work virtually
- ▶ Focus on consulting assignments, training, and mentoring others.
- ▶ Do not write books, white papers, or many blogs. We just work and network with those that we know.

Objectives of Presentation

- ▶ The objective of this presentation is to give Users an acceptable and accepted method of approach towards solving performance problems.
- ▶ Free Tools to help you
- ▶ Baked in functionality in Sql Server to help you
- ▶ I'm not an expert in all of these areas - this just has been an effective approach method for me and allows me to
 - ▶ Separate art from science - this is more science
 - ▶ Create benchmarks and measurable results with actual data
 - ▶ Helps when making your case!

Microsoft Performance Approach

- ▶ The textbook approach of Microsoft towards troubleshoot performance issues on Sql Server is to take an upside-down pyramid approach
- ▶ Drill down until the problem is solved
- ▶ Use Perfmon and Sql Profiler
- ▶ Easier said than done - environments are complex and look more like “ecosystems”
- ▶ The MS approach is a good start, but needs some help with some other tools.

PAL tool

- ▶ Developed by Clint Huffman at Microsoft
- ▶ Was created to troubleshoot customer issues -by analyzing perfmon logs sent to Microsoft for BizTalk
- ▶ Has adapted to include threshold values for different products - including Sql Server and Exchange
- ▶ Not supported by Microsoft
- ▶ Free to use - no license
- ▶ <http://pal.codeplex.com>

PAL Demonstration

- ▶ Typical use of the PAL tool
- ▶ Install PAL. Requires free add-ons for report viewing - uses .NET 4 and needs a 64 bit machine for analysis. Uses powershell.
- ▶ Setup Perfmon
- ▶ Add counters
- ▶ Run Perfmon scheduled. Can create large .blg files
- ▶ Once .blg files are created, load them into the PAL gui and analyze.
- ▶ Very process intensive. **DO NOT DO THIS ON PRODUCTION.** Move the .blg to your workstation for PAL analysis.
- ▶ PAL creates a detailed report. More detail than you might want.

Sql Trace files

- ▶ Coordinating the PAL file with Trace file to identify when things may have happened
- ▶ Can help identify what is using TempDB - not just growth

Analyze Trace from table function

- ▶ Helpful to find the top offenders quickly
- ▶ Need to run on the Server
- ▶ Take the results and move to Excel

Deadlock Shred

- ▶ Helps to diagnose Deadlock issues
- ▶ Avoid the Deadlock XML graph
- ▶ Run against your Trace File

Sql Plan Sentry Explorer

- ▶ Free tool to help examine query plans and optimizer paths
- ▶ <http://www.sqlsentry.net/plan-explorer/sql-server-query-view.asp>

Use of NOLOCK

- ▶ Denny Cherry article
- ▶ <http://itknowledgeexchange.techtarget.com/sql-server/nolock-is-not-a-turbo-button/>
- ▶ NOLOCK is often used to speed up queries or resolve blocking situations, however there are implications with possible dirty data reads that need to be understood
- ▶ Balance the tolerance for dirty reads with the use of NOLOCK
- ▶ Find the cause of the blocking and resolve. Most times it is because of table / index / clustered index structure or lack thereof

When is it the App, when it is the Database?

- ▶ Use these tools - Perfmon and Trace to single out particular SPIDs for users
- ▶ Sometimes the query is lightning fast on the backend but slow from the GUI
- ▶ Many front end applications - such as .NET or Powerbuilder data windows cache and manage data on the desktop
- ▶ Try simple tricks like file transfers between drivers or machines - to see if something is wrong with an adapter or NIC

Best Practices to Help Detect Possible Problems

- ▶ Use the master `sp_cycle_errorlog` to Cycle your Sql Server log files each day - via a Sql Job. Makes it manageable
- ▶ Document your server layout - down to the LUN. Take pictures
- ▶ Document your topology - know the data feeds in and out
- ▶ Monitor for apps such as MS Office extracting large amounts of data and causing blocking
- ▶ Work with developers who are generating dynamic code such as Hibernate - queries not easy to change
- ▶ Look for adhoc queries that are single-use
- ▶ Back Up!!

Questions

- ▶ Feel free to contact me at
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References

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