

MAINTAIN SQL SERVER PERFORMANCE BASELINE WITH POWERSHELL



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ABOUT ME

- Business Development Manager for SQL Sentry
- 40+ 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 last 9 years



CAPTURE PERFORMANCE BASELINE

- Baseline shows normal performance
- Deviations from Baseline require investigation
- Frequency of Data Capture is important
 - Too often impacts performance
 - Too seldom can miss important events
 - Balance comes with experience



KEY PERFORMANCE INDICATORS

- Which counters show us system health
- There's no "right" answer
- These are my choices



OPERATING SYSTEM COUNTERS

Object	Counter	Look For
Processor	% Processor Time	<= 80%
Memory	Available MBytes	Low Memory, Server Paging
Paging File(_Total)	% Usage	Should be < 70%
PhysicalDisk(*)	Avg. Disk Sec/Read	Latency. Avg time to read data (<.02)
PhysicalDisk(*)	Avg. Disk Sec/Write	Latency. Avg time to write data (<.02)
System	Processor Queue Length	> 10 threads/proc and CPU > 80%

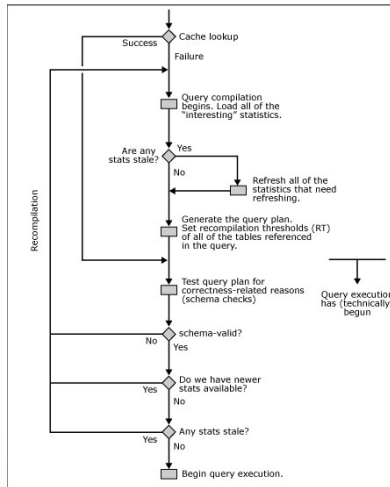


SQL SERVER COUNTERS

Object	Counter	Look For
Access Methods	Forwarded Records/sec	< 10 per 100 batch requests/sec
Access Methods	Page Splits/sec	<20 per 100 batch requests/sec
Buffer Manager	Buffer cache hit ratio	below 90% is bad
Buffer Manager	Page life expectancy	>= (DataCacheSize/4*300)
General Statistics	Processes blocked	Baseline, check for changes
SQL Statistics	Batch Requests/sec	> 1000 is busy system
SQL Statistics	SQL Compilations/sec	<10% of batch requests/sec
SQL Statistics	SQL Re-Compilations/sec	<10% of compilations/sec



QUERY COMPILATION



<https://technet.microsoft.com/library/Cc966425>

DEMO

- Performance Counter Baseline



DISK AND DATABASE DATA

- Track Disk Space
 - Trend allows you to know when it'll fill
 - Clean up file usage or order more disk
 - Allows you to anticipate
- Track Database Space
 - Most DBAs use Autogrow feature
 - This causes delays in database access
 - Database is managing you
 - Anticipate and manually grow databases
 - Schedule your maintenance at low usage times



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DEMO

- Disk and Database Space Usage



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REFERENCES

- Learn Windows PowerShell 3 in a Month of Lunches, Second Edition, Don Jones and Jeff Hicks
 - <http://www.manning.com/jones3/>
- Understanding and Using PowerShell Support in SQL Server 2008
 - <http://msdn.microsoft.com/en-us/library/dd938892.aspx>
- PowerShell articles on SQL Server Pro
 - <http://sqlmag.com/database-administration/powershell>



QUESTIONS?

- Thank you!

