Diagnosing CPU-related Issues

Glenn Berry

PRINCIPAL CONSULTANT – SQLSKILLS.COM

@GlennAlanBerry   www.sqlskills.com/blogs/glenn

Module Overview

Diagnosing CPU-related issues

Interpreting query results

Addressing CPU issues

CPU Utilization by Database

CPU utilization by database

Cumulative average since last SQL Server service start

Shows which database(s) are using most CPU

CPU Utilization by Database

Helps focus your analysis if server is under CPU pressure

Knowing which database is using most CPU is quite useful

More detailed analysis by top CPU queries and stored procedures later

Query and index tuning are often effective for reducing CPU utilization

Top Worker Time Queries

Top worker time across all queries

Worker time is tied to CPU utilization

Total worker time numbers usually fall off quickly

Lets you focus tuning efforts on top five results

Top Worker Time Queries

Shows which queries are using most CPU time

Look for queries that have a value of 1 for "Has Missing Index" column

More detailed analysis of each query by looking at the query plan

Query and index tuning are often effective for reducing CPU utilization

Demo

Top worker time queries

SP Worker Time

Top stored procedures
for current database
ordered by worker time

Make sure you are connected
to the correct database

Total worker time numbers
usually fall off very quickly

Average elapsed times
are in microseconds

SP Worker Time

Shows which SPs are using the most CPU time for the current database

Look for queries that have a value of 1 for "Has Missing Index" column

Also look at "AvgWorkerTime" to identify easy tuning opportunities

More detailed analysis of each SP by looking at the query plan

Query and index tuning are often effective for reducing CPU utilization

Demo

SP worker time

High Aggregate CPU Queries

Query Store must be enabled for this query to return results

This query is database-specific

Make sure that Query Store is not in a read-only status

Highest aggregate CPU queries over the past hour

High Aggregate CPU Queries

Shows queries that have most total CPU activity over past hour

Returns query text so you can spot common query issues

Returns query plan XML so you can view graphical execution plan

Shows plan count for each plan which helps identify plan stability issues

Identifies which stored procedures have forced plans

Demo

High aggregate CPU queries

What We Covered

Diagnosing CPU-related issues

Interpreting query results

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