WHAT IF NO ONE IS MONITORING YOUR DB SERVER?

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CF Server Troubleshooter

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@carehart (Slack, Github, X, Fb, Li, Skype, etc.)

Updated Apr 11, 2024

- Kind of a silly question, I realize
    - Everyone has at some point had db problems
- But did you really understand them?
    - Did you have tools to help?
    - Did CF get blamed unfairly? Or fairly?
- Did you find that a "cf db problem" could not be created "in the db"?
    - Or that a given "db problem" seemed to "come and go"?

EVER HAD DB PROBLEMS WITH YOUR CF APP?

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- Briefly considering CF/Lucee monitoring tools

- Factors that can influence DB performance

- Considering DB monitoring tools (for most common DBs)

TOPICS

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- ▸ I focus on CF server troubleshooting, as an independent consultant
  - ▸ Assist organizations of all sizes, experience levels
  - ▸ Work <u>remotely</u>: safe, secure, easy via **shared desktop** (zoom, meet, teams, etc.)
  - ▸ **Solve most problems in less than an hour**, teaching you also as we go
  - ▸ **Satisfaction guaranteed**
  - ▸ More on rates, approach, online calendar, etc at *carehart.org/consulting*
- ▸ But to be clear, I'm not selling anything in this session! ☺
  - ▸ Just sharing my experience, and that of others

- ▸ Presentation online at *carehart.org/presentations*

ME.ABOUT()

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- CF debugging output

- CF metrics log, cfstat, perfmon, getmetricdata()

- FusionReactor

  - See also my talk, *carehart.org/presentations/#frdbts*

- CF PMT (since CF2018)

- Lucee Performance Analyzer (open source, from Zac Spitzer)

- Jvm monitoring tools (jmx-based or not)

- APM's like NewRelic, Datadog, Appdynamics, etc

KNOWING FROM CF/LUCEE WHETHER YOU HAVE A DB PROBLEM

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- Commonly cited problems and solutions
  - Blocking/deadlocking
  - Problems with indexing
  - Problems with statistics
  - Problem with plan caching
  - "Reporting queries" happening against "transactional db"
- Of course, there are many other possible factors
  - Let's consider just a few more for now…

FACTORS THAT CAN INFLUENCE DB PERFORMANCE

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- Less commonly cited problems and solutions
  - Requests coming from things OTHER than CF or Lucee
  - Other processes within the DB that are NOT "requests"
    - Index rebuilds, backups, etc
  - Other processes on the machine affecting DB server
    - Whether causing high cpu, high memory, high disk io
  - Network issues impacting DB resources on SAN/NAS
  - DBMS on a vm that's on an over-subscribed host

FACTORS THAT CAN INFLUENCE DB PERFORMANCE (CONT.)

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- These and other such factors stress need for DB monitoring tools
  - But even among them, capabilities vary (similar to CF tools)
  - Some will be more helpful than others
  - Something will usually be better than nothing
- Other factors include your architectural complexity
  - The cost of such tools (if any)
  - Whether you have a DBA to help (or not)
  - Whether your DB is on-prem or in cloud
- Note that some tools do not require installing anything "on the db server"

CONSIDERING DB MONITORING TOOLS

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- What's going on in the DBMS (and in the server it's on)
  - Whether and how long current db requests have been running
  - Whether OTHER running db requests may be the root cause
  - Why db requests are running slow
- What slow queries have their been?
  - Perhaps even what queries were running at a point in time
- And still more lower-level DB resource usage details

- Let's now consider tools
  - for each of mysql/maria, postgres, sql server, and more …

WHAT DB MONITORING MIGHT TELL YOU

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- *show [full] processlist*

- slow query log (optional)

    - Finding its file name, whether enabled:

        - show global variables like '%slow%'

    - Can VIEW it within mysql workbench "server logs"

- mysqldumpslow (perl script, including in mysql bin folder)

- Performance_schema (database, and reports in MySQL Workbench)

- MySQL Enterprise Monitor (Enterprise edition only)

TOOLS FOR MYSQL/MARIADB: BUILT-IN

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- DBMarlin
- dbWatch
- EverSQL
- Idera SQL Diagnostic Manager
- Jet Profiler
- My Ora
- Navicat Monitor

- PMM: Percona Monitoring and Management (and consulting)
- Percona Toolkit
- Solarwinds DPA
- Quest Foglight
- plugins in tools like NewRelic, Datadog, Nagios, PRTG, etc.
- and others: *https://cf411.com/dbmon*

TOOLS FOR MYSQL/MARIADB:
3RD PARTY

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- Some of the previous tools will work with MySQL on AWS Aurora/RDS
  - Those not installed on db host but instead on machine with access to db
- AWS also offers Aurora/RDS monitoring, via:
  - RDS console
  - CloudWatch
  - Performance Insights
  - DevOps Guru
  - And more

TOOLS FOR AURORA/RDS AND AZURE DB FOR MYSQL/MARIA

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- Again, some of the previous tools work with AzureDB for MySQL
  - Those not installed on db host but instead on machine with access to db
- MS also offers Azure DB monitoring, via:
  - Azure Metrics
  - Azure Diagnostic Logs (including mysql slow query log)
  - Query Store (will discuss later in SQL Server, but AzureDB enables it for MySQL)
  - Query Performance Insight (uses the above querystore)
  - And more

TOOLS FOR AZURE DB FOR MYSQL/MARIA

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- Built-in:
  - No equiv to show processlist
    - But available *SELECT * FROM pg_stat_activity WHERE state = 'active'*
- Available open source tools:
  - pg_activity
  - pgadmin
  - pg_top

TOOLS FOR POSTGRES

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- DBMarlin

- dbWatch

- EverSQL

- Navicat Monitor

- PMM: Percona Monitoring and Management

- Percona Toolkit

- Quest Foglight

- Redgate SQL Monitor

- Solarwinds DPA

- plugins in tools like NewRelic, Datadog, Nagios, PRTG, etc.

- and others: *https://cf411.com/dbmon*

See also the Aurora/RDS and Azure DB discussions under MySQL

TOOLS FOR POSTGRES: 3RD PARTY

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- SQL Server Mgt Studio
  - Activity Monitor, especially "Active expensive queries" since SQL Server 2014
  - Available "Reports" (but this and Act Mon accessed by right-click on server name)
  - Query Store (since Sql Server 2017, enabled **by default** in SQL Server 2022)
- Dynamic Mgt View (DMV's)
- SQL Server Profiler/Traces
- Extended Events feature

TOOLS FOR SQL SERVER/AZURE SQL DB/RDS: BUILT-IN

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- Brent Ozar's First Responder Kit (and consulting)
- Erik Darling's tools (and consulting)
  - sp_humanevents and sp_HumanEventsBlockViewer, sp_PressureDetector, sp_QuickieStore, sp_HealthParser, and sp_LogHunter
- sp_whoisactive
- Database Health Monitor (and Steve Stedman consulting)
- DB Marlin
- dbForge Monitor, and Event Profiler

- dbWatch
- Idera Precise, SQL Check, SQL Doctor, and SQL Diagnostic Manager
- Navicat Monitor
- Quest Foglight, Spotlight, and Spotlight Cloud
- Redgate SQL Monitor
- Solarwinds DPA, Sql Sentry
- SQL Grease
- plugins in tools like NewRelic, Datadog, PRTG, etc.
- and others: *https://cf411.com/dbmon*

TOOLS FOR SQL SERVER/AZURE SQL DB/RDS: 3RD PARTY

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- Azure offers Azure SQL DB monitoring:
  - Database Watcher
  - SQL Analytics
  - SQL Insights
  - And more

TOOLS FOR AZURE SQL DB

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- As for other DBs, some of the 3ʳᵈ party tools work also for:
  - Oracle/RDS
  - DB2
  - NoSQL DBs (Mongo, Redis, etc.)
  - And so on
- See my list of DB monitoring tools, and more
  - https://cf411.com/dbmon

OTHER DBS

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- Lots of tools
  - Many free, some commercial but worth cost (others not)
- Again, start with CF tools to know if a CF/Lucee problem IS a db problem
- Beyond tools to identify problems, solving them may take more effort
  - I listed some consultants
  - I'm also available to assist with DB problems as well as CF/Lucee problems
- Time for questions?

CONCLUSION

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