

ON TOUR | NEW YORK



Revealing Hidden Performance Issues with Extended Events

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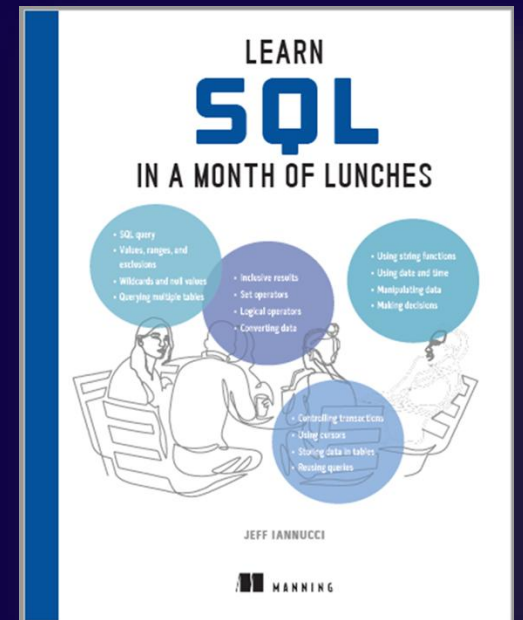
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XE

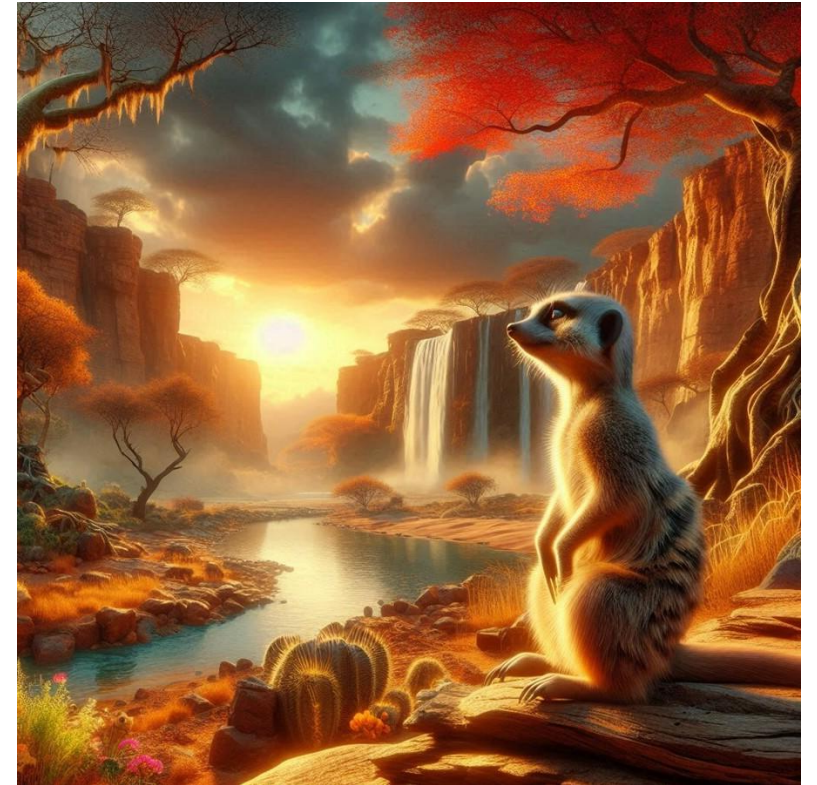
XML



What is an Extended Event?

“A SQL Server Extended Event is a **lightweight** performance **monitoring** system that allows users to collect and analyze detailed information about database engine events.

It replaces the **deprecated** SQL Trace and SQL Server Profiler features and provides a more **flexible** and **scalable** way to troubleshoot and monitor SQL Server.”



Goals

- 🔍 Which new Events find performance issues
- 🔍 Which new Events aren't as helpful
- 🔍 What painless ways we can view Event info



Parts of an Extended Event

EVENT

What are we watching for?

ACTION

What information do you want?

TARGET

Where do you want the info?



Permissions to create an Extended Event

SQL Server **2008** and **2008 R2**:

CONTROL SERVER

SQL Server **2012** to **2019**:

ALTER ANY EVENT SESSION

SQL Server **2022** and higher:

CREATE/DROP ANY EVENT SESSION



Permissions to view an Extended Event

SQL Server **2008** to **2019**:

VIEW SERVER STATE

SQL Server **2022** and higher:

VIEW SERVER PERFORMANCE STATE



What's new with Extended Events?

Query antipatterns

query_antipattern

Aborted queries

query_abort

Spills to tempdb

spills_to_tempdb

Measuring extended event overhead

(sys.dm_xe_session_events)





DEMO TIME!

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APASS

The basics

Long-running queries

sql_statement_completed

Blocking

blocked_process_report
(sp_HumanEventsBlockViewer)

Deadlocks

lock_deadlock
(system_health XE)
(sp_BlitzLock)



Failed and aborted queries

Failed queries

error_reported

Aborted queries

query_abort

Aborted queries – old school

sql_batch_completed

rpc_completed

sp_statement_completed



Antipatterns (well, some...)

Type Convert Preventing Seek

query_antipattern (...mostly...)

Large Number of OR in Predicate

query_antipattern (...sort of...)

Large IN clause

(ツ)/

Non-optimal use of OR

(ツ)/



Monitoring tempdb

Growth

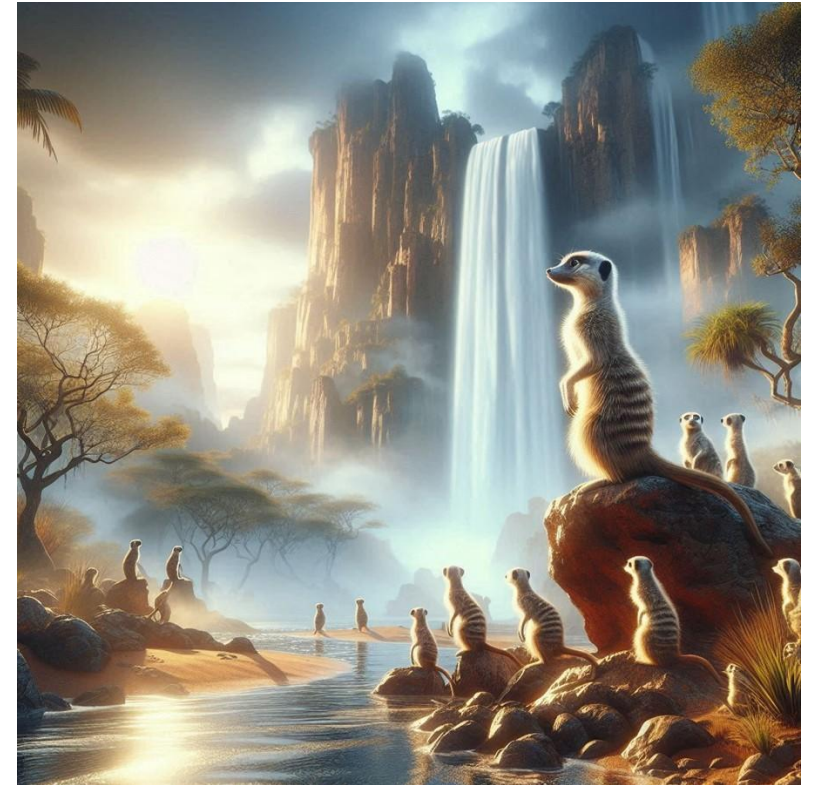
database_file_size_change

database_log_file_used_size_change

Spills

spills_to_tempdb (...maybe...)

sql_statement_completed



Measuring extended events

Impact

Trace flag 9708

sys.dm_xe_session_events



BONUS!

sp_HumanEvents

Blocking

Query performance

Compiles

Recompiles

Wait statistics



https://erikdarling.com/sp_humanevents/

ANOTHER BONUS!!

XE Smart Target

Uses XE streaming API to connect

Allows for responses:

- **Write to CSV file**
- **Email**
- **Execute T-SQL**
- **Replay**
- **Write to a table**



<https://github.com/spaghettidba/XESmartTarget>

MOAR BONUS!!!

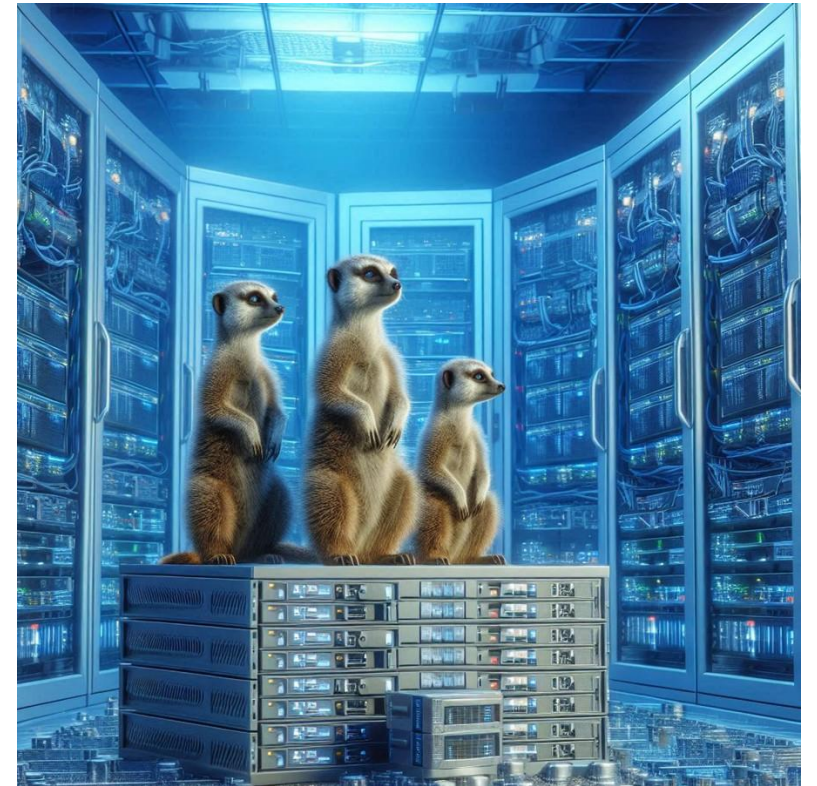
dbatools.io

Get-DbaXESession

Read-Dba-XEFile

Get-DbaXESmartTarget

...and 25 more cmdlets!



<https://dbatools.io/commands/#Traces>



WARNING!

Please do not start all the meerkats extended events at the same time.

Your feedback is important to us



Evaluate this session at:

www.PASSDataCommunitySummit.com/evaluation

Thank you

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