# Ah ha moment of trouble-shooting SQL Server

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- Sr. DBA
- 20+ Years of database experiences
- No Conflict of Interest of Presentation

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What is the best, fastest, easiest way to diagnose a performance issue?

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The best arsenal for SQL Server troubleshooting is simply a pair of powerful homegrown queries. In this session, I will simulate workloads, using PowerShell and T-SQL, on SQL server 2016, and will diagnose and exam the execution process via some powerful queries.

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Within SQL Server traditionally: (MSP)

- DMV/F, MDW, Xevent, CMS, perfmon

I am a maverick:

• DBA DIY calculating wait stats, recording history ….
• 3rd party tools ….

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3 types of performance issues:
- Reproducible any time
- Not reproducible but occurring
- Phantom

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- **False Positive** - Alert coming from system-monitoring tool indicating that something could be wrong with the application or the infrastructure, but the users may not experience any performance problems at all.

- **False Negative** - In contrast, there may be situations where users are experiencing performance problems but the system-monitoring tool does not recognize them.

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Wait type:

1. Some are events you should know by heart
2. The others you can figure out
3. You need to know what causes them
4. You need to know what values are reasonable
5. You need to know what you can/should do

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Wait type:

- ## ASYNC_NETWORK_IO

When network writes are blocked behind network. Ensure client is processing server data faster.

- ## CXPACKET (asymptomatic)

When parallel threads have an unequal workload, causing wait on the entire query until the longest-running thread is complete.
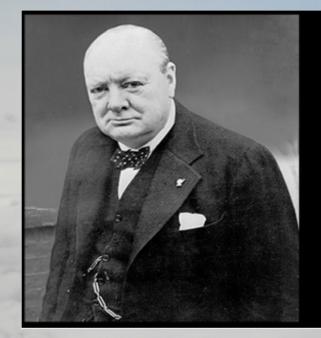
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## Power query and history

- Active Session History (Oracle has ASH) – to look back activities at any time.
- Incremental Wait Stats – to show point in time interval of database wait statistics information.

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Demo
- Active Sessions (and history)
- Incremental Wait Stats (and history)

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Take-away:



"Never let a good crisis go to waste."

- Winston Churchill

**Thank you for your time.**

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- Questions?

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