If you know someone who would benefit from being an Insider, feel free to forward this PDF to them so they can sign up here.

Note: As an Insider, you can read all prior Insider newsletters here.

Quick Tips for our Insider friends!

The last newsletter of the year comes to you from Redmond, where we had a very relaxing Christmas, and we're looking forward to 2025 and all the opportunities and challenges it's going to bring!

I know many of you really enjoyed my end-of-year book summary posts, which I did from 2009 to 2019. Then the pandemic hit and I lost my motivation for reading for three years. Last year I got the reading bug back but I didn't do a post… until now! Check out my summary of the 73 books I read in 2023 here. Over the next couple of days I'll do the 2024 summary and you can find it on my blog or in the next newsletter.

2025 is going to bring you new SQLskills recorded courses and I'm planning to update/revamp and re-release a large number of my blog posts to make sure they're up-to-date and completely relevant. Also look out for expanded coverage in my popular waits library. It's exciting!

SQLskills wishes you all the best for a healthy, happy, and prosperous 2025 – see you there!

Book Review

Here are a couple of reviews of wonderful books I read earlier this month…

Firstly, *The Watchmaker of Filigree Street* by Natasha Pulley. I bought this back in 2017 and it languished until I read another of Pulley's novels (*The Bedlam Stacks*) earlier this year. I devoured this book in three days - wonderful! One of the best things is the clockwork octopus, with randomized gears using weighted magnets. From Amazon: "1883. Thaniel Steepleton returns home to his tiny London apartment to find a gold pocket watch on his pillow. Six months later, the mysterious timepiece saves his life, drawing him away from a blast that destroys Scotland Yard. At last, he goes in search of its maker, Keita Mori, a kind, lonely immigrant from Japan. Although Mori seems harmless, a chain of unexplainable events soon suggests he must be hiding something. When Grace Carrow, an Oxford physicist, unwittingly interferes, Thaniel is torn between opposing loyalties. The Watchmaker of Filigree Street is a sweeping, atmospheric narrative that takes the reader on an unexpected journey through Victorian London, Japan as its civil war crumbles long-standing traditions, and beyond. Blending historical events with dazzling flights of fancy, it opens doors to a strange and magical past." Highly recommended!

Secondly, *The Lost Bookshop* by Evie Woods. This is a wonderful book that I stayed up till 2am finishing. From Amazon: "'The thing about books,' she said 'is that they help you to imagine a life bigger and better than you could ever dream of.' On a quiet street in Dublin, a lost bookshop is waiting to be found... For too long, Opaline, Martha and Henry have been the side characters in their own lives. But when a vanishing bookshop casts its spell, these three unsuspecting strangers will discover that their own stories are every bit as extraordinary as the ones found in the pages of their beloved books. And by unlocking the secrets of the shelves, they find themselves transported to a world of wonder… where nothing is as it seems." Highly recommended!

Ponderings…

(Vacation this week – so re-running a ponderings from Erin from 2020 about wait statistics – enjoy!)

One of the tenets of performance tuning that I follow with SQL Server is: Start with Wait Statistics.

It doesn't matter whether it's overall performance that is slow, a particular query that's slow, or any process/task/activity that's not performing as expected: Start with Wait Statistics.

When SQL Server 2005 was released, and the waits and queues methodology was introduced by Tom Davidson in his SQL Server 2005 Waits and Queues whitepaper, we could look at waits at the server level via *sys.dm_os_wait_stats*. To understand what a particular *session_id* was waiting on, we had to use *sys.dm_os_waiting_tasks* during query execution.

SQL Server 2016 introduced *sys.dm_exec_session_wait_stats*, so we can capture wait statistics for a particular *session_id* over time, but sometimes, the information in this DMV isn't granular enough, and I turn to Extended Events.

Extended Events has three wait-related events in the current release:

- wait_info
- wait_info_external
- wait_completed

With earlier versions of SQL Server, you may not see *wait_completed*, which is what I almost always use at this point when looking at session-specific wait statistics. If you use *wait_info*, typically you want to filter on *opcode = 1*, which means the wait completed. But if the *wait_completed* event is available, then I recommend using it.

Probably once a week I set up an event session that's looking at *wait_completed* waits for a specific session – and the frequent challenge is identifying the *session_id* use in my filter. If you don't have *session_id*, you can filter on the login or the hostname, assuming those are fairly

unique. The benefit of using Extended Events over *sys. dm_exec_session_wait_stats* here is that you get more granular information for the waits, notably the *wait_resource*.

For example, I was recently trouble-shooting an ETL process with a customer where the load had slowed down significantly. We started with a snapshot of wait statistics from *sys.dm_exec_session_wait_stats*, and I could quickly see that *LATCH_EX* was the highest wait. But that DMV doesn't provide any information specific to resource, so I then I switched to using the *wait_completed* event.

Understand that an Event Session with *wait_completed* can capture a significant amount of information – so configure accordingly. Very often with *LATCH_EX* waits I see a resource of *ACCESS_METHODS_DATASET_PARENT*, which would send me down a path of looking at reads and parallelism. But in this scenario, we saw a resource of *NESTING_TRANSCTION_FULL*, which meant I went down a slightly different path (writes and parallelism) for troubleshooting.

And that is exactly why I start with wait statistics: it helps determine the next direction to go when troubleshooting. Very often there are still multiple scenarios to investigate and rule out, and sometimes, the waits that manifest are not a bottleneck (which means I have to step back and look at different information to understand what's happening inside SQL Server). Whatever information I do find shapes the next action I take.

#TBT

(Turn Back Time…) Blog posts we've published since the previous newsletter plus some older resources we've referred to recently that you may find useful.

The #TBT this time is deadlocks so here are some resources for you:

- Jonathan's Pluralsight courses: *SQL Server: Deadlock Analysis and Prevention*
- The deadlock entry from our Accidental DBA blog-post series
- Jonathan's very long SimpleTalk article on *Handling Deadlocks in SQL Server*, which is an excerpt from his popular (and free) e-book *Troubleshooting SQL Server: A Guide for the Accidental DBA*

I hope you find these useful and interesting!

Video Demo

As we're all on vacation, I chose to share a clip from Jon's Pluralsight course SQL Server: Deadlock Analysis and Prevention. In the clip, Jon explains how (very common) reverse object

order deadlocks occur and can be diagnosed. Although this demo is from 2014, it's relevant to all versions of SQL Server.

The video is just over 4 minutes long and you can get in WMV format here.

You can get the demo code here.

Enjoy!

Upcoming SQLskills Events

Given how little changed with SQL Server 2022, we decided to record a series of updates relevant to our class material during 2023 and 2024 rather than running full classes. These were done as part of our Blackbelt Base Camp series and are available in our shop, and are free with a Blackbelt bundle.

With our streaming system, you can choose to attend a live, online event or purchase a recording to watch at your leisure, either individually or as part of a bundle. And all attendees of live events get lifetime access to the class recordings too!

To help your boss understand the importance of focused, technical training, we've also added a few items to help you justify spending your training dollars with us:

- Letter to your boss explaining why SQLskills training is worthwhile
- Community blog posts about our classes
- Immersion Event FAQ

You can get all the details on our training options page or just go directly to our shop.

Summary

I hope you've enjoyed this issue – I really enjoy putting these together. If there's anything else you're interested in, I'd love to hear from you - drop me a line.

Thanks,
Paul

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