(April 27th, 2021)

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!

This newsletter is coming to you from Redmond as usual, where we've just finished our spring IEPTO2 live, online class, and we're gearing up for two more short courses over the next few weeks! Erin's IEQS class on query store starts on Tuesday, May 4 and still has a few spots open…

Take care and stay safe out there!

SQLskills News

Live, ONLINE classes in 2021: our classes this year will be live-streamed online, as it's not feasible to run in-person classes for the foreseeable future. Just like our last deliveries, we'll be running them as a series of half-day sessions. Students love the split training days, from the comfort of watching in sweatpants to the ability to still get some of their regular duties accomplished. We had rave reviews for the format. And, all attendees of a live class receive lifetime streaming access to the recording of the entire class – something we'd never done before 2020!

Our remaining live, online classes for spring 2021 are as follows:

- **IEQS**: Immersion Event on Solving Common Performance Problems with Query Store
  - Three half-days: May 4-5-6, 2021
- **IEVLT**: Immersion Event on Very Large Tables: Optimizing Performance and Availability through Partitioning
  - Four half-days: May 17-18-19-20, 2021

These classes are available for registration individually or as part of a discounted bundle. You can get all the details on our training options page or just go directly to our new shop. However, before you buy, be sure to review all of the new options and discounts; we're very excited to offer our new Blackbelt Badge and Bundles**!**

Streaming recordings of all classes: we've built a new system that allows you to buy streaming access to all our class recordings. All classes are available for a complete year of access and a few heavily discounted courses for 90 days of access, plus you can purchase them individually or

as part of a discounted bundle. You can get all the details in our training options page or just go directly to our new shop.

Kandio job candidate assessments: we've teamed up with Kandio to produce technical assessments to help companies screen candidates for job recruitment. If you want to make sure someone really knows what they say they know, check out the assessments here.

Book Review

The latest book I've read is William K. Massie's *Dreadnought: Britain, Germany, and the Coming of the Great War*. What a magnificent page-turner, and a colossus of a book! I started this several times over the last ten years and kept getting distracted, but after devouring the first part of Winston Churchill's biography earlier this month, I resolved to start and finish this, and have read nothing else for the past few weeks. The book cover the events from the 1890s onward that drove the British and Germans to build their great fleets of capital ships before the advent of WWI. It also presents detailed backgrounds on all the major diplomats and ministers involved, plus coverage of international crises (such as the Boer War and Agadir) that helped inflame passions on both sides. Finally, it covers the lead in to Armageddon, from the perspective of both Berlin and London. It's a masterful work that I highly, highly recommend for anyone interested in world history.

The Curious Case of…

This section of the newsletter explains recent problems we've helped with on client systems; they might be something you're experiencing too.

While I was teaching IEPTO2 last week, I was discussing why sometimes a thread cannot be terminated using the KILL command. You can read about it in my blog post here…

Ponderings…

(From me again this time – I've been approached for corruption recovery help by a few people over the last few weeks, with the usual old backups and DBCC CHECKDB not being run regularly, so I thought I'd run this old gem past you – enjoy!)

I've had some discussions other the past few weeks about why it's necessary to run consistency checks regularly (for instance, I recommend a full *DBCC CHECKDB* every week if possible). The problem is the complete unpredictability of corruptions and the fact that as soon as you've examined a page for corruption and moved on, it could immediately become corrupt.

Here's a story. Imagine the Redmond Police Department has a Traffic Control Center and employs Officer Paul. Paul's job is to sit in the control room looking at video images of traffic

junctions in the city, waiting for a traffic accident to occur and immediately notifying dispatch that help is required at whatever junction.

It's obviously a really boring job, so it's not uncommon to find Officer Paul staring slack-mouthed at his screen with drool starting to slowly puddle on his desk…

Anyway, imagine that today Officer Paul looks at the image for junction #1 for ten seconds. Nothing happens. He presses the button to watch junction #2 for ten seconds. Nothing happens. He presses the button to watch junction #3. As soon as he starts looking at junction #3, there's an accident at junction #2. He won't know until he cycles through all the junctions and arrives back at #2 again.

There's no way for Officer Paul to get any guarantee that an accident won't happen at a junction he's just looked at, once he stops looking.

This is an analogy of how *DBCC CHECKDB* examines the pages in a database. Each page is read from disk once by *DBCC CHECKDB*, and as soon as the page has been read from disk, it could become corrupt on disk, and you won't know until the next time *DBCC CHECKDB* runs. The only thing *DBCC CHECKDB* can tell you is that at the time it read all the pages in the database, there were no corruptions. It doesn't provide a guarantee that at the time it finishes, there are no corruptions in the database, as it can't possibly know that.

Another variant of this is thinking that if a backup completes, it will restore perfectly.

No.

The I/O subsystem is what I call an 'equal-opportunity corruptor' :-) If it has problems, it will happily corrupt anything stored on it.

You need to have multiple copies of backups and you need to test a full restore sequence regularly. We always recommend having the database option *PAGE_VERIFY CHECKSUM* turned on and then when you perform a backup, you should always use the *WITH CHECKSUM* option. Finally, run a *RESTORE VERIFYONLY ... WITH CHECKSUM* to make sure the backups you are taking are valid. Even better is to take them to another system and restore them.

Call to action: You will all see corruption at some point in your careers, so expect it and prepare for it. You need to run regular consistency checks and you need to regularly test your backups are valid. There are no guarantees around corruption, only increased peace of mind.

(PS 2021: I still stand by this advice, whether you're running on-prem, in the cloud, de-duped, AGs, whatever. Corruption can strike anywhere!)

#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 transaction log is the theme for #TBT this time. Here are some transaction log resources for you:

- My 8-hour Pluralsight courses: *SQL Server: Logging, Recovery, and the Transaction Log*
- My *transaction log blog category*
- My *sqlperformance.com blog posts* on transaction log configuration and performance troubleshooting
- Kimberly's post on *VLF sizing*
- My TechNet Magazine article on *Understanding Logging and Recovery in SQL Server* (the formatting is messed up a bit on that web page)
- The *WRITELOG* page from my waits library

And some blog posts since the last newsletter:

- Paul: *Small bug with sample_ms in sys.dm_io_virtual_file_stats*

I hope you find these useful and interesting!

Video Demo

In this Insider video, Tim continues his series of Azure related videos by showing how to properly size an Azure Virtual Machine, primarily focusing on how to capture your disk I/O throughput requirements and narrowing down which Azure VMs can potentially meet your needs. Selecting the proper size Azure VM is crucial for making sure that your VM can support your workload. Understanding how to capture your I/O throughput is a key factor to ensure proper performance.

The video is 12 minutes long and you can get it in MP4 format here.

Enjoy!

Upcoming SQLskills Events

Our 2021 classes are entirely online in the spring and they're open for registration!

With our new streaming system, you can now 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

LIVE, Online Immersion Events:

Spring 2021

- **IEAzure**: Immersion Event on Azure SQL Database, Azure VMs, and Azure Managed Instance
  - Completed
- **IEPTO1**: Immersion Event on Performance Tuning and Optimization – Part 1
  - Completed
- **IEPTO2**: Immersion Event on Performance Tuning and Optimization – Part 2
  - Completed
- **IEQS**: Immersion Event on Solving Common Performance Problems with Query Store
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Summary

We hope you've enjoyed this issue - we really enjoy putting these together.

If there is anything else you're interested in, we'd love to hear from you - drop us a line.

Thanks,
Paul and Kimberly

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