(September 1st, 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 Concrete, WA, where I'm still camping and working on our land – it's so peaceful out here!

Through September we're knocking US$500 of the price of a server audit for new clients – only US$2,495 for a comprehensive review – contact us here!

Take care and stay safe out there!

SQLskills News

SQLskills Fall/Winter Classes!

All classes below include lifetime access to class recordings and materials. Details are available through our shop page, and click on the class names below to see more about each class.

Let us know if you have any questions and make sure to check out the bundles at the bottom for amazing cost savings!

IEPTO1: Performance Tuning and Optimization, Part 1

- 10 half days: October 11-15 and October 18-22, 2021 (9am-2pm Pacific)
- Early-bird price US$3,495 through September 1, then US$3,995
- Alumnus price US$3,295

IECAG: Clustering and Availability Groups

- 4 half days: November 1-4, 2021 (8am-1pm Pacific)
- Early-bird price US$1,495 through September 13, then US$1,695
- Alumnus price US$1,295

IECS: Columnstore Indexes

- 3 half days: November 16-18, 2021 (8am-1pm Pacific)
- Early-bird price US$795 through September 30, then US$995
- Alumnus price US$695

IEPTO2: Performance Tuning and Optimization, Part 2

- 10 half days: November 29-December 3 and December 6-10, 2021 (8am-1pm Pacific)
- Early-bird price US$3,495 through October 17, then US$3,995
- Alumnus price US$3,295

IEAzure: Azure SQL Database, Azure VMs, Azure Managed Instance

- 7 half days: January 10-13 and January 18-20, 2022 (9am-2pm Pacific)
- Early-bird price US$2,895 through November 14, then US$3,295
- Alumnus price US$2,695

IE0: Accidental and Junior DBAs

- 8 half days: Moving to early 2022 (8am-1pm Pacific)
- Early-bird price US$2,895 through September 1, then US$3,295
- Alumnus price US$2,695

Live Performance Tuning Bundle (IEPTO1 and IEPTO2)

- Early-bird price US$4,995 through September 13, then US$5,995
- Alumnus price US$4,695
- Only available for purchase through October 9

Live Blackbelt Bundle

- All above classes except IE0, plus recordings of IEQS on Query Store and IEVLT on Very-Large Tables/Partitioning
- Early-bird price US$7,995 through September 13, then US$9,995
- Alumnus price US$7,295
- Only available for purchase through October 9

All the details are in our online shop. Also, be sure to check out our suggested Learning Paths, based on where you are in your data professional career.

If you're an alumnus of one of our prior courses, your online account will automatically give you an ADDITIONAL 5% discount off any recorded course and direct access to all of our alumnus pricing above. If you don't already have an account on our system – but you are a prior student (of ANY Immersion Event) – please send Kimberly an email to help you get the best price on your first course. Once you're in the system, your "member pricing" will reflect the alumnus discounts!

Book Review

The latest book I've read is Kim Stanley Robinson's *Galileo's Dream*. It's a brilliant mixture of historical narrative and science fiction. From Amazon: "At the heart of a provocative narrative

that stretches from Renaissance Italy to the moons of Jupiter is the father of modern science: Galileo Galilei. To the inhabitants of the Jovian moons, Galileo is a revered figure whose actions will influence the subsequent history of the human race. From the summit of their distant future, a charismatic renegade named Ganymede travels to the past to bring Galileo forward in an attempt to alter history and ensure the ascendancy of science over religion. And if that means Galileo must be burned at the stake, so be it. From Galileo's heresy trial to the politics of far-future Jupiter, Kim Stanley Robinson illuminates the parallels between a distant past and an even more remote future—in the process celebrating the human spirit and calling into question the convenient truths of our own moment in time." Highly recommended!

The Curious Case of…

This section of the newsletter explains recent problems we've helped with on client systems or been asked about over email or #sqlhelp; they might be something you're experiencing too.

If you have a bunch of data stored on SSDs and you plug them in a few years later, can you expect all the data to be there still? Jonathan was surprised earlier this year when he found that the answer is no. You can read all about it in Jon's blog post here…

Ponderings…

(From me this time– enjoy!)

A question that sometimes comes up in email or a class is: *why is it that sometimes corruptions seem to disappear?*

The situation is commonly as follows:

- There is a regular SQL Agent job that runs DBCC CHECKDB
- One morning the DBA finds that the job failed, reporting corruptions in one of the databases
- The DBA runs DBCC CHECKDB on that database again, but this time there are no reported corruptions

This can lead the DBA to mistrust DBCC CHECKDB. Remember the SQL Server 2000 days where sometimes DBCC CHECKDB occasionally reported corruptions when there weren't any?

Those days are thankfully long-gone now: if DBCC CHECKDB reports corruption, then ***at that time*** there was definitely corruption.

Think about what DBCC CHECKDB is doing: it reads and processes all the allocated pages in the database – all the pages that are part of tables and indexes at the time that DBCC CHECKDB

runs. It doesn't check *all* the pages in the data files; only those that are currently being used. The pages that are not currently allocated to an object cannot be checked as there's no "page history" maintained. There's really no way for DBCC CHECKDB to tell if they have ever been used before or not and since they're not currently allocated there's no valid page structure on them and no past to verify.

And, if your database is still being accessed then the set of allocated pages can change after DBCC CHECKDB runs. A simple example of this occurring is:

- Nonclustered index X of table Y has some corrupt pages in, which the DBCC CHECKDB (being run by a SQL Agent job) reports
- Another SQL Agent job runs and performs index maintenance where it rebuilds index X (the rebuild operation always builds a new index and then drops the old index)
- The DBA runs DBCC CHECKDB manually and there are no corruptions reported in the new index structure

Nonclustered index corruption is the best kind of corruption to have. The rebuild operation rewrote the index to a new set of pages and deallocated the pages that had corruption. When DBCC CHECKDB is run manually, those new pages are not corrupt and the old pages are not checked, as they are no longer in use.

These kind of 'disappearing' corruptions are a problem because it's almost impossible to investigate them further. However, they could indicate a problem with your I/O subsystem. If you find that they're occurring repeatedly, consider briefly preventing the process that causes the corrupt pages to be deallocated so you can investigate the corruption.

Another cause of disappearing corruptions can be transient I/O subsystem problems, where page reads sometimes fail outright and then succeed after that.

Call to action: From SQL Server 2005 onward, if DBCC CHECKDB reports corruption, then at the time that it ran there definitely was corruption. Make sure you don't just ignore the problem as next time the corruption occurs, you may not be so 'lucky' that it just seemed to disappear.

#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 about identifying and fixing esoteric query plan performance issues, and Joe recorded four excellent courses on this:

- *SQL Server: Common Performance Issue Patterns*
- *SQL Server: Common Query Tuning Problems and Solutions – Part 1*

- *SQL Server: Common Query Tuning Problems and Solutions – Part 2*
- *SQL Server: Troubleshooting Query Plan Quality Issues*

And since the last newsletter, blog posts:

- Paul: *The_APPEND_ONLY_STORAGE_INSERT_POINT_Latch* (part of my series on latches on SQLPerformance.com)
- Paul: *Indexing Strategies for SQL Server Performance* (on the SentryOne blog)

I hope you find these useful and interesting!

Video Demo

This time Erin talks about options for managing statistics – beyond just a maintenance task or one job and she steps through how can you fine tune your stats job(s) to better use your maintenance window and system resources.

The video is about 12.5 minutes long and you can get it in WMV format here.

The demo code is here.

Enjoy!

Upcoming SQLskills Events

Our Fall/Winter 2021-2022 classes are all 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:

Fall/Winter 2021-2022

- **IEPTO1: Performance Tuning and Optimization, Part 1**
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- **Live Performance Tuning Bundle (IEPTO1 and IEPTO2)**
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- **Live Blackbelt Bundle**
  - All above classes except IE0, plus recordings of IEQS on Query Store and IEVLT on Very-Large Tables/Partitioning
  - Only available for purchase through October 9

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

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

Paul@SQLskills.com and Kimberly@SQLskills.com