

(March 26th, 2019)

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!

Hey Insiders,

This newsletter is coming to you from Redmond, where we're watching Jonathan's online class on columnstore that started today. This is our final course of a 6-part series and we've really had a great time; hopefully you've been able to join us online. If not, we're planning more online courses for later in the year!

Note: our April/May classes are starting to sell out – don't delay and be disappointed!

SQLskills News

You can find all the details of our upcoming classes (pricing, logistics, registration, curricula) by drilling down from the class schedule page [here](#), and there's a list of classes at the bottom of the newsletter.

If you're looking for a great place to learn best practices in migration, troubleshooting, and performance, join us in Florida in June for our [SQLintersection](#) conference where we're going to focus on this incredibly important process. SQLintersection will not only help you migrate to a newer version of SQL Server but it will teach you the best new features to leverage once you're there! We've got an incredible line-up this Spring and our sessions are being posted this week so now's definitely time to plan to join us in June!

Live, ONLINE classes: we've finished our first set of live, online classes and we'll announce the Fall line-up at the start of the summer.

Live, IN-PERSON classes: we're back in Chicago in April/May 2019 and our classes are open for registration, including a **new class on Power BI** taught by Tim. We've decided that these classes (in Chicago in April/May) are our ONLY in-person, Immersion Events for this year. We are not planning any events in the Fall or in Europe due to other commitments, conferences, and online training. **Many classes are close to selling out!**

Finally, even if you can't join us in person, I've put out a call for **2019 remote user group sessions** and we've got 32 scheduled this year already! If you'd like one of us to present for your user group, check out my blog post [here](#).

Book Review

A recent book I've read is Colm Toibin's [*The Blackwater Lightship*](#). It turns out I've read this before, back in 2011, and I realized half-way through but I finished it because it's so good. It's a really excellent story about a set of estranged Irish women (daughter, mother, grandmother) who are forced back together as they deal with the decline of the daughter's brother who is gay and very close to dying of AIDS (which they didn't know until one of his friends turns up out of the blue). Toibin does a great job of exploring their emotions as daughter and mother slowly reconcile, and the daughter recollects the events leading to all the estrangement. More interesting reading it this time around as I've been to Dublin and around in Ireland a lot since 2011 and know all the places described. Highly recommended!

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.

I was asked last week why sometimes it's impossible to kill a running *DBCC CHECKDB*.

Read more about why that's the case in my blog post [here](#).

Ponderings...

(From Erin this time...)

At the end of February, I presented a full day workshop at SQLBits on the topic of workload tuning. Performance tuning is always an area of interest at conferences and when talking to customers, but notice I used the phrase *workload tuning*, not *query tuning*.

Very often, when asked to troubleshoot a performance issue, the tendency is to focus on one, or a few, queries that are not performing well. We try to tune those queries so that they run better, and then declare victory. Eventually we get pulled into another problem with performance, and the pattern repeats.

Rather than just fixing individual queries that aren't running well, I think it's important to step back and look at the solution holistically. Tuning the workload doesn't mean we stop tuning individual queries; it means we start looking for patterns in a workload and start addressing the patterns we find across sets of queries.

As an example, most of you have probably looked at your plan cache at one time or another to see if you have ad hoc queries, and if you did, you probably enabled the instance-level setting 'optimize for ad hoc workloads'. Beyond that, you *might* have implemented a SQL Agent job to regularly remove those ad hoc plans from cache.

Those are good steps for *managing* an ad hoc workload, but it doesn't solve the problems *created* by an ad hoc workload. In addition to plan cache bloat, high compilations and high CPU are typical symptoms, and in a lot of cases, companies throw hardware at the problem rather than making changes to the code.

Does tuning an ad hoc workload mean you need to parameterize every query? Absolutely not!

There are challenges with parameterized queries and procedure-based workloads as well. But you do need to identify the type of workload you have (and it could be mixed – with both ad hoc and parameterized queries), determine what pattern is causing your performance problems, and work from there. In the case of an ad hoc workload, sometimes parameterizing just a handful of queries can make a big difference, particularly if they are executed very frequently (e.g. hundreds or thousands of times a minute).

Once you address one pattern in a workload, it's not uncommon to see another bubble up. We've had customers that use table variables throughout their code, and then run into issues related to cardinality estimates. When we demonstrate that a cardinality estimate issue with a table variable may be resolved by using a temporary table, the company changes the code across the board to use temporary tables...and then they run into issues with tempdb contention.

Tuning is often trading one problem for a different, but hopefully smaller and more manageable problem. The trick is to know what those problems are, how to identify them, and how to keep them in check. There is rarely, if ever, a silver bullet when performance tuning.

Call to action: Step back and take a look at your workload as a whole. Is it ad hoc, procedural, or a combination? What are your typical waits, and when you have issues, how do your wait statistics change? Rather than identify a few queries which consume the most resources, take the longest, or run most often, can you identify *patterns* in your queries that you can address?

Glenn's Tech Insights

Recent news and views from the hardware and Windows worlds that we think will be interesting to SQL Server community members.

In Glenn's regular roundup of tech news this time he talks about the following:

- The new SPOILER CPU exploit and how AMD processors aren't vulnerable
- New 100GbE OCP NIC 3.0 adapters and Comet Lake processors from Intel
- Speculation around AMD's upcoming Ryzen 3000 processor performance
- How Intel is trying to change their image with consumers and enthusiasts

Check it all out on his blog [here](#).

#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.

Here are a few of the blog posts we've published since the last newsletter:

- Tim: [What is Azure SQL Database Hyperscale](#)
- Glenn: [How to Handle Power Grid Failure](#)
- Glenn: [Why You Need SQL Server Upgrade Knowledge](#)
- Jonathan: [Backup your Reporting Services Encryption Key](#)
- Erin: [Extended Events in Azure Data Studio](#)

The theme for the TBT this time is tempdb:

- Joe's Pluralsight course: [SQL Server: Temporary Objects](#)
- Whitepaper: [Working with tempdb in SQL Server 2005](#) (still relevant today)
- Paul's blog posts:
 - [SQLskills SQL101: Temporary table misuse](#)
 - [Correctly adding data files to tempdb](#)
 - [The Accidental DBA \(Day 27 of 30\): Troubleshooting: Tempdb Contention](#)
 - [Tempdb configuration survey results and advice](#)
 - [A SQL Server DBA myth a day: \(12/30\) tempdb should always have one data file per processor core](#)
 - [Misconceptions around TF 1118](#)

I hope you find these useful and interesting!

Video Demo

In this week's Insider Video Erin goes back to basics with a review of ad hoc versus parameterized queries so that as you start to look at your workload and overall performance, it's clear what type of queries are worth reviewing in more detail.

The video is just over 9 minutes long and you can get it [here](#).

The demo code is [here](#).

Enjoy!

Upcoming SQLskills Events

Our set of 2019 live, in-person events for Chicago in April/May are quickly filling up and we've just wrapped up our Q1 live, online classes.

You still have multiple learning opportunities as every event has a different focus as well as different benefits – from deep-technical training in our Immersion Events to wide-ranging topics at SQLintersection where you can learn more effectively how to keep moving forward in both your environment and your career! And, of course, one benefit you'll always get from in-person events is networking; we hope to meet/see you at an event soon!

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](#)
- [So why do you want to come to our training? And the winners are...](#)
- [Community blog posts about our classes](#)
- [Immersion Event FAQ](#)

LIVE, IN-PERSON Immersion Events:

Chicago, IL, April/May 2019

- **IEPTO1:** Immersion Event on Performance Tuning and Optimization – Part 1
 - April 29-May 3 **** 2 seats remaining ****
- **IECAG:** Immersion Event on Clustering and Availability Groups
 - April 29-30 **** 4 seats remaining ****
- **IEPowerBI:** Immersion Event on Power BI, Power BI Report Server, and SSRS
 - April 29-30 **** NEW ****
- **IE0:** Immersion Event for the Junior/Accidental DBA
 - May 1-3 **** 4 seats remaining ****
- **IEUpgrade:** Immersion Event on Upgrading SQL Server
 - May 1-3
- **IEPTO2:** Immersion Event on Performance Tuning and Optimization – Part 2
 - May 6-10 **** 2 seats remaining ****
- **IEPML:** Immersion Event on Practical Machine Learning
 - May 6-10
- **IEAzure:** Immersion Event on Azure SQL Database, Azure VMs, and Azure Managed Instance
 - May 6-9 **** SOLD OUT ****

LIVE, ONLINE Immersion Events:

- The Fall class lineup will be announced at the start of the summer

Click [here](#) for the main Immersion Event Calendar page that allows you to drill through to each class for more details and registration links.

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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