(June 2nd, 2020)

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 still social distancing and reeling a bit this morning from the violence and looting that happened over the weekend around the Seattle area. Tim and I are still helping people out using our six 3D printers to make mask straps that take pressure off of ears (see here) we've printed and shipped/donated more than sixteen thousand between us so far. We figure we'll be printing these through the end of the year.

Many thanks to random community members who've PayPal-donated towards costs, as well as the $500 each that RedGate donated. If you know anyone who could use some free straps, hit me or Tim up in email – don't be shy – I ship in units of 10s and 100s and I'm taking requests for shipments in the second week of June.

And we also created a SQL Server 3D Printing Facebook group – check it out here.

I hope you all stay safe and healthy!

SQLskills News

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.

Online class recordings: you can buy recordings of all our online classes, for as little as US$299 each. See here for all the details.

Live, ONLINE classes: our classes this year will all be online in the September-November timeframe. All the details will be worked out before the next newsletter.

- IEPTO1: Performance Tuning and Optimization, Part 1 – dates TBD
- IE0: Accidental/Junior DBA – dates TBD
- IECAG: Clustering and Availability Groups – dates TBD
- IEReporting: Using and Administering SSRS/PowerBI – dates TBD
- IEPTO2: Performance Tuning and Optimization, Part 2 – dates TBD

- IEAzure: Azure SQL DB, Azure VMs, Azure Managed Instance – dates TBD

You can get all the details and registration information through the class schedule page here.

EIGHTKB: Erin is presenting as part of a free, online conference on SQL Server internals on June 17th – check out the details here.

SQLBits: Kimberly, Erin, and I will all hopefully be presenting at SQLBits in London in September. Our precons are:

- Paul: Performance Troubleshooting using Waits and Latches SOLD OUT!!
- Erin: Performance Tuning with Query Store in SQL Server and Azure
- Kimberly: Statistics4Performance: Internals, Analysis, Problem Solving

SQLintersection: The Spring show has been canceled and everything has moved to the Fall show in Las Vegas in December. More details here nearer the time.

Finally, even if you can't join us in person, I've put out a call for **remote user group sessions for 2020!** If you'd like one of us to present for your user group, check out my blog post here.

Book Review

From the archives: Back in 2016 I read James Gleick's *The Information: A History, A Theory, A Flood*. This is an excellent history of the methods of dissemination of information (think printing press, visual telegraph, morse code), and on the creation and development of the various facets of information theory, including quantum computation and genetics. Dense, but very interesting, and 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.

Last week someone asked why they were seeing varied results from select * while the table was being updated. You can read through my explanation here…

Ponderings…

(From me this time. This is an editorial from 2016 that's just as relevant now as it was back then. Enjoy!)

While my first cup of coffee was brewing on Saturday morning, I quickly checked my email and saw an interesting question, which I'll paraphrase here:

To be able to tune the performance of a stored procedure is it necessary to understand all the code in the procedure?

And then I went outside to join Kimberly in the hot tub and we got into a debate about the answer. Can you guess what conclusion we came to?

My first thought was that you at least have to know the aim of the procedure, such as roughly how many rows it should return, so you can judge whether the query plan looks pretty optimal for the goal of the procedure, and to do that you'd need to understand some of the code.

Kimberly countered that some simple troubleshooting could help you to understand *what the problem might be* by saying you could add *OPTION (RECOMPILE)* to offending statements, which she discusses in this post. If the performance and the plan shape changes drastically (because the statement gets a new plan each time it's executed), then you'd know it's a parameter sensitivity issue. Technically, that wouldn't require any understanding of the procedure's code and would prevent parameter sensitivity problems from using a plan that worked well for some parameters but not others.

She cautions that this should not be a long term solution but it might be a good and very simple test to get a feel for where the problem is. Permanently fixing it might mean leaving *OPTION (RECOMPILE)* in the procedure or it might mean some code changes so that you don't recompile *every* time. Kimberly has another post that addresses some of the ideas and options here.

But what if you're trying to troubleshoot something like excessive *PAGEIOLATCH_SH* waits coming from the procedure's execution? You need to know whether it's expected for the procedure's plan to be driving reads or not – so you do need to have *some* information…

Kimberly made a further point that sometimes if a procedure has grown very complex over time (sometimes years of change after change after change), it may be better to spend time understanding all the goals of the procedure and try writing the functionality from scratch. This is especially true if the code is old and manually implements some functionality that is now natively present in T-SQL, like windowing functions, for example.

We debated some more and agreed that although it's usually not necessary to understand every line of code, usually, it *is* necessary to understand the aim of the procedure and metrics like how often it will be executed.

I reckon that most of you probably guessed that we'd come to the consclusion "it depends", but our conclusion is "generally, no, most of the time you don't need to understand all the code in a procedure to tune it".

Call to action: as with any performance tuning, the more information you have about the problem and what it is you're tuning, the more easily you'll be able to tune. Understanding what

problem you're trying to solve is the key to efficient performance tuning – I don't think it's worth the time poring over every line of a procedure before tuning it as there are many things you can do with very limited knowledge of what the procedure's code is going.

#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 around stored procedures, so here are some resources for you:

- Kimberly's post: *SQLskills SQL101: Stored Procedures*
- Kimberly's course: *SQL Server: Optimizing Stored Procedure Performance*
- Kimberly's course: *SQL Server: Optimizing Stored Procedure Performance – Part 2*
- Kimberly's *Optimizing Procedural Code* blog post category

Here are some blog posts we've published since the last newsletter:

- Paul: *Try one of our new MySQL candidate screening tests at Kandio!*
- Tim: *Azure SQL Managed Instance Default Values for Query Store and TDE*
- Jonathan: *Recycle Fulltext Catalog Log Files*

I hope you find these useful and interesting!

Video Demo

In this Insider video, Tim shows a few recent changes to the default behavior for Azure SQL Managed Instance databases. Specifically how encryption is now enabled by default for any newly-created databases. Likewise, Managed Instance also is now enabling Query Store for newly created databases as well. With transparent data encryption being on by default, this has a direct impact on COPY_ONLY backups that Tim goes over and discusses how you can mitigate that behavior. As with most things in Azure, they are constantly evolving. With these two changes, Tim feels they are positive changes for most customers and puts Managed instance defaults more in-line with Azure SQL Database. Tim has also blogged about these changes here.

The video is about 5 minutes long and you can get it here.

Enjoy!

Upcoming SQLskills Events

Our 2020 classes have moved to Fall and are all open for registration!

You 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 a more broad set of topics at SQLBits / SQLintersection! 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, Online Immersion Events:

Fall 2020

- **IEPTO1**: Immersion Event on Performance Tuning and Optimization – Part 1
  - Dates TBD
- **IEReporting**: Immersion Event on Using and Administering SSRS and Power BI
  - Dates TBD
- **IE0**: Immersion Event for the Junior/Accidental DBA
  - Dates TBD
- **IECAG**: Immersion Event on Clustering and Availability Groups
  - Dates TBD
- **IEPTO2**: Immersion Event on Performance Tuning and Optimization – Part 2
  - Dates TBD
- **IEAzure**: Immersion Event on Azure SQL Database, Azure VMs, and Azure Managed Instance
  - Dates TBD

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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