(April 24th, 2017)

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.

Quick Tips for our Insider friends!

Hey Insiders,

Today we're starting three weeks of classes in Chicago, with IEPTO1, IESSIS1, and IE0 running simultaneously – just in the first week! Over the following two weeks, we're also running: IEPTO2, IEBI, IEHADR (for the FINAL delivery), IEPDS, and IEPS; we're looking forward to seeing our entire SQLskills team as well as our 160+ students here in Chicago over these three weeks.

Note: you can get all the prior Insider newsletters here.

SQLskills News

We've published a new Pluralsight course since the last newsletter – *SQL Server: Understanding and Using Azure SQL Database* – check it out here.

Many of our Chicago courses are sold-out but we still have a few seats remaining for IEBI, IEHADR, and IEPS; we hope you can join us. **Also, please remember that our May delivery of IEHADR will be the very last delivery of this course.**

We've just released our October line-up of classes in Chicago, including IE0, IEPTO1, IEPTO2, IEPDS, IESSIS1, plus a **new two-day class on Azure SQL Database and Azure VMs** and a **new three-day class on Upgrading SQL Server**. See here for the complete 2017 SQLskills Immersion Event class schedule.

Our Spring SQLintersection conference is also fast approaching at the end of May, and we have a phenomenal line up of workshops, sessions, and speakers (including Joe Sack, Buck Woody, Brent Ozar, and Bob Ward!). Check out this blog post for all the details, and use the discount code 'sqlskills' when you register to save $50.

We've started a new initiative where we're all blogging about introductory topics, to help the burgeoning numbers of non-DBAs or junior DBAs who are responsible for SQL Server instances. We're calling it SQL101, and hopefully it'll even help refresh or reinforce topics for the more seasoned DBAs in the community. The blog posts will be automatically collected here.

Even though we're not teaching any Immersion Events in Europe this year, Kimberly and I will both be **presenting at SQLSaturday #620 in Dublin in June**.

Finally, even if you can't join us in person, we're still taking requests for remote sessions for this year. We have 70 scheduled so far; if you'd like one of us to present for your user group, check out my blog post here.

Book Review

The latest book I've read is Francis Fukuyama's *[The Origins of Political Order: From Prehuman Times to the French Revolution](#)*. This is an excellent book that examines the historical record of state formation in China, India, the Middle East, and Europe, showing how human society transitioned from band- to tribal- to state-level societies.

It gives the history of the development of the three components of a modern political order - a strong and capable state, the state's subordination to the rule of law, and government accountability to all citizens, and shows how the first large country to attain the combination of these three components was England.

Fukuyama proposes that political development through the ages is akin to biological evolution, with differentiation and convergence of political institutions, and shows how more effectively organized societies defeated and assimilated less effective ones, and then proliferated their own form of social organization.

It's a deep and eloquent book, and certainly isn't light reading, and I'm looking forward to reading Fukuyama's concluding volume, *Political Order and Political Decay*. Highly recommended!

The Curious Case of…

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

Kimberly was recently working with a client who was having performance problems, with inserts into a particular table taking hundreds of milliseconds for each row being inserted, and index maintenance taking a long time to run. The client could show that all the nonclustered indexes were being used, so couldn't figure out what to do.

After starting to investigate the index definitions, Kimberly noticed that there were duplicate indexes on the table, but all the indexes were showing up as used in the monitoring being performed using the *sys.dm_db_index_usage_stats* DMV.

It turns out that SQL Server can pick any of the duplicate indexes for a query plan, and the client had code that was recompiling and causing different duplicate indexes to be used, hence the output from the index usage monitoring.

Kimberly used her duplicate-index-finding code from her blog post here and removed 16 duplicate indexes from the table, and then did some manual consolidation to remove a further 4 indexes, leaving a total of 12 nonclustered indexes. That fixed the insert performance problem and removed 20 indexes from having to be defragged during index maintenance too.

Bottom line: Be careful to prevent duplicate indexes being created (remember, some indexes might not look like they're dupes but internally, they are!), as SQL Server will happily let you create them. Regularly monitoring for unused and duplicate indexes is a good way to help keep your workload and regular maintenance performing well.

Paul's Ponderings

Over the last few months we've come across quite a few client engagements where the client was really afraid to make a simple change we'd recommended and fully explained and justified. I was going to write about this for the newsletter but then I remembered that Glenn had written a great editorial on this topic five years ago, so I'm re-running it, with a few comments. Enjoy!

Over the course of my career, I have encountered a number of what I would consider to be "overly cautious and fearful" database administrators and organizations. For a variety of reasons, they have an outlook and mindset that exaggerates the normal and good tendency of a DBA to be cautious and methodical to the point where the DBA becomes nearly paralyzed with the fear of making a critical mistake on a production database server.

Comment: A situation I've seen several times is where the client has contract DBAs provided by very large, global consulting firms, and those DBAs aren't experienced enough to be confident in their jobs (don't get me wrong – I'm not complaining about contract DBAs in general). I find this to be quite annoying, as these clients are paying for non-service; it's even worse when they later have to pay someone who's actually knowledgeable and experienced to fix their problems.

This often manifests itself as a deep resistance to doing any sort of routine maintenance or making any configuration changes or updates to an existing production database server. Because of this, it is very common to see database servers that have not been updated in any way since they were first provisioned, possibly several years ago. They are still running with the original main system BIOS, original firmware, original drivers and the original build of SQL Server that was installed when the server was first setup. No configuration changes have been made, no index or query tuning has happened, you get the picture…

Comment: I actually saw a 2000 RTM system recently; which I'm amazed didn't get taken down by the infamous Slammer worm.

I am always reminded of Franklin D. Roosevelt's powerful line from his first inaugural address in 1933, which is: *"So, first of all, let me assert my firm belief that the only thing we have to fear is fear itself—nameless, unreasoning, unjustified terror which paralyzes needed efforts to*

convert retreat into advance." Whenever my own fear of doing something starts to rise, I always think of this line, and the sentiment behind it.

After you have used your own best judgment and experience to decide whether or not you should do something, after you have planned and tested the steps to the best of your ability, at some point you have to reach down and find the courage to go ahead and do it, according to your plan. Otherwise, you will be one of those fearful DBAs, afraid to do anything, because you might fail and it's actually harmful to you and your organization in the long run.

Comment: Planning and testing are key here – to be able to prove to yourself and your organization that the planned course of action is the right way to go.

But what happens if you make a mistake, won't you get in trouble or maybe even get fired? If you are a competent and experienced DBA, and you make an honest mistake doing something that needs to be done, you will probably be just fine. Especially in the current job market, your organization probably needs you much more than you think! It is extremely difficult to find experienced, good DBAs right now, and I don't see that situation changing that much in the next few years.

Comment: And this is still the case. Plus, doing risk analysis and having a plan for what to do if the course of action fails, or becomes detrimental to performance can help prove that you didn't recklessly make changes without carefully considering the consequences. That's not being fearful, that's being prudent and thorough.

Call to action: Of course, this is not an excuse to be completely reckless. You still need to learn as much as you can about SQL Server, and gain the experience to turn simple knowledge into real wisdom. You need to be careful and methodical, with a well thought out and tested plan of action. But after all of this preparation, you ultimately still have to be brave enough to do the right thing!

<u>Video Demo</u>

In this demo video, Jonathan shows you how to extract a DLL from SQL Server for a SQLCLR assembly for use with a free tool named ilSpy that can decompile the assembly to allow you to view how the CLR code was written.

The video is about 5 minutes long and you can get it:
- In WMV format here
- In MOV format here

And the demo code is here.

Enjoy!

#TBT

(Turn Back Time…) This section of the newsletter highlights some older resources we've referred to recently that you may find useful, plus select blog posts we've published since the previous newsletter.

Several email questions I've answered over the last week involved giving links to blog posts where I've debunked common myths around SQL Server, so that's the theme for #TBT this time. Here are some myths resources for you:

- The very first Pluralsight course we (I) recorded: *SQL Server: Myths and Misconceptions* that has almost four hours covering a plethora of SQL Server myths.
- My blog post series from April 2010 – *A SQL Server DBA Myth A Day* – and this blog post has links to all 30. Some of the later ones had 20+ myths busted in one post, as I got a bit carried away ☺
- The same blog post series, but organized as a handy PDF file.

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

- Paul: *SQLskills SQL101: Restoring to an earlier version*
- Glenn: *SQLskills SQL101: Using DDL Triggers*
- Glenn: *SQL Server 2014 SP2 Cumulative Update 5*
- Glenn: *SQLskills SQL101: Processor Selection for SQL Server*
- Glenn: *Performance and Stability Related Fixes in Post-SQL Server 2016 SP1 Builds*
- Glenn: *SQL Server Diagnostic Information Queries for April 2017*
- Tim: *SQLskills SQL101: File Extensions for SQL Server Database Files*

I hope you find these useful and interesting!

Upcoming Immersion Events

All 2017 classes are available for registration!

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

Chicago, IL, May 2017 (only showing classes with seats remaining)

- **IEBI**: Immersion Event on Business Intelligence

- o May 1-5 **** Only 4 seats remaining! ****
- **IEPS**: Immersion Event on Powershell
  - o May 8-10 **** Only 4 seats remaining! ****
- **IEPDS**: Immersion Event on Practical Data Science
  - o May 8-12 **** Only 1 seat remaining! ****
- **IEHADR**: Immersion Event on High Availability and Disaster Recovery
  - o May 8-12

Bellevue, WA, July/August 2017

- **IEPTO1**: Immersion Event on Performance Tuning and Optimization – Part 1
  - o July 31-August 4
- **IEPTO2**: Immersion Event on Performance Tuning and Optimization – Part 2
  - o August 7-11

Chicago, IL, October 2017

- **IEPTO1**: Immersion Event on Performance Tuning and Optimization – Part 1
  - o October 2-6
- **IE0**: Immersion Event on Performance Tuning and Optimization – Part 2
  - o October 2-4
- **IESSIS1**: Immersion Event on Learning SQL Server Integration Services
  - o October 2-6
- **IEPTO2**: Immersion Event on Performance Tuning and Optimization – Part 2
  - o October 9-13
- **IEPDS**: Immersion Event on Practical Data Science
  - o October 9-13
- **IEAzure**: Immersion Event on Azure SQL Database and Azure VMs
  - o October 9-10 **** New class! ****
- **IEUpgrade**: Immersion Event on Upgrading SQL Server
  - o October 11-13 **** New class! ****

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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