(October 9th, 2018)

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 Kimberly is in the middle of the first day of her new live, online course *IETLB: Immersion Event on Transactions, Locking, Blocking and Versioning*. It'll be offered again in the first quarter of 2019.

And talking of 2019, **live, in-person classes for Spring 2019 are open for registration** – details below!

SQLskills News

It's time to start thinking about attending a conference in the Fall, and for the first time in four years, **our own awesome SQLintersection Fall 2018 show doesn't clash with the PASS Summit**. SQLintersection is during the first week of December with 18 top-notch speakers delivering 40 sessions and 9 full-day workshops! We're really looking forward to it; our show is smaller than many others so we really have a chance to chat with folks and get your questions answered. And one of our favorite evening events – **SQLafterDark** – is always a huge hit (*and great fun too*)! Check out all the details here.

Live, <u>in-person</u> classes: we have all of our usual classes open for registration for April/May 2019 in Chicago, including:

- IEPTO1: Performance Tuning and Optimization – Part 1
- IEPTO2: Performance Tuning and Optimization – Part 2
- IECAG: Clustering and Availability Groups
- IE0: Junior/Accidental DBA
- IEUpgrade: Upgrading and New Features
- IEPML: Practical Machine Learning

We're also adding a new IEPowerBI class and an expanded IEAzure – details on those in the next few weeks.

All the classes have discounts (ranging from $100-200) for registering in 2018, and you can find all the logistical, registration, and curriculum details by drilling down from the class schedule page here.

Live, <u>online</u> classes: there is one new class available for registration (and we'll be adding more for 2019 Q1 in the next few weeks):

- October 23-25: ***IEQUERY**: Immersion Event on Fixing Slow Queries, Inefficient Code, and Caching/Statistics Problems* (delivered by Erin, Jonathan, and Kimberly)

These classes will be delivered live via WebEx 10am-3pm PST, Tuesday-Thursday (roughly 12-13 hours of content including open Q&As; similar to two, full, workshop days without leaving the comfort of your home/office!). By dedicating only 3 half-days of your time you still have time to get some work done during the day and with **lifetime** access to the recordings, you get amazing ROI!

Each of these classes is priced at US$699 and there's a past-attendee price of US$599. Click on the class links above for all the details.

Finally, even if you can't join us in person, I've put out a call for second-half 2018 remote user group sessions and we've done more than 60 this year already! If you'd like one of us to present for your user group, check out my blog post here.

Book Review

The most recent book I've read is Sy Montgomery's *The Soul of an Octopus: A Surprising Exploration into the Wonder of Consciousness*. What a lovely book! It follows about 18 months of Montgomery's life visiting and volunteering in the New England Aquarium in Boston where she meets, befriends, and investigates several octopuses. Kimberly and I have met and studied many, many octopuses in our diving careers and cephalopods are definitely our favorite underwater creatures. Montgomery explains, and we already knew, that they're very intelligent, curious, strong, and have definite personality traits. 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 had an interesting email from someone last week asking about contention on the *SPACEMGR_FREESPACE_CACHE* latch, and the email was because I hadn't populated my waits/latches library page on it.

This latch guards access to the PFS free space cache for heaps and LOB/row-overflow storage, and the cache is used to track the known (roughly) amount of free space in data/text pages to

help figure out where to insert a new row (or whether to just add a new page of no existing page looks like it has enough space).

The only time I'd expect to see massive contention on this latch is if the workload has a lot of concurrent inserts and deletes happening on a heap or some LOB storage. And this turned out to be the case – an application storing JSON objects as *varchar(max)* with many concurrent connections to the server.

Bottom line: Sometimes the contention point with a large concurrent workload isn't something you'd normally expect, and it's unusual for someone to hit contention on this latch. I'll do a deeper blog post on this latch and the cache it protects, and fill in the latches library page for it.

Paul's Ponderings

A wiser man than me coined the phrase *"procrastination is the thief of time"* (actually the English poet and dramatist Edward Young, 1683-1765). The meaning is that someone who keeps putting things off to another day ends up not achieving very much because they spend so much time figuring out what to do and what to put off.

I think a good Latin motto for DBAs, especially around avoiding procrastination, should be *noli pro cras tenere quae hodie facere potes*, which translates as 'do not hold for tomorrow those things which you can do today', although it doesn't roll off the tongue quite so easily as something like *carpe diem* ('seize the day').

My point here is that there a lots of tasks (sometimes considered tedious) that are very easy for a DBA to always push off until 'tomorrow', which are really better done sooner than later. Here are some examples that spring to mind:

- Performing a test restore from scratch of your backups
- Performing a failover test to your high-availability secondary system
- Adding documentation around things like SSIS packages or code rollout procedures (no-one likes doing documentation…)
- Do some index cleanup on a few of your large tables
  - Check for duplicate indexes
  - Check for left-based redundancies and consider their usefulness
  - Check for unused (or, minimally used) indexes
- Do some statistics cleanup
  - Check for statistics that are left-based subsets of your indexes (possibly because of newly created indexes)
- Check your maintenance routines – have you wanted to make them tied to data change (rather than sledgehammer maintenance where you just execute whether you need to or not)?

- Are you outgrowing your resources?
    - CPU / memory / disk space – have you checked on your capacities lately?
- Implement capturing of I/O latencies to help identify problems (see [here](#))
- Implement capturing of wait statistics to help identify problems (see [here](#))
- Look at your buffer pool to see whether you've got lots of wasted disk/memory space (see [here](#))
- What are your highest duration/CPU/IO queries and can you do anything about them?

There are all kinds of little projects you can do that will give you more peace of mind, increase performance, or help you with performance troubleshooting.

Call to action: Procrastination has often been the cause of problems that I've had to help deal with, where a little earlier time investment could have forestalled a performance problem or disaster situation. Do yourself a favor – make a list of the tasks you've been putting off and cross some of them off your list – you'll be happy that you did and ultimately it'll free up more of your time to work on fun stuff!

Glenn's Tech Insights

This section of the newsletter highlights recent news and views from the hardware and Windows worlds that we think will be interesting to SQL Server community members.

Microsoft Releases Windows Server 2019

On October 2, 2018, Microsoft Windows Server 2019 [became generally available](#) (GA). This is the latest [long-term servicing channel](#) (LTSC) release of Windows Server that will be supported by Microsoft for the next five years (Mainstream Support) and five years after that (Extended Support).

This makes it the preferred operating system for most new SQL Server installations, especially since it supports the Desktop Experience that most people still prefer. There are [many improvements](#) compared to Windows Server 2016, including better security, virtualization and network improvements, clustering improvements, and persistent memory support for Hyper-V VMs.

Keep in mind that mainstream support for Windows Server 2012 and Windows Server 2012 R2 ends on October 9, 2018, and extended support for Windows Server 2008 and Windows Server 2008 R2 ends on January 14, 2020.

Microsoft Refreshes Surface Pro, Surface Laptop and Surface Studio Lines

On October 2, 2018, Microsoft held a [fall launch event](#) where they released details about [several different hardware lines](#). These include the Surface Pro 6, Surface Laptop 2 and Surface Studio 2.

The [Surface Pro 6](#) two-in-one will have an 8th generation quad-core [Intel Core i5-8265U](#) or [Intel Core i7-8565U](#) CPU, 8 or 16GB of RAM, up to 1TB of SATA SSD storage and will weigh 1.7 lbs. with 13.5 hours of battery life with a 2736 x 1824 12.3" touch display.

The [Surface Laptop 2](#) will also have an 8th generation quad-core [Intel Core i5-8265U](#) or [Intel Core i7-8565U](#) CPU, 8 or 16GB of RAM, up to 1TB of SATA SSD storage and will weigh 2.8 lbs. with 14.5 hours of battery life with a 2256 x 1504 13.5" touch display.

In both cases, if you want 16GB of RAM (and more storage space), you will have to go with the Intel Core i7-8565U processor. The higher end processor has a higher base clock speed of 1.8GHz, a higher Turbo clock speed of 4.5GHz, and a larger 8MB L3 cache. Both processors have four physical cores, plus hyper-threading, so you will see eight logical cores.

Personally, I am disappointed that these new models only have SATA SSD storage (instead of PCIe NVMe storage), and they don't have a Thunderbolt 3 port.

Wi-Fi Alliance Introduces New Wi-Fi Naming Standards

The Wi-Fi Alliance recently introduced a [new set of naming standards](#) for Wi-Fi generations that is designed to make it easier understand which standards are actually newer and better than others.

The new levels are Wi-Fi 4, Wi-Fi-5, and Wi-Fi 6. In the past, these were named 802.11n, 802.11ac, and 802.11ax, respectively, which was somewhat hard to keep track of unless you made a sustained effort to learn the terminology.

- 802.11ax   Wi-Fi 6
- 802.11ac   Wi-Fi 5
- 802.11n   Wi-Fi 4

This will be a good thing if the major vendors such as Apple and Samsung actually adopt it for their new products. It is much easier to understand than the old naming standard.

#TBT

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

Extended Events are the theme for #TBT this time. Here are some Extended Events resources for you:

- Jon's two Pluralsight courses: *SQL Server: Introduction to Extended Events* and *SQL Server: Advanced Extended Events*
- Erin's Pluralsight course: *SQL Server: Replacing Profiler with Extended Events*
- Jon's An-XEvent-a-Day blog post series
- Jon's Extended Events blog category
- Jon's article on sqlperformance.com comparing the overhead of trace vs. XEvents
- Erin's Extended Events blog category
- Erin's Stairway Series on SQL Server Central
- My Extended Events blog category which shows how to capture SQL Server call stacks

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

- Paul: *Spring 2019 classes in Chicago open for registration*
- Paul: *PFS corruption after upgrading from SQL Server 2014*
- Erin: *Plan Forcing in SQL Server*
- Glenn: *SQL Server Diagnostic Information Queries for September 2018*
- Glenn: *Backup Checksum Feature in SSMS 18.0 Preview 4*
- Glenn: *Autogrow All Files Feature in SSMS 18.0 Preview 4*

I hope you find these useful and interesting!

Video Demo

The video demo this time is from Glenn where he shows some of the considerations when you are thinking of shrinking data or log files in a SQL Server database.

The video is about 7.5 minutes long and you can get it in WMV format here.

The demo code is here.

Enjoy!

Upcoming SQLskills Events

We still have events coming up in 2018 – from our *new, live, online* IEQUERY course to our own conference: SQLintersection; all of our Fall events are open for registration.

Our first set of 2019 live, in-person events has been announced for Chicago in April/May and we'll be adding a couple more in-person classes in a week or so. Just FYI, our first quarter events will all be live, online classes and we'll be announcing those around late October.

Each and 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, ONLINE Immersion Events:

- **IEQUERY**: Immersion Event on Fixing Slow Queries, Inefficient Code, and Caching/Statistics Problems
  - October 23-25 **(** NEW **)**

LIVE, IN-PERSON Immersion Events:

Chicago, IL, April/May 2019

- **IEPTO1**: Immersion Event on Performance Tuning and Optimization – Part 1
  - April 29-May 3
- **IECAG**: Immersion Event on Clustering and Availability Groups
  - April 29-30
- **IEPowerBI** – details coming soon!
  - April 29-30
- **IE0**: Immersion Event for the Junior/Accidental DBA
  - May 1-3
- **IEUpgrade**: Immersion Event on Upgrading SQL Server
  - May 1-3
- **IEPTO2**: Immersion Event on Performance Tuning and Optimization – Part 2
  - May 6-10
- **IEPML**: Immersion Event on Practical Machine Learning
  - May 6-10
- **IEAzure** – details coming soon!
  - May 6-9

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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