

(February 26<sup>th</sup>, 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](#).



## Quick Tips for our Insider friends!

Hey Insiders,

**We're presenting another live, online Immersion Event!** Due to the popularity of Kimberly's delivery of the new *IEVLT: Immersion Event on Very Large Tables: Optimizing Performance and Availability through Partitioning* in January, and the fact that many of you told us that you didn't have a chance to attend, we're running it again in March!

This will be delivered live via WebEx on March 20-22 (roughly 12-13 hours of content plus open Q&As; about the same as two full workshop days!). It's priced at only US\$895. See [here](#) for all the details, including the incredible feedback from the January class on how much they loved it. And, for all of our future, live, online events YOU – our newsletter subscribers – will always get an exclusive discount for the first couple of weeks!

Please note that the next newsletter will be delayed a week until March 19th.

Note: you can get all the prior Insider newsletters [here](#).

## SQLskills News

**Jon's latest Pluralsight class has been published.** It's called *SQL Server: Building Multi-instance Asynchronous Applications*. Check out the details [here](#).

**Glenn's latest Pluralsight class has been published.** It's called *SQL Server: Understanding, Configuring and Troubleshooting Database Mirroring*. Check out the details [here](#).

**The first batch of 2018 US classes are open for registration!** In 2018, we're offering our usual Immersion Events on Performance Tuning (IEPTO1 and IEPTO2) and for the Accidental DBA (IE0), as well as PowerShell, Azure, Clustering and Availability Groups, BI strategies, BI security, and Practical Machine Learning. See [here](#) for our 2018 Immersion Event class schedule.

**And we're also coming back to Europe in 2018!** We're bringing four of our Immersion Events to London in September: IEPTO1 and IEPTO2, plus our new classes: **IEAzure** (on Azure and Azure VMs) and **IECAG** (on clustering and availability groups). See [here](#) for details.

**Our Spring SQLIntersection conference** is also fast approaching at the end of March, and we have a phenomenal line up of workshops, sessions, and speakers. Check out [this blog post](#) for all the details, and use the discount code 'sqlskills' when you register to save \$50.

**Finally, even if you can't join us in person,** I've put out a call for 2018 remote user group sessions. In 2017, we did more than 100 of these around the world and we have set up more than 50 for 2018 already! If you'd like one of us to present for your user group, check out my blog post [here](#).

## **Book Review**

I've read a few books on vacation so far and here are reviews of several of them for you:

- Paul Coelho's [The Alchemist](#). Wonderful book! It follows the travels of a young Andalusian shepherd boy who sets off on a quest to find treasure at the pyramids in Egypt, and ends up discovering a lot more about himself. Essentially the book is about following your heart and dreams and paying attention to life's omens - sound advice. A quick read and highly recommended!
- Erich Maria Remarque's [All Quiet on the Western Front](#). Another book I've been meaning to read for a long time, and it's really good. It follows a young German soldier, Paul, through his trench-warfare experiences in France in WWI with school friends from his home town. Quite harrowing in parts, and explores how Paul changes over time as the war drags on and some of his friends are killed. Highly recommended!
- Alexander Solzhenitsyn's [One Day in the Life of Ivan Denisovich](#). This is a very interesting book that follows one day in the life of a prisoner in a Soviet gulag in the 1950s. It shows the arbitrariness of the rules and punishments, and how a prisoner really had to know how to manipulate and cooperate to make it through the long prison terms in the incredibly harsh conditions. Recommended.
- Neil Gaiman's [Neverwhere](#). This book reminded me a lot of Gaiman's fabulous Sandman graphic novels, and I enjoyed it immensely. The story follows the adventures of a man in London who rescues an injured girl on the street and is sucked into life in the London Below, the dark, fantasy world below London's streets, populated by many characters that are clever plays on the names of places in London. Highly recommended!

Enjoy!

## **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.*

There was a question recently on the Microsoft MVP distribution list about how to easily measure the extra CPU used by an Extended Events session, using a DMV or performance counter or wait type.

The simple answer is that you can't. The only thing you can do is compare the workload with and without the XEvent session started, with everything else about the workload environment being identical for the two tests.

This is because the XEvent code is run by the thread that encounters the XEvent being captured; it just side-steps into the XEvent subsystem, processes the XEvent, and then returns back to the main SQL Server code it was executing before. There is no wait, as the thread continues executing code, and there is no facility to track the CPU cycles used by the thread to execute the XEvent code.

This lack of instrumentation can lead to XEvents being a 'silent killer', as I've discussed in previous newsletters, as there's no way to tell that an XEvent session is causing a slowdown in performance except to see what sessions are running in the *sys.dm\_xe\_sessions* DMV.

**Bottom line:** If you have an unexplained slowdown in performance, and all metrics, waits, and query plans look normal, check for an Extended Event session. (Other things to look for are Balanced Power plan being enabled somehow, or a change in virtual machine configuration to limit CPU performance.)

### **Paul's Ponderings**

*(We're on vacation at the moment so this editorial is an updated combination of two editorials I wrote in early 2014 about DBAs being prevented from doing their jobs properly. From what I've seen at some clients over the last year, these problems are still out there...)*

I've heard from quite a few newsletter readers who've expressed frustration at their companies inability to recover from a disaster properly (e.g. no valid backups, or untested failovers that fail when attempted) because they're competent and conscientious DBAs but they're being prevented from taking care of all the critical tasks they know they should be.

Why are they being prevented? If they're a DBA, that's their job, right? Well, yes. And that's what is frustrating them. They're being prevented from doing their job because of other forces in play at their companies.

In one example, a company is experimenting with a new method of software lifecycle which involves every software team having a DBA as a team member, responsible for deployments, architecture discussions, designs, and so on – i.e. being forced to be more of a development DBA rather than a production DBA. This means that all the production DBAs are seconded to the software development teams.

Who's watching the shop in the meantime? No-one, as there isn't another production DBA – a metaphorical disaster waiting to happen.

In another example, the number of DBAs at a company has been slashed as part of a cost-cutting move, resulting in the remaining DBAs being hugely over-worked, lots of tasks being dropped on the floor, and morale in the DBA team dropping precipitously. Now there are DBAs actively looking to leave the company, meaning even more pressure for the few who remain.

In this case, there are DBAs trying to watch the shop but they're spread hopelessly thin – another disaster waiting to happen.

And then there are many people who complain about their management, who either don't have the experience and capability to properly manage a DBA team, or are biased against DBA activities by, say, rising through the ranks as a developer.

Here are some specific examples I was sent (rendered anonymous and used with permission):

- Management that refuses to believe that disasters can strike so will not discuss RTO and RPO, won't give time for DR testing of critical systems, and disallows *DBCC CHECKDB* in any way because of perceived user impact. In one case, the IT manager refused to believe that SQL Server could add to the overall system resilience and trusted the SAN admin to be able to cope with all potential failures with no data loss.
- Management that refused to allow any out-of-hours work, so the data tier had no on-call DBA, no remote monitoring at all, and no ability for anyone to get anything fixed unless it was in office hours.
- Management always siding with the developers over performance investigations so the DBA always had to work with whatever crappy code was thrown over the wall from development.
- SQL Server change requests all routed through a central gatekeeper who had no technical experience at all, and then the DBA were forced to implement them.
- (Common one...) Management refusing to allow time for performance tuning and instead 'knowing better' that more hardware is always the key to solving SQL Server performance problems.
- Management not putting in place steps for security and allowing a former employee the opportunity to log into critical servers and format disks and destroy backups.
- Management who wouldn't implement a backup strategy but instead wanted to use replication to provide the only DR copies of critical data.
- Managers who consider themselves fabulous DBAs but aren't, and then nano-manage everything the DBAs do (worse than micro-managing ☺).

Now you might think that some of these are explainable through simple ignorance, but in all cases these were mandated even after having the correct course of action explained by a DBA.

Do any of these sound familiar to you?

**Call to action:** if you're in a situation where poor management is forcing you to compromise your good judgment and putting the company's data at risk, make sure you've voiced your concerns to your management, and you've kept evidence of that (C.Y.A. if you end up being unfairly blamed and fired.) After that, join your local user group, network, find out about other potential employers who will appreciate you, your experience, and your drive to do what's right. There is a strong demand at the moment for good DBAs. But do make sure you look before you leap – I've heard some horror stories about moving to what turns out to be a worse situation after being lured in by promises and more money.

### **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.*

### **Expanded Intel Bug Bounty Program**

Intel has [greatly expanded](#) the size and scope of its [Intel Bug Bounty](#) program by making it open to all security researchers (rather than by invitation-only), and by increasing the size of the reward bounties across the board up to a limit of \$100,000.00. There is also a new "Limited Duration Side Channel Program" that runs through December 31, 2018 that offers rewards up to \$250,000.00 for side channel vulnerabilities that are root-caused to Intel hardware and exploitable by software.

The complete set of participation guidelines for this program is [listed here](#). If you are interested in this sort of activity and work, you might want to check out the [HackerOne platform](#)

### **New Features for Windows 10 Pro for Workstations**

Microsoft has a relatively new edition of Windows 10, called Windows 10 Pro for Workstations, which was [initially released](#) as part of the [Windows 10 Fall Creators Update](#). Windows 10 Pro for Workstations is designed for very high-end PC workstations, and it [includes features](#) such as ReFS (Resilient file system), Persistent memory support, SMB Direct support, and hardware support for up to four sockets and up to 6TB of RAM.

For the upcoming Redstone 4 (RS4) release of Windows 10, Microsoft is adding a new power plan called Ultimate Performance. [Microsoft says](#) this "new policy builds on the current High-Performance policy, and it goes a step further to eliminate micro-latencies associated with fine grained power management techniques. The Ultimate Performance Power plan is selectable either by an OEM on new systems or selectable by a user."

It will be interesting to see whether this feature also shows up in Windows Server 2016 (or whether you will be able to easily customize the existing High Performance Power Plan to use the same settings).

## **Intel Xeon Cascade Lake-SP Server Processors**

According to some [purportedly leaked](#) Intel roadmap slides, Intel is planning on releasing the successor to the current Intel Xeon Scalable Processor family (Skylake-SP) in Q3 2018. This new family of processors will be called Cascade Lake-SP, running on the “Purley Refresh” platform, which is socket compatible with the current Skylake-SP/Purley platform (meaning existing servers will support the new CPU with an updated BIOS).

The main improvements are said to be 2933 MT/s memory support (at one DIMM per channel), frequency and architecture improvements, and [DDR-T/Apache Pass DIMM](#) support on some SKUs.

I am hoping that this new line of server processors from Intel will have more than the typical performance boost for a new minor release of the Xeon processor family, because of the increased competition from the AMD EPYC server processors.

### **#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.*

The theme for the TBT this time is whitepapers. Rather than a list of links here, I'd like to make sure you know about our [whitepapers page](#), where I maintain a curated list of whitepapers that are pertinent to things we teach and see often when consulting. A bunch of them were written by and/or reviewed by members of the SQLskills team. Every few months I make sure all the links are accurate, as Microsoft has a habit of moving whitepapers around in their web structure.

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

- Paul: [New Pluralsight course: Understanding, Configuring, and Troubleshooting Database Mirroring](#)
- Paul: [New Pluralsight course: Building Multi-instance Asynchronous Applications](#)
- Glenn: [SQL Server 2017 Cumulative Update 4](#)
- Glenn: [SQL Server Diagnostic Information Queries for February 2018](#)
- Glenn: [T-SQL Tuesday #99: Home Brewing](#)
- Erin: [T-SQL Tuesday #99: Life Outside SQL Server](#)

I hope you find these useful and interesting!

### **Video Demo**

This is the second in a 3-part series on statistics enhancements in SQL Server 2016/2017. Do you have a job that updates some of your statistics with a full scan? If so, how do you ensure that those statistics are ALWAYS updated with a full scan? You could turn off the auto update statistics option, or you could start using the new *PERSIST\_SAMPLE\_PERCENT* option for *UPDATE STATISTICS*! In this video Erin steps through how stats can get updated with a sample size you don't want, and how this new option addresses that problem.

The video is just 6.5 minutes long and you can get it:

- In WMV format [here](#).
- In MOV format [here](#).

And the demo code is [here](#).

Enjoy!

### **Upcoming SQLskills Events**

We have lots of events coming up in 2018 – from our online IEVLT course AND SQLintersection in March to our own LIVE, in-person Immersion Events in both the U.S. and London; all events are open for registration. Every event has a different focus and different benefits – from deep-technical training in our online courses and in-person IEs to wide-ranging topics at SQLintersection where you can learn more effectively how to keep moving forward in both your database and your career! And, of course, one benefit all our in-person events provide is networking!

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](#)

Online, March 2018

- **IEVLT: Immersion Event on Very Large Tables: Optimizing Performance and Availability through Partitioning (Final planned delivery in 2018)**
  - March 20-22

Orlando, FL, March 25-28, 2018

- [SQLintersection](#) co-located with the [DEVintersection](#) conferences (register with the 'sqlskills' discount to get save \$50 on registration). See [here](#) for details.

Chicago, IL, April/May 2018

- **IEPTO1:** Immersion Event on Performance Tuning and Optimization – Part 1
  - April 23-27
- **IE0:** Immersion Event for the Junior/Accidental DBA
  - April 23-25
- **IEUpgrade:** Immersion Event on Upgrading SQL Server
  - April 23-25
- **IECAG:** Immersion Event on Clustering and Availability Groups
  - April 26-27
- **IEAzure:** Immersion Event on Azure SQL Database and Azure VMs
  - April 26-27
- **IEPTO2:** Immersion Event on Performance Tuning and Optimization – Part 2
  - April 30-May 4
- **IEBIStrat:** Immersion Event on Developing a BI and Analytics Strategy (\*\* NEW \*\*)
  - April 30-May 2
- **IEBISec:** Immersion Event on Securing Your BI Platform (\*\* NEW \*\*)
  - May 3-4
- **IEPS:** Immersion Event on PowerShell for SQL Server DBAs
  - April 30-May 2
- **IESSIS1:** Immersion Event on Learning SQL Server Integration Services
  - May 7-11
- **IEPML:** Immersion Event on Practical Machine Learning
  - May 7-11 (\*\* NEW \*\*)

Bellevue, WA, June 2018

- **IEPTO1:** Immersion Event on Performance Tuning and Optimization – Part 1
  - June 18-22

London, UK, September 2018

- **IEPTO1:** Immersion Event on Performance Tuning and Optimization – Part 1
  - September 10-14
- **IEAzure:** Immersion Event on Azure SQL Database and Azure VMs
  - September 10-11
- **IECAG:** Immersion Event on Clustering and Availability Groups
  - September 12-13
- **IEPTO2:** Immersion Event on Performance Tuning and Optimization – Part 2



- September 17-21

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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