(April 22nd, 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 gearing up to head to Chicago on Saturday for our Spring classes. Check out Kimberly's Facebook post here for some cool photos from the dive trip we just returned from.

Last chance to sign up for our April/May classes – most are almost or actually sold out!

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 ALL of our sessions have been posted; check out our website to view our spectacular line-up including Bob Ward, Pedro Lopes, Pam Lahoud, Brent Ozar, and most of our SQLskills team! We hope you can join us in June! Check out my blog post here.

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. This is the only time during the year where we offer so many options and combinations for in-depth SQL immersion – all in a central location (Chicago) and a great hotel (every room is a suite with a fridge, microwave, and sitting area separate from the bedroom). We are not planning any events in Europe this year due to other commitments, conferences, and online training. **NOTE: Book ASAP as many classes are close to selling out or have already sold out!**

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.

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

The most recent book I've read is Graham Moore's *The Last Days of Night*. This is an excellent fictionalization of the true events in the A/C – D/C 'current war' between Edison and Westinghouse in the late 1800s that led to the creation of General Electric. It's a great page-turner and hugely interesting to me as I'd never read the details of the war before. It's also interesting to learn a bit about Edison and Westinghouse themselves, plus the genius inventor Nikola Tesla. 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 helped out on a thread in the MCM email distribution list a couple of weeks ago, where someone wanted to know how to find FILESTREAM info from a detached MDF file. The answer involves a hex editor…

Read more about it in my blog post here.

Ponderings…

(This time from Glenn, explaining why bigger isn't always better when it comes to processors…)

On April 2, 2019, Intel streamed a live "Data-Centric Innovation Day" event, where they announced multiple new product lines including the 2nd Generation Intel Scalable Processor Family (Cascade Lake-SP), the Intel Xeon 9200 family (Cascade Lake-AP), Intel Optane DC Persistent Memory, and new models of Intel Optane Storage.

Don't Be Swayed by Hype

Many press reports and commentators have focused on the premium Intel Xeon Platinum 9200 family (Cascade Lake-AP) processors, since they seem the most interesting for a catchy headline. The top of the line SKU from this family is the Intel Xeon Platinum 9282 processor, which has 56 cores and 112 threads, along with 77 MB of L3 cache and 12 memory channels. That sounds impressive, but upon closer analysis, this SKU is actually not a good choice for SQL Server usage for a number of reasons.

Problems with Cascade Lake-AP

This flagship SKU has a base clock speed of 2.60 GHz and a max Turbo clock speed of 3.80 GHz. This is relatively slow compared to some of their lower core count SKUs. Intel does not list a "Recommended Customer Price" for this SKU, which usually means that it is very expensive. The Intel ARK database claims that this SKU is only supported in up to two-socket servers.

The Xeon Platinum 9282 is really aimed at high-performance computing (HPC) and AI usage. It uses a ball grid array (BGA) package rather than an LGA 3647 socket like the Xeon Platinum 8200 and lower use. As a result, it won't work in existing model servers, and many top-tier server vendors are not planning on making servers to support this processor.

This Xeon Platinum 9282 processor has a thermal design power (TDP) of 400 watts. According to Intel: "Thermal Design Power (TDP) represents the average power, in watts, the processor dissipates when operating at Base Frequency with all cores active under an Intel-defined, high-complexity workload." That is a huge amount of power compared to lower core count SKUs from the same family.

Another issue with the Xeon Platinum 9200 family is that it cannot use Intel Optane DC Persistent Memory, which is one of the main selling points of the rest of the 2nd Generation Intel Xeon Scalable Processor line. Think about how expensive it would be to license a 56-core processor for SQL Server 2017 Enterprise Edition. It would be about $400K per physical processor.

Conclusion

For SQL Server usage, you need to look at the entire mainstream Cascade Lake-SP family, thinking about your capacity and performance needs. I recently wrote an analysis of these processors for SQL Server that is a good first step. Most SQL Server environments are going to be much better off with SKUs such as the eighteen-core Xeon Gold 6254 or the eight-core Xeon Gold 6244. You will get better single-threaded CPU performance, Intel Optane DC PMEM support, and much lower SQL Server license costs.

<u>Glenn's Tech Insights</u>

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 latest Azure Data Studio release
- SQL Server 2014 Cumulative Updates
- AMD Ryzen 3000 series rumors

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:

- Glenn: *[AMD EPYC Processors in Azure Virtual Machines](#)*
- Glenn: *[Intel Optane Technology and SQL Server](#)*
- Glenn: *[SQL Server Diagnostic Information Queries for April 2019](#)*

Replication is the theme for the #TBT section this time. Here are some resources for you:

- Joe's Pluralsight course on *[SQL Server: Transactional Replication Fundamentals](#)* that has 2 hours explaining what replication is, how to set it up, how to monitor and troubleshoot it, and how to combine it with other HA technologies
- Whitepaper on *[SQL Server Replication: Providing High-Availability Using Database Mirroring](#)* that I wrote for Microsoft back in 2008, but is still completely relevant today and can be extrapolated to working with Availability Groups too.
- Old whitepaper on *[Proven SQL Server Architectures for High Availability and Disaster Recovery](#)* that I wrote for Microsoft in 2010, and isn't listed on their site any more, but has an interesting set of architectures, including one using peer-to-peer replication.
- And a bunch of blog posts:
    - *[In defense of transactional replication as an HA technology](#)*
    - *[REPLICATION preventing log reuse but no replication configured](#)*
    - *[The Transactional Replication Multiplier Effect](#)*
    - *[When is the Publication Access List required?](#)*
    - And check out the [Repltalk blog on MSDN](#) that's been a fount of replication knowledge since 2010.

I hope you find these useful and interesting!

Video Demo

In this week's Insider Video Jonathan takes a look at some of the common misconfiguration issues that block Distributed Replay from connecting between the client service and the controller.

The video is just under 10 minutes long and you can get it [here](#).

The blog posts that Jonathan mentions can be found at:

- https://www.sqlskills.com/blogs/jonathan/category/distributed-replay/
- https://www.sqlskills.com/blogs/tim/microsoft-database-experimentation-assistant-with-sql-server-2017/

Enjoy!

Upcoming SQLskills Events

Our set of 2019 live, in-person events for Chicago in April/May are coming up quickly – many have already filled – 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 (see here for details of the June show) 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 **** 1 seat remaining ****
- **IECAG**: Immersion Event on Clustering and Availability Groups
    - April 29-30 **** 3 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 **** 3 seats remaining ****
- **IEUpgrade**: Immersion Event on Upgrading SQL Server
    - May 1-3
- **IEPTO2**: Immersion Event on Performance Tuning and Optimization – Part 2

- o May 6-10 **** 2 seats remaining ****
- **IEPML**: Immersion Event on Practical Machine Learning
  - o May 6-10 **** 3 seats remaining ****
- **IEAzure**: Immersion Event on Azure SQL Database, Azure VMs, and Azure Managed Instance
  - o 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

Paul@SQLskills.com and Kimberly@SQLskills.com