(January 18th, 2016)

If you know someone who you think 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,

This newsletter is coming to you from Manado, Indonesia where we're diving in the Lembeh Straits on the north side of Sulawesi. This is some of the best muck diving in the world; we've wanted to come here for almost ten years and we're having a blast! Watch for photos and videos on Twitter and my blog.

Here are a few links to videos I've posted on Facebook (watch in HD and click on the video to increase its size, but full screen will make it grainy):

- Long-arm octopus on a night dive
- Algae octopus on a night dive
- Group of Banggai cardinals on a night dive
- Hairy frogfish!
- Pretty rare Ambon scorpionfish
- Razorfish (one of my favorites)

Jonathan has a workshop on Extended Events coming up at the Cleveland SQL Saturday on February 5th – see here for details.

Our classes are filling up in Chicago (April/May), London (June), and Bellevue (September), including two brand new classes on SSIS, and we're running an expanded (to five days) IEPDS class on Practical Data Science. Schedule details are here and you can read more on the new SSIS classes here.

We've actually **added another Chicago IEPTO1 during the week of May 16th** as the one in April has sold out. We've also added an **IEPTO1 course in Dublin** in October – see here for details.

We've also just published our full Spring SQLintersection conference line-up and it's looking to be a phenomenal show – one of our best for sure! We have keynotes from Buck Woody and Bob Ward from Microsoft, and another on tools and productivity from SQL Sentry. And with 9 workshops over 4 pre-conference and post-conference days, deeper dives are possible to go with a lot of SQL Server 2014 and 2016 content. The show is in Orlando, FL over April 16-22, 2016; we hope to see you there! Be sure to use the discount code 'SQLskills' when registering to receive $50 off. See here for more details.

The latest book I've read is Charles Petzold's *Code: The Hidden Language of Hardware and Software*. This book is really excellent! It's a very cleverly written introduction and exploration of how computers work at the logic level, and takes the reader from the basics of electricity and binary to the intricacies of memory busses, CPUs, and assembly language. I quickly skimmed the first hundred or so pages until I got to the part about building counters from relays and it started to refresh my memory with things I'd learned back in 1990 when I did my B. Eng (Hons) degree in computer science and electronics in Edinburgh.

I read this book as a way to kick start getting back into computer design as I want to build a CPU and computer system out of TTL logic (one of my many, many 'spare time' goals). First though, when I get home I'm going to build some logic circuits out of relays – just for the fun of hearing all the little clicks as the relays change state ☺! I highly recommend this book for anyone who wants to know a bit more about how computers work.

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

Paul's Ponderings

A few weeks ago I had a conversation on Twitter and in the comments of my Pluralsight wait stats course with someone wanting help with defining a troubleshooting template. The conversation boiled down to the questioner wanting a matrix of common wait types with a range of generally accepted 'good' wait time values and percentages for each so he could tell when there was a problem, and use the matrix as proof to his management that they had a performance issue that needed fixing.

I politely explained that such a thing does not really exist.

Sure, there are some wait types that you can start to come up with some generalized numbers for, for instance:

- PAGEIOLATCH_SH or _EX: reading from disk shouldn't take more than a set number of milliseconds, based on the performance characteristics of your I/O subsystem. But it's more complicated than that, because you need to consider why the reads are happening in the first place, not just how long do they take on average.
- WRITELOG: writing to disk shouldn't take more than a set number of milliseconds, based on the performance characteristics of your I/O subsystem. But again, it's more complicated because there may be a synchronous mirror or replica that contributes to the write latency or you may be hitting the 32-outstanding-writes limit for each log file in SQL Server 2008 R2 or before.

So, even with seemingly simple wait types, there are complications that mean a single number isn't the right way to define when it's good or bad.

The same goes for performance counters, DMV output, and other performance-monitoring and troubleshooting metrics. Remember the 'Page Life Expectancy should be greater than 300'

nonsense we still see people parroting occasionally? It is usually misguided to specify absolutes for performance metrics around SQL Server, or even to give ranges, without considering the workload and the overall system's performance characteristics.

As an aside, for wait statistics, I've been working on a comprehensive guide to all the wait types and latch classes that I'm planning to open up for use sometime in March or April.

Call to action: You really need to have a baseline of what the various metrics look like for your system when things are running normally, so you can tell when one or more metrics is deviating from the norm and may need investigating, and *this* is what you use to show your management that you have a problem. And you need to understand what the metrics mean so you're not off on a wild goose chase trying to change a metric that really isn't important.

Video Demo

One of the fun parts of my job is when I have the time to dig into "how" SQL Server works. One tool that people sometimes use for this is windbg, which requires the symbols for SQL Server. In this video we'll walk through the steps to install the symbols for a SQL Server installation, so that should you ever feel like debugging or grabbing a callstack, you'll have everything you need.

The video is just over 9 minutes long and you can get it:

- In WMV format here.
- In MOV format here.

The demo code is available here.

Enjoy!

SQLskills Offerings

We've released all of our 2016 classes for registration, listed below. It's possible that we might add one or two classes in Chicago in November, but that will depend on the Fall conference schedule as well as demand.

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

Upcoming Immersion Events

Chicago, IL

- **IE0**: Immersion Event for Junior/Accidental DBAs
    - April 25-27
- **IEPTO1**: Immersion Event on Performance Tuning and Optimization – Part 1
    - April 25-29 **SOLD OUT!**
- **IEBI**: Immersion Event on Business Intelligence
    - April 25-29
- **IEPTO2**: Immersion Event on Performance Tuning and Optimization – Part 2
    - May 2-6
- ****NEW** IESSIS1**: Immersion Event on Learning SQL Server Integration Services
    - May 2-6
- **IEPDS**: Immersion Event on Practical Data Science
    - May 9-13
    - **NOTE: This is now five days in length.**
- **IEHADR**: Immersion Event on High Availability and Disaster Recovery
    - May 9-13
- **IEPTO1**: Immersion Event on Performance Tuning and Optimization – Part 1
    - April 25-29 **NEW!!**

London, UK

- **IEPTO1:** Immersion Event on Performance Tuning and Optimization – Part 1
    - June 13-17
- **IEPTO2:** Immersion Event on Performance Tuning and Optimization – Part 2
    - June 20-24

Bellevue, WA

- **IEPTO1:** Immersion Event on Performance Tuning and Optimization – Part 1
    - September 12-16
- **IEPTO2:** Immersion Event on Performance Tuning and Optimization – Part 2
    - September 19-23
- ****NEW** IESSIS2:** Immersion Event on Advanced SQL Server Integration Services
    - September 19-22

Dublin, Ireland

- **IEPTO1:** Immersion Event on Performance Tuning and Optimization – Part 1
    - October 3-7 **NEW!!**

See 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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