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 celebrating! With the help of the great team at Paper Sword, we revamped our entire website and it went live late last week – check it out!

I've also put out my call for prospective mentees for the Class of 2020 – see here for details – and you've got one week to put your name in the hat.

Kimberly will be delivering a one-day virtual workshop on September 1st for only $199: *The Developer's Guide to Consistency, Accuracy, and Concurrency*. See here for details of how to register.

Kids going back to in-person school? Tim and I have been taking orders from parents and teachers for ear-saver mask straps (see here) for kids, teachers, classrooms, schools. We've printed and shipped/donated more than 33,000 between us so far with our seven 3d printers, for anyone that needs them. If you know anyone who could use some free straps, hit me or Tim up in email – don't be shy – I ship in units of 10s and 100s and I'm taking requests for shipments two weeks from now.

Stay safe and healthy!

<u>**SQLskills News**</u>

Live, <u>ONLINE</u> classes – filling up FAST: our classes this year will all be live-streamed online in September and October, as it's not feasible to run in-person classes for the foreseeable future. We're running them as a series of half-day sessions so it's less onerous then the usual 9-hour days in our in-person classes. Attendees will also get a recording of the entire class – something we've never done before!

- **IE0**: Immersion Event for the Junior/Accidental DBA
  - Half days on 9/14-17 and 9/21-24
- **IEAzure**: Immersion Event on Azure SQL Database, Azure VMs, and Azure Managed Instance

- o Half days on 9/15-17 and 9/22-24
- **IECAG**: Immersion Event on Clustering and Availability Groups
  - o Half days on 10/6-8
- **IEPTO1**: Immersion Event on Performance Tuning and Optimization – Part 1
  - o Half days on 10/5-9 and 10/12-16
- **IEPTO2**: Immersion Event on Performance Tuning and Optimization – Part 2
  - o Half days on 10/19-23 and 10/26-30

You can get all the details and registration information through the class schedule page [here](#).

Kandio job candidate assessments: we've teamed up with Kandio to produce technical assessments to help companies screen candidates for job recruitment. If you want to make sure someone really knows what they say they know, check out the assessments [here](#).

Online 2019 class recordings: you can buy recordings of all our three-day online classes from 2019, for as little as US$299 each. See [here](#) for all the details.

SQLBits: Kimberly, Erin, and I will all be presenting at [SQLBits](#) in September. Our precons are:

- Erin: [Performance Tuning with Query Store in SQL Server and Azure](#)
- Kimberly: [Statistics4Performance: Internals, Analysis, Problem Solving](#)

SQLintersection: The Spring show has been canceled and everything has moved to the Fall show in Las Vegas in December. More details here nearer the time.

Book Review

From the archives: Back in 2017 I read Sarah Knight's *[The Life-Changing Magic of Not Giving a F*ck](#)*. This is a bit of a parody of Marie Kondō's book *The Life-Changing Magic of Tidying Up*, but it's also a sincere and useful guide to stopping caring about stuff, things, people, and so on that suck down your time, energy, and money. I consider myself near-expert level at this already ('sport-ball', anyone?), but I learned a few useful things and had some good laughs along the way. Society is filled with things we're conditioned to care about, and you'll likely find your life better if you get rid of some of them. Don't buy this book if the f-word offends you in any way. 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.

Last week we were approached by a company that had experienced I/O subsystem corruption that zeroed out some PFS pages (along with several hundred MB of surrounding pages). I

explained that there was nothing I could do to help them as PFS pages can't be repaired or reconstructed without a great deal of manual effort. You can read through my explanation [here](#)…

Ponderings…

(From me this time – a short one, but an important one – enjoy!)

I haven't written a brand new Ponderings for a while but for this newsletter I've been moved to warn against the dangers of fixating on a single metric to ascertain whether a workload's performance is satisfactory or not.

Last week I was involved in a discussion where someone asserted that the *only* metric they needed to care about was if physical reads were faster than the agreed-on SLA (Service Level Agreement).

I strongly disagree with this assertion.

What does this metric really tell us? Only that the I/O subsystem is able to service each read request in a certain time. It doesn't consider the number of read requests, for example. If the database can entirely fit in memory, there won't be any reads, and so the metric tells us nothing about workload performance. If there are an enormous number of reads, and the I/O subsystem is super-fast flash which the server can't overload, the metric tells us nothing about workload performance.

Fixating on that metric means the assumption is that if the I/O subsystem can keep up, then the workload must be performing well. And we should all know that assumption cannot be made.

As an example, let's say that someone made a change that caused a query plan to recompile from using a nonclustered index for seeks (say several thousand logical reads) to a parallel table scan that does several million physical reads of the clustered index leaf level. Which one is more efficient? Obviously the former. But if the I/O subsystem can do all the physical reads for the table scan within the read latency metric, nobody is any the wiser, even though the query will take a lot longer to execute.

The only time the read latency metric will let us know if there's a problem is if SQL Server can drive more read requests to the I/O subsystem than it can handle, which may not be possible.

Proper monitoring of workload performance means monitoring multiple metrics, including read/write latencies, wait stats, blocking, query execution times, memory usage, and so on and so on.

Call to action: Don't fall into the trap of fixating on just one or two simple-seeming infrastructure metrics to gauge whether a SQL Server workload is performing well. Monitoring more metrics also means you can be proactive, where you can detect that a problem is starting to

occur, rather than reactive, where you find yourself scrambling to try and figure out why performance has become so bad.

#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.

Somewhat paired with the Ponderings above, the theme for the TBT this time is query plan and query performance analysis:

- Erin's Pluralsight course: *SQL Server: Analyzing Query Performance for Developers*
- Joe's Pluralsight course: *SQL Server: Query Plan Analysis*
- Erin's Pluralsight course: *SQL Server: Introduction to Query Store*
- Joe's Pluralsight course: *SQL Server: Troubleshooting Query Plan Quality Issues*
- My blog post: *Query plan analysis first steps*
- Joe's whitepaper: *Optimizing Your Query Plans with the SQL Server 2014 Cardinality Estimator*

I hope you find these useful and interesting!

Video Demo

In this Insider video, Tim shows a recently added service tier for Azure SQL Database. The Serverless tier allows customers to automatically scale compute based on workload demand and bills for compute and storage separately. The service tier also allows for pausing compute after a specified period of time to reduce all compute charges. Tim walks you through the various sizing options and shows you how to configure Serverless for your singleton Azure SQL Databases.

The video is around 8 minutes long and you can get it in WMV format here.

Enjoy!

Upcoming SQLskills Events

Our 2020 classes have moved to be entirely online in September and October and are all open for registration!

You 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 a more broad set of topics at SQLBits / SQLintersection! 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:

Fall 2020

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Click here for the main Immersion Event Calendar page that allows you to drill through to each class for more details and registration links.

<u>Summary</u>

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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