(November 9th, 2015)

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 Seattle, where we're recovering after the whirlwind of the last two weeks where Kimberly and I presented two workshops and five sessions each at the PASS Summit and SQLintersection, and then attended the Microsoft MVP Summit last week. (And, of course, everyone else on the team also presented workshops and sessions too!). It was really great to see so many people from the community, and hear about cool future features from Microsoft. Now we're revving up for our final set of classes in Chicago, speaking of which…

Three seats have opened up in our classes next week – see the final section for details!

Our 2016 classes are filling up in Chicago (April/May), London (June), and Bellevue (September), including two brand new classes on SSIS. **You can save up to $200 off all our 2016 classes by registering before the end of the year and as an alumnus, you can always get the lowest (frequent-flyer) discount!** Schedule details are here and you can read more on the new SSIS classes here.

The latest book I've read is Lt. Col. T. Mark McCurley's *Hunter Killer: Inside America's Unmanned Air War*. In the past I've read some interesting books about the military's use of robots and drones (most notably *Wired for War: The Robotics Revolution and Conflict in the 21st Century*) but this one is different in that it's written by someone who flew and managed drone missions (in fact I think it's the first ever account of flying drones in a war zone). There's a lot of page-turning excitement and some pretty incredible mission stories, along with showing how mind-numbingly tedious it can be to pilot a drone for 8 hours circling over the same hut in the mountains. Highly recommended!

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

Paul's Ponderings

The workshop I presented at PASS and SQLintersection is my favorite one: *Performance Tuning with Waits and Latches*. In the workshop I talk a lot about using wait statistics as the basis for a performance tuning methodology. This includes the importance of having a wait statistics baseline, and proactive monitoring so that when a performance problem occurs; you have the wait statistics trends to be able to figure out where to start looking for the root case.

Given the time constraints of the workshop format, there's only so much I can cover, and so I focus on the more common query performance problems, as that's where the attendees will get the most 'bang for their (conference) buck.'

Two of the areas that I touch on in the workshop, and areas that many people neglect, are performance monitoring of HA/DR technologies in SQL Server, and root-cause analysis of performance problems there. These can sometimes be as critical as query performance monitoring, depending on the environment and service-level agreement requirements.

As an example, here's an interesting case came up at SQLintersection, where an attendee posed the question (paraphrasing):

> *If I have two similar databases, both mirrored using identical hardware, and perform an equal-sized index rebuild on each, the mirroring REDO queue for one database grows much larger than the other and the index rebuild itself takes longer. Why?*

After making sure that it was a real apples-to-apples comparison, I said there has to be something different. The attendee then said that the database with large REDO queue has Transparent Data Encryption enabled.

A-ha!

I explained how with TDE, the transaction log for the database is also encrypted. This means that the log stream compression over the mirroring session can't compress the log blocks being sent, slowing that down. And then when the log records are being applied to the mirror database, they need to be decrypted before they can be applied, which takes more CPU and time, leading to growth of the REDO queue. It also turned out that the mirror server had older processors, with slower single-threaded performance, so that also contributed to extra time required for the decryption and redo of each log record.

In this case, the attendee was doing the right thing by monitoring mirroring but needed that extra piece of under-the-covers implementation info to work out what the root cause of the problem was.

Call to action: Monitoring and troubleshooting performance problems with HA/DR technologies is very important. I [wrote about this](#) for mirroring back in 2011, but the same thing applies to availability groups (Jon [wrote about this](#) back in August), replication (Joe [wrote about this](#) back in 2012), and even log shipping (see [Books Online](#)).

Video Demo

From Erin: The PASS Summit at the end of October generated a lot of buzz around new features in the SQL Server 2016 release, including one I've been looking forward to: Query Store. In this demo, I'll enable the Query Store feature and then start to explore what data is captured once it's

enabled. This functionality has a lot of potential, and it's something to try out now while you can still give the product team feedback (they're requesting it!). So if you haven't downloaded CTP3 yet, maybe this will inspire you…

The video is just under 10 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 the majority of our 2016 classes for registration, listed below. It's possible that we might add one or two classes in Chicago in the Fall, but that will depend on the Fall conference schedule as well as demand. **Note that you can save up to $200 by registering for these classes before the end of this year.**

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, 2015

- **IE0**: Immersion Event for the Accidental/Junior DBA
    - November 16-18 **(1 seat remaining!)**
- **IEPDS**: Immersion Event on Practical Data Science
    - November 16-19 **(1 seat remaining!)**
- **IEPTO1**: Immersion Event on Performance Tuning and Optimization – Part 1
    - November 16-20 **(1 seat remaining!)**

Chicago, IL, 2016

- **IE0**: Immersion Event for Junior/Accidental DBAs
    - April 25-27 **(US$120 discount for registering in 2015)**
- **IEPTO1**: Immersion Event on Performance Tuning and Optimization – Part 1
    - April 25-29 **(US$200 discount for registering in 2015)**

- **IEBI**: Immersion Event on Business Intelligence
    - April 25-29 **(US$200 discount for registering in 2015)**
- **IEPTO2**: Immersion Event on Performance Tuning and Optimization – Part 2
    - May 2-6 **(US$200 discount for registering in 2015)**
- ****NEW** IESSIS1**: Immersion Event on Learning SQL Server Integration Services
    - May 2-6 **(US$200 discount for registering in 2015)**
- **IEHADR**: Immersion Event on High Availability and Disaster Recovery
    - May 9-13 **(US$200 discount for registering in 2015)**

London, UK, 2016

- **IEPTO1:** Immersion Event on Performance Tuning and Optimization – Part 1
    - June 13-17 **(US$200 discount for registering in 2015)**
- **IEPTO2:** Immersion Event on Performance Tuning and Optimization – Part 2
    - June 20-24 **(US$200 discount for registering in 2015)**

Bellevue, WA, 2016

- **IEPTO1:** Immersion Event on Performance Tuning and Optimization – Part 1
    - September 12-16 **(US$200 discount for registering in 2015)**
- **IEPTO2:** Immersion Event on Performance Tuning and Optimization – Part 2
    - September 19-23 **(US$200 discount for registering in 2015)**
- ****NEW** IESSIS2:** Immersion Event on Advanced SQL Server Integration Services
    - September 19-22 **(US$160 discount for registering in 2015)**

See 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

Paul@SQLskills.com and Kimberly@SQLskills.com