(June 8th, 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 Bellevue, WA, where we've just started our IEPTO1 class. It's been a great two weeks at home between our month-long Chicago/Scottsdale trip, but it never seems to be enough time to get everything done – we need clones or 48-hour days!

My latest Pluralsight course has just been released: *SQL Server: Index Fragmentation Internals, Analysis, and Solutions*. Check it out here! This is our 42nd Pluralsight course, and takes us to more than 130 hours of online content!

We've added a brand new class to our roster for Chicago in November: **IEPDS: Immersion event on Practical Data Science**, taught by our great friend Rafal Lukawiecki. You can get all the details on the class here. Also, we still have a couple of seats in our IEPTO2 class coming up next week in Bellevue. Also, if you're planning, our London and Dublin classes (in August and October, respectively) are almost sold out! London has only 2 seats remaining.

The latest book I've read is Neal Stephenson's *Seveneyes*. I've always been a big fan of Stephenson's work, and this book lives up to my expectations. The premise is that the moon is fragmented into billions of pieces, causing a prolonged meteorite shower that's set to last for 5,000 years and within two years wipes out the population on Earth. Several thousand people escape the destruction in the ISS and hastily constructed spacecraft, and then the harrowing process of surviving begins. It's very believable (apart from the moon thing ☺) and a great read.

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

Paul's Ponderings

One of the problems we see over and over with new clients is having configuration settings that are based on out-of-date best practices and recommendations.

The one that came up a few times last week was systems where the page file was set to 1.5 times the size of the installed memory on the server – guidance from Windows Server 2003 days! It's also wildly inappropriate for machines dedicated to SQL Server.

Consider a dedicated SQL Server machine with 1TB of memory installed (not uncommon these days), based on that "*best practice*," the page file should be set to 1.5TB in size – ridiculous!

Let me explain why.

That old guidance was to ensure that if Windows suffered a problem, a crash dump file can be created containing all the memory on the server, and also to allow parts of the memory in use by applications to be paged out (i.e. extending the amount of virtual memory on the server).

SQL Server doesn't need or use either of these.

If SQL Server has a problem and needs to create a crash dump, it has its own memory dump process (called SQLDumper) that creates a mini-dump of the sqlservr.exe process. Typically a mini-dump is anywhere from about 50MB to several hundred MB, and contains thread stacks for the problematic operation and other internal memory structures needed to help diagnose the issue.

This mini-dump does NOT include buffer pool memory, which is what uses the overwhelming majority of memory allocated to SQL Server. In fact, SQL Server doesn't care how the page file is configured and doesn't use it at all as part of its dumping mechanism.

As far as making use of the page file to page out some of SQL Server's memory is concerned, you absolutely do NOT want buffer pool memory to be paged out as it will quickly lead to terrible performance.

On 64-bit servers, the SQL Server service account should have the Lock Pages in Memory user right assigned to it so that the buffer pool memory is allocated to be locked and non-pageable. As the buffer pool is the majority of memory used by SQL Server, the page file doesn't have to be very large once Lock Pages in Memory is set.

Another thing to think about is that if you use the old 1.5x RAM recommendation, and you have a large amount of memory with the setting on to dump all memory to disk when a crash occurs, that's going to make the time the crash takes grow by maybe hours – not good for your high availability SLAs!

I looked around for a good, comprehensive discussion on how to come up with a good page file size and found this blog post that does a great job of explaining.

Call to action: If you have page files that are 1.5x RAM for dedicated SQL Server machines, you're doing it wrong and can reduce the size of them, saving a bunch of disk space. Check out that blog post for more info.

Video Demo

We all know we should have backups that support our recovery strategy and part of that recovery strategy should include offsite backups. Beginning with SQL Server 2012 SP1 CU2 there is the ability to back up to a URL. Backing up to Microsoft Azure Storage provides a low cost method

to achieve offsite backups and is easy to configure and in this demo video Tim shows you how to set it up.

The video is just over 3 minutes long and you can get it:

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

Enjoy!

SQLskills Offerings

We've released all of our classes for 2015, listed below. We'll release the first portion of our 2016 schedule around September/October.

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

Bellevue, WA

- June 15-19, 2015: **IEPTO2**: Immersion Event on Performance Tuning and Optimization – Part 2 (formerly IE2)

London, UK

- August 24-28, 2015: **IEPTO1**: Immersion Event on Performance Tuning and Optimization – Part 1 (formerly IE1) **Only 2 SEATS REMAINING!**

Dublin, Ireland

- October 12-16, 2015: **IEPTO2**: Immersion Event on Performance Tuning and Optimization – Part 2 (formerly IE2)

Chicago, IL

- November 16-18, 2015: **IE0**: Immersion Event for the Accidental/Junior DBA
- November 16-19, 2015: **IEPDS**: Immersion Event on Practical Data Science
- November 16-20, 2015: **IEPTO1**: Immersion Event on Performance Tuning and Optimization – Part 1 (formerly IE1)

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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