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 Redmond where I've completed producing three of the team's new Pluralsight courses and we're already working on 6 more!

Our first published course of the year is the start of a series that Jonathan is doing on using Service Broker – a technology that I think is hugely underutilized in the SQL Server world. The course is called *SQL Server: Building Simple Asynchronous Applications* and you can check it out here. That makes 135 hours of SQLskills training available on Pluralsight!

This newsletter marks the five year anniversary of my producing Insider newsletters. It's funny; I never have to think much about what to write as I get so many questions and suggestions from the community. So, THANK YOU! And I hope you've enjoyed them as much as I've enjoyed writing them!

With a few courses (both of the IEPTO1 classes, IE0, and IEBI) sold out and others filling fast, be sure to book early so that you're not disappointed. The next IEPTO1 in the U.S. will be in Bellevue, WA in September, plus London in June, Dublin in October, and **we've just added another IEPTO1 and IE0 delivery in Chicago in November**. Don't forget our IEPDS on **data mining** and R, plus our two **SSIS** classes. All the schedule details are here.

Our Spring SQLintersection conference line-up has been published 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. Best practices, troubleshooting, tips and tricks are our mainstay yet this show also adds a lot of new features for SQL Server 2014 and 2016. 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.

I haven't finished any books since the last newsletter (shocking!!), so this time I'm going to tell you about a new thing I do – watching educational videos from a company called The Great Courses (it's just a cool thing – I don't have any business relationship with them). It's like getting college lectures that you can play on your mobile device (I use an iPad) and there are a ton of courses you can get. The one I'm in the middle of is *Oceangraphy: Exploring the Earth's Final Wilderness*. They look really expensive, but I only buy them when they're on sale, which

they are very frequently. I recommend you check them out. And by the way, there are lots of totally free online college courses you can download too if you want to save money and still learn.

Note: you can get all the prior Insider newsletters [here](#).

Paul's Ponderings

Continuing the corruption theme from the last newsletter, over the last week I've had two people ask essentially the same question over email (paraphrasing):

> *If I'm offloading my database backups to a secondary availability group replica, can I stop running consistency checks on the primary replica?*

The simple answer is: no.

Back when availability groups were introduced in SQL Server 2012 (four years ago already!), I remember a blog post from someone in Microsoft Product Support that said exactly that: availability groups allow you to offload both backups and consistency checks from the primary replica. And I remember vehemently disagreeing in the blog post comments.

The crux of the discussion is that the replicas are separate copies of the database, and they're stored on separate I/O subsystems, and hosted on separate servers with their own memory.

Now, remember that the primary causes of corruption are I/O subsystems, and to a muuuuuuch lesser extent, bad memory.

This means that one replica might get corrupted and the other replicas in the availability group don't, because the corruption is caused by one I/O subsystem. You might think that the I/O subsystem changes are shipped between replicas, but they're not; it's the log blocks containing changes that are shipped around and replayed, so corruption usually doesn't propagate to other replicas.

Aside #1: If you have all your replicas on the same I/O subsystem, the argument still applies, because they may be on a different portion of the I/O subsystem. Even if they're on the *same* portion of the I/O subsystem, it's unlikely that the corruption will have affected multiple replicas, although that is possible.

Aside #2: Why might you have replicas on the same I/O subsystem? It could be that you just want a second copy of the database to be available for reads, without affecting the main replica, and a bunch of other reasons.

So, you can see that running a consistency check on one replica doesn't tell you anything about the consistency state of another replica.

Here's why you need to run consistency checks for each of the replicas:

- Primary replica: this is where modifications are being made and likely queries too, so you need to make sure there's no corruption there
- The replica where backups are being offloaded: you need to make sure the backups aren't backing up a corrupt database
- Any other replicas: they could become the primary replica (or backup offloading replica) after a failure and failover, so you need to make sure there's no corruption there

Basically, you need to run consistency checks on *every* replica in the availability group, and there's no way to avoid it.

Call to action: Any time you have multiple copies of a database that are in use, or may become in use after a failover, you need to make sure that they don't contain corruption by running regular consistency checks on them, no matter whether a *DBCC CHECKDB* of the primary copy is corruption-free.

Video Demo

In this demo, Jonathan talks about the dangers of setting the TRUSTWORTHY database bit on, and demonstrates an escalation-of-privilege attack against SQL Server when the DBO of a TRUSTWORTHY database is the SA account (following some online recommended best practices), or is another account that's a member of the sysadmin fixed server role. Remember to apply the principal of least privilege at all levels of security to prevent problems similar to what is shown in this insider demo. There is no short cut to good security!

The video is about 5.5 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, including two new classes in Chicago in November that we just added. We hope to see you at a class or a conference 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

- **IE0**: Immersion Event for Junior/Accidental DBAs
  - April 25-27 **SOLD OUT!**
- **IEPTO1**: Immersion Event on Performance Tuning and Optimization – Part 1
  - April 25-29 **SOLD OUT!**
- **IEBI**: Immersion Event on Business Intelligence
  - April 25-29 **SOLD OUT!**
- **IEPTO2**: Immersion Event on Performance Tuning and Optimization – Part 2
  - May 2-6
- **IESSIS1**: Immersion Event on Learning SQL Server Integration Services
  - May 2-6 **NEW!!**
- **IEPDS**: Immersion Event on Practical Data Science
  - May 9-13 **HOT!!**
- **IEHADR**: Immersion Event on High Availability and Disaster Recovery
  - May 9-13
- **IEPTO1**: Immersion Event on Performance Tuning and Optimization – Part 1
  - May 16-20 **SOLD OUT!**
- **IE0**: Immersion Event for Junior/Accidental DBAs
  - November 7-9 **NEW!!**
- **IEPTO1**: Immersion Event on Performance Tuning and Optimization – Part 1
  - November 7-11 **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
- **IESSIS2:** Immersion Event on Advanced SQL Server Integration Services
  - September 19-22 **NEW!!**

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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