(July 8th, 2013)

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 we're at home enjoying the Seattle sun and relaxing after being away for 8 of the last 9 weeks. And, last week, we celebrated my first Independence Day in the USA since naturalizing in 2012; as Kimberly says, there's no place like home.

We now have more than 72 hours of online training available and you can try it out for free for ten days – see here.

And don't forget to check out the three brand-new classes that we're debuting in September (details at the end of the newsletter), our new IE1 class in Chicago, and our Fall SQLintersection conference in Las Vegas at the end of October (details here). There are lots of opportunities for learning this Fall and we hope to see you!

The most recent book I've read is Colin Thubron's *To a Mountain in Tibet*. I've been fascinated with Tibet for a long time, and this book adds more fuel to my go-to-Tibet fire. Thubron makes a pilgrimage from Simikot in Nepal across the Tibetan border, now controlled by China to Mount Kailas. The mountain is holy to more than one fifth of all humanity and Thubron does a good job of explaining facets of the Bon, Hindu, and Buddhist religions and how they relate to the mountain. The pilgrimage involves walking around the base of mountain, including an 18,500-foot pass, which many un-acclimatized pilgrims fail to do, and sometimes die trying. Excellent, as are all of Thubron's books.

Please let us know if you liked what you read/saw here and/or have any suggestions for future Quick Tips.

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

Paul's Ponderings

Several times a year (most recently a couple of weeks ago in London) we teach our IE3 Immersion Event on High Availability and Disaster Recovery, during which I have a long module on consistency checking and corruption. During that module there is a question that I always get asked by several attendees: *why is it that sometimes corruptions seem to disappear?*

The situation is commonly as follows:

- There is a regular SQL Agent job that runs DBCC CHECKDB
- One morning the DBA finds that the job failed, reporting corruptions in one of the databases
- The DBA runs DBCC CHECKDB on that database again, but this time there are no reported corruptions

This can lead the DBA to mistrust DBCC CHECKDB. Remember the SQL Server 2000 days where sometimes DBCC CHECKDB occasionally reported corruptions when there weren't any?

Those days are thankfully gone now: if DBCC CHECKDB reports corruption, then *at that time* there was definitely corruption.

Think about what DBCC CHECKDB is doing: it reads and processes all the allocated pages in the database – all the pages that are part of tables and indexes at the time that DBCC CHECKDB runs. It doesn't check *all* the pages in the data files; only those that are currently being used. The pages that are not currently allocated to an object cannot be checked as there's no "page history" maintained. There's really no way for DBCC CHECKDB to tell if they have ever been used before or not and since they're not currently allocated there's no valid page structure on them and no past to verify.

And, if your database is still being accessed then the set of allocated pages can change after DBCC CHECKDB runs. A simple example of this occurring is:

- Nonclustered index X of table Y has some corrupt pages in, which the DBCC CHECKDB (being run by a SQL Agent job) reports
- Another SQL Agent job runs and performs index maintenance where it rebuilds index X (the rebuild operation always builds a new index and then drops the old index)
- The DBA runs DBCC CHECKDB manually and there are no corruptions reported in the new index structure

Nonclustered index corruption is the best kind of corruption to have. The rebuild operation rewrote the index to a new set of pages and deallocated the pages that had corruption. When DBCC CHECKDB is run manually, those new pages are not corrupt and the old pages are not checked, as they are no longer in use.

These kind of 'disappearing' corruptions are a problem because it's almost impossible to investigate them further. However, they could indicate a problem with your I/O subsystem. If you find that they're occurring repeatedly, consider briefly preventing the process that causes the corrupt pages to be deallocated so you can investigate the corruption.

Another cause of disappearing corruptions can be transient I/O subsystem problems, where page reads sometimes fail outright and then succeed after that. Take a look at these blog posts on read-retry and Agent alerts for more information.

Call to action: From SQL Server 2005 onward, if DBCC CHECKDB reports corruption, then at the time that it ran there definitely was corruption. Make sure you don't just ignore the problem as next time the corruption occurs, you may not be so 'lucky' that it just seemed to disappear.

I'm curious to hear your thoughts on 'weird' DBCC CHECKDB behavior, so please feel free to drop me a line, treated confidentially of course.

Video Demo

From Joe:

In this month's insider demo video, I demonstrate how sometimes our standard troubleshooting techniques are unable to detect the root cause of a performance degradation issue. This is a good reminder that all methodologies have their limitations.

The video is just over 6 minutes long and you can get it:

- In WMV format here
- In MOV format here

You can get the demo code here.

Enjoy!

SQLskills Offerings

As I mentioned above, we have three brand-new classes running in Bellevue, WA this September/October 2013. They're sure to sell out fast, so don't delay!

Please know that these classes are final as the hotel contracts are signed, and the classes will not be cancelled or moved for any reason, nor will the dates change.

- September 16-20, 2013: Internals and Performance (**IE1**) in Bellevue **(SOLD OUT!)**
- September 18-19, 2013: Hardware (**IEHW**) in Bellevue, WA – USA
- September 23-27, 2013: Performance Tuning (**IE2**) in Bellevue, WA – USA
- September 30-October 2, 2013: Accidental DBA (**IE0**) in Bellevue, WA – USA
- September 30-October 3, 2013: Advanced T-SQL (**IETS**) in Bellevue, WA – USA
- **NEW: November 11-15, 2013: Internals and Performance (IE1) in Chicago, IL** – USA

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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