(February 18th, 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 Tampa, FL where we've just finished teaching our first set of Immersion Events for 2013, both of which were lots of fun and very successful. We also had our first full-team get-together, which was a great way for us to get some team-bonding time and enjoy warmer weather (all of us except Jonathan live somewhere that's cold this time of year) ☺

In online training, my latest Pluralsight course has just been published – Communications: How to Talk, Write, Present, and Get Ahead! It's distilled advice from my 15 years learning how to communicate effectively in a wide variety of situations – check it out!

And in conferences, we've just completed our line-up for a brand-new conference called SQLintersection. It's focused on real-world performance tuning and troubleshooting hosted by industry experts (including Conor Cunningham, Bob Ward, Kevin Farlee, Paul White, Brent Ozar, Aaron Bertrand, and many more!) We've written a couple of blogs posts about our new event and we think it's one of the best line-ups we've ever put together for a conference. And that's easy to do since we aren't affiliated with any sponsoring vendor (this is NOT a Penton conference). Check out the details on these posts:

- Kimberly's post: SQLIntersection: a new year, a new conference
- Paul's post: SQLIntersection: your new SQL Server conference

The most recent book I've read Kim Stanley Robinson's *Red Mars*. It's the first in a really fantastic trilogy (*Red Mars*, *Green Mars*, *Blue Mars*) that tracks the gradual colonization of Mars in the very near future. I originally read the series back in the mid-90s and decided to read them again. It's very believable, without really advanced sci-fi technology, and with all the usual human political and psychological flaws leading to conflict on Mars. I strongly recommend this book and the whole trilogy.

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

One of the most pervasive misconceptions is that CXPACKET waits mean there is something wrong. Here's my quick refutation of that misconception.

CXPACKET waits mean you have parallel operations, which can be a very good thing. In a parallel operation, you'll have a control thread and some more threads, typically 2x the degree of parallelism (DOP) that the query plan operator is running at. The control thread always accrues a CXPACKET wait for the duration of the parallel operation. The other threads will only accrue CXPACKET waits if they complete before the rest of the threads.

This means that in a parallel operation where the threads have a properly balanced amount of work to perform, only the control thread accrues a CXPACKET wait. This is perfectly normal.

In a parallel operation where the distribution of work for the threads is skewed (e.g. in a table scan with out-of-date statistics, so one thread gets more work to do than the others), CXPACKET waits accumulate quickly as threads finish their work and wait for the long-running thread(s) to complete. This is not good.

In the case where CXPACKET waits are accruing really quickly, there are two things you can do, using the DMV sys.dm_os_waiting_tasks (see my code here). Firstly, look for the thread that is NOT waiting for CXPACKET – what is it waiting for? Also look at the query plan for the query and see if it makes sense for the query that's running. For example, is there a table scan happening when you expect an index seek? Maybe there's a missing index or a query plan has changed. I cover a bunch more possibilities in my wait statistics online course, and in our IE2 on performance tuning.

If you want to remove or reduce unwanted parallelism, here are some good options:

- Use a MAXDOP hint on specific queries to control them.
- Use Resource Governor to limit a group of queries to a workload group with a MAX_DOP set (very useful for servers with mixed workloads where an instance-wide MAXDOP isn't appropriate).
- Increase the sp_configure option 'cost threshold for parallelism' so that shorter queries don't run in parallel. Jonathan has a great post on that here.

It's really a last resort to set the instance-wide MAXDOP to a low value, but that may be necessary. Just make sure that if your server has NUMA that you set the MAXDOP to be no higher than the number of cores per NUMA node, to help prevent costly foreign memory accesses (a processor core from one NUMA node accessing memory in another NUMA node).

Call to action: The next time you're tuning a SQL Server system and you're concerned about CXPACKET waits, don't knee-jerk and set instance-wide MAXDOP to 1 (or a low number) to try to reduce CXPACKET waits. Work through the query plan analysis steps I've outlined above and take more appropriate, less drastic action. Remember that CXPACKET waits can just mean you've got 'good' parallelism happening, and that's one of the best performance features.

I'm curious to hear your thoughts about CXPACKET waits, so please feel free to drop me a line, treated confidentially of course.

Video Demo

From Joe Sack:

Last November I blogged about a change in SQL Server 2012 SP1 that can positively impact distributed query plan quality ("Distributed Query Plan Quality and SQL Server 2012 SP1") and in this week's Insider demo video I'd like to show a specific example of this improvement in action.

The video is 5 minutes long and you can get it:

- In WMV format here
- In MOV format here

 You can get a zip of the demo code here.

Enjoy!

SQLskills Offerings

All of our 2013 public classes are filling up fast! Based on requests from people, attendee ratings of the hotels we used last year, and the ease of using hotels we know, we're using the same locations again. This means we cover both sides of the US, central US, and Europe.

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. We are not planning any other locations for 2013.

- April 29-May 3, 2013: Internals and Performance (**IE1**) in Chicago, IL – USA
- April 29-May 3, 2013: Immersion Event for Business Intelligence (**IEBI**) in Chicago, IL – USA (co-located but in a different training room. Attendance is for one event or the other; these cannot be combined for one attendee where they move back/forth.)
- May 6-10, 2013: Performance Tuning (**IE2**) in Chicago, IL – USA
- May 13-17, 2013: High Availability & Disaster Recovery (**IE3**) in Chicago, IL – USA
- May 13-17, 2013: Immersion Event for Developers (**IEDev**) in Chicago, IL – USA (co-located but in a different training room. Attendance is for one event or the other; these cannot be combined for one attendee where they move back/forth.)
- May 20-24, 2013: Development Support (**IE4**) in Chicago, IL – USA
- June 3-7, 2013: Internals and Performance (**IE1**) in London – UK
- June 10-14, 2013: Performance Tuning (**IE2**) in London – UK
- June 17-21, 2013: High Availability & Disaster Recovery (**IE3**) in London – UK
- June 24-28, 2013: Development Support (**IE4**) in London – UK
- September 16-20, 2013: Internals and Performance (**IE1**) in Bellevue, WA – USA
- September 23-27, 2013: Performance Tuning (**IE2**) in Bellevue, WA – USA

One thing to note is that the course prices have increased slightly for 2013, reflecting increasing food, logistics, travel, and accommodation costs. We kept our prices the same for the last three years but now we have to raise them a little.

For US classes, the new early-bird price is US$3,295 and the full-price is US$3,795. However, for all past attendees in the 12 months prior to registration, we will only charge the 2012 early bird price of US$2,995. As an alumnus, send us an email prior to registering and we'll give you a code to use to access this special rate. And **be sure to get your registrations in early!**

For UK classes, the new early-bird price is US$3,795 and the full-price is US$4,295. There is a similar past-attendee price equal to the 2012 UK early bird price of US$3,495. **Again, be sure to get your registrations in early!**

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

So, that's it for now. We hope to see you soon!

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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