ORACLE

Statistics and Migrations
– Well-Kept Secrets Revealed

Virtual Classroom 29

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Migration

If we move from AWS Oracle RDS to OCI, what is the best way for the statistics move?
Regather - I would attempt it this way.

With Data Guard, if the database is switched over or switched back, which/what statistics do you prefer need to be regathered?
With Data Guard you're doing a physical migration. The statistics in your database are accurate and match the data. There's no need to do anything.

Before downtime, in SQL Server to ADB migration, we have to enable constraints and triggers. So in that case, how do we speed up constraints enablement during cutover after stats gathering was done before cutover?
Check this article:

https://dohdatabase.com/2024/10/03/how-to-speed-up-data-pump-imports-using-novalidate-constraints/

Hardware

We are replacing disks in our Exadata system. Should we gather new stats afterward?
The object statistics are not affected by the way you store data on disk. But for Exadata it might be a good idea to gather system statistics. If I recall correctly, there are cases where system statistics can be useful on Exadata.

Statistics

Are there any negative impact of having histograms?
It takes additional time and resources to create the histograms during statistics gathering. Also, they use a very minimal amount of space in the data dictionary. However, in many cases histograms are required for the optimizer to make the right cardinality estimate.

Is it advisable to collect dictionary statistics along with full database statistics following a database migration or upgrade?
We advise dictionary stats collection always after a migration, when your database is already warmed up, or after a significant schema change on your database. Say you import and add 500k new partitions to your schema, this will change the part$ table with many new entries and in this case, having accurate stats will help the internal queries.

In my production database there are a lot of Oracle maintained tables which have stale stats, so will there be any application impact if we gather the stats on them?

If there are Oracle maintained objects with stale stats, those will be refreshed by the automatic stats gathering that runs in your maintenance window. However, only after gathering stats on your own objects. You should check whether stats gathering has enough time to complete on all your objects.

You can manually execute DBMS_STATS.GATHER_DICTIONARY_STATS as a one-time task to get good stats. You should do that in an off-peak period.

Stats going stale or stats are not accurate are same?

Actually there is a difference technically.

STALE means: The underlying data has changed by more than 10% (which is the default and can be altered). While it looks at first sight that inaccurate stats may be the same as stale, this is not the case.

INACCURATE means that the stats stored in the database don't represent the actual data anymore. This can happen even when statistics are not stale.

For instance:

A skewed column changes distribution dramatically, but only 1% of rows are modified.

A histogram no longer reflects the actual frequency distribution.

Data is loaded into a new partition and incremental statistics were not maintained properly.

Correlated columns change relationship over time.

SQL Performance Analyzer

Will SQL Performance Analyzer take the storage indexes from Exadata into account?

SQL Performance Analyzer does a test execution of the statement. It will execute the statement 10 times and do an average. Since it does a real execution of the statement it will do the same work as if a user executed it.

Tuning

The normal rules for Oracle tuning do not always fit on our 8-node Exadata. Full table scan is faster than index scans, and Tuning Advisor comes with "Create index"... not always the best solution.

But this is where SPA is amazing. Because you can implement all the changes you can come up with, do a test execution and see what happens. No guessing, no assuming, no "feeling", just facts based on the execution. This is really a powerful tool that we've used many times with great success at customers.

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