Title: Real Value of Remote Oracle Health Checks

Author: Patrick Gates

Abstract: There's no such thing as a self-driving database. If you expect your Oracle databases to perform consistently at high levels, you need to have a maintenance program. The first part of that program is an assessment: How is my database performing, and are there any problems? It sounds simple, but for most modern complex database environments, a proper assessment requires a variety of tools and a lot of experience interpreting the results. This white paper takes readers step-by-step through an Oracle database health check. We'll look at issues related to size, space, configuration, performance, security, and best practices. We'll also see why in many cases it's prudent to bring in an independent third party to perform your database assessments.

"If It Ain't Broke, Don't Fix It": Bad Advice for Databases

Complex databases need regular assessment and tuning to eliminate problems that can cause slowness, poor performance, unavailability, inaccuracies, and a wide variety of database insecurities.

Database assessments lead to cleaning out bad data, identifying problems causing performance issues, simple patches to eliminate some problems, recommendations for software, recommendations for data storage, and a tightening of security that often erodes with the high-paced movement of sensitive data.

- Database assessments — or "health checks" — are the first step in **database planning**. They help identify priorities for budget spent on database architecture and services.

- Database assessments are essential **before upgrades** to establish a baseline of performance and to be able to track back any problems with the upgrade to the point of assessment.

- Database assessments are highly recommended before any major **data migrations**. If you're parking your data in a data warehouse or migrating it to the cloud — or pursuing a migration in combination with an upgrade — a database assessment should be performed before and after and performance results tracked.

- Whenever there are major **database problems**, assessments and health checks are the first step in identifying the causes and getting the database back up and running.

Best practices dictate database health checks at regular intervals and before making any major changes to the database. One reason to schedule health checks regularly is it is seen as a best practice for monitoring database performance. A regular health check relieves DBAs of always

fearing reporting "bad news" and acts as insurance against major problems developing, which your staff might not be able to handle.

You wouldn't think of driving a car for 100,000 miles without having it properly serviced. Your databases also need to be properly serviced. In both cases, you can often avoid a crash through regular health checks.

Problems Caused by Not Conducting Oracle Server Health Checks

Sometimes the problem is obvious: Your database keeps crashing. Finding out why could involve untangling hundreds of interrelated issues. Sometimes the problems accumulate for years because nobody wants to or is able to clean house.

A real health check does not just look at the performance of the data storage and retrieval system; it also takes into account the experiences of end users in getting satisfactory results out of the system.

You might have a database problem if you:

- Can't get access to the system when you need to

- Can't access the system at peak times

- Experience long delays and other difficulties logging into the system

- Experience long delays in dashboard refresh or database updates

- Are unable to replicate the database accurately

- Are unable to recover the database when needed

- Have difficulty backing up the database

- Hear frequent complaints from database users

- Have large numbers of users locked out for long periods of time

- Lose transactions that were entered into the system and disappeared

- Are fined for failure to properly comply with backup and security requirements

- Experience forced software upgrades performed on the spot rather than planned for

Health checks aren't just for troubleshooting database problems. They enable you to get a feel for how your database can be expected to perform under peak conditions, and allow you to proactively plan upgrades and expand your capacity to manage growth.

Regular database maintenance can also reduce the cost of upgrades and ongoing maintenance by catching problems as they happen and not allowing them to pile up until the next upgrade or migration.

What Should an Oracle Server Health Check Include?

There is a wide array of diagnostic tools available for assessing database performance, and quite a few vendors who will perform an assessment for you. Datavail uses its own 72-point assessment developed with the input of hundreds of DBAs.

Database health checks can be tricky. They involve granting access to an organization's most confidential data. When selecting a health check vendor, look for a firm with a strong track record with the configuration you are currently using. Practice makes perfect in database assessment, which is why it's a good practice to have your databases regularly assessed.

Here are some of the 72 things Datavail looks at in our Oracle health checks:

1. Size and Space Issues

- Size of your SGA

- Object size

- Size of database

- Space utilization, file system (ASM?)

- Adequate space for backups

- CPU, disk and memory utilization

- Table space critical and warning threshold levels

2. System Issues

- Database components

- Backup test

- Recovery test

- Is it a supported version of Oracle?

- Has it been patched?

3. Performance Issues

- How are the stats being generated?

- Issues related to collecting stats

- Unusable indexes and invalid objects

- Is table space, auto extendable data files used?

- Top buffer gets, reads and lag times

- IO balance across the file system

- Block change tracking

- Wait statistics through the database

- Are you taking advantage of flashback?

- Logging operations

- Corrupt log files

- IO stats: top reads, top writes

- Re-do logs

4. Security Issues

- Analysis of user accounts

- Dormant accounts present security risks

- Are privileges properly assigned?

- Is recycle bin properly configured?

- Listing of hidden users

- Listing GRANTs on SYS tables

Oracle Health Check Best Practice Recommendations:

The results of database assessment and diagnostic tools should be consolidated into reports and interpreted in a way that leads to clear recommendations. Comparison of test results with standard deviations helps rank priorities for improvement.

Here are some of the best practices Datavail looks for in our database assessments:

- Backups:
    - No backup failures recorded
    - Accurate backups past 14 days
    - Backup strategy matches corporate and legal requirements
- Runs Cleanly
    - Runs a supported version of Oracle without crashing

- o   Eliminated locked accounts you aren't required to maintain

- o   Replaces generic accounts (admin) with specific user names

- ● Health Check Frequency:

- o   Monthly for high-stress, high-turnover agile environments

- o   Quarterly for a growing user base generating growing data

- o   Semi-annual for non-growing, steady-state user bases

- ●

The Benefits of Outsourcing Oracle Database Health Checks:

Database health checks are a critical component of managing a healthy database-operating environment. They can be difficult for in-house DBAs to perform due to the breadth of knowledge and experience required and because the DBA does not want to be blamed for any performance problems discovered. Contracting with a third party to perform regular health checks ensures that problems will be caught early and system performance will not be confused with staff performance.

A firm like Datavail comes into health checks with a team of hundreds of DBAs who have shared knowledge on how to assess and interpret database diagnostics. We have compiled this expertise into a proprietary assessment tool that reports on a series of 72 tests of database capacity, speed, resilience, flexibility, and security. Our team of DBAs have assembled guidelines for best practices in database management that are used throughout the industry.

You don't have to have the most upgraded version to perform a health check. That means Datavail's experts can help extend the life of your databases and database licenses through proactive management of database assessments and will recommend the best practices based on your sorted release.

Datavail has earned the respect of DBAs throughout the industry. Our health checks are welcome by DBAs because we don't dictate solutions or play favorites. Datavail shares information in an orderly fashion. Our Oracle health checks can help DBAs learn to better assess and correct their database issues. In the end, they learn to use regular health assessments to proactively manage database needs rather than waiting for a crash that can't be patched or forced to patch.

It's nice to know where you are, what your needs are, and have a plan to get to where you need to be. With health checks from Datavail, you will have the data to back your demands.

"Proactivity is having a plan with a consistent baseline approach that is a documented, repeatable process focusing on results and reducing or preventing downtime."

-- Chuck Ezell, Datavail, IOUG Presentation

Datavail is the largest provider of data and database administration (DBA) services in North America with more than 600 DBAs, analysts, developers and consultants. We offer 24×7 managed services and project consulting in database administration, BI/Analytics, data warehousing, and enterprise performance management. Datavail's expert consulting team specializes in integrations, implementations, and upgrades for applications across the Oracle stack, including Hyperion, OBIEE, OBIA, GoldenGate, Weblogic and more. Contact Datavail today if you would like assistance assessing your databases.

SOURCES:

The 5S Approach to Improving Database Performance

The Business Value of Complete SQL Server Health Checks

Performing Oracle Health Checks with APEX