

OPTIMIZE THE PERFORMANCE, COST, AND VALUE OF DATABASES

INTRODUCTION

The organizations of today run on data. This makes it essential for them to access data fast. This requirement means databases must run well at all times. However, keeping a database performing at its best remains a challenging task. It is fortunate that database administrators (DBAs) can adopt many practices to achieve this goal, thus saving time and money.



AUDIT DATABASES

Databases may lose performance over time without proper maintenance, often because the design of a database no longer meets its current needs. Regular database audits should evaluate the schema by reviewing the logs for functional activities, such as table views, updates, and deletions. It is also important to review database accounts. This ensures that users have the minimum privileges needed to do their jobs. This is important for privileged users who can make changes that could compromise a database's integrity.

MONITOR VIRTUAL MACHINES

To transition from on premises to cloud-based computing can pose another challenge for DBAs seeking to improve how their databases perform. Databases are resource-intensive applications. So, a database that ran well on premises can experience poor performance when running inside a virtual machine (VM). The solution is to use a monitoring tool that can detect problems with the database and help optimize queries. Such a tool should also be able to monitor how the entire VM performs.

DELETE UNNECESSARY DATA

Delete data that is no longer needed to improve how queries perform. The reason is that they no longer need to return irrelevant results. However, just deleting rows is not always the best way to accomplish this task. This is true if you want to delete large portions of a table. In these cases, it may be better to move the rows you want to keep into a new table. You can then drop the old table. Rename the new table with the name of the old table at the same time.

AUTOMATE ADMINISTRATIVE TASKS

DBAs already have the tools needed to automate many of their tasks. However, that does not mean they should always maximize automation. To decide to automate a particular task requires you to ensure that automation will save time in the long run. For example, automation may not help much if the task involves a good deal of manual data entry. A task like manually rebuilding a fragmented index does not scale well as the number of tables increases. Here, one can automate the entire task through the use of a configuration table.

OPTIMIZE SQL QUERIES

Queries with a poor structure are one of the most common causes of sluggish database performance. Narrowing the result set to the minimum needed to achieve the goal of the query is one of the easiest ways of reducing its execution time. Changing a query to reduce the probability of deadlocking is also an effective means of improving performance, since this condition prevents queries from obtaining the resources they need.

SCHEDULE LONG SQL QUERIES

Sometimes the execution time of a query can be prohibitive even after you have optimized it. Here, schedule the query to run when the demand on database resources is lowest. That is often beyond business hours. It is beneficial to schedule long-running queries that are not time sensitive.

MANAGE DATABASE GROWTH

DBAs must often manage the growth of their databases to prevent applications from failing just because a database ran out of space. To set the maximum size of a database to a particular value is an easy way to prevent this occurrence. However, it also means that users will get an error when they try to add more rows to a table. DBAs should be careful when reviewing a database before setting a maximum size limit to ensure this action is the solution. It is often better to allow a database to grow by itself, provided storage capacity is not an issue.



SOLUTION

IDERA's SQL Diagnostic Manager for SQL Server helps database administrators to find and fix SQL Server performance problems in physical, virtual, and cloud environments - including managed cloud databases. Unlike its competition, it provides effective scalability, advanced SQL query analysis and optimization, and prescriptive analysis with corrective SQL scripts. Unique features also include powerful automated alert responses, broad PowerShell integration, complete customization, and extensive support for current and legacy SQL Server and Windows.

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