

Teleran Technologies: Easing Data Warehouse Optimization

Even with considerable investment in time, skill, and money, enterprises have had a lot of difficulty in optimizing their data warehouses. The Teleran System from Teleran Technologies relieves these pain points by giving advice on ways to improve data warehouse design and by automatically optimizing queries.

The Struggle to Optimize

After having successfully built data warehouses, many enterprises are now struggling to optimize the warehouse environment so that users receive their query results as quickly as possible. This goal is especially difficult to achieve, due to the numerous, different, and changing queries run against the data warehouse and the relatively primitive nature of most optimization tools.

Although various partial solutions have been on the market for some time, a company called Teleran Technologies is finally attacking this problem by offering a software package that centralizes the optimization function. Working with a wide variety of analytical tools and databases, this solution reports on ways to improve the data warehouse design while using an expert system to automatically optimize queries.

Optimizing on Multiple Fronts

The Teleran System Server, which sits between the client-based analytical tools and the server database(s), monitors the syntax and resulting execution times of all submitted queries. The insight it gains enables it to optimize the data warehouse in multiple ways. Possible actions include suggesting ways to improve the data warehouse design, preventing potential runaway queries from executing, and automatically improving poorly written queries.

Reports from the Teleran System describe the query activity in detail. By documenting what data is infrequently accessed, these facts help DBAs design data archiving strategies. The reports also help DBAs to target the detail data that, when aggregated, will create faster queries.

The system prevents queries from wasting resources by comparing the submitted query's syntax against control rules stored within the Teleran Administrative Database. If a query violates a rule, the system returns the query to the user with an English explanation of why the query was rejected and how to improve it. This prevents so called runaway queries from ever consuming database resources, in sharp contrast to most SQL governors, which allow a query to run, and then cancel it after it has exceeded a resource threshold.

Poorly written queries are corrected. If the system can automatically improve the query - for example, by using an already created aggregate field rather than taking the time to summarize detail fields - the system modifies the query on the fly and sends it to the database.

The System Learns and Teaches

As a history of queries is accumulated, the Teleran System starts to use expert system technology to analyze the syntax of past queries and the corresponding resource usage to recommend new query control rules. This conserves a DBA's time, since the DBA doesn't need to analyze logs to create new query control rules. Furthermore, the DBA maintains control and decides which rules are applied.

These rules will change, as an unpredictable mix of users modify their queries in order to react to changing business plans. Given the pace of change of many businesses, "hard-coded" optimization rules may be outmoded at any time. The system adapts to this change by continually learning - using induction to keep effective rules and revise outmoded ones.

Since all queries pass through this monitor, DBAs can now go to a single place to learn about this evolving usage pattern. Rather than fragment their time and attention between multiple client and database optimization tools, DBAs can now watch the interplay between the queries and the database from the Teleran System.

Unobtrusive, Vendor Neutral, and Chargeback Capable

The Teleran System is designed to be unobtrusive: no additional software, processes, or trace facilities are required at either the client machine or the database server.

Moreover, the package analyzes queries at the native database protocol level. By working at this layer, any analytical tool can be used at the client, thus allowing the Teleran System to work with both ODBC and non-ODBC compliant client applications. In addition, the server is written in Java. By thus avoiding the time-consuming process of "porting" the code to different hardware platforms, Teleran Technologies can deliver new product versions to its customers quickly on a wide variety of server platforms.

Because the system monitors all submitted queries in detail, it offers both security and chargeback capabilities. This chargeback capability is of growing importance, as IT managers grapple with equitably apportioning data warehouse costs across the growing number of departments accessing the warehouse.

Aberdeen Conclusions

Although many systems have helped tame various problems in querying data warehouse databases, the problems faced in optimizing the *entire* environment have eluded most suppliers. The Teleran System, by consolidating the optimization knowledge base into one place and making it less labor intensive, has met these multiple challenges.

Managers interested in effectively tuning their entire data warehouse environment at a minimal cost should give the Teleran System a close look.

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