LPA SYSTEMS

BI Health Check

Business Overview

Our client is large VoIP communications service provider focused on the business market. Years of industry experience, a proprietary infrastructure and an exclusive focus on business-class solutions make our client's solutions for VoIP and Internet used by millions.

With the growth of their business, our client implemented a Cognos 10 reporting solution to help them identify opportunities with their data. The Cognos solution was internally built and placed on top of two Windows 2008 Servers with a back-end database on both Netezza and Oracle environments.

Business Challenge

Our client was finding significant run times for many of their reports (many on the order of hours to run), yet when run natively in Netezza, the results were returned in seconds. Another performance challenge was on scorecard-style reports constructed by the Finance group. "Thousands of very small queries" were generated by Cognos and sent to Netezza, with the resulting delays in runtime of the scorecards. And, with multiple back-end sources, our client was concerned with performance across those sources.

Our client's users were very frustrated and found the Cognos environment unusable. Remote support from IBM could not identify the problems. They asked LPA to come in and perform our 5-day Health Check.

Solution

LPA has found complex BI environments often have performance problems. These problems can manifest themselves from several different parts of the environment:

- Hardware configurations and active features
- The way Cognos was implemented and configured on the hardware
- The database implementation and structure (and missing indexing)
- Design flaws in the Cognos Framework Manager Model(s)
- Poorly written SQL

Generally speaking, however, there are several standard practices to follow that in most cases, will avoid these kinds of performances issues. These include checking the Cognos environment for appropriate configuration, use of proper data warehousing structures, proven metadata modeling techniques in the framework model, and proper report construction techniques.

While there is always the tendency to immediately focus on the biggest problem that the client has identified, LPA's structured approach analyzes the foundational elements, gets them right, and then builds up the stack, fixing each layer as we go, ultimately arriving at the end-user reports that manifested the problems.

1. We first validated the current Cognos 10 configuration and installation according to IBM/Cognos' recommended best practices
2. We then moved to the back-end and ensured proper data warehousing structures were used (including indexes, partitions, joins, etc.)
3. Next we looked at the framework model to ensure it followed correct modeling techniques, from an IBM Cognos recommended best practice standpoint
4. Finally we corrected poorly written SQL when identified in reports

Results

We found and fixed problems at all layers. We reviewed the Cognos configuration (adjusting the number of processes, among other things) and implemented Cognos Concurrent Query Processing system-wide. We reviewed the database configuration and implemented Oracle's parallel processing (on the Oracle sources). We also modified the data source connections to use JDBC and added some missing indexes.

The changes we made sped up the reports by 100X and the scorecards by 50X. Things that ran in hours now run in less than a minute, a quite acceptable result for the users. The client's users are now very happy with the Cognos Reporting environment.

We also developed four new Audit reports. These reports help identify poorly performing reports and allow our client to work through issues with them one by one.

And finally, we documented our report findings, implemented and recommended the best practices to improve performance, reuse, and efficiency, and reviewed everything with the client's project/technical manager.