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Case Study: Improving a Large Internet Companies BI Environment & Helping Implement SAP Business Objects

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Overview

Our client is a large Internet company with a variety of ERP & CRM distributed systems as well as different business information sectors such as accounting, billing, sales, profits, Credits, Products, Proposals and Online operational data.

SAP Business Objects 3.1 was the BI suite implemented in an Oracle 11g DWH environment.

The key deliverables were:

- Manage the BI on the project which will improve the entire BI department
- Deliver gap analysis report to the BI managers
- Improve reports performance
- Implement auditing , impact analysis and version control tools
- Implement complex security model

The Problem

Due to former integration with several companies the BI environment was unstable:

- There was no separation of information areas (one enormous universe)
- Performance was slow on many of the reports
- Due to the complexity of the universe many users didn't adopt Web intelligence & Desktop intelligence tools as the main reporting tools
- Numerous free hand reports were developed due to the universe complexity
- The security model wasn't managed automatically, security breaches were found
- No insight on which reports, tables and objects were used
- Scheduled reports failed to run over night due to DWH server down times and system failures
- The Business objects environment wasn't ready for backups, system restore and version control.
- All changes had to be implemented without affecting the production environment

The Solution

The Exist Business Intelligence team prepared a well detailed project plan in order to make the entire BI environment perform at its best.

Our main challenge was restoring the users back to the SAP Business Objects environment and the best way to that was to re-structure the multi size universe.

Our experienced team made an analysis on how the universe was built using a combination of our unique knowledge and automated tools. We determined that 90% of the business information topics shared a similar structure and over 50% of the joins were outer joins.

We started to develop a core\shared structure (Linked Universe) that will contain the common structure for all the specific universes that will be developed separately:

- Relational integration (RI), lookup tables and specific flags were created in the data warehouse in order to eliminate the need for outer joins.
- A **product combination table** was developed in order to eliminate the users from working with union operators and sub queries, business questions like who bought product A and B and not C could now be made easily with a single set of SQL.

In less than 2 months of work our team developed from scratch a set of 12 universes that were based on the same structure which eliminated these problems:

Cartesian products were solved, inefficient SQL statements, over technical and complicated maintenance, row level security problems and most important users were getting back to the SAP business objects environment (as our auditing tools showed).

In parallel we developed a "tailored" training program for all the users (500+) that was based on their specific lack of knowledge and on the new universes, by doing that we achieved both:

- Extending the users knowledge
- Training the users to work with the new universes.

The Exist team developed a set of advanced auditing reports that helped the BI team to evaluate and monitor in a most efficient way license control, password lick control and alerts about reports that were built in an inefficient way.

Another set of reports were developed in order to track in real time which reports created runtime errors or took a long time to run. After further analysis, a set of performance tuning methods were implemented into the back hand and in the front end layer.

For example:

Many major reports lacked appropriate aggregative tables which also indicated on how the data warehouse needed to be restructured.

Our team developed with the collaboration of the back hand team a set of aggregative tables that were used integrally in all the relevant universes and in many cases reports improved heir running time by 50% to 60 % percent.

Once the universes and reports started to stabilize it was the time to implement improvements in the SAP Business Objects environment:

- Two more servers were added to the cluster in order to improve stability and performance as well as to ensure that if one server will fail at least one more will continue to work properly
- All the scheduled reports were connected to special scripts and to Control – M integrated suite for Sap Business Objects in order to insure that only when the DWH updated procedures has ended reports will start to run.
- We also added an identifier to the reports that only in the case that there was data, reports will be scheduled and sent to their destinations.
- A backup plan for the Sap business Objects server was made and gave the BI team the possibilities to perform a full server back up or just a repository version backup.
- Active directory was fully integrated into the security model, creating one place of maintenance for the BI administrator
- A third party tool was implemented in order to get impact analysis on which universes, reports, tables, objects and users will be effected from a change as well as which of these objects was actually used.
- Change management tool and procedure was implemented among the universe designers in order to track and document changes.
- Almost 80% percent of the free hand reports were "pushed back " to a simple universe reports by implementing advanced SQL methods in the universe (Exist operator, inline views, union all, multi pass SQL, Hints, @db link)

Conclusion

Exist delivered to the customer end to end services that improved in measurable ways the performance of the entire BI department and the user's usage of the BI environment.

Exist remained a trusted partner that delivers:

- Consulting for SAP Business Objects
- New integration project managers
- Ongoing training services to all staff (SAP Business Objects, Informatica and Data Warehouse methods)