Enterprise Case Study: Accelerating business reporting with engineered systems

How Deutsche Telekom produced BI reports up to eight times faster with Oracle Exalytics
Summary

Catalyst

Many large enterprises use reporting to ensure managers can monitor key performance indicators (KPIs) during office hours. Such KPIs include average revenue per user (ARPU) and customer lifetime value. High-performing businesses are much more likely to use analytics strategically than low performers. Enterprises look to resolve business challenges by processing large amounts of data. With the right insights, they can move forward business objectives, attain revenue goals, and maintain a competitive advantage.

Deutsche Telekom (DT) is one such enterprise. It has a centralized reporting function that serves the whole business. It has to provide timely insights into more than 3,000 KPIs for more than 300 financial controllers and managers. Using Oracle’s Exalytics platform, DT has been able to improve data retrieval times by a third and cut data-loading times by half. It therefore can produce reports more quickly, ensuring a faster response to business intelligence (BI) needs.

Ovum view

DT’s use of Oracle Exalytics shows how a standardized, scalable architecture can quicken the pace of critical BI operations such as cross-functional management reporting, operational support, and HR planning. The Oracle Exalytics In-Memory Machine enables fast response times with no network latency or disk I/O. Organizations can use the engineered system to reduce the cost and complexity of database infrastructure, while increasing productivity and performance.

Key messages

- DT has invested in a solution that will allow it to speed up its reporting and analysis to show the financial impact of all decisions quicker and meet market demand for modern mobile and broadband communications, entertainment services, and innovative technology solutions.
- The solution uses an upgraded version of Oracle Essbase to leverage past technology investments and ensure technical support continuity for BI requirements, such as sales forecasting, budget variance analysis, and business scenario planning.
- The solution enhances data retrieval times by a third and cuts data-loading times in half to respond faster to BI needs, bringing benefits such as substantially faster report generation.
- DT has managed to achieve Oracle Essbase restructuring eight times faster than with the previous solution. This has enabled business users to leverage all OLAP server features — including customer churn analysis — during office hours.
- Upgrading to Oracle Essbase on Oracle Exalytics In-Memory Machine has at least tripled the speed at which DT can generate and use BI, enhancing its management reporting capabilities.
Using Oracle Exalytics to achieve faster reporting

Setting the business context

**Deutsche Telekom needed faster reporting to overcome business bottlenecks**

DT is a large mobile and fixed-line telecoms company based in Germany, with subsidiaries all over the world. With more than 150 million cellphone customers, 31 million landlines, and 17 million broadband connections across 50 countries, it is a world leader in integrated communications. Its solutions provide a single source for a broad range of communication, entertainment, and IT services to consumers and business customers. With its state-of-the-art network infrastructure as a solid foundation for its offerings, DT aims to be its customers’ first choice for a connected life and work.

DT’s Management Information Platform (DTMIP) is a critical function of the company, providing centralized reporting on areas such as financial and functional KPIs, financial statements (e.g. P&L, balance sheets, notes, and cash flow), profitability analysis (e.g. functional P&L), and steering dimensions (e.g. channels and products). DT has specific KPIs for technology, sales, customer service, marketing, HR, finance, products and innovation, IT, and strategy.

DT’s goal is to have a complete view of the group, which it refers to as “cross-functional reporting.” This will not only cover financial reporting, but will extend to HR functions and other areas of the business in future.

**Deutsche Telekom chose to upgrade rather than move to a different platform**

DT identified that its hardware was nearing the end of its life and needed replacing. The database had to be restructured after each release or change in reporting. After years of collecting data, the Essbase cubes had become so large that cube restructuring had to take place at weekends. Soon it was no longer possible to restructure all the Essbase cubes without impacting on the rest of the business. This led to planned downtimes to carry out these operations.

The hardware had been around for several years and was running Oracle Database 9 and Essbase. DT decided to stick with Oracle because this was a more straightforward solution. DT also wanted to ensure that replacement software and hardware would work well together in an upgraded system.

**Bringing the strategy to life**

**Implementation and rollout**

DT undertook a feasibility study in the first quarter of 2012, which took around four months. This analyzed how the firm could move data from the old machines to the new ones.

The existing database was held on a Solaris system, while Oracle Exalytics was run on Intel architecture. The two were not binary compatible, so this meant that data had to be exported from one system and then imported to the other. DT found that exporting an Essbase database increases the size by 10 to 20 times, so a lot of space is required to migrate a terabyte of data.

At the same time, DT also migrated a planning system based on Hyperion, which was customized for the organization. This also required a feasibility study of two months to plan the migration properly. Migration for the whole system started mid-2012 and took around 12 months to complete. The system, based on Exalytics and Oracle Database 11g, has been in operation since mid-2013.
The new system is composed of two Oracle Exalytics engineered systems – one in production and one kept as a “reference” system. Each engineered system has 4x10 CPUs running at 2.4GHz, 1TB of RAM, and 11TB of storage (this holds 4.6TB of Essbase data and allows free space for parallel restructuring of the Essbase cubes). These connect to two systems running Oracle Database 11g, again with one run in production mode and the other maintained as a reference. The systems have four CPUs running at 2.1GHz and 32GB of memory.

The application layer is composed of two systems running WebLogic Server, Hyperion, Planning, HSS, APS, and EAS. The web layer has systems running Oracle HTTP Server.

Once the new system was brought online, DT kept the old system running for a number of months as a backup. If a major problem had occurred, the organization would have been in a position to switch back. Thankfully, the new system worked perfectly.

Seeing how well the new system worked and how stable it was led DT to decide to finally decommission the old system. Although there were some differences between how calculations were carried out between version 9 and version 11, DT did not have to switch back to the old system to fix these and other performance issues.

Outcome assessment

DT can use one system for testing while the other is running production workloads. The company’s developers can deploy into a sandbox environment, and if they feel confident about the results, the solution can be moved to the development environment. Integration tests can be carried out, and if all system components are still working, the solution can be ported onto the reference system and then promoted to the production system.

With the new system online, DT is able to explore functions and features of Oracle Database 11. Improvements in aggregate storage option (ASO) capabilities in Essbase have allowed DT to build prototypes for more relational-oriented reporting. ASO aggregates data very quickly for the company while being very granular.

DT continues to develop the new system, integrating new content and data models. Future plans also include consolidating more systems onto the platform. The system already holds financial and HR data, but DT is looking to collect IT data such as number of incidence tickets and spend figures.

The consolidation should ensure that DT has a complete view of the group as a whole. This is known within DT as cross-functional reporting and should allow DT to know, for example, how many people are working in one specific part of the company and how much space the firm has per employee.

DT has witnessed increased speed for financial calculations, data uploads, and data validations of between 300% and 400%, making it easy for managers to identify profitable business opportunities through self-service reporting and improve the transparency of their decisions. It has also gained the ability to restructure Oracle Essbase cubes eight times faster – in just hours instead of days – so business users can leverage all OLAP server features, including customer churn analysis, during office hours. Data retrieval times have improved by 33% and data-loading times have been cut in half to respond faster to BI needs, bringing benefits including substantially quicker report generation.
Lessons learned

Consider how hardware and software work together

Oracle Essbase deployed on Oracle Exalytics In-Memory Machine means that DT has a purpose-built engineered system for storage and analysis of enterprise-scale data sets. The engineered system efficiently carries out multiple operational processes, including data analysis, across multiple business areas.

DT had to shift its thinking because it had separate IT departments responsible for applications, databases, hardware, and so on. But the engineered system offered one box with a single point of responsibility. Staff responsible for applications also took responsibility for the system.

Test systems and take an incremental approach

Because the project involved upgrading business-critical systems, DT took an incremental approach. It changed one application and tried everything out, testing it live before moving on to the next application, which the company believes contributed significantly to a smooth migration. It also showed that running old and new systems in parallel was necessary because this way the project could not fail. The opportunity to switch back to the old environment gave the company peace of mind so that it could move the project onward.

Be prepared for continuous development and consolation

DT wanted to ensure the system could integrate more new content and data models as the business develops and new services come online. This meant preparing for continuous progress. Future plans include consolidating more systems, such as HR data, onto the platform to have a system that contains very detailed information on organizational figures.

Appendix

Methodology

This independent research report was prepared with the support and approval of Deutsche Telekom. It is based on interviews with Deutsche Telekom executives and information provided by the company.

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