The Computerworld Honors Program

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Final Copy of Case Study

LOCATION:
Broomfield, CO, US

YEAR:
2011

STATUS:
Laureate

CATEGORY:
Health

ORGANIZATION:
Medihelp

ORGANIZATION URL:
https://www.medihelp.co.za/en/

PROJECT NAME:
Business Critical High-Performance Data Warehouse

PROJECT OVERVIEW

As South Africa's third largest health insurance company, Medihelp insures approximately 350,000 individuals under a variety of product offerings. To provide the most valuable and cost-effective products while complying with various regulations and information sharing obligations, Medihelp needs to maintain mountains of data including customer information, current and historical claims, network providers and more. This data must be quickly and easily accessible and, of course, accurate. It's a formidable challenge, as the volume of data grows daily. Currently, just the member and claims information alone amounts to about 300 gigabytes. That translates into about 15 million rows of historical member data and about 55 million rows of claims data. Until recently, Medihelp data was maintained on a traditional relational database (MS SQL Server). However, the company experienced technical difficulties with reports and analytics executed from MS SQL Server taking a considerable amount of time to run. Medihelp was only able to generate reports with "as is" information and limited "snapshot reports". This time consuming and snapshot limited process had an adverse effect on the ability to make informed business decisions. Specifically, one of the biggest challenges that had to be overcome in building the Medihelp data warehouse were the history (dimension) tables. When taking into consideration that most of the attributes needed to compile member/beneficiary history tables come from different source tables, and that there are anything from 15 to approximately 35 attributes that needs to be tracked, this quickly becomes a very complex process. Adding to the complexity, multiple change notifications on multiple attributes for a single member with different effective dates, including back dated changes, can occur on a single day. All this needs to be done on a database and ETL platform that can handle the updates in the update window provided. Medihelp recognized that it needed a dedicated, high-performance data warehouse to meet its growing business needs and continue delivering value to its customers and adapting to an ever-evolving healthcare landscape. After an extensive POC process the strength of the selected technology was clear and impressive. Sybase IQ, the highly optimized data warehousing and analytics server designed specifically for

business intelligence and analytics reduced overall query response time by an average of 71.5%. Some queries ran even faster, with response time slashed by as much as 92.8%. Not only could it handle the history table challenges, it will also reduce the building time of the complete data warehouse and data cubes significantly. Medihelp's previous solution only allowed the information and data cubes to be updated over weekends due to time constraints. The new solution allows Medihelp to perform updates on the information on a daily basis, and will also be able to update the data cubes more frequently should business require it. It has also greatly reduced the query time of the ad-hoc aggregated data queries - making it easier on the BI development team.

SOCIETAL BENEFITS

Globally, access to quality healthcare requires individuals and families to obtain health insurance through health insurance companies such as Medihelp. This project benefits society by enabling Medihelp to create and fine-tune its product offerings through the use of various analytics to ensure quality healthcare delivery while fairly managing costs.

PROJECT BENEFIT EXAMPLE

In the past, Medihelp's Health Economics Division spent a great deal of time gathering statistical data for use in profile reports. The data were obtained from different sources. The information obtained from these sources was comprehensive and needed to be summarized for the purpose of compiling the group profile reports. For this reason, additional calculations had to be performed by a data analyst in order to provide information in the correct format for the final report. A new process was implemented in 2010 that required business intelligence personnel to furnish the necessary information to the Health Economics Division in its final format. This revised process which is enabled by the new data warehouse significantly simplifies the production of the group profile reports, as the data analyst now receives the final results in the required format, thereby eliminating the need for additional calculations to be done. "One of the advantages of having more accurate information available on the beneficiaries [customers] of Medihelp, is the ability to produce what we call the "Employer Group Report. It is a standard practice in our industry that administrators and health insurers supply data to employer groups. These demographic and claims profiles are essential for employer groups seeking to understand the their employees' health risks as the basis for making future business decisions that have to do with managing employees' total health risk and the consequent impact that risk can have on business productivity. This information also provides clients [employers] with a better perspective regarding the underwriting decisions we have to make in order to sustain the risk of insuring a specific employer group. Brokers and healthcare consultants also use this information in their annual client reviews to ensure that employees receive the most suitable coverage and that their risk is sufficiently. Lastly, for those of us in Client Relations, serving as the intermediaries between Medihelp and the employer, it is imperative that the business intelligence department, as the custodians of the Data Warehouse, extract and provide accurate information in a format that is easily understood." - Theo Ferreira, Senior Manager Client Relations, Medihelp

IS THIS PROJECT AN INNOVATION, BEST PRACTICE? Yes

ADDITIONAL PROJECT INFORMATION

The data extracted from the Data Warehouse is used on a daily basis to make a variety of operational and strategic decisions in various different

departments within Medihelp. It is also used to provide critical information to organizations including The Council of Medical Schemes, The Board Of Healthcare Funders (with their annual health quality assessment project) and pharmaceutical research companies, seeking information on the use and effectiveness of their products. The biggest beneficiary of the new data warehouse within Medihelp, however, is the product development team (This team includes the Research, Finance and Sales Teams and the Statistician.) Data from the Data Warehouse is used year round, throughout the entire product development life cycle. It is used to identify and understand trends in claims patterns by benefit code, chronic condition, area, age group and other factors. It is also used to determine what financial effects changes to a benefit in a specific product will have. This helps the Finance team price the product for the year, which in turn provides the sales force with the right offering at the right price for specific target markets in South Africa. Information teased out of the data warehouse also allows the company to spot indicators of customer dissatisfaction, enabling the company to act proactively to retain customers.