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NACCQ CAPSTONE PROJECTS

QUEST Application Re-development and Data Warehouse

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Project Sponsor: Quintana Systems Ltd

1   Introduction

Quintana Systems Limited is a software development company specialising in database software and projects. They currently contract projects to major New Zealand companies, and are constantly adding to their product range and expertise.

The application to be worked on, Quest, is an Integrated Management System originally built using MS Access. It includes modules for Personnel Management, Audit Programmes, Repairs and Maintenance, Inspections and Verification.

2   Objectives

The objectives of the project were to:

- Improve the performance, reliability, scalability, and security of Quest by configuring it to work with SQL Server 2005.

- Measure and compare the performance of the database on SQL Server and as an Access application to demonstrate an increase in performance.

- Create data warehouses and data mining processes within the required timeframe.

- Increase the speed of creating Quest reports by at least 100% through data warehousing and creating stored procedures in SQL Server 2005.

3   Methods

3.1   STAGE 1

- Create an ADP (Access Data Project) client-server architecture of the Quest application, with an Access front end and SQL Server 2005 server.

- Configure the Quest application to function in the client-server role. Ensure full functionality of Quest remains, and test operation of Quest application as client-server.

- Assess and discuss potential gains on SQL Server architecture.

3.2   STAGE 2

- Optimise the client-server architecture taking advantage of SQL Server 2005 to perform more data intensive work.

- Deploy data-mining and data-warehousing to Module Reports:

    o   Standard Inspections Module.

    o   Pre-operative Inspections Module

    o   Verification Module.

    o   Repairs and Maintenance Module.

4   Results

4.1   STAGE 1

Quest was configured for use with SQL Server 2005. The original client side application remains in Access and is fully functional in the client-server architecture. The application performs a great deal faster; it is more secure and scalable.

4.2   STAGE 2

Data warehousing and mining was implemented. Four data warehouses were created for different areas of the Quest application. A range of queries were also created to test and query the data warehouses.

Data cubes were then created and deployed in SQL Server Business Intelligence Objects.
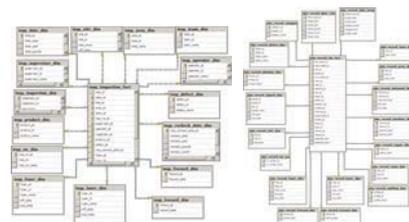

Figure 1: Sample Data Warehouse Diagrams

5   Conclusion

The speed and stability of Quest has improved beyond the initial expectations of the sponsor.

The client-server application has had numerous improvements and offers some substantial benefits over the original Access database.

The data warehouses created are ready for implementation as they are, but also offer numerous avenues for future development.