SCS Case Study

A New Program System to Ensure a Smooth MRPS System Data Migration for Nilfisk-Advance

"*Thanks to SCS, we have a dynamic data migration tool for our ERP to help us migrate from Oracle to SQL Server. Our data migration challenge is significant with more than 10,000 tables, ~2TB data volumes and data definition changes. The tool SCS developed to automatically create SSIS packages to migrate individual tables and the control program they created to allow us to control the number of parallel executions have both proven to work out great. We are one step closer to a successful ERP upgrade.*" - Ken Jensen, VP of IT, Nilfisk-Advance

The Client

A subsidiary of NKT Holding A/S, Nilfisk-Advance markets hundreds of models of floor cleaning and maintenance equipment through a global network of distributors. Employing 5,000 people globally and maintaining manufacturing facilities in Denmark, Italy, Sweden and the U.S., Nilfisk-Advance machines are sold in 80 countries around the world including North and South America, the Far East, Australia and New Zealand.

The Challenge

Because Nilfisk-Advance was going to migrate to Windows servers and a Microsoft (MS) SQL Server database, they wanted to first migrate all the data for design, code development and process development from Oracle to MS SQL so they would have time to practice before going live.

Nilfisk has a large installation of a MRP system named Infor10 Enterprise (LN). This used to be the Baan MRP system, and many people still used that name. In this case, the current system ran on Unix (HP servers) and used Oracle as its database. The MRP software is designed to run on many different servers and databases.

Because each "company" in the ERP system takes several hundred database tables, and there are many of these companies implemented in the MRP system, the amount of data to transfer was enormous: Over 10,000 tables and about 2 Terabytes of data. To add to the complexity, this also represented a move up in two versions of the MRP software, so the database structure had changed.

Nilfisk-Advance had a third-party Oracle consulting company look at transferring the data using Oracle tools, but there were performance problems with that approach. The client tried migrating a couple of tables using SQL Server Integration Services (SSIS), and had some promising results, but hand-designing SSIS packages for such a large number of tables seemed daunting, so Nilfisk-Advance turned to Superior Consulting Services (SCS).

The Solution

SCS took on this challenge, and wrote a program that could read the Oracle and MS SQL database structure information, and generate a SSIS package per table, for all of the tables. The SCS team also put together a system to run the SSIS packages in a parallel fashion to maximize efficiency, and track timing statistics and log any errors.

After analyzing the various data types used in Oracle and MS SQL for the set of tables, a couple of representative tables were chosen to cover all of the types of data to be transferred, and to cover small and large table data volumes. SSIS packages were manually designed to do the data transfer using SSIS and Attunity Oracle connector software was used for performance improvement. New data fields in the target database were assigned default values.

The manually created SSIS packages were then used as examples to drive the design and development of a program to generate the SSIS packages. The resulting package can be opened in MS SQL Server Business Intelligence development studio to examine and run manually, and can be run by the standard SSIS package execution software.

The table load management software was created using MS SQL jobs, management logging tables and a configuration parameter table. It was designed so that the user can easily set up a fixed number of SQL jobs that run a standard SSIS package that creates the SSIS package for a table, then runs it, logs timing statistics, and logs any errors. The set of jobs then uses configuration parameters to decide which tables to load, the load order, and the number of loads to run in parallel.

The Result

Nilfisk-Advance has been able to run the table load multiple times and have thus migrated all tables and data into SQL Server test environments. The data loaded has proven correct when tested by running the MRP software against the migrated database. The load times have proven to be a challenge due to multiple indexes on a small subset of large tables. However, this is a known challenge when loading large tables and has been worked around in an easy manner.

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