Customer Case Study

Bishopric of Mainz: tcVISION connects ADABAS/C with Windows MS-SQLServer

The Catholic Church not only consists of the Pope and more than 900 million Christians around the world. Similar to the states of the Federal Republic of Germany, the Roman-Catholic Church is organized in bishoprics and dioceses for which a bishop bears responsibility.

BUSINESS BACKGROUND

Germany has 27 bishoprics. One of them is the Bishopric of Mainz with approximately 814 000 Catholics. The Bishopric of Mainz covers an area of 7692 square kilometers inside the states of Hesse and Rhineland-Palatinate (including the city of Bad Wimpfen in Baden-Wurttemberg). Larger cities in the bishopric include the cities of Mainz, Gießen, Offenbach, Darmstadt and Worms.

SYSTEM PROFILE

The electronic Residents' Registration application of the Bishopric of Mainz maintains the church registration data for a total of 13 million people in 9000 parishes. tcACCESS and tcVISION synchronize the registration data between the mainframe- and the Windows-world.

BUSINESS ISSUE

The IT department of the Bishopric of Mainz is located in the heart of the "Old Town". The Bishopric is a tcACCESS customer since 2001. The application " Residents' registration at the Rectory " (e-mip) uses tcACCESS. tcACCESS provides the bridge between the Web-based application e-mip and the data stored in ADABAS/C on the mainframe VM/VSE system.

Early 2006 the decision was made to migrate the application from VM/VSE to WINDOWS and MS-SQLServer. Peter Jouaux, Programming Manager: "The migration from ADABAS/C to MS-SQLServer should be implemented in stages. It was clear to us that we had to keep the data on both platforms for the entire migration period. We saw two challenges facing us:

1. The initial load of the ADABAS tables to MS-SQLServer and the conversion of the data and

2. The synchronization of the data between the two platforms.

TECHNOLOGY SOLUTION

Approximately 70 ADABAS tables are affected. The real challenge however is, that for a large number of tables the changes require a bi-directional synchronization. All changes coming from the web-application are directly applied to the MS-SQLServer tables. These changes are then applied to ADABAS/C using the tcACCESS/ODBC component. All changes performed on the mainframe by batch programs must also be propagated to the corresponding MS-SQLServer tables. There are also ADABAS/C tables that are only maintained on the mainframe. They require a one-way synchronization to MS-SQLServer. It is extremely important that no updates are performed twice or even worse - get lost, especially for the bi-directional part. "

The Bishopric of Mainz attended a B.O.S. User Forum and learned about tcVISION. Peter Jouaux: "What we heard at the Forum seemed to be the right solution for us. We then analyzed our concept and installed tcVISION. The installation went smoothly and soon we succeeded to load out first ADABAS table into MSSQLServer."

Approximately six months after the installation the first projects have been put into production. Jacek Debinski, responsible project manager for the tcVISION implementation: "The devil's in the details in a migration project. We used the BULK-Load Functions of tcVISION to unload our ADABAS/C tables and to load them into MS-SQLServer. What we learned was that modern and relational DBMSs are not as tolerant as ADABAS/C. During the past decades the various NATURAL applications have left their marks in the data of the databases.

Marks that were tolerated by ADABAS/C but were rejected as invalid data by MSSQLServer. But this really wasn't a problem for us, because we could identify the invalid data in the tcVISION bulk scripts and correct it. The tcVISION script language is based on REXX and offers very flexible and powerful functions to get around these sort of difficulties."

Another roadblock was the estimation of the storage requirements on the mainframe. Debinski: "All changes applied to the relevant ADABAS databases are captured by tcVISION in realtime and are written to a so-called "Collector"-storage. This is a piece of system storage that is permanently available. The changed data is retrieved from the collector and stored into a "Pool"-storage, where a tcVISION script processes and propagates the changed data to the MS-SQLServer machine. On that machine, the data is processed by a receiving script. We made test-runs where we performed

Treehouse
S O F T W A R E

some million changes against ADABAS/C in batch. We did this to experiment how much main storage we had to allocate. We have been positively surprised that we could go in production with a 4 megabyte collector and a pool with a size of 14 megabytes. That storage was sufficient to process and buffer all changes in real time."

On the MS-SQLServers, the changed data is processed by a receiving script. The script processes the raw data and finally creates SQL DML statements. These statements are written to a file. The file is closed after 100 records and reopened using a different name. When the file is created a vb.NET program takes the records and implements them into MS-SQLServer. Jacek Debinski: "We made a decision to use this method as opposed to have tcVISION implement the changes directly via ODBC. With our procedure we can keep the DML statements and we can use them in an emergency case."
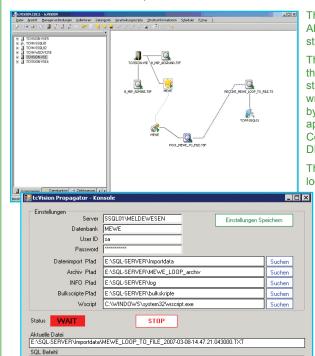
In the meantime Mr. Debinski has developed some tools that work with tcVISION. As an example, he has written a tool that is called the "tcVISION Propagator Console". The console can be used to monitor the implementation of the DML-statements in realtime. Another tool is used to analyze the contents of records that have been rejected. This is a graphical tool that presents the data in a nice and easy to understand format.

Jacek Debinski: "tcVISION creates very detailed logs and audit trails. Our tools process these logs, and display the corresponding data in ADABAS/C as well as in SQLServer format. This makes it easy for us to figure out why the data hasn't been processed."

The key migration concept has also been implemented. Peter Jouaux: "It was a major requirement that we could perform bi-directional updates. That means, that all updates performed with the Web-application by our users would be applied in ADABAS/C with tcACCESS/ODBC.

Once the update has been applied on the mainframe, it is captured by tcVISION. Of course, these changes must not be propagated to MS-SQLServer. For these bi-directional updates, tcVISION offers a "LOOPBACK processing" where these changes are not propagated back to MSSQLServer. We discussed the criteria to detect those changes with the vendor and they have been implemented into tcVISION." (also refer to user story "Bidirectional synchronization between CA-IDMS/DB and DB2/ UDB and MS-SQLServer" for RDC Datacentre, Amsterdam).

The bi-directional data synchronization between ADABAS/C on the mainframe and MS-SQLServer on WINDOWS is now in production since January 2007. Peter Jouaux: "tcVISION is a software that has convinced us in our day-to-day operations. This solution supports and simplifies the migration of a database or application-system. No programs had to be changed. tcVISION is a very intelligent system, changes that have been performed through tcACCESS are recognized. What we wanted to achieve has been accomplished: Both of our database worlds are in synch in realtime."

The left figure shows the "tcVISION Control Board". All active components of tcVISION and their current state is displayed and can be monitored.

The figure below on the left shows a snapshot of the "tcVISION Proagator Console". The SQL DML statements that have been created by tcVISION are written to a file. This file is immediately processed by a .NET SQL-Client interface program and applied to the MS-SQLServer. The Propagator Console monitors this function and displays the DML statements as they are processed in realtime.

The figure below on the right analyzes the tcVISION logfiles and displays the contents of records that have been rejected and their counterparts in ADABAS/C. The access to the ADABAS/C fields is done through tcACCESS/ODBC.