Customer Case Study
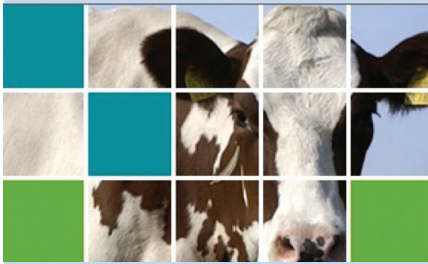
Vereinigte Informationssysteme Tierhaltung w.V.: Bidirectional ADABAS (z/OS)-to-Oracle (LINUX) with tcACCESS and tcVISION

We are vit

The service organization vit (Vereinigte Informationssysteme Tierhaltung w.V.) and the subsidiary Rechenzentrum Verden GmbH provide full-range IT services for farming, livestock breeding and horse sports in Germany and Luxembourg to more than 50 agricultural organizations covering approximately 55000 farms.

BUSINESS BACKGROUND

Breeding values for all dairy and beef cattle in Germany, milk quality reports for farmers in 10 controlling organizations of German Federal States, genetic evaluations for horses, dairy and beef cattle; these are the best-known products of vit. At vit there is no mission statement hanging on the wall. Instead, for more than 35 years, a simple credo has guided vit's actions in fulfilling their responsibilities towards customers and employees: provision of high-quality Information Services for agricultural and related organizations, important advisory services and development of reliable software for large-scale processing of farm animal-related data on a mainframe computer.

SYSTEM PROFILE

The equestrian city Verden is the home of vit. IT services are provided though a z/OS system. All relevant production data is kept in ADABAS databases on the mainframe and ORACLE databases in a LINUX environment. The mainframe applications have been developed in PL/I and NATURAL. Users of vit services are various agricultural organizations like horse-breeding organizations (e.g., the Hanoverian Society) and cattle-breeding organizations (e.g., WEU and ZEH, just to name a couple).

vit is a long-standing tcACCESS customer. Various JAVA applications are in production that communicates with the ADABAS databases on the mainframe using the tcACCESS JDBC component (see also the user story "vit - High Quality INFORMATION SERVICES for Agricultural and Related Organizations").

BUSINESS ISSUE

Wolfgang Hartjen, Database Administrator at vit: "It is our long-term goal to migrate our mainframe applications to Client/Server platforms. tcACCESS already helped us to lay the foundation for that ambitious goal. It is our plan to perform the migration on a project basis. It always has been and still is important to us that for the entire migration period we will operate both worlds as equals, the mainframe world with ADABAS and the LINUX world with ORACLE. To do this, it is mandatory that we must implement a bi-directional real-time data synchronization between both platforms. We

have been looking for solutions that offered a bi-directional synchronization. The tcVISION solution from (Treehouse partner) B.O.S. has been the right one to implement our Master/Master concept for the replication scenario."

TECHNOLOGY SOLUTION

tcVISION was installed in Spring of 2008 and a first prototype for a real-time replication from mainframe ADABAS to ORACLE on LINUX was created. Mr. Hartjen: "A B.O.S. representative helped us with the first implementation steps. We were very much in favor of the tcVISION concept because the only activity on the mainframe is the capturing of the changes from the ADABAS Command Log; the actual processing of the data happens on the target platform. The effect on the mainframe is only minimal."

The decision to proceed with tcVISION was made during Summer of 2008. The vit team started the first synchronization project. Wolfgang Hartjen: "The first project has been our Address Maintenance. All master data related to our customers is maintained through that system. These are approximately 500,000 addresses stored in 3 ADABAS files. The synchronization scenario is based upon changed data capture on the mainframe in real-time. The ADABAS extension of tcVISION captures the changes and these are then propagated to a LINUX system using a mainframe collector and data pool storage. The LINUX system hosts an ORACLE database that acts as a mirror of the ADABAS databases. tcVISION directly propagates the mainframe changes into the ORACLE database."

The updates to ORACLE that have been applied by tcVISION are forwarded to the actual ORACLE production database using ORACLE triggers. The changes applied by the Client/Server applications to the production ORACLE database must also be replicated back to the mainframe. Mr. Hartjen: "The purpose of a Master/Master concept is that both platforms must be seen as equals. Changes applied to ORACLE are triggered and passed to tcACCESS via the tcACCESS JDBC component. The mainframe SQL Engine of tcACCESS applies the changes to ADABAS.
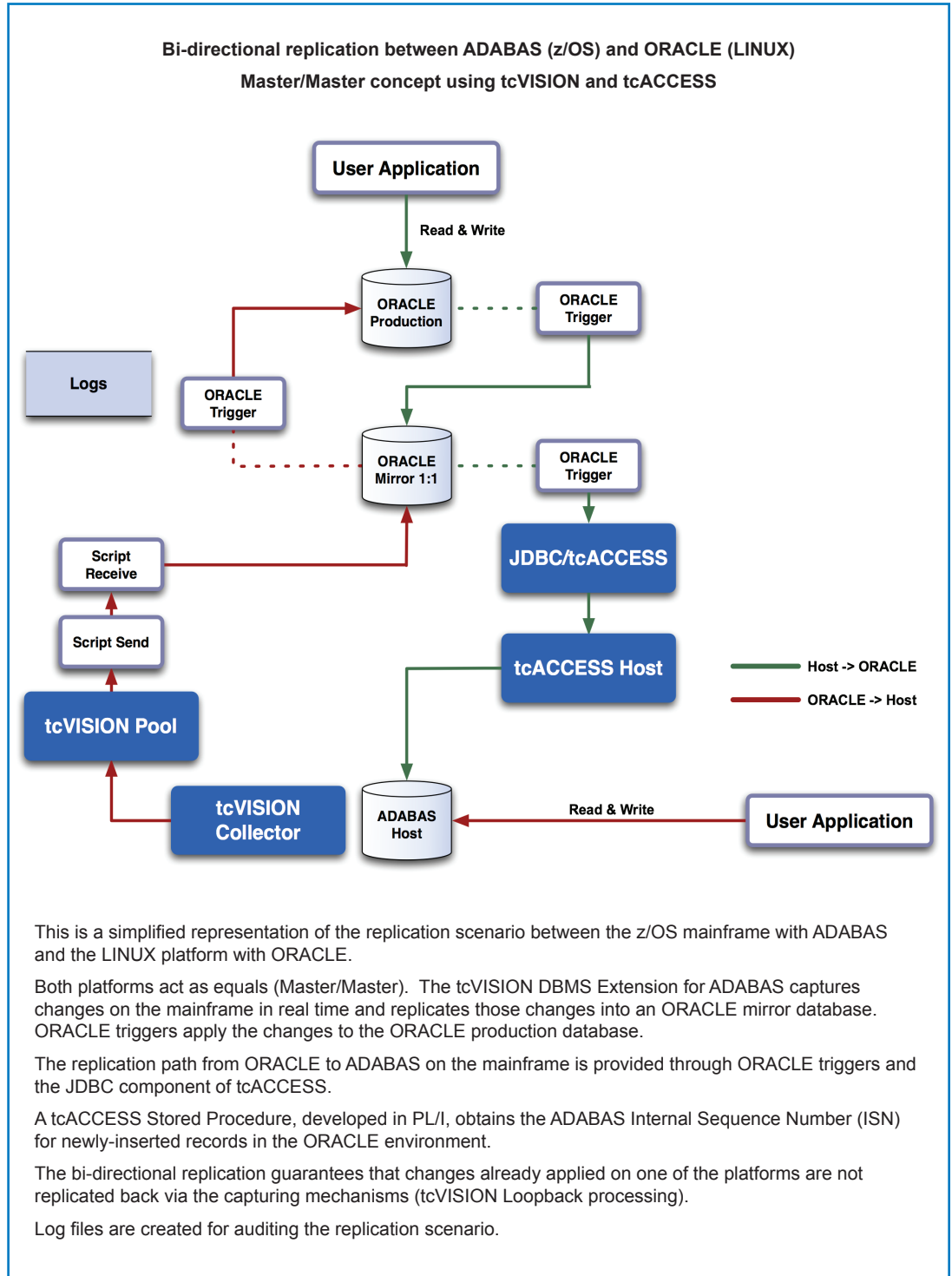
Treehouse SOFTWARE

It is important that these changes are recognized by tcVISION during the capture process and not be replicated back to ORACLE. This mechanism works well in our replication solution. It is also important that when records are inserted into ORACLE and ADABAS that the new ADABAS Internal Sequence Number (ISN) is successfully obtained. If that is the case the changes to ORACLE are committed. We use a tcACCESS Stored Procedure to obtain the ISN from the mainframe."

The replication solution goes into production in mid-2009. Additional projects will follow, notably real-time replication of the large-volume horse and cattle databases. Mr. Hartjen: "We built up our synchronization expertise with the first project and we will use and enhance this expertise with the upcoming projects. With the help of the professional and competent support from B.O.S. we are well-prepared and we can follow our motto: We are fit. We are vit."

Bi-directional replication between ADABAS (z/OS) and ORACLE (LINUX)

Master/Master concept using tcVISION and tcACCESS

This is a simplified representation of the replication scenario between the z/OS mainframe with ADABAS and the LINUX platform with ORACLE.

Both platforms act as equals (Master/Master). The tcVISION DBMS Extension for ADABAS captures changes on the mainframe in real time and replicates those changes into an ORACLE mirror database. ORACLE triggers apply the changes to the ORACLE production database.

The replication path from ORACLE to ADABAS on the mainframe is provided through ORACLE triggers and the JDBC component of tcACCESS.

A tcACCESS Stored Procedure, developed in PL/I, obtains the ADABAS Internal Sequence Number (ISN) for newly-inserted records in the ORACLE environment.

The bi-directional replication guarantees that changes already applied on one of the platforms are not replicated back via the capturing mechanisms (tcVISION Loopback processing).

Log files are created for auditing the replication scenario.