Perfecting Motion

Blum turns the opening and closing of furniture into an experience that significantly increases the comfort of motion in all areas of the house, especially the kitchen. The Blum fittings systems shout "high quality" with their well-thought-out function, recognized design and high durability. They are designed to spark inspiration and create an emotional experience out of day-to-day kitchen tasks.

Over 4500 employees are working worldwide realizing our goal to create perfect motion for Blum fittings systems. Within this process, we always focus on the needs of the kitchen and furniture user.

Julius Blum founded his company on March 1 1952 and produced his first product: a horseshoe stud. Today, more than 50 years later, Blum is a worldwide acting company with production plants in Austria, Poland, Brazil and the USA. Blum is headquartered at Höchst, a town in Vorarlberg, Austria, at Lake Constance. The central IT department of Blum operates an IBM mainframe with the z/OS operating system. In addition numerous WINDOWS systems with DB2/LUW are in use in Austria and abroad. Programming language on the mainframe is PL/I. The production data is stored in IMS/DB and DB2/zOS databases. Mr. Otto Büchele, Manager Information Systems Architecture says: "Our installations abroad are autarkic systems, especially the Inventory/Stock System of our Polish subsidiary. These systems run DB2/LUW and the databases must be closely synchronized with our central databases. Besides DB2 we also use ORACLE for our Data Warehouse. Several Application Servers with JAVA applications complete the picture of our 'open system' environment."

Facing with multiple challenges Blum got in touch with B.O.S. Software in 2008. Otto Büchele: "Our replication problems were on the table. We already had attempted to solve them with our own solutions. Multiple projects were started that should have been completed yesterday: Parallel maintenance of our master data in DB2 and IMS/DB, migration from IMS/DB to DB2, the implementation of an Operational Data Store which implies a near real-time copy of our operational data for reporting purposes, a continuous and bi-directional data replication between headquarter and subsidiaries, uni-directional replications between different systems, i.e. between the mainframe and the ORACLE Data Warehouse. We can go on and on with this list. We had to do something about it! A newsletter that we received from B.O.S. caught our attention and we asked B.O.S. for a visit." A meeting was scheduled between B.O.S. and Blum at the end of 2008. Walter Griesser, Database Administrator at Blum: "We discussed our requirements with the B.O.S. folks and agreed to conduct a workshop to create replication prototypes with tcVISION and tcACCESS that would meet our requirements." The workshop took place early 2009 and was very successful. Mr. Griesser: "The concept of the B.O.S. solutions are a positive surprise to us, and we especially liked the flexibility and the short time it took to implement replication scenarios between different systems, databases and platforms." Towards the end of the first quarter 2009 the decision was made to go ahead with the B.O.S. solutions.

Less than a half year later the first replication scenarios were in production. Walter Griesser: "We have been able to implement the scenarios based upon the workshop prototypes. The replication between DB2/zOS on the mainframe at our headquarters and the DB2/LUW on the WINDOWS system in Poland has been in production for a while. This is a bi-directional replication. Both systems are of equal priority and changes applied to both systems must be replicated. We use the "Near Real-Time" replication method that tcVISION provides. tcVISION extracts all changes found in the DB2 Active Log for tables that have the 'Change Data Capture' attribute and replicates them to the partnering system. Because the replication is bi-directional it is important to assure that changes that have already been applied at one system are not replicated back. tcVISION provides functions to check this in the replication scripts and we can avoid a possible 'Loop-Back'-effect." The replication between the DB2/zOS and the DB2/LUW uses a dedicated LINUX machine. Mr. Griesser: "It was our goal to have as little overhead as possible on the two production systems. On the mainframe tcVISION only captures the changed data and sends it to the LINUX system where the data is converted and transformed. The resulting changes are applied to the target DB2/LUW in Poland using DRDA. The reverse direction is the same: the changed data is captured by tcVISION on the WINDOWS system and sent to the central LINUX system where the data is converted and applied to the DB2/zOS using the DRDA protocol. The replication is performed by tcVISION at the transactional level. The receiving or propagating script collects the changed data per **luw** (Logical Unit of Work) and sends the complete **luw** to another script that actually applies it. Using this technique we can kill two birds with one stone. We reduce the overhead at the database server to a minimum and have the flexibility to include multiple systems in new replication scenarios in the near future."

Additional replication applications have been implemented:

The tcVISION DBMS-Extensions capture changes applied to defined IMS/DB databases in real-time (Batch and Online). These changes are propagated to DB2/zOS on the mainframe. Otto Büchele: "One of the reasons why we decided to go with tcVISION was the flexibility of the product. It is no problem at all to perform a direct replication even between mainframe databases. This can happen within the same or between multiple LPARs."

Blum uses the tcVISION replication method "Batch Compare" to capture deltas in DB2 tables at the end of the daily

file is also updated to reflect the status quo of batch window. As the name implies Batch Compare compares the current DB2 table with a tcVISION snapshot, determines the deltas and propagates to the different target systems (DB2/LUW, DB2/400, ORACLE). Mr. Griesser: "To implement this method tcVISION must first create a snapshot file. This file is used for the comparison with the current level of the database. During the compare process the snapshot file is also updated to reflect the status quo of the database."

Another implementation is the replication of changes from the ERP tool "Microsoft NAVISION" into an ORACLE database on a LINUX system. Walter Griesser: "This application was not on our official to-do-list. But we discussed this with B.O.S. during the workshop and implemented it. 'Batch Compare' not only works with standard mainframe file systems it can also be used with ODBC resources. tcVISION identifies the deltas and applies the changes to ORACLE using OCI (ORACLE Call Interface). This application is also in production and has been a really nice side benefit to us."

Blum also participates in a B.O.S. Beta-program for the new version of tcVISION. Mr. Griesser: "The functionality that has been implemented into the new version will greatly assist us in the migration from IMS/DB to DB2/zOS. The new version utilizes a central Repository that contains all replication-paths, -rules and –attributes. Several relational databases can be used for the Repository. We have decided to use DB2/zOS. We even have extended the use of the Repository because we use it to store our own information that is relevant to our replication initiatives. Even complex replications involving multiple tables and different record types are supported without any programming required."

Otto Büchele concluded: "We are very happy with the B.O.S. solution. During our collaboration with B.O.S. we have seen that B.O.S. is a very competent and attentive partner. The responsiveness and cooperation with B.O.S. have been very satisfying. B.O.S. enjoys our full confidence for all further constructive co-operations."
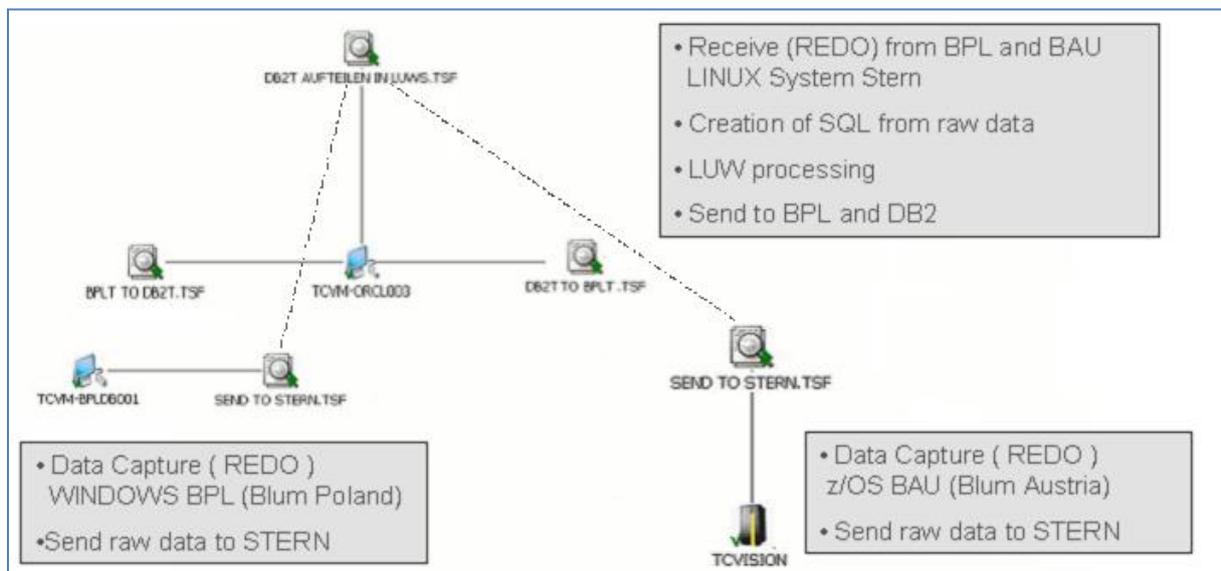
The picture shows the replication paths between the mainframe based DB2/zOS of Blum Austria (BAU) and the WINDOWS DB2/LUW of Blum Poland (BPL).

tcVISION processes the active DB2 logs on z/OS and on WINDOWS and selects all changes applied to DB2 tables that have the attribute "Change Data Capture". The changed data is sent as raw data to the distribution system STERN (Linux), tcVISION receives the data, creates **luw's** and propagates these to either DB2/zOS or DB2/LUW. Changes that have already been applied are detected (Loop-Back Processing).

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