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1 Modernization-Project bei BSQ Bauspar AG

CGI Germany selects Delta Software Technology as partner for the modernization project at BSQ Bauspar AG

BSQ Bauspar AG plans to migrate its core application package. The project includes also the migration of the complete infrastructure. Particular attention will be paid to the transformation of the database management system IMS/DB to a relational database management system. CGI Germany was chosen as general contractor for this modernization project. Delta will provide the technology for the automated migration.

CGI Germany has been supporting this application package as part of an application management project for about 15 years. For BSQ Bauspar AG it was therefore obvious to ask the GCI IT Modernization Experts as well as their partner Delta Software Technology to propose a modernization solution and rehosting offer for the application package.

Requirements for the migration

The application package organizes BSQs administration processes and is currently operated under IBM z /OS. In order to reduce the operating and maintenance costs BSQ intends to migrate the package of IBM z/OS to a modern and more cost-effective platform. In the process the IMS/DB database will also be replaced by a relational database.

An IMS-emulation or a similar solution is no option for BSQ, because it neither reduces the operating nor maintenance costs. Instead a real SQL solution, using Microsoft SQL Server, will be implemented.

BSQ demands a high quality solution, the test effort must be kept as low as possible and a short project duration must be guaranteed as well. In order to also meet these non-functional requirements, CGI decided to carry out the replacement of IMS/DB and the code changes necessary for the rehosting in a fully automated way. The tools needed for this are provided and operated by Delta.

The large application adaptations required will be made automatically. This is the only way to ensure a consistently high quality so that the cost of the testing effort can be reduced. For this purpose, Delta Software Technology will provide a customized migration factory with its AMELIO Modernization Platform. This concept has already proven itself in the completed proof of concept."

*Carsten Thummes, Head of Center of Excellence
IT Modernization Germany,
CGI Deutschland Ltd. & Co. KG*

The automatic way with AMELIO Modernization Platform

The rehosting and the change of the database management system require the analysis of over 6 million lines of the COBOL Code (program and copy-books) and a yet unknown number of necessary changes. A manual transformation of this size would be both time-consuming and error-prone. Therefore, Delta will use its AMELIO Modernization Platform to create a tailor-made migration factory. This factory will analyze and transform the sources automatically and rule-based.



For the rehosting following transformations are necessary:

- changing of EBCDIC - character encoding to ASCII
- changing IMS/DB, DB2 and VSAM to Microsoft SQL Server

Special focus lies on the conversion of the IMS/DB database, because the change from a hierarchical to a relational database is a paradigm shift. A simple one-to-one replacement of IMS statements by SQL statements is not possible. Instead, a multi-level, automated method will be performed.

Creating a new data model

In order to accomplish the paradigm shift, the data

model must be changed. For this purpose the AMELIO Modernization Platform extracts the current data model from the IMS/DB database definition. Out of this, a proposal for the new model is derived. This proposal will be finalized by CGI experts with their specialized knowledge and according to the future requirements to the model.

Defining transformation rules

Based on the new data model and the automatically analyzed information about the use of the existing data model, rules will be defined for the transformation from old to new.

For the transformation rules too, a proposal will be produced which can be customized and extended by CGI.

The Transformation

The migration factory receives the previously created analysis and transformation rules as input. Thereby the application can be fully automatically transformed based on this set of rules.

In order to separate application logic and database accesses IMS/DB accesses will not be replaced in-place. Instead, the SQL accesses will be outsourced in automatically generated data services.

For the transformation the entire application package will be analyzed. The IMS accesses will be replaced by corresponding new data service calls or functions and error handling will be adjusted. All IMS/DB statements contained in the code will be removed.

In this step also additional rehosting-transformations will automatically be carried out on the basis of the required or defined replacement of

EBCDIC by ASCII and of DB2 and VSAM by Microsoft SQL Server.

What are the characteristics of the migration solution for BSQ?

The essential characteristic of the migration factory provided by Delta for the migration project is the fully automated implementation of mass changes. The consistently rule-based approach prevents manual intervention, thereby always delivers predictable, reproducible and traceable results.

Further qualities:

- No „One Size Fits All“ solution
Instead of a standard solution Delta provides a migration factory exactly tailored to the needs of BSQ. In this way, requirements and expertise of both CGI and BSQ are being incorporated into the data model and into the code for the access of the relational database.
- No footprint – no vendor lock-in
On the target platform no modules for an IMS/ DB emulation or other components coming from Delta or other suppliers will be required. The transformed COBOL-modules are clean SQL-programs and copybooks. The generated code will need no tools from Delta for further development and maintenance, because the generated COBOL – code is readable and easy to maintain.
- Parallel development and extension during the migration
Due to the rule-based approach, the results are reproducible at any time. Therefore the BSQ application can be extended and maintained, while the factory is configured or even while the factory is

productive. Already performed transformations can be repeated if the sources have been changed in the meantime. Thus the freeze-times can be reduced to an absolute minimum.

- Reduced test effort
The reproducibility of the solution also has a significant impact on the test effort. If the use of a transformation rule once leads to a correct result, this will also apply to any other application of the rule. This approach has proved successful in previous [migration projects](#).

Using AMELIO Modernization Platform by BSQ Bauspar AG and CGI Deutschland means that the application will be transformed reliably and at a constant high quality. Although more than 6 million lines of Code need to be analyzed and possibly adjusted, the tight timescale can be achieved due to the automation.

Project start

In January 2015 the Proof of Concept for the rehosting project that had been ordered by BSQ Bauspar AG was started under the direction of CGI Germany in cooperation Delta Software Technology. It was successfully completed at the end of February. The pre-set goals were achieved: It was demonstrated that the application package of the BSQ Bauspar AG with the entire infrastructure can be migrated to the new platform Microsoft Windows and that the necessary program adjustments (especially the replacement of the IMS/DB database management by Microsoft SQL Server) can be conducted by a fully automated migration factory.

Would you like to know more about the migration project or do you plan a modernization or

refactoring project? Would you like to migrate an application package to a new platform? Are you interested in the automation of mass changes? We would like to show you which possibilities are available for you with the AMELIO Modernization Platform. We are looking forward to your request: [Delta](#) and [CGI](#).

An article in our [newsletter of november 2014](#) also dealt with the subject "replacement of IMS database".

CGI is the world's fifth largest independent provider of IT- and business process services with 68.000 employees at 400 locations worldwide, including 2.300 in Germany.



[CGI Germany Ltd. & Co. KG](#) and Delta Software Technology cooperate in modernization- and outsourcing projects.

For the CGI projects Delta delivers its tools for application analyses ([AMELIO Logic Discovery](#)) and fully automated transformations ([AMELIO Modernization Platform](#))

2 GSE European Working Group

GSE European Working Group
"European Enterprise Modernization for z/OS"



The working groups of Guide Share Europe provide a platform to exchange practical experience in all aspects of IT. The information enables the members to ensure the effectivity of their installations, to make well-informed decisions and to influence product development by IBM and its partners.

The Working Group "European Enterprise Modernization for z/OS" focusses on modernization on IBM mainframes and RDz. The meeting hold in Paris, France.

- 24 – 26 March 2015, Paris, France

Martin Herbst, Delta Software Technology, discussed in detail how to obtain a real understanding of the legacy applications in order to considerably facilitate application modernization in all its forms.

How to really understand COBOL and PL/I applications

- 25 March 2015 13:30 – 14:30

The bulk of today's productive COBOL and PL/I applications have been developed many years or even decades ago. Only in very rare cases the original designers and developers are still in charge. Usually, their successors ("inheritors") or external service providers are maintaining and modernizing the applications or working on the re-implementation of their functionality in modern languages.

In these cases it does not suffice to retrieve details or to track single fields. Quite the contrary, it is about getting a detailed and full comprehension of the application in its entirety. The older and the more complex the applications are, the more knowledge about the applications is already lost. It gets more and more difficult to really understand the applications.

- How do you obtain reliable information on the current implementation, about the inner structure of the COBOL and PL/I applications, about contexts and dependencies?

- How do you identify code that's no longer necessary, i.e. dead code, dead data definitions, not only within single programs but across complex Copy Book, macro and include hierarchies?
- How do you get a clear view on the code structures, on the logical connections of procedures, on endlessly cascades conditions?
- How do you distinguish framework coding from business logic?

These are only some of the questions that we answered by presenting a concept and tool that helps you to better understand and securely modernise native or generated COBOL and PL/I applications, that allows you to recognize patterns, to execute focused analysis and which can be perfectly tailored to your needs.

Our Presenter

Martin Herbst

Martin Herbst is Chief Architect at Delta Software Technology.



GSE Working Groups

GSE is a non-profit association of companies, organisations and individuals who are involved in Information and Communication Technology (ICT) solutions based on IBM architectures. GSE is an effective forum supporting the needs of today's ICT professional.

For more information on GSE please visit www.gse.org

Please find further information on GSE Working Groups and the meeting agenda here: [http://](http://www.gse.org)

www.gse.org/ABOUTGSE/GSEWorkingGroups/tabid/115/Default.aspx

Please contact us for further information on how to really understand COBOL and PL/I applications via info@delta-software.com.

3 Predicate BEST OF

The expert jury of "Initiative Mittelstand" (Initiative for Small and Medium-sized Businesses) awarded AMELIO Logic Discovery with the Award BEST OF 2015!



With the INNOVATION AWARD IT, the "Initiative Mittelstand" awards enterprises whose innovative IT solutions provide an especially high value for small and medium-sized businesses. AMELIO Logic Discovery has particularly convinced the jury and thus belongs to the top group of applications submitted.

AMELIO Logic Discovery

AMELIO Logic Discovery extracts the implemented application logic from COBOL and PL/I applications and thereby helps to comprehend them. The discovery of the application logic is performed in three steps – inventory, code optimization and logic analysis. The inventory determines which elements – i.e. programs, interfaces and data structures as well as dependencies between them – build the application. Elements relevant to be maintained or needed to be comprehend get determined during the optimisation phase, e.g. dead code is detected, documented if applicable and removed.



The information provided by the preceding steps is used by the logic analysis to gain models which are independent from programming languages as well as from programming paradigms. Thereby the application logic is extracted and comprehensible re-presented.

Further Information about AMELIO Logic Discovery

You want to know more about AMELIO? Please [get in touch](#) with us.

4 The Most Popular Articles in 2014

Which topics are of most interest for our customers and prospects? Which topics in our newsletters have received great interest?

We have put together the most read articles for you.

Place 1: Successfully Replace IBM IMS Databases

Old database technology causes high cost and complicates the utilisation of new technology for central IT applications. Furthermore, there are less and less developers and system technicians knowing the old technology. This applies to hierarchical databases such as IBM IMS DB as well as for network and other non-relational databases.



We present ways that allow you to preserve the functionality of your applications while migrating to SQL databases without risk.

<https://delta-software.com/newse.php?id=0242>

Place 2: Insurance company LVM Versicherung selects AMELIO Logic Discovery for PL/I for Proof of Concept

Quite a few companies still have their critical core business applications developed in PL/I. These have become increasingly complex over time, but still it is expected, that they can be adapted quickly and safely to new professional requirements or that their functionality can be implemented in another language, for example in JAVA.



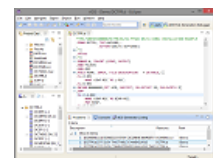
Solving such modernization tasks is not possible without understanding the functionality of each application, its implementation and the cooperation between individual programs.

You can find out why LVM Versicherung did search for a tool that could perform in-depth analyses of their PL/I applications, how they discovered AMELIO Logic Discovery for PL/I encountered to and now started a Proof on Concept, here:

<https://delta-software.com.com/newse.php?id=0243>

Place 3: Even more productive with ADS on Eclipse 6.2

ADS on Eclipse provides comprehensive support for the maintenance and further development of your ADS application in an integrated development environment.



With the release of ADS on Eclipse 6.2 new functions are available, which make working with ADS even easier and more efficient.

NEWSLETTER

AUSGABE MARCH 2015



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