SUCCESS STORY

Successful COBOL Java Migration at SüdLeasing GmbH

SüdLeasing GmbH is one of the largest leasing companies in Germany and operates within the LBBW Group. The company is an experienced and competent partner for all aspects of investment financing with a leasing portfolio of €3.6 billion. 400 employees are working at 21 locations throughout Germany. This makes SüdLeasing GmbH one of the top three leasing companies in Germany.

On the Way to a future-proof Management System for Leasing Contracts

So far, SüdLeasing's leasing contracts have been processed using a complex COBOL system. It consisted of 4,027 programs and copybooks with approximately 3.2 million lines of code. In 2019, SüdLeasing decided to start the "LEASCO Technical Reengineering Inventory System" project. The aim was to replace the COBOL programming language to obtain a sustainable system for managing leasing contracts – while complying with all quality specifications of an agile project. COBOL should be replaced by Java through a tool-based conversion.

Successful Language Conversion using sophisticated Tools

Language conversion is the most challenging part of a software migration. Without sophisticated conversion tools based on compiler construction techniques, it cannot succeed. The scientific approach guarantees the semantic equivalence between original and converted programs. Therefore, expertise in compiler construction is key to a project's success. With our COBOL to Java Converter (CoJaC), we have a mature tool chain for language conversion that has proven itself in the present project.

The user interface of the COBOL system was an in-house Windows-based development by SüdLeasing with around 2,100 ASCII masks. The COBOL server and Windows client exchanged their information via COBOL messages. Even before the start of the migration project, SüdLeasing redeveloped the user interface as a web application using the Angular framework. The exchange of information with the unchanged COBOL programs still took place via COBOL messages. The web application should continue to be used after the modernisation. Therefore, the project's task was to develop an interface between the existing web application and the newly converted Java programs.

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During the migration, Java web services are created from COBOL servers. The exchange of information with the web interface takes place via Java classes, which were created by converting the COBOL messages. During the project period, the web interface could therefore be used simultaneously in the COBOL and Java system.

Reduced Test Effort through automated Tests

A challenge in every migration project is to prove that the original and converted programs work identically. For these tests, the compatibility of the user interface with the original COBOL and generated Java system was leveraged. A complex collection of Gherkin test scenarios was created using the Cucumber framework, controlled by Jenkins. Both the COBOL system and the migrated Java system were executed browser-based via Selenium. The results were compared. The automatic comparison of the COBOL and Java systems significantly reduced the testing effort.

The project was jointly realised by SüdLeasing and us using our technologies and tools. As planned, the project duration was 1.5 years. The new system is based on a modern Spring architecture. The generated Java code is maintainable and performant. Therefore, efficient maintenance and further development with frameworks such as Maven, Jenkins and Cucumber are possible. The success of the project has again confirmed that software migration is an alternative to new development and the use of standard software.

Sebastian Seek, Head of Software Development SüdLeasing GmbH: “Of course, we also feel the pressure in the area of digitalisation in our industry. To remain competitive as market supplier of innovative solutions, it was very important for us to modernise our central leasing system. At the beginning, we were sceptical about the tool-supported COBOL-Java migration, since we had heard about projects that had failed. However, the pro et con team was the right partner for us. As early as the proof of concept, it was possible to prove that the complex arithmetic operations of financial mathematics were carried out correctly and that the runtime for mass processing programs also met our expectations. This very positive impression was confirmed as the project progressed.”

Prof. Dr Uwe Kaiser, Managing Director of pro et con GmbH: “I am proud that pro et con GmbH could demonstrate the potential of our tool-supported migration approach once more. Our COBOL to Java Converter (CoJaC) is a mature tool for this purpose. Such a project always is a joint project between equal partners. Especially in the test phase, which is crucial, SüdLeasing GmbH significantly contributed to the project’s success with its agile approach and the consistent use of automatic tests. I would like to thank Mr Seek and the entire SüdLeasing team for the trust they have placed in us. With our scientific migration approach, we surely will be able to support other companies in successfully implementing their digitalisation strategies as well.”

Further information on technologies and tools for software migration is available at www.proetcon.de.

Information about SüdLeasing can be found at www.suedleasing.de.

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