



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. Four hundred employees work 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 and to obtain a sustainable system for managing leasing contracts – while complying with all quality specifications in 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. It cannot succeed without sophisticated conversion tools based on compiler construction techniques. The scientific approach guarantees the semantic equivalence between original and converted programs. Expertise in compiler construction is therefore an important prerequisite for project 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 developed in-house by SüdLeasing on a Windows basis with around 2,100 ASCII masks. 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 continued to take place via COBOL messages. The web application should continue to be used after the modernisation. The task in the project was to develop an interface between the existing web application and the newly converted Java programs.



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. Thus, the web interface could be used in parallel in the COBOL system and in the Java system during the project period.

Reduced test effort through automated tests

A challenge in every migration project is to prove that the original and converted programs work identically. The compatibility of the user interface with the original COBOL system and the generated Java system was used for these tests. A complex collection of Gherkin test scenarios was created using the Cucumber framework and 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 realised jointly 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. Efficient maintenance and further development with frameworks such as Maven, Jenkins and Cucumber are therefore 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. In order to be able to continue to offer our innovative solutions on the market in the future, 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, we found the right partner in the pro et con team. 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 was once again able to show the potential of our tool-supported migration approach in this project. Our COBOL to Java Converter (CoJaC) is a mature tool for this purpose. Such a project is always a joint project between equal partners. Especially in the test phase, which is very important, SüdLeasing GmbH made a significant contribution to the success of the project 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. I am sure that with our scientific migration approach we can support other companies in successfully implementing their digitalisation strategies.”

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.