PKS
people knowing software.

Replacing CA-TELON, saving maintenance costs and enabling innovation

KBC

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The conversion of the TELON applications was an exciting experience that proved that it actually is possible to get rid of legacy infrastructure that hampers future innovation. Having native COBOL sources that fit nicely in our new CI/CD-pipeline reduces the complexity and costs compared to the previous situation. The conversion also increased the believe in the possibility of conversion of other 4GL.

Yves Vangheluwe
System Architect/Product Manager
KBC Group NV

◼ The company

KBC Bank in Brussels is a key financial institution in Belgium and ranks among the leaders in banking and insurance. It provides private customers, SMEs, and corporate clients with a comprehensive range of financial products and services. KBC Group's core markets are Belgium, the Czech Republic, Slovakia, Hungary and Bulgaria. They are also present to a limited extent in several other countries, with core offerings in retail banking, corporate banking, private banking, and insurance. A significant focus of the bank is on integrating modern digital technologies to enhance customer service and efficiency. Since the 19th century, KBC has evolved into a significant player in the financial sector, driving innovation and sustainable growth. As of December 2023, the KBC Group employed approximately 41,000 staff members and served around 13 million customers globally.

Case Study

■ The initial situation

KBC Group is a leading financial institution providing banking, insurance and asset management services in its core markets in and Central and Eastern Europe and Belgium. For a large bank like KBC, the IBM mainframe plays a central role as it provides a highly secure, scalable and efficient platform for processing millions of transactions daily. This traditional data center is critical to maintaining operational excellence and supporting critical business processes, including customer transactions, data management and real-time financial analysis.

KBC has implemented extensive applications for decades with the COBOL code generator TELON from CA and uses it to control central insurance processes. In 2021, KBC faced the challenge of eliminating the CA-TELON code generator. A shortage of Telon experts and high maintenance fees in combination with poor strategic evolution of the product made a replacement unavoidable. In addition, TELON did not fit into the strategy of mainframe software factory modernization and integration into a CI/CD pipeline with a focus on native COBOL code. Replacing the CA-TELON code generator therefore became an essential step in KBC's strategy to modernize its IT infrastructure to ensure continued high security, efficiency and innovation.

The **problems** are coming to a head:

- High license cost of the Telon product in combination with a limited or zero evolution of functionalities

- Poor integration capability of TELON into the CI/CD pipeline of KBC

- Dwindling know-how in the developer community

- Who can help the customer to fully replace TELON in a short space of time?

- Which process is sufficiently stable and proven on the one hand and flexible and adaptable enough on the other hand to deal with the large volumes and complex infrastructure?

- Which partner has enough manpower and expertise to relieve the customer's small team of TELON experts during the replacement?

... without overloading the severely limited internal TELON team.
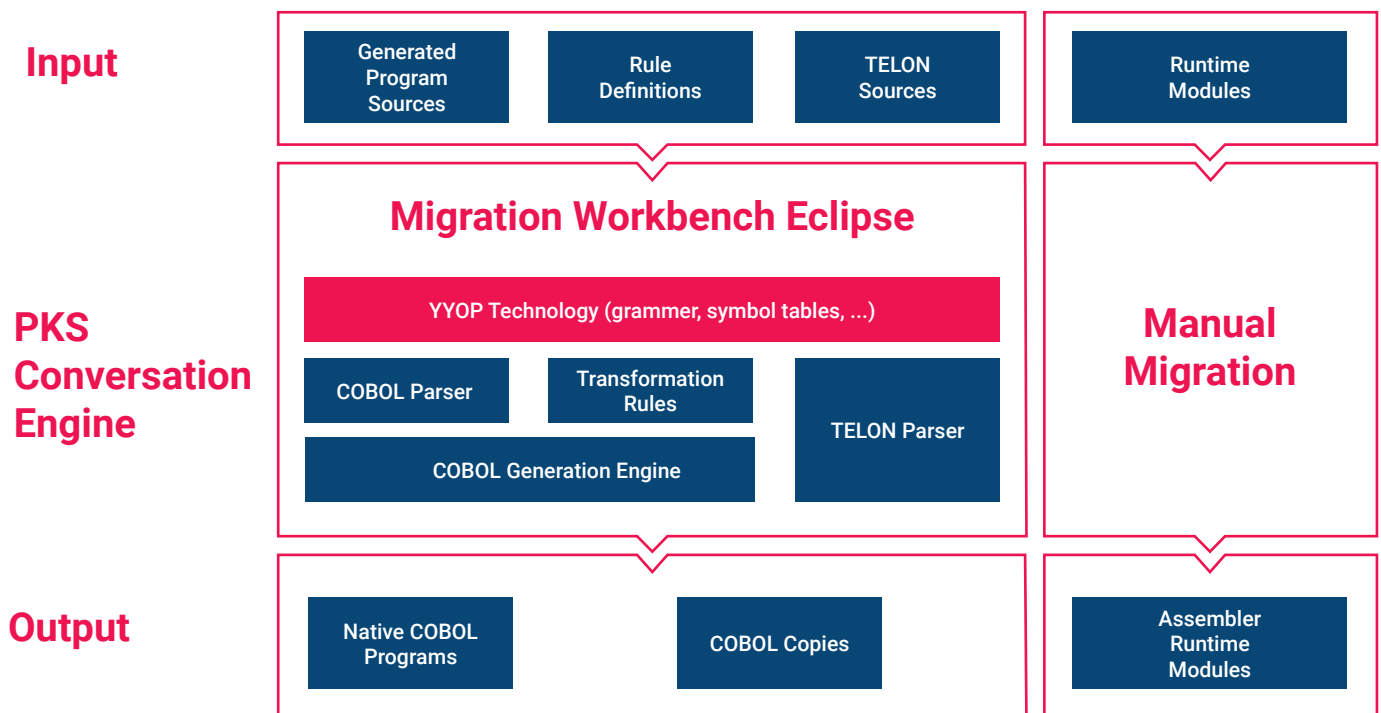**... without having to involve the application stakeholders too heavily**

The challenging **questions** were:

■ The customer found the answer in the partnership with PKS

PKS was selected to carry out the TELON replacement. PKS was able to implement the replacement within 12 months. A key element was the reprogramming of the TELON runtime modules.

PKS has a mature process for fully automated re-engineering of the COBOL code generated from TELON and converting it into maintainable, native COBOL code. The code is then further developed in modern mainframe IDE IDz.

In addition, it was necessary to replace all TELON runtimes that had previously been used. This made it possible to completely withdraw from the dependency with the Telon product.

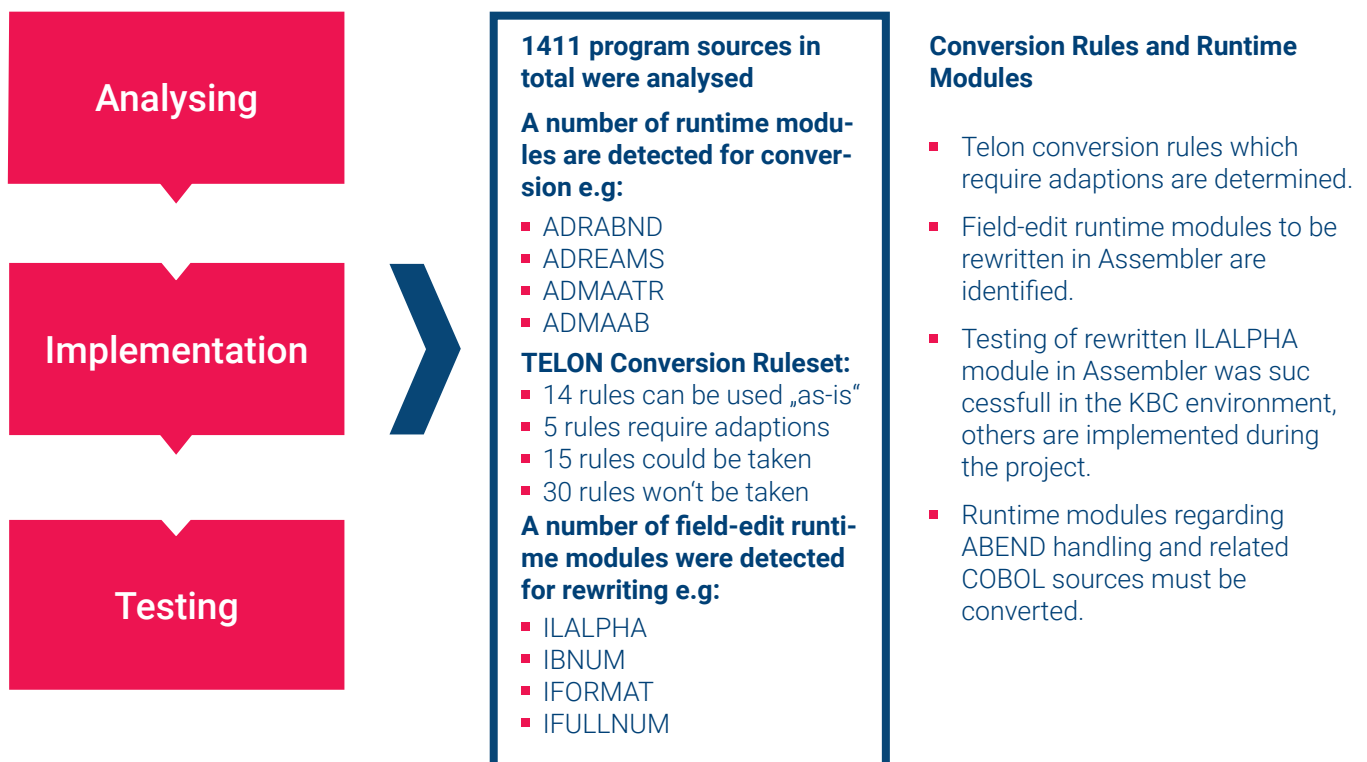|				
Input	Generated Program Sources	Rule Definitions	TELON Sources	Runtime Modules
PKS Conversation Engine	**Migration Workbench Eclipse** YYOP Technology (grammer, symbol tables, ...) — COBOL Parser — Transformation Rules — TELON Parser — COBOL Generation Engine			**Manual Migration**
Output	Native COBOL Programs	COBOL Copies		Assembler Runtime Modules

Case Study

■ The customer benefits from the following advantages:

✓ Modern and native mainframe environment unlocks innovation potential and enables real, seamless integration into the CI/CD pipeline.

✓ Security and control during implementation thanks to proven migration process, upstream PoC and 100% of automation, apart from Telon runtime moduls.

✓ Cost savings due to elimination of TELON maintenance.

✓ High acceptance of the solution in the development team, cooperation on an equal footing with the PKS team, flexibility in contract design within the framework of the Group's specifications.

■ How was it implemented?

First, the project was tested as part of a 3-month PoC in spring 2022. PKS scanned the complete source code inventory, special features were identified and an initial idea for the desired syntax was jointly developed.

The PoC demonstrated the technical feasibility and defined the requirements for the conversion. 1411 program sources were analyzed. From this, a number of runtime modules were identified that had to be completely rewritten in Assembler.

Analysing

Implementation

Testing

1411 program sources in total were analysed

A number of runtime modules are detected for conversion e.g:
- ADRABND
- ADREAMS
- ADMAATR
- ADMAAB

TELON Conversion Ruleset:
- 14 rules can be used „as-is"
- 5 rules require adaptions
- 15 rules could be taken
- 30 rules won't be taken

A number of field-edit runtime modules were detected for rewriting e.g:
- ILALPHA
- IBNUM
- IFORMAT
- IFULLNUM

Conversion Rules and Runtime Modules

- Telon conversion rules which require adaptions are determined.

- Field-edit runtime modules to be rewritten in Assembler are identified.

- Testing of rewritten ILALPHA module in Assembler was successfull in the KBC environment, others are implemented during the project.

- Runtime modules regarding ABEND handling and related COBOL sources must be converted.

Based on the PoC, they managed to plan the work packages and all activities in terms of content and timing. The implementation followed a detailed plan that took into account the integration into the existing source code management environment.

Project period from July 2022 to summer 2023

- Kick-off in July 2022
- Creation of the technical connection for the exchange of sources
- First package with the TELON sources comes from the customer to PKS
    - From now on, the newly required rules will be defined and incorporated in an exchange between the customer's developers and PKS
    - The converted sources are sent by PKS to the customer and tested there. Close cooperation between the know-how carriers on both sides ensured success
- At the same time, the re-implementation of the TELON runtimes is being worked on
    - Requirements defined by the customer implementation by PKS
    - Parallel to this, steering committee calls every 4-6 weeks so that stakeholders are always up to date
- After an initial valid status, the tests started. The tests are carried out iteratively.
    - From November testing of the converted TELON sources
    - From mid-August testing of the new runtime modules
    - June 2023 successful GoLive

■ Highlight

In less than 12 months, all 1,359 applications with a code volume of over 5.725 million lines of code (LoC) were migrated fully automatically. Thanks to structural re-engineering, the code volume was also reduced to 5.4 million LoCs. It should be noted that four runtime modules were re-implemented. Over 88,645 lines (record definitions and sections) were automatically outsourced to 108 COPY modules (clone detection).

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It was both exciting and challenging to immerse ourselves in a decades-old generator technology and to confront it with the modern methods of our technology.

Udo Heyn
Senior Software Architect & Developer
PKS Software GmbH

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The interaction of the mature PKS technology and an experienced team of experts are the success factor in these complex migration projects. The excellent teamwork between PKS and KBC deserves special mention.

Bernd Butscher
Head of Enterprise Software Transformation
PKS Software GmbH

■ Next steps

The successful replacement serves as a blueprint for further 4GL replacements: on the basis of the successful TELON Dismissal project with KBC, the management has gladly decided to investigate possible other 4GL replacement projects.

You can also **benefit from PKS's concentrated analysis** and **transformation experience** and utilize the potential of the mainframe for the future of your core business.