CASE STUDY

BROWN BROTHERS ENGINEERS SECURE THE MODERNIZATION OF THEIR IBM i APPLICATIONS USING ARCAD TRANSFORMER AND ARCAD FOR DEVOPS

Brown Brothers Engineers

The Customer

Established in 1908 and a pioneer in the field of electrical engineering, Brown Brothers Engineers is now one of the largest pump businesses in New Zealand, specializing in the assembly, distribution, testing and custom building of pumping systems together with installation and after sales service.

Today Brown Brothers Engineers operates in 15 locations across Australia and New Zealand, providing high quality custom pump solutions and services in the industry, horticulture, agriculture, irrigation, construction, municipal and mining sectors.

After joining the AxFlow group - the Fluids Handling Solutions business group within Axel Johnson International – in 2018, the company continues to thrive by offering expert after-sales support, dedicated service and testing facilities and rapidly responding to the dynamics of the growing 'flow technology' market. ◆

Background

To meet the varied needs of their diverse customer base, Brown Brothers Engineers rely on a set of custom, in-house applications running on IBM i (aka iSeries AS400). The original system was developed on S/36 and has evolved over the years in line with advances in IBM i technology.

The reliability and security of IBM i is key to Brown Brothers Engineers' business. Rather than risk the migration to a standard software package, the

strategy has been to leverage the competitive advantage of custom business rules contained within the IBM i applications and enhance the back-end database logic with modern browser-based interfaces. The team utilize the Rational Developer for i (RDi) environment for RPGLE and DB2 SQL development and the Eclipse IDE for the Java front-end. ◆

Modernization challenges

To keep pace with growing digital transformation demands, Brown Brothers Engineers embarked on an extensive modernization initiative spanning both their development processes and application source code.

The idea of moving off-platform and reengineering the system had already been moth-balled as a 'high-risk' option with uncertain returns and unpredictable timeframes for completion. Instead, by modernizing and future-proofing their existing system, Brown Brothers Engineers would both retain the benefits of the underlying IBM i platform and leverage their custom code developed over many years.

Wayne Millow, IBM i Systems Manager at Brown Brothers Engineers led the modernization strategy. As part of the project, to prepare for the high rate of change ahead, the team decided to start by modernizing their development processes and adopting a DevOps approach to application delivery. ◆

### Modernization project and solutions

The modernization project at Brown Brothers Engineers consisted of 3 main phases:

- **Implementation of a DevOps solution for version control**

  Given the extent of application changes needed to modernize the system, Brown Brothers Engineers needed a flexible version control system able to handle all the specifics of their IBM i applications.

ARCAD SOFTWARE

ARCAD for DevOps and IBM i Modernization
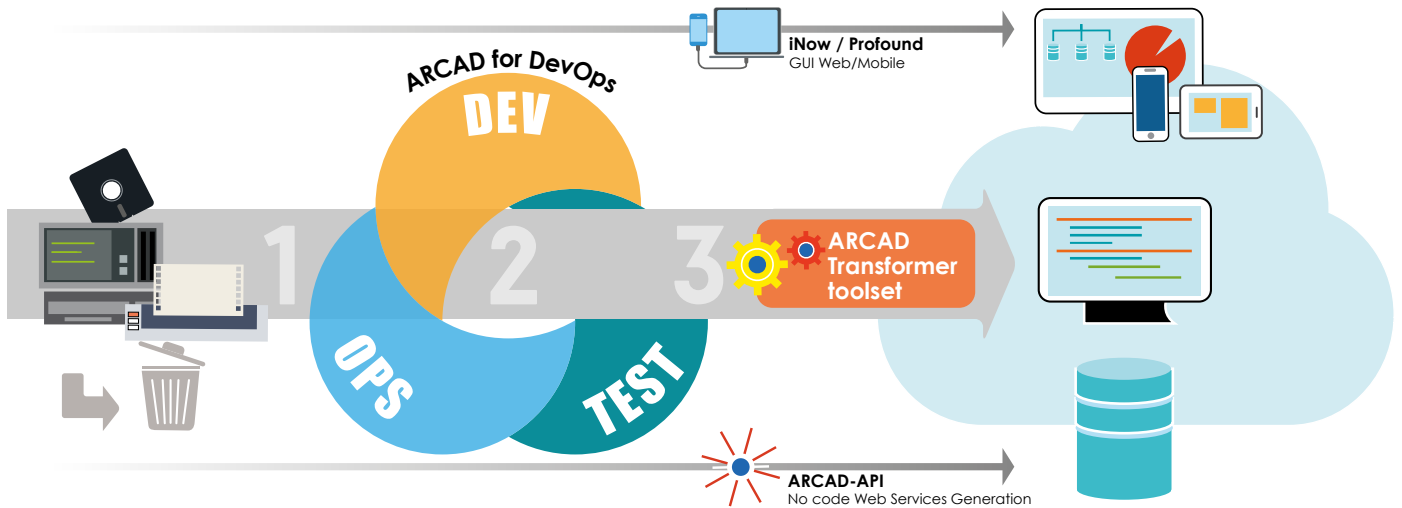
After a successful on-site Proof of Concept (POC) the development team selected the ARCAD for DevOps solution to allow application modernization and maintenance to proceed efficiently in parallel.

Wayne Millow explained: **"ARCAD for DevOps structured our development efforts so that we could modernize our source code and database while simultaneously accelerating the cadence of our day-to-day enhancements. The high level of automation meant that bug fixes and enhancements were applied consistently to all code bases. Our developers especially appreciated the ARCAD 'where used' dependency information directly within the LPEX editor".**

- **Conversion from RPGLE to RPG Free Form**

To facilitate the maintenance of the RPGLE application and pave the way for an onboarding of new developers in the team, it was vital to convert the columnar RPG source code into modern, Free Form RPG syntax.

The Brown Brothers Engineers team trialed the ARCAD Transformer RPG solution on their mixed source code which contained multiple RPG language variants. ARCAD Transformer RPG was able to convert near 100% of their RPGLE into highly readable Free Form.

"In terms of conversion process, ARCAD Transformer RPG is the best that I have experienced. It also helps teach legacy developers the more modern way of coding. Developers can convert module by module directly from RDi and view the original and modernized code side-by-side for easy understanding", explained Wayne Millow.

"Now with a modern code base, we are steadily delivering key application functionality in the form of Web services".

- **Conversion from DB2 tables to SQL**

Brown Brothers Engineers utilized ARCAD Transformer DB to automatically convert DDS defined data tables to DDL (SQL), **"Automating the move to SQL gave us performance advantages and allowed us to shift to a more efficient data-centric model"**, commented Wayne Millow.

Thanks to the incremental version support in ARCAD for DevOps, the database was converted on a parallel modernization branch while day-to-day maintenance continued as usual on the trunk to satisfy the everyday demands of the business.
◆

Conclusion

Wayne Millow summarized his team's experience with ARCAD tools for DevOps and Modernization:

"We found that there was only a small learning curve and the support from ARCAD Software itself was great. The solutions are easy to use and functionally rich. The big benefit for our team is that all tools are fully integrated: we can easily add ARCAD functionality as we need it without any impact on the overall system. Like any process, our team, management and stakeholders are constantly looking for opportunities to continuously improve and accelerate. ARCAD provides us with a unique set of integrated tools, and once we have improved one part of the process, ARCAD is ready to help with the next challenge such as the automation of unit testing, source code analysis, cross-referencing and many other resource intensive tasks on IBM i. "

Wayne Millow, IBM i Systems Manager

www.arcadsoftware.com