

WHITE PAPER

Business Rules for mainframe computing

Major European Financial Institution uses IBM WebSphere Business Rules for z/OS to drive cross-selling opportunities

Author: Michael Thompson, Principal Analyst, Ovum

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BACKGROUND TO THE PROJECT

Corporate overview

One of the world's largest global banking groups, which operates in more than 80 countries and employing more than 200,000 people worldwide, is using IBM WebSphere Business Rules for z/OS to drive central processes to create, promote, and manage cross-selling opportunities. Its three core business areas are retail banking, corporate and investment banking, and investment solutions. It has been awarded an AA rating by Standard and Poor's, and in the financial year ending 31st March 2011 achieved a net banking income in excess of €11 billion.

Business demand

The retail banking operation has built a large portfolio of products and services that it can offer to its clients. In order to maximize its return on the investment in these products, the organization recognized the need to become more effective in cross-selling the whole of the portfolio to its client base. The route to this was seen to be the ability for client-facing staff to be able to offer relevant, high quality advice to individual clients. The variety of products and client scenarios was seen to be too complex for a static interview script to be viable. Instead, the client-facing staff would need



a dynamic script that could be customized on a case-by-case basis to align itself with the individual circumstances of each client.

It was determined that the mechanism for achieving this was to provide an intelligent application that would present staff with real-time information on the status of an individual's financial affairs and to provide a system of dynamic questions to guide the client interview. The client's answers and current financial state would determine the next question to be asked until a concrete proposal or advice could be presented.

SYSTEM DESIGN

Mission-critical applications

The retail banking operations are supported by a comprehensive set of mainframe-based applications executing on IBM's zEnterprise Systems platform. zEnterprise is a workload-optimized multi-architecture system capable of managing multiple workloads as a single entity. The legacy retail banking applications being hosted on zEnterprise provide excellent support for the needed operational transactions. They are stable, and the bank has no wish or business imperative to replace them or make substantive changes to them. At the same time, these mission-critical applications contain information that needs to be made available to the new sales-support application. This application combines knowledge of the status of an individual client from the zEnterprise applications together with information gathered through the interview process to guide further stages in the interview. It was clear from the early design stages that a high degree of integration would be required between the established and new environments.

It also became clear that the new client guidance application would need to be capable of rapid adaptation and to support phased delivery. In addition it would need to be highly scalable in order to support a high degree of concurrency across some 10,000 potential client service staff.

Consideration of an application to support client-facing staff in optimizing their interactions with customers began in 2008, but at this time the requirements were still evolving. Serious work on the project did not start until July 2010.

IBM WebSphere Business Rules for z/OS

The application needs to support complex decisions and dynamically alter the path of questioning in response to previous answers and to the status of individual clients' affairs. This type of application is a good fit with the capabilities of a business rules management system (BRMS). However, such rules are normally implemented on a separate server with the applications making



calls to the rules server using a Web services or other message-based interface. It was recognized that the impact of imposing such an architecture on the performance-critical COBOL applications would cause an unwanted performance penalty. Other products considered for providing the rules environment for this project were rejected because of this performance issue, and also because of the additional cost and complexity of providing extra servers for the run-time platform.

IBM WebSphere Business Rules for z/OS overcomes the performance issue objection by offering three deployment options. WebSphere Business Rules for z/OS offers several deployment options; namely: the rules can use a separate execution engine that can be invoked using Web services, but the product also permits the rules to be generated into COBOL code that can be directly compiled and linked into existing COBOL applications with a very low overhead. This is the option that was chosen by the bank. The v7.5 product release has added a third option of a zRule Execution Server on z/OS which can be hosted in CICS 4.x utilizing the JVM for rule execution for CICS applications. The zRule Execution Server can also be deployed as a standalone solution on the z/OS JVM for long-running batch COBOL applications.

Developing the application

After carrying out a paper evaluation of IBM WebSphere Business Rules for z/OS, the bank elected to conduct a thorough proof of concept to ensure that the selected technology could deliver the functionality, scalability, and performance that would be required of the finished application. Additionally, the client needed to determine that the integration with the zEnterprise-based operational systems would not impact the ability of the service to deliver the mission-critical applications to the business, and that the execution environment could deliver the required performance without the addition of extra servers. Volume testing showed that the proposed solution would be able to scale up to the full 10,000 potential users.

The proof of concept was successful, and the bank commenced development of the application. It was decided to deploy the functionality in three distinct phases, each consisting of a batch of rules that targeted a set of products that the bank offers to its clients. The first phase of development commenced in July 2010, targeting different types of savings accounts.

Altogether some 70 individuals worked on this first phase of the project, with the majority of the development being carried out by contract staff provided by a third-party development company. This equated to around 12 full-time staff, of which four were employed by the bank's IT section. The logic of the rules was designed by business analysts, and then the technical design was carried out by developers using the Eclipse-based developer tooling. The rules component of the project only required four individuals. After testing, the rules were compiled into the mainframe



COBOL applications, avoiding the need for a separate execution server. The transactional element of the project was carried out entirely in-house.

During the testing of the application there were a number of circumstances discovered that required changes to the rules. In most cases a rule change could be designed, developed, and implemented for further testing within two days, with some more complex changes requiring up to a week. Post development analysis showed that this approach and the use of IBM WebSphere Business Rules for z/OS represented around a 40% saving over traditional coding methods.

DEPLOYMENT EXPERIENCES

Going live

The first phase of the project was made live in a single branch in May 2011 and used exhaustively to discover any problems and establish how useful it was in practice to client-facing staff. The interview process driven by the application at this first stage of deployment only has five steps using twenty or thirty decision points to drive through the process. This includes the presentation of existing customer status and investments to provide a view on the current balance of investments and advice on how this could be altered to meet the individual's financial aims. Within the branch chosen for the initial deployment, staff were trained in the application, and their experiences fed back to the training program.

The deployment was deemed to be very successful, with the sentiment of early users being very positive. As a result of this a rollout of the application to all 10,000 of its client-facing staff within the bank's branches has been undertaken.

Further plans

As a result of the success of the first phase of the project, development of the second phase has begun. This will add support for life insurance and insurance against the risk of unemployment to the products already covered in the first phase. This will require greater sophistication in the client interview process and add a further 15 rule sets to the existing rules base. Ultimately all financial products, including insurance and savings, will be included within this intelligent client-advice program, the only exception being that it will not provide advice on the purchase or sale of individual stocks (although it will be able to offer advice on the overall balance of types of stock within an individual client's portfolio). It will also provide advice on appropriate levels of insurance cover to meet the client's objectives.



At the present time the bank only has concrete plans to roll out the application to its own employees. In the third phase of development it is likely that the application will be made available to Independent Financial Advisors to extend the reach even further. At this stage it is not known whether the application will be made available directly to the bank's customer base. The impact of this move would create an impressive differentiator for self-service banking, without the need to implement numerous new systems, and it would be able to leverage the inherent security within zEnterprise.

OVUM ANALYSIS

Many of the world's largest organizations remain firmly committed to the mainframe-based applications that support the critical operations of the enterprise. IBM's zEnterprise is the most widely used platform for this type of application. IT staff in these organizations are understandably reluctant to make substantial changes to these applications, yet at the same time there is considerable pressure from the business world to exploit the value of these applications in new ways. In the past, attempting to bring these applications into a Web-based environment has focused mainly on creating wrappers that exposed the functionality. Although, in the early days, this type of development was seen as a temporary measure, it has until now been the major extension to COBOL code bases on mainframes.

The cross-selling application is an excellent example of how valuable new capabilities can be added to COBOL applications without disrupting the performance or functionality required to run the enterprise, and without reducing the transactional throughput, which is the main reason for the longevity of the mainframe platform. IBM's WebSphere Business Rules for z/OS has been shown to be ideally suited to this type of requirement. This is due to the fact that the background of the product lies in its COBOL code generation capability, which was designed specifically for this type of environment. IBM has since extended the original product to be integrated into zEnterprise, and as this case study shows this has been successfully achieved.

There are a number of interesting facets to the developed application, of which three spring readily to mind. Firstly, it clearly demonstrates that not only is there a strong need for creating an extensible and extended business-focused operational environment, but that this has to be done without any major changes to the transactional code, which is still considered sacrosanct in most organizations. Rather, the extensibility has to be in the form of changing the ability to modify the usage of sections of the transactional code (which by its very nature is procedurally static) to process-centric code (which removes the static nature). As this case study shows this extensibility is best enabled by the use of business rules. It does, in effect, mirror the Web-enabled wrapping



that was carried out during the move towards component-based development (CBD), but avoids the inherent static nature that still existed in and was the downside of this method.

Secondly, Ovum would posit the proposition that the usage changes already made and planned will only be the tip of the iceberg. As the bank uses the application then more possibilities will open up, and the business rules that are currently deterministic in nature – leading customer agents through a limited (although extensive in nature) set of possibilities will become more open and responsive to both internal and external forces generated by internal and external data/information changes. This will lead to a degree of process-centricity that will create an agile organization out of non-agile code, and create a true one-to-one relationship between bank and customer.

Thirdly, by effectively embedding the rules within the transactional code while at the same time allowing abstraction for modifying rules, then transactional code across the organization will be opened up to new possibilities. We have already stated that transactional code is seen as untouchable, but this is really only part of the story. Without the use of business rules the COBOL code bases that exist across most major institutions do have a limited life-span. Although the death of the mainframe has been predicted for many years, it was not the actually platform that was the problem but the code which ran on it. This is an ongoing issue with all organizations as the need to be agile does not fit well with the seemingly sacrosanct nature of COBOL code.

Ovum sees huge possibilities for the implementation of business rules for mainframe computing. We anticipate that it will enhance customer retention and the success of cross-selling by keeping the dialog between bank and client relevant to each individual client's financial objectives. This will ensure that all relevant products can be introduced while removing the nuisance impact of scatter-gun marketing initiatives.

APPENDIX

Contact details

IBM Corporation
1 New Orchard Road
Armonk
New York 10504-1722
USA

www.ibm.com



Author

Michael Thompson, Principal Analyst, Enterprise Solutions (Software)

mike.thompson@ovum.com

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