

Large Global Integrator Achieves Application Renewal Client Success with Jazillian Legacy Code to “natural” Java™ Code Translation Solution

Client Profile

Our client is one of the world’s leading management consulting, technology services and outsourcing companies. With multi-billion dollar worldwide revenue, approximately 150,000 employees and operations in nearly 50 countries, this integrator develops technology and systems integration solutions for clients around the world.

The Business Challenge

The Integrator’s client needed an efficient and cost-effective solution for migrating over 700,000 lines of C code (over 2,400 files) to Java™ code and a Web-based J2EE environment for a US state government Web-based information system. The client desired high quality, readable and maintainable Java code for their J2EE Web-based application environment. They also sought to reduce maintenance, support and ongoing development costs.

In the proposal stage, the Integrator and their competitors were faced with the typical options of rewriting this code manually or working with a tool or service partner to provide an automated C to Java code translation. The Integrator and the competing bidders had to factor in the client’s requirement that the work be performed in the US. The time required to complete the code translation was quickly identified as a potential bottleneck, since the code needed to be translated before other parts of the project could begin.

The Winning Proposal

The Integrator won the bid because their proposed solution would convert the existing business logic code to Java code, eliminating the need to write code from scratch. This solution included:

- > Translating the legacy C source code to Java code
- > Developing new code to meet additional business requirements
- > Integrating a newly developed Web-based GUI interface
- > Updating and linking to the new data layer infrastructure

Jazillian was engaged to provide an automated, customized code translation solution. The Jazillian solution would allow the Integrator to significantly reduce the cost of labor for the raw conversion, keep the work local, and provide quality “natural” Java code, all in an extremely short time frame.

Preserving the Business Logic

Translating legacy code from one language to another is often a way to preserve the valuable business logic that an organization has developed over many years. In this situation, the solution architecture consisted of three primary layers:

- > A business logic layer containing the business logic
- > A data layer for interaction with the database
- > A network layer including the user interface, to allow Web access

Jazillian provided the Integrator with an automated solution to translate the C code to “natural” Java, keeping the existing business logic in place, which met nearly 80% of the client’s desired business application needs.

The Jazillian Solution

The Jazillian solution is based on a pattern-matching, rules-based translation engine plus the iterative process of customizing the Jazillian generated “natural” Java code. Jazillian overlays variable parameter-driven rules and client-specific custom rules to generate “natural” Java output code. “Natural” Java output code is code that looks and runs as if it were manually written code. As a result, it is maintainable, extensible and easily modifiable. In the end, the legacy C code is no longer used.

To start the project, the Integrator sent Jazillian a subset of the entire C code base, 28 services representing approximately 60,000 lines of code. Jazillian translated the code and transferred it back to the Integrator within one day. Jazillian and the Integrator’s technical teams then worked together to define the specific Java output code desired. For example, the Integrator used a tool call Hibernate to connect to the data layer, and the use of this tool required particular changes in the generated Java code. The project specifications required several other tools and interfaces that made a very specific Java output desirable and beneficial. Jazillian created the custom rules to generate code to meet these requirements.

Within two weeks and with a few iterations, Jazillian developed the “custom rules” and completed the translation of the code for the first 28 services. The Integrator was surprised and very

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satisfied at how close the generated Java code was to being finished. In fact, the Integrator's technical lead said: "The converted code looks GREAT! In fact, there are NO compile errors whatsoever in the generated code. That's amazing, quite frankly!"

The remaining business logic layer code was translated by Jazillian with just a few additional modifications. To complete the project, the Jazillian team worked with the Integrator to create hooks (part of Jazillian's custom rule development process) into the data layer and network layer of the application and environment. In a total of 18 days, over 729,000 lines of code had been automatically translated from C to high-quality Java code using Jazillian.

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– Global Integrator, Technical Lead

The Results

By partnering with Jazillian, the Integrator was able to move applications and services to a Web-based environment quickly and with significantly less pain. Jazillian's translation solution significantly reduced the time and cost required for raw code conversion. It is estimated that the Jazillian conversion took 85-90% less time than manually rewriting code in-house or outsourcing. The translation solution cost 90% less than an in-house solution and 50% less than outsourcing. The code is also of a higher quality than could be expected from alternative translation programs or an off-shore manual rewriting solution. Not only is the Integrator pleased with the Jazillian solution, but so is the Integrator's client, who can now expect years of cost-effective service from the translated code.

The benefit of the "transfer" solution and the Java code quality was seen in a great client experience during turn-up and deployment. The application ran with very few problems, conserving the business logic that had been in use for many years. The application not only worked well, but because the new code was similar to the original source application, it minimized the training and adoption curve, both for the developers and end users.

Translation Summary

Jazillian translated 729,650 lines of C code in 2,466 files. This was done applying over 200 standard transformation rules plus the several custom rules Jazillian developed for this particular application. Jazillian generated over 717,110 individual changes to the code of which 66,719 were for the custom rules specific to this application. The output code compiled with no errors and was the precise output desired by the Client. It took Jazillian three weeks to complete the translation part of the project. It's estimated that the Jazillian C to Java solution resulted in time and costs savings in the range of 85-90%, when compared to the available manual re-write solutions.

About Jazillian, Inc.

Founded in 2003, Jazillian, Inc. specializes in Legacy C, C++ and COBOL to "natural" Java code translation solutions to speed migration from legacy code to Java code and SOA web-based services environments. Jazillian's Translation Solutions generate "natural" Java output code that can be customized based on the specific client and application needs; it is readable, maintainable, and easily modifiable. It not only works today as "natural" Java source code but is also a great starting point for future software development and enhancements. Clients include enterprises, government agencies and software companies committed to the deployment of applications and services in their SOA and J2EE environments.

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