

Federal institution modernizes a critical legacy system to Java/Hibernate to reduce cost and establish a better support structure

CUSTOMER

U.S Department of Defense

INDUSTRY

Government / Defense

COUNTRY / REGION

United States

CUSTOMER PROFILE

The customer is a United States Defense agency managing personnel recruitment, scoring and promotions.

MAJOR AREAS SERVED

Conversion of COBOL/Pro C system to Java/Hibernate on Microsoft Windows Server 2008 using Oracle database

The Challenge

The recruitment management system, comprising of 7 modules, was responsible for managing recruitment, reviewing performance and recommending promotions of all enlisted personnel. Constant accessibility to this system was critical to the development of personnel and this had been compromised in recent months due to problems with keeping the application up and running.

The system was written on an Oracle platform with the front-end using Oracle Forms 2000 and a backend comprising of several batch processes written in COBOL and Pro C.

Several backend operations were also coded in PL/SQL to facilitate data processing and decision making.

The batch processes generated reports for candidate progression through the organization. These processes, being coded in multiple languages were non-optimized and inconsistent in generating results. Additionally, there were no subject matter experts available to maintain the application. This combination of multiple legacy technologies along with lack of support personnel made the system complex and almost impossible to maintain and extend.

The Business Case

The U.S. Department of Defense Agency utilized this application to provide an automated system capable of supporting career development of enlisted personnel. This system assigns, tracks, controls, evaluates, administers students' enrollments, maintains records on students and archives educational and training accomplishments.

This system was installed on an old Windows operating system that was no longer being supported. Programming platforms used were multiple and there was a lack of process orientation.

Over the years the agency had invested a considerable amount of time and resources in accumulating business drivers in the system, and it was not possible to simply throw away this investment

and start from scratch. Further, little knowledge existed in the agency about the workings of the system, which had been developed over several years using third-party vendors. Hence, migrating to modern platforms was not without risk.

Migration methodologies have been primarily manual with multiple disparate tools providing partial automation of the processes. Most such initiatives take long periods of time to complete, adding to the risk already inherent in manually driven tasks.

In conducting due diligence, the agency contacted several vendors and conducted POCs to select a solution that provided automated conversion of their system to a distributed platform.

The Solution

The agency selected a solution built around **EvolveWare's Intellisys** because this product not only provided automation in each phase of the transformation process but was customizable to generate target code as per the agency's requirements.

EvolveWare's Intellisys, as a single product, has the unique ability to support multiple sources, extract embedded information from the source, provide a platform to consolidate, re-factor and SOA enable the extracted information, and generate modern customizable web-based code that is scalable and maintainable.

Leveraging this automation tool, the agency was quickly able to view the underlying business rules and processes running their system, making it easy to identify and modernize the application to a modern scalable architecture.

In migrating the agency's career development system, Intellisys automated the extraction of business rules to 100% and automated the generation of the target system to 85+%. This meant the extraction, modernization and transformation of almost 220,000 lines of executable COBOL/Pro C w/Oracle/PL/SQL code to Java/Hibernate using Oracle 10 in a record time of 6.5 months. The solution generated highly structured, multi-tier Java code that met Oracle's (former Sun) Center of Excellence best practices.

With the target application having no run-time dependencies, the agency got assured of running this modernized system without having to pay any recurring maintenance costs.

Highlights

100%

automation of business rules extraction

220,000

lines of executable code

6½

months to complete

Before	Business drivers	After
Windows 2000	<ul style="list-style-type: none">• Lack of support personnel• Need for extendibility and cost reduction	Windows Server 2008 R2 w/Oracle App Server
Oracle 6		Oracle 10
COBOL/Pro C/PL/SQL		Java/Hibernate/Struts
DB-based security		Windows Active Directory LDAP

The Results

Project Deliverables

The project included the following deliverables:

- Business Rules extracted from 220,000 lines of COBOL/Pro C/PL/SQL code
- Modernized Java/Hibernate application with enhanced process interfaces deployed on a Windows 2008 64-bit server
- Windows PowerShell scripts converted from batch scripts

Project Effort

The project was executed in 6.5 calendar months. During this period of 6.5 months, an average of 4 personnel used the automation tool to document, modernize, convert, test and deploy the source system. The following statistics provide the calendar time spent on each of the major tasks performed in the course of executing this project.

1. Extraction and review of embedded information from the source - 3 weeks
2. Derivation and optimization of extracted business rules – 5 weeks
3. Generating target code – 4 weeks
4. Completing target code, data transfer and regression testing of target code – 14 weeks
5. Packaging and deployment for user acceptance testing - 2 weeks

Benefits

The migration of the agency's Recruitment Management System was implemented on-time and at a fixed cost. The fixed price quoted for the EvolveWare solution was so cost effective that the agency has begun to apply the remaining amount of their original budget to "dramatic improvements" in the system's user interfaces and SOA implementation.

From a performance standpoint the target system in Java is performing without any degradation whatsoever. From a functionality perspective the target system identified certain inconsistencies with the results generated by the original system. From an operations perspective, the agency estimates that the annual cost to operate the converted systems on a Java platform will be significantly less than what it has cost them to run the same application on older unsupported platform. An exact ROI calculation is pending.

While the exact savings is still to be determined, the primary beneficiaries will be the members of the agency as they receive enhanced service from the new system.



"Using EvolveWare's automated legacy conversion product, we were able to modernize and migrate a critical defense department's recruitment system in record time. We were astonished to find out how fast we were able to transform an old undocumented system into a modern multi-tiered architecture in Java."
—Project Manager

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