

SIEMENS HEALTH SERVICES

# MIGRATING 30 MILLION LINES OF CODE FOR THE GLOBAL LEADER IN HEALTHCARE MANAGEMENT SOLUTIONS

SHS is a Siemens company which handles HealthCare Solutions for the worldwide market. Given the uniqueness of this market, the organization of SHS and the development of solutions are tailored to each country's specific needs.

For the French Market, SHS has developed a complete set of solutions for both the public and private sector.

These solutions, that cover all administrative aspects of a hospital, have been developed, for the AS/400® platform. SHS strong presence in the French healthcare market, as well as their excellent solutions, has made the company a leader in this area.

**After a detailed research within the available solutions and tools, Siemens has selected Caravel™ as their most favorable option**

Difficulties encountered by SHS users, due to the lack of a modern interface and high property costs of the AS/400®, along with the uncertain future of this platform, has triggered the need for Siemens to reach for an alternate solution in the open technology market.

After a detailed search within the available solutions and tools, Siemens has selected Caravel™ as their most favorable option.

The complexity of this solution, with more than 30.000.000 lines of code in RPG and COBOL/400, and SHS' responsibility to remain as the leader in this field, has made this project a model in planning and rigorous quality control.

## ABOUT THE CUSTOMER

Siemens Medical Solutions of Siemens AG is one of the largest suppliers to the healthcare industry in the world. The company is known for bringing together innovative medical technologies, healthcare information systems, management consulting, and support services, to help customers achieve tangible, sustainable, clinical and financial outcomes. From imaging systems for diagnosis, to therapy equipment for treatment, to patient monitors to hearing instruments and beyond, Siemens innovations

contribute to the health and well being of people across the globe, while improving operational efficiencies and optimizing work-flow in hospitals, clinics, home health agencies, and doctors' offices.

The French Subsidiary of Siemens Medical Solutions, is the healthcare industry's leading Application Service Provider (ASP) with more than 400 hospital organizations as current customers in France.

## PROJECT BACKGROUND

The client had a large information system for hospital management developed in RPG/400® and COBOL/400®. The application was built with several modules that covered every issue related to the management (clinical,



logistic, interaction with other clinical devices such radiology, etc.). The application was based on the AS/400® server and was the only hardware option for its clients. But the general trend of the market was to offer a Web-enabled and platform neutral application. This trend was based on two factors:

1. High interaction of the hospital organizations with private clients and external collaborators (independent doctors, insurance companies...) that made absolutely necessary the integration of the application with Internet.
2. Pressure from its actual customers to have a platform-neutral application. The hospitals wanted to have the possibility to avoid the expensive proprietary costs of the AS/400® systems.

SHS was already facing the need of a Java™ application to substitute the RPG/COBOL one. A re-programming effort

amounted to excessive cost, which made them to discard that option. Our client had already tested other technical possibilities to support the conversion with no success. The Caravel™ option was taken with an initial skeptical feeling that we changed into enthusiastic mutual trust.



## SCOPE OF THE PROJECT

The project scope includes:

- Convert the entire RPG/COBOL application to Java™.
- Certify that the new application keeps the same functionality as the original one with no decrease in the original performance.
- Redefinition of the application interfaces to create a more user-friendly look & feel.
- Re-engineering of the application to integrate it in the company Internet portal.

## CLIENT BENEFITS

- ▷ **Minimizing the financial effort of the evolution to Java™.**
- ▷ **Obtaining a Java™ application in the shortest period of time making sure that the technological features of its application will not threaten their current leadership in the market.**
- ▷ **Integration of the e-Business strategy in its application.**

- ▷ **Ensuring a solid technological future for its application by integrating with the programming trends.**
- ▷ **Offering its current customer the possibility of choosing among any market standard platform.**
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## ORIGINAL PLATFORM

- Programming Languages: RPG/400® and COBOL/400®.
- Operating System: OS/400®.
- Number of Objects (RPG, CL, DSPF, etc.): 52.000.
- Hardware: IBM® AS/400®.

## FINAL PLATFORM

- Programming Language: Java™.
- Operating System: OS/400®, Windows™ 2003 Server and Linux®.
- Data Base: DB2®, SQL Server®, Caché™ and Oracle® 9i.
- Hardware: Platform Neutral Application.

## MORE RELEVANT TECHNICAL TOPICS

- The execution of a large project with pre-established phases and completion dates.
- Integration of the Caravel™ Technology with the interface module previously developed by Siemens called SHS Portal.
- Integration of the new application with the Cache® data base.
- Due the great differences of size between the HW platforms owned by different hospitals, the final architecture had to consider every situation.

- During the conversion project several processes, from the batch part of the system, were reengineered to improve the performance, mostly focusing small HW platforms.

- The final architecture was totally flexible. The system could be used on iSeries or open systems or in mixed solutions. One typical mixed solution was based on the actual iSeries, as data server, and the addition of an open machine for running the converted application. This solution was very helpful in cases where the hospital wanted to increase performance at reduced cost.

- A strong dedication to obtain an excellent performance/equipment costs ratio, which improves SHS' ability to compete with other offerings.

	Original Platform	Final Platform
Programming languages	COBOL/400®, RPG/400®	Java™, HTML, XML
Operating System	OS/400®	Windows Server2003® LINUX®
Data Base	DB2/400®	ORACLE® 9i, CACHE®,DB2®
Hardware	AS/400®	AS/400® and open Multi-platform
Number of RPG objects	Over 50.000	