

Industry - Healthcare

Solution - Enabling a state government agency to repair and modernize a public-facing legacy system



➤ The Customer

The customer is a large state agency which administers long-term service and support to people with cognitive and physical disabilities.

➤ The Problem

The customer maintained and supported two legacy systems: Quality Reporting System (QRS) and QRS Webmaster (QRSW). QRS was a public-facing website which offered information to the public to help evaluate the quality of long-term care services. The QRS Webmaster site was a Web-enabled application that allowed user's to create, delete, and edit web content that make up the public Long Term Care (LTC) Quality Reporting System (QRS) website.

Both the QRS and QRSW systems were running on a legacy platform that was difficult to maintain, improve or enhance. The software technologies were considered obsolete and not supported by its vendor. There was a general lack of understanding of the system with most experts either retired or unavailable. Additionally, documentation was nearly non-existent for both platforms.

The customer solicited vendors to modernize the QRS/QRSW systems, shifting from legacy technologies to an enterprise class SOA-based technology using a J2EE compliant WebSphere Application Server and Oracle backend.

➤ The Solutions

The customer, through its Enterprise Procurement process, selected PreludeSys as the solution provider to update and modernize the QRS/QRSW systems to function with technologies that are in compliance with current standards. PreludeSys performed the remediation by

adhering to Project Management Life Cycle (PMLC) and Software Development Life Cycle (SDLC) standards as recommended by the customer. PreludeSys's approach to a suitable solution was based on a number of key steps:

Understand the Existing System

Where technical documentation was sparse, PreludeSys executed a full reverse engineering and documentation effort. PreludeSys used a variety of techniques, including user interviews, explicit tracing of data paths and automated parsing and analysis of source code.

Understand the Data

As database migration was necessary, PreludeSys developed a new data model, determining the lifecycle of each table row and the source of each data element. This process was fundamental to the production of new design documentation and the creation of database crosswalks from the legacy site to the new database model. PreludeSys worked with the customer to review data integrity and evaluate the need for content cleanup as part of the initial transfer to the new database.

Develop the Application Architecture

It was necessary to ensure that every function in the legacy site mapped to an equivalent function in the updated site. During migrations to dissimilar client platforms, care was taken to make use of newer technology while maintaining clear continuity between the legacy and new applications. In addition, the site architecture was designed to anticipate the need for post-migration refactoring and support the

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addition of new user-requested features and updates.

Develop the Application

PreludeSys designed an initial database migration which included use of the existing interface to lay the foundation for the underlying infrastructure and basic navigation features. Over this basic skeleton, the application was redeveloped for usability and new features such as reporting and forms generation.

Testing

PreludeSys performed the multiple tests to ensure a complete match of the new site with the legacy site by adhering to Software Testing Life Cycle (STLC) standards. This meant constructing highly granular tests for site components, and increasing the breadth of testing until all components within the site were properly integrated and vetted. PreludeSys used a variety of testing scenarios to ensure that the site would meet its intended goals:

- **Use Case testing** validated that the application met its functional goals.
- **Side-by-Side testing** verified that the applications were visually compatible and matched user expectations.
- **Integration testing** ensured that the site was compatible with the current infrastructure and would coexist with other applications.
- **User Acceptance testing** ensured that the user community was responsive to the design and would transition accordingly

Training and Knowledge Transfer

PreludeSys discussed with the customer a strategy to transfer the application maintenance and development upon completion of the site redesign. To support this, PreludeSys

developed multiple pieces of technical documentation. Initially, a programming guide was created for technical and development staff to get a 'jump start' on understanding the site's implementation. Once the site was complete, an Operations Manual was written for production support and site customization and configuration.

Deployment

PreludeSys worked hand-in-hand with the customer's IT staff to ensure a clean deployment and straightforward user transition. Additionally, PreludeSys provided 30/45 days of post-production support of the site. During that time, the customer's IT staff took an increasingly active role until the transition was complete.

➔ Technology Overview

PreludeSys offered a J2EE (Java 2 Enterprise Edition) solution for the site. Most of the platform work was developed using J2EE-based open source components such as Struts, Hibernate and Spring. The database technology used Oracle 10g for compatibility with the existing infrastructure. Site Security was handled using the existing architecture for initial user authentication and additional application-based features for customization of access by specific users. The sites could be accessed from the portal or constructed as portlet-based applications that exist entirely within the Websphere 5.1 portal.

PreludeSys adopted the industry standard approach known as Model-View-Controller (MVC) architecture with J2EE design patterns and coding standards for the construction of the site. This decoupled each layer and separated the business code from the database and the view components, allowing flexibility in customization and reduced risk of

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unwanted impacts from changes.

PreludeSys developed the site with minimal participation of client's staff beyond the establishment of the site's requirements.