

Layered, Healthcare Model Based Web Portal Redesign for Leading Healthcare Insurer Provides Flexibility and Ease of Enhancement Essential for New Business Growth

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Background

A leading Healthcare Insurance provider had developed a highly successful, labor saving and feature rich Membership Web portal which delivered a wide variety of information from multiple “back-end” (host) data sources. These included information available to the general public about the Insurers plans and service offerings, together with secure access for plan members to their personalized eligibility, physician network, benefits, coverage balances, healthcare savings accounts and claims status.

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Business Challenge

The Insurer’s business strategy combined growth through new acquisitions together with introduction of innovative healthcare plan functionality and design. As a result, the Insurer’s “back-end” systems consisted of a number of inherited and “best of breed” solutions, optimized for specific plan types and features. Depending on a member’s plan type (e.g. member of a small business versus a large national account) and benefits, access to a different set of back-end data sources could be required for each type of portal information.

The current portal design used a “thick client” approach. The front-end included the logic to determine which back-end data sources to access for each member and then constructed and executed queries specific to the design of each data source. The front-end also included the business logic to interpret and render the output according to the customer, plan and member. The large number of calls required to build screens was impacting performance of the portal.

This tightly coupled design was recognized as a serious obstacle to business growth. As new businesses were acquired, their inherited new systems, membership and new plan features had to be integrated into the portal. The design, development and offering of new products and plan designs with new features also presented portal integration requirements.

Because of the current design, maintenance and enhancement of the portal was very expensive and time consuming, with lengthy “time to market” for supporting new acquisitions and for introducing new plan functionality. A team of several analysts and developers was required to spend substantial time for each change. The time to deal with multiple acquisitions and new plan functionalities was judged to be equal to or greater than the time required for a redesign of the portal architecture to facilitate this.

Objectives

Redesign the portal architecture:

- Decouple the business logic and the technical data source issues from the front-end, creating a “thin” front-end.
- Reduce the number of calls to build screens and improve portal performance.
- Introduce a multi-layered design, based on standardized Healthcare Models, which would abstract the business and data source logic.
- Increase flexibility and reduce time to market. Reduce the time and cost required for maintenance and enhancement of new functionalities to the portal.

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Technical Solutions

A team of IGI Subject Matter Expert , analysts and technical developers reviewed all client portal documents and met with the client Architect, analysts and key developers to isolate and document, for each portal function point, all of the data requests and responses to and from each related back-end data source.

Using the Rational Unified Process (RUP) the IGI team developed a Healthcare Conceptual Model consisting of use case models and business object models of the major entities, their functional responsibilities, relationships and the data they each provide. The team then developed and documented the data mappings for each back-end data element to/from these standard Healthcare Models using rules (crosswalk) for each element applicable in the ANSI X12 transaction set.

A joint client/IGI team designed and implemented the Healthcare Models using an XSD file containing the schema definition of the model. A “Translation Layer” was created to perform the mappings and crosswalk of data requests and responses to/from the Healthcare Models from/to the back-end (host) systems. The Healthcare Models were then mapped to the portal User Interface (UI), completing the re-architecture.

The resulting redesign, incorporating the Healthcare Model Layer and Translation Layer, achieved the desired decoupling of the front-end from the business logic and data logic.

Results and Business Benefits

- The front-end layer became as thin as possible
- The number of calls required to build screens was reduced, enhancing performance of the portal
- The time and cost to maintain/enhance the portal was significantly reduced
- New back-end(host) systems with different technology can easily be integrated, supporting new business acquisitions and the introduction of new plan designs and features