

BTA, Inc. selects Seaside Web Framework for the iRev Product lines



I would like to provide some information on why I have chosen Seaside as the web application platform for the next generation of products for my company, BTA, Inc. First a little about BTA, Inc. ,<http://www.healthauditors.com>, and our mission. We are a software development company targeted at developing products to meet the financial needs of the health care provider market. We are currently developing an application that will help consulting groups, hospitals, and medical groups recover money from health care insurance companies for accounts that are under billed. We are a small company in startup mode, and are just now in the stages of adding our second customer. For development staff, I utilize my own experience in Smalltalk development and contractors when possible. This year we will focus on delivering our new suite of products, and partnering with new customers.

Existing Product Technology

Our first product, "*Claims Archiving System*" (CAS) was developed to allow health care providers access to their health care encounter data in a repository that aggregates claims experience across multiple data sources. The system provides advanced search engines and reporting for claims, eligibility and authorizations. It is currently deployed in an ASP model with our computing resources located in our co-location center. We chose VisualWorks with the Web Tool Kit as the application development and deployment environment. Apache 2.0 is used as a static content server and front end which communicates with the VisualWorks application server via a PERL connector. Due to the requirements for privacy in health care, all access to the system is through a web browser over an HTTPS connection with 128 bit encryption.

We developed an MVC for the web framework for the application based on the paper "Objects and the Web" by Alan Knight, and Naci Dai. Our framework combined a controller servlet, and Smalltalk Server Pages (SSP), and other components to provide the control flow and a presentation application layer. The data is stored in Oracle RDBMS, and we use Cincom's Lens framework for object to relational mapping. The product was developed over a period of 8 months on a part time basis with the aid of a few contractors and myself. The application has been deployed for over a year, and the initial customer has been happy with its performance and feature set.

Why we chose Seaside

BTA, Inc. is currently embarking on the development of the iRev product line targeted at revenue recovery and billing follow up for the health care provider market. We've teamed up with a revenue recovery agency, TL Consulting, to design the iRev Tracker system. The application allows their consultants to follow up on their clients hospital patient accounts throughout the billing and collection life cycle. iRev Tracker utilizes a rule engine and a work flow model to route the accounts and tasks to the various team members of the Recovery agency. The recovery team is distributed across several time zones, and requires that the application be web based for easy access while on site at their customers facilities

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and from their home based offices. We are developing this product to support TLC and similar consulting groups and medical provider organizations.

iRev Technology

I began the technology selection during the Summer of 2004. My choices were informed by our experience developing CAS, and previous experience consulting on web based application development. During the development of CAS, I came to the conclusion that HTML generation should be from within the Smalltalk image as opposed to using template based SSP pages. I also found that handling the back button was difficult. We utilized a bread crumb trail to allow for back tracking, and told our customers not to use the back button. Due to our tight iteration schedule, we had a hard time working with a graphic designer for template design. So we switched to the use of CSS style sheets which allowed us to decouple the graphic design from the application development. Finally, we discovered Smalltalk is an excellent choice for a development and deployment environment for a web based application. Of course, none of these ideas were earth shattering, but they were main motivators for choosing Seaside.

We chose to develop the *iRev Tracker* application with the Seaside framework version 2.5 and the Cincom Smalltalk VisualWorks Web Tool Kit environment. We started with version 7.2.1 of VisualWorks and are in the process of migrating to version 7.3. We utilize Postgresql for the RDBMS with Glorp as our object to relational mapping layer. The application is deployed on a single dedicated Dell 1650 dual CPU server running Debian Linux behind our firewall within our co-location center. We have chosen the same configuration of Apache as we used in the CAS system for similar purposes.

So far, Seaside has addressed my requirements for a web application framework . Since there is no templating system, the Smalltalk tools can be utilized to their fullest extent for development and refactoring of the application. All HTML is generated by a stream like object similar to what we developed for the CAS system and has allowed us to easily port some of our code forward. The elimination of string based HTML allows the use of the reflective nature of the Smalltalk environment to modify the presentation code. Being image based means that all code resides within the image, which is most useful for the evolution, and maintenance of the system.

The use of our MVC for the web framework left us unsatisfied with control flow though multi-page sequences (e.g. a wizard). The use of the command pattern used by the framework was great for single request response sequences, but difficult to follow beyond this. Seaside addresses the application flow in a novel way through the use of continuations. While I never would speak of continuations to my customers, the development model fostered by their use is natural for a Smalltalk developer, and allows for clear and intention revealing code. Of course, continuations also allow for the handling

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of the back button and backtracking through the application flow. This is something I believe Seaside does better than any other web application environment.

We were able to leverage reuse in our MVC framework by developing a simple presenter framework. Seaside's component model far exceeds what we did, and has allowed for the development and extension of several reusable user interface frameworks with very little effort. Seaside use of CSS style sheets allows us to customize the component appearance based on the context they are used in. Due to this design, we can properly defer graphic and user interface design until the point that it matters.

Smalltalk as the basis for Seaside is in my opinion a significant choice. Much has been written about the dynamic and reflective nature of Smalltalk all of which has been important to us in the development of the iRev Tracker system. We have utilized these capabilities to develop a rule engine that routes accounts to the appropriate team member, and select the appropriate follow up task based on the account attributes. We are in the process of developing a Work flow engine which will allow us to easily adapt the business process model to other customers as we partner with them.

The main limitation of Seaside, and for that matter Glorp, is the lack of formal documentation, and examples. A cook book approach for documentation would highly benefit the efforts to develop Seaside applications. That said, we have been able to develop the application utilizing the example applications that come with Seaside, and the support of the Seaside and Smalltalk communities. We found that Google was invaluable in searching the the Seaside mailing list, and that incredible help was found on the Smalltalk IRC channel. We look forward to more documentation of Seaside in the future to enhance our understanding of the use of Seaside.

The iRev Tracker application will be deployed in beta in early February, of 2005. We have spent nearly 4 months in development and will continue with releases far into the future. Choosing Seaside as our web framework and Smalltalk as the foundation language has left me satisfied from early on. I look at our choice of Smalltalk and Seaside as a secret weapon (I guess not so secret now) which will allow us to deploy quality products that exceed those of our competition. The combination has allowed us to develop a system that is complex with very little resources and provide our customer with a system that significantly stream lines their business process.

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