INNOVENT
SOLUTIONS

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Spotlight on
Client Success

CLIENT PROFILE

Name:

Blackboard, Inc.

Description:

Blackboard works with more than 5,000 institutions and millions of users to focus on a single mission: to increase the impact of education by transforming the experience of education.

Industry:

Education Software

Need:

Enhance clients ability to use Blackboard data to improve the education experience.

Results:

● Reporting is a featured part of the complete Blackboard learning solution.

● Clients can quickly customize standard reports

● Clients can create new integrated reports

● BIRT is customized to simplify and speed Blackboard report development

"The client was able to review the course evaluation results and make corrective actions on the curriculum based on feedback from their students."

-Tim Aaron
Director, Blackboard Consulting

BACKGROUND

Blackboard Inc. clients want to be able to leverage the data created within their learning management system. The proprietary reporting tool used previously by Blackboard was not capable of providing the desired results from both an aesthetic and technical perspective. Blackboard performed a business analysis of available reporting tools and selected the open source Eclipse Business Intelligence and Reporting Tools (BIRT) to transform and improve current reporting mechanisms.

Innovent Solutions is a founding member of the BIRT project team. Innovent has partnered with Blackboard to provide expert guidance and implementation services on the to use BIRT as an integrated component of the Blackboard platform. Services provide by Innovent include cooperation on design, build, and support of the BIRT reporting solution.

BUSINESS CHALLENGE

In looking to better leverage the platform data, Blackboard wanted to achieve four core reporting objectives: Provide Better Client Business Intelligence, Deliver Seamless Product Integration, Support Varied Expectations, and Create Maintainable Reports.

Provide Better Client Business Intelligence
Client focus groups indicate that there are three critical aspects to reporting:

● **Make it Easy**: The majority of the people looking to access Blackboard's platform reporting tool are not data analysts, they're busy people that just need answers. The reports should provide those answers without any training or instruction.

● **Make it Look Good**: The client desires reports that reflect on both the Blackboard application as well as the institution using Blackboard. The reports should provide a professional and modern look that reflects the institution's brand.

● **Make it Powerful**: Clients have consistently asked for more information on fewer pages. This challenge requires balance with ease of use and aesthetics.

Deliver Seamless Product Integration
The Blackboard application is made up of a number of modules all delivered through a Java Enterprise Edition (JEE) secure web application. The reporting solution needs to seamlessly integrate with the JEE application; including security, localization, report prompts and client branding.

Support Different Reporting Expectations
With more than 5,000 worldwide clients, it is impossible to predict all of the required business intelligence scenarios. Blackboard reports need to supply useful information for most clients and allow advanced clients to add additional reports that address their specific requirements.

Create Maintainable Reports
There are four challenges to the long term support of Blackboard reports:

● **Support Multiple Operating Systems (OS):** Blackboard applications run on Windows, Linux, and Sun servers. The solution must support all operating systems.

● **Support Multiple Databases:** Blackboard applications use both Oracle and Microsoft SQL server databases. The reports must run on both databases.

● **Modular Packaging:** Blackboard reports deployed in packages that are tied to each of the specific application modules. Blackboard needs to be able to update one module independent of the other modules.

● **Support Code Re-Use:** Reports share objects between modules, duplicating these objects in each module creates support issues. Where possible, the solution should support component reuse between modules.

SOLUTIONS

The solutions to these business challenges were implemented using teams made up Blackboard and Innovent staff. Using Blackboard's existing agile development process, Innovent's consultants were able to design, build, and deliver the updated reporting tools. User feedback, testing, packaging and distribution were handled by Blackboard staff.

Provide Better Client Business Intelligence

- **Create Powerful Stories**: Every Blackboard report is designed to tell a story about a particular product domain. Starting with a high level summary to provide overall context, the report then provides details and relevant comparisons to deliver the information needed to make accurate decisions.
- **Great Looking Reports**: Rather than just deliver data dumps, the Blackboard reports use color, layout, and charts to lead the reader through the information. At the same time, the reports are designed to be compact, delivering the maximum amount of information, in the minimum amount of space.
- **Make the Complex Simple**: Blackboard reports combine information from a variety of sources into a single narrative.   This analysis, although difficult, is not exposed to the user, instead they are given a simple consistent interface that distills the information they need into a format that they can use.

Deliver Seamless Product Integration

The BIRT Report Engine API (REAPI) was embedded into the Blackboard application to interact with and run the reports. Using the REAPI, the Blackboard app was able to integrate localization to support more than 20 language variations. The REAPI allowed the application prompts to be driven by data acquired through the BIRT parameters. Brands created in the application are applied to the reports. Finally security and database connectivity are all controlled by the application. Using the reports in Blackboard feels like a natural part of the application.

Support Varied Expectations

Blackboard Custom report development is done using the free BIRT report designer. A custom BIRT update site allows even new report developers to be up and running on BIRT reports in less than ten minutes. The solution supports customization of existing designs or the creation of brand new reports. Deployment to the application server is done through a simple user interface (UI) process.

Create Maintainable Reports

- **Support Multiple Operating Systems:** BIRT runs on Microsoft, Sun, and Linux servers without special case code.
- **Support Multiple Databases:** Innovent extended BIRT to support DB specific syntax without special case code. Reports that use either Oracle or Microsoft syntax will be translated to the appropriate syntax at runtime.
- **Modular Packaging:** Blackboard reports are deployed as six modular packages and one shared library package. Updates to a single package do not impact other reporting packages. Report package updates can be done by the system administrators using the application user interface.
- **Support Code Re-Use:** The reports are able to take advantage of component re-use in two methods. First, a common library shares components such as database connectivity, parameters and page layout between all reports. Second, where applicable, Innovent was able to use one report to support multiple sorting and grouping options based on user entered prompts. Innovent was able to take advantage of BIRT's features to reduce the total number of reports by a third, while improving the business intelligence coverage.

THE RESULTS

Successful Product Release: Blackboard had a successful release of their platform reporting tool using BIRT for the 8.0 version of their product. The product released with 25 reports. The 9.1 version of Blackboard is scheduled to be released using an upgraded BIRT version with approximately 10 new reports.
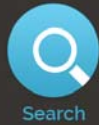
Successful Adaptation: Report developers can quickly customize the reports using cascading style sheets (CSS) and are able to extend the standard reports to create custom client reports with ease.

Easy Adoption: Innovent Solutions has developed an Eclipse update site that assists Blackboard clients and Services developers so that they can be developing platform reports in ten minutes or less.

Deliver Client Value: Blackboard client's have begun to take advantage of the new BIRT-based solution. At one institution, in a typical semester 2,500 courses will be evaluated and over 25,000 response submitted. BIRT automates the generation of reports on the surveys that provide valuable insight. This enables the institution to review course evaluation results and make corrective actions on the curriculum based on feedback from their students.

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Innovent Solutions provides consulting, training and support services and solutions for Search, Business Intelligence and eCommerce technologies. We build systems that enable our clients to:

- Find the information they want and need
- Understand the context and meaning of information
- Trust the information to be accurate and timely

Our focus on customer goals and objectives combined with deep technical depth and experience, allow us to build successful, high visibility solutions that deliver immediate value to our clients.

Innovent Solutions is a privately held company headquartered in Irvine, California with offices in Minneapolis.

HOW CAN WE HELP YOU?

Innovent Solutions provides consulting, support and training services to organizations that use BIRT. Our involvement on the BIRT project and experience with numerous clients gives us the expertise required to make your BIRT implementation successful. Innovent provides services for all types of implementations whether you are using BIRT for your:

- Product
- Project
- Enterprise

Our consulting services include BIRT development, deployment, and customization. Our consulting uses best practices to get you started quickly and give your environment room to grow. BIRT can be deployed in a variety of ways. We help our clients integrate BIRT into their existing systems with an eye on security and performance. Innovent specializes in extending BIRT to meet your business requirements.

We provide support subscriptions for development and production systems. Development support includes report design, BIRT best practices, code and system reviews, and BIRT API customizations. Production support provides trouble shooting, issue resolution, and guidance on security, performance, and operations.

We deliver instructor-led training that cover all aspects of the BIRT development cycle. Our focus is on key BIRT concepts that allow you to master the product. Our modular course materials allow us to customize each training experience to focus on the skills that are important to the course participants. Courses are offered privately and publicly, onsite or remotely.