bwin Games Wins Big By Building Next Generation Gaming Platform With Zend Technologies

Customer:	bwin Games AB
Geography:	Austria, Sweden, Gibraltar, South Africa (with customers worldwide)
Industry:	Online Gaming
Challenges:	Modernizing a complex, high-traffic PHP 4 application
Solution:	PHP 5, Zend Framework, Zend Studio
Future use:	Zend Platform, Zend Java Bridge

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Marcus Eriksson,
Lead Developer for B2C Games,
bwin Games AB

Background

bwin Games AB, a subsidiary of bwin Interactive Entertainment AG, is a world leader in digital entertainment with a focus on poker and other online gaming. They develop and market everything from stand-alone products, to turnkey solutions in poker, and casino games for digital media. The company owns one of the world's most popular poker networks, Ongame Network, with around 12 million registered players and have several gaming sites, including PokerRoom.com. The bwin Group is the largest publicly traded gaming company in the world that exclusively markets to the gaming public at large.

With Jan-Erik Schuch as Section Head for B2C Games Development, bwin's B2C Games Development department is comprised of 41 people, 24 of whom are PHP developers, technical project leaders and architects, with the remaining technical staff including DBAs and quality assurance staff. Members of the technical architecture team include System Architect Riku Suur-Nuuja and Lead Developer Marcus Eriksson. The department's goal is to develop and maintain the most scalable, secure, and reliable online poker distribution channels with innovative products, high performance, and a highly flexible architecture. Their system runs on 25 dedicated servers, 16 of which are running front-end code built in PHP, with the remainder running four MySQL servers in master/slave configuration, including a backup replicated MySQL server designed to failover 24/7 if one of the other three MySQL servers go down, plus other support servers for the back end. The PokerRoom site alone contains over 1,000 pages spread across five major areas: User Accounts, Play Poker and Tournaments, Community, Promotions, and Help/Contact/FAQ.

In 2005 PokerRoom.com was running on PHP 4.3, had roughly 6 million registered customers, and was the third largest online poker site in the world. After evaluating their system and their needs, they decided to completely re-build their sites for the following reasons:

- Database queries were embedded in their front-end layers
- Dependencies between their presentation pages and business logic
- Maintenance of the older implementation was increasingly unwieldy
- Attempts to fix one bug often resulted in several new bugs due to the high degree of coupling between their components
- bwin knew that PHP 5 was the future for PHP and that over the long-term continuing to maintain their PHP 4 code would have been risky

The Challenge

In assessing the best way to rebuild the site, they considered refactoring all of their code, but decided against it in favor of completely re-building their system from the ground up. The main goal of the re-architecture was to ensure their code and platform would be fully object-oriented, extensible, and maintainable into the foreseeable future.

The Solution

In the final analysis, the solution was achieved in three major phases:

- Rearchitect PokerRoom.com with PHP 5
    - Migrate from PHP 4 to PHP 5
    - Redesign to take advantage of object-oriented features of PHP 5
- Adopt Best Practices of Zend Framework
    - Simplify maintenance with Model-View-Controller architecture
    - Build in internationalization support for multiple languages & locales
- Leverage Zend products
    - Utilize Zend Framework's routing for search-engine optimization
    - Outfit team with Zend Studio for high productivity and integration

Additionally, bwin Games is planning on future improvements with their Zend solution by:

- Evaluating Zend Platform for high-performance & operational excellence, as well as using it with Zend Studio's remote debugging
- Evaluating Zend Java Bridge for real-time communication with their Java back-end systems

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Rearchitect with PHP 5

The exception handling support and full object-orientation that came with moving from PHP 4 to 5 were crucial for building robust PHP code and taking advantage of the fact that in PHP 5 objects are now "first class citizens." PHP 5 was also the right move to take their sites into the future because future enhancements would come in PHP 5 or 6 giving bwin's team more maintainable code as they need to add modifications and new features as their business goals change over time. This important foundation took 10 developers a year to complete.

Best Practices with Zend Framework

The first change in business goals that impacted directives for bwin's B2C Games department came shortly after their migration to PHP 5 with a request for multi-language and localization support (i18n). This meant separating the presentation and front-end layers from the business logic and having support for localized content.

An MVC framework became a necessity, so several frameworks were evaluated, and two made the short list: Agavi (which they used on prior projects within bwin Games) and Zend Framework. In the end, they chose Zend Framework for the following reasons:

- **An MVC framework with i18n support**

"For us, an MVC framework was *the* critical factor," said Eriksson," but it was also great to see that Zend Framework had many more robust features that we could grow with, including excellent support for internationalization."

- **Excellent and instructive documentation**

"We were prepared to jump on board with the extensive documentation alone," commented Eriksson.

- **Corporate-level support, consulting, and SLAs**

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- **Framework community and promotion**

"We saw how Zend was actively working to build a critical mass of developers around Zend Framework."

Help and FAQ were converted to Zend Framework first as a proof-of-concept phase, then work began in earnest on conversion of the entire site to Zend Framework. In about three months two developers had converted 80% of the (now) PHP 5 code for PokerRoom.com to Zend Framework and in another month they will have converted the rest.

Today, the bwin Games B2C team uses MVC extensively in conjunction with the Smarty template engine for their page views. Their multi-tier design, based on Zend Framework's MVC implementation, is based on coding guidelines and ensures separation of concerns using layers that communicate between the different logical parts of their application. This means their front-end designers can work independently and efficiently in conjunction with their server-side PHP developers, meaning everyone saves time, stays in their own areas of expertise, and achieves greater productivity overall.

Leverage Zend Products

With over 1,000 pages to administer, the team needed a control mechanism for all of those links, which was accomplished with ease using Zend Framework's MVC routing components. Using these components, bwin is able to manage and accelerate their search engine optimization (SEO) greatly, by allowing them to, for instance, make URLs for the term "play poker" in different languages (e.g., English: /playpoker, German: /pokerspielen, etc.) that would then be picked up by Google, Yahoo!, MSN, and other major search engines. As a result, bwin's PokerRoom.com appears in top searches for poker players across multiple countries and locales.

Zend Studio

Schuch's team found tremendous value in Zend Studio. "Studio provides us with enormous benefit in code creation and management. It lets us manage extremely large projects and easily handle the tens of thousands of files in those projects," said Suur-Nuuja. "Not only that, but it's by far the easiest to use and most feature-rich IDE available for PHP."

Future Improvements using Zend Platform (with Java Bridge)

The successful operation of their sites relies on real-time event evaluations. Events such as poker hands are sent to their back-end Java system for evaluation. For example, though unlikely, a player may lose a particular hand with four of a kind, but bwin wants them to be recognized and "win" anyhow through a promotion offered for getting such a rare deal. In order for a real-time event evaluation such as this to work, there needs to be seamless communication between the Java back-end and their front-end PHP communication with players. To achieve this B2C Games is evaluating the Zend Java Bridge and other components of the Zend Platform.

The additional benefits bwin plans to gain from are new Zend Platform features that will radically improve their front-end performance, as well as compliance standards features they need to meet regulatory laws, and taking advantage of remote debugging support using Zend Studio integrated with Zend Platform's PHP Intelligence "root cause analysis."

Looking Forward

As soon as the conversion project is complete, all 24 developers will be using Zend Framework. Schuch had a lot of praise for his developers, who have yet to require any of Zend's professional services. "Still," he points out, "there is a great comfort in knowing Zend's services are available when we need them."

"Going back to our decision, I like the fact that Zend Framework is part of an enterprise solution," comments Schuch. With an eye on the future, Schuch is eyeing the remote debugging tools found in Zend Studio and looks forward to combining those with Zend Platform's root-cause analysis, as well as using Zend Java Bridge and is even contemplating Zend's consulting services.

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Riku Suur-Nuuja,
System Architect for B2C Games,
bwin Games AB