Indy 500's *Indianapolis Motor Speedway* Punches up their PHP Performance with Zend Framework

Customer:	Indianapolis Motor Speedway (IMS)
Geography:	Indianapolis, Indiana
Industry:	Automobile Racing
Challenges:	Other libraries too difficult to install, develop with, extend, & deploy, plus they wanted faster performance of the sites they manage
Solution:	Zend Framework, Zend Studio, and Zend Platform

*"We've seen a **20% drop in page load times** since we started using Zend Framework. That's significant for a high-traffic site like ours."*

Jon Whitcraft,
Lead Application Developer,
Indianapolis Motor Speedway

Background

Clabber Girl Corporation (est. 1879) famous for their baking powder, purchased the Indianapolis Motor Speedway in 1945 to support the sport of open-wheel auto racing and as a venue to promote their products.

In 2005, the Indianapolis Motor Speedway (IMS) started their current iteration of PHP-based websites, evolving from a PHP 3 implementation to their modern PHP 5 base today.

With an IMS team of seven: manager, lead application engineers (2), designers (3), and web server admininistrator, the sites they are responsible for producing include: indy500.com, allstate400atthebrickyard.com (formerly Brickyard 400), indianapolismotorspeedway.com, & redbullindianapolisgp.com. All of these sites are built using Zend Framework or are in the process of being converted to ZF, with the other 23 sites that IMS builds and supports likely to use Zend Framework as those sites are updated in the future.

Indianapolis Motor Speedway is a LAMP stack shop, using exclusively open-source based code, but also making use of key enabling tools from Zend, including Zend Studio for Eclipse—using Eclipse plugins like Aptana alongside Studio (though they are looking forward to Zend's Ajax tooling), and the web application server Zend Platform.

Rationale

The main reasons IMS chose Zend Framework as their preferred library of best practices for PHP 5 was for ease of install, extensibility, and most important of all: the great community.

"I can't tell you how important a friendly and growing community is to building a product the open-source way. Smaller, more insular communities can be problematic.

"With Zend behind ZF, we knew we could count on long-term resources being available in the community—plus we have a nice backup knowing that Zend's consulting services and support are there too," said Jon Whitcraft, Lead Application Developer at Indianapolis Motor Speedway. "A bonus is discovering how Zend's web application server, Zend Platform, really helps us maintain our running applications, keeps us on top of problems and bugs as they occur, and assists in debugging deployment on our production sites."

Solution: Zend Framework, Zend Studio, and Zend Platform

The Indianapolis Motor Speedway looked at a number of rapid application frameworks to build on, including CakePHP, symfony, and Solar. Another desire that IMS had was to avoid the use of PEAR (PHP Extension and Application Repository) if possible, due to stability issues with components they'd downloaded using PEAR.

ZEND FRAMEWORK

"I can't tell you how important a friendly and growing community is to building a product the open-source way. Smaller, more insular communities can be problematic."

Jon Whitcraft,
Lead Application Developer,
Indianapolis Motor Speedway

In fact, IMS has found that the Zend Framework project code is so stable (unit tests are required at the 80-90% level of code coverage before code is admitted to the ZF SVN repository) that they often are running their development sites using the trunk repository code directly from SVN rather than the officially blessed release versions from the ZF community; they **rely** on the quality of Zend Framework.

Some of the new features that IMS is using or planning on using with the latest release of Zend Framework, version 1.5, are:

- Layouts—let's IMS punch-in new content and rapidly deploy it
- Action Helpers & Partials—allows IMS to separate their code into logical parts, making them easier to use in conjunction with the best practice coding standards ZF promotes
- Zend_View_Enhanced—a new standard IMS uses to build plugins and action helpers

In addition, the IMS team is making use of Zend_Cache, which is supported by Zend's web application server, Zend Platform.

Site Structure

"A bonus is discovering how Zend's web application server, Zend Platform, really helps us maintain our running applications, keeps us on top of problems and bugs as they occur, and assists in debugging deployment on our production sites."

Jon Whitcraft,
Lead Application Developer,
Indianapolis Motor Speedway

Indianapolis Motor Speedway has three servers, running a combination of MySQL, two of these servers are for production sites, quad core CPUs with vast amounts of RAM running hardened CentOS 4.5, plus PHP 5.1.6 and MySQL 5. They hope to upgrade to the more secure and stable PHP 5.2.5 soon.

They have one development server configured in a similar way, but with newer versions of PHP, Zend Framework, and Zend Platform. They make extensive use of Zend Studio for their PHP development.

IMS is also making a strategic choice to use Amazon EC2 instances to deploy production applications. "Using ZF we have been able to deploy using EC2 without needing to make any changes to our server image—just what every developer wants," said Jon Whitcraft.

Benefits of Zend Framework for Indianapolis Motor Speedway

Intitially Zend Framework was implemented on their Red Bull Indianapolis Grand Prix site and the IMS team found that ZF gave them:

- Easy to modify, extend, and update object-oriented PHP 5 code
- A set of best design pattern practices for building their application
- An education (truly) on how to architect a best-of-breed PHP application
- Best of all, due to removal of a great deal of legacy and unnecessary code lead to page load times that increased over 20%!

As a result, when IMS then took their Red Bull application and reused the design for it on their new Indianapolis 500 site, they avoided reinventing the wheel in a number of different ways. The code was easily replaceable and extensible due to the object-oriented code they'd built on ZF. The project structure was virtually identical, using coding standards that the ZF community had developed over time with hard-won expertise on numerous projects.

Best of all, this structure can now be replicated easily for all Indianapolis Motor Speedway sites.

Conclusion

Choosing a framework for their PHP code supported by a huge and growing community was the most important criteria for IMS in making their initial decision to go with Zend Framework. This has additionally given them the benefit of higher performance sites, a more comprehensive team-wide architecture to share among their sites, greatly reduced bug rates across their applications, including the support of development tools like Zend Studio built on Eclipse and the Zend Platform application server, plus a productive, engaged team that can easily seek help from and even—when necessary—hire more talent as needed, from the vibrant Zend Framework community.

For more information see:
framework.zend.com