

Production use of Resin® and Quercus™ to deploy combined Java-PHP solution for Emergency Preparedness and Response for Healthcare

“Quercus provides the best of both worlds. We get to use PHP, one of the most popular web site building languages, for the front-end of our application and Java EE for the backend of our application. We could not have taken our application to the next level without it.”

David Berry, CTO, LiveProcess

Solution

Combined Java-PHP architecture

Product

Quercus, a feature of Resin® Web Application Server

Industry

Medical

Country

USA

Engineering Challenge

When David Berry assumed the role of CTO at LiveProcess, he inherited version 1.0 of the LiveProcess platform, a PHP based web application consisting of eight person years of code.

As the project moved forward, several of the existing functions and new feature requirements could be implemented better as background tasks. However, PHP on Apache is a user-initiated programming environment and requires user input to run PHP. As an experienced Java developer, David Berry knew that Java could handle the background tasks through multithreading and wanted the added Java benefits of integrated security and connection pooling.

The challenge became – could we integrate PHP with Java EE or would we need to replace PHP?

Analysis

Rewriting the PHP application to JSP, Struts, Spring, or JSF would take too much time so we focused our analysis on making PHP work with Java. We identified

two solutions: a Java-PHP bridge or Quercus.

The Java-PHP bridge would consist of Java calling a running instance of Apache/PHP via RMI, but this would be cumbersome to deploy in a production environment.

Because Quercus runs as a Java Servlet and compiles PHP into Java, it could run the application with minor modifications and would allow the application to directly access Java objects. The Quercus solution would let us easily integrate container managed security, an open-source persistence library and a scheduler library.

Findings

In our trial, 90% of the application immediately ran on Quercus. The last 10% required a little recoding and the release of Resin 3.1.

After the application completely passed our regression tests using Quercus, we started to enhance the LiveProcess platform PHP code with Java. The first enhancement was to use Java EE container managed security to authenticate users and determine which PHP pages they could access. We did this by implementing a

custom authentication class that used the existing user tables in our application. This allowed us to remove the "isLoggedIn" check that we did at the head of every PHP page.

The second area that we focused on was connecting PHP to a Java persistence library. This allowed us to use enterprise level Java features including connection pooling and prepared statement pooling, features which are not easily done in PHP.

During our development process, we discovered that using object oriented PHP to develop a page template framework was superior to JSP or Struts. Our PHP template framework let us limit the web accessible PHP files to about six and the bulk of the PHP code is protected under WEB-INF by the Java EE container. The resulting PHP architecture offers significant flexibility, maintainability and security.

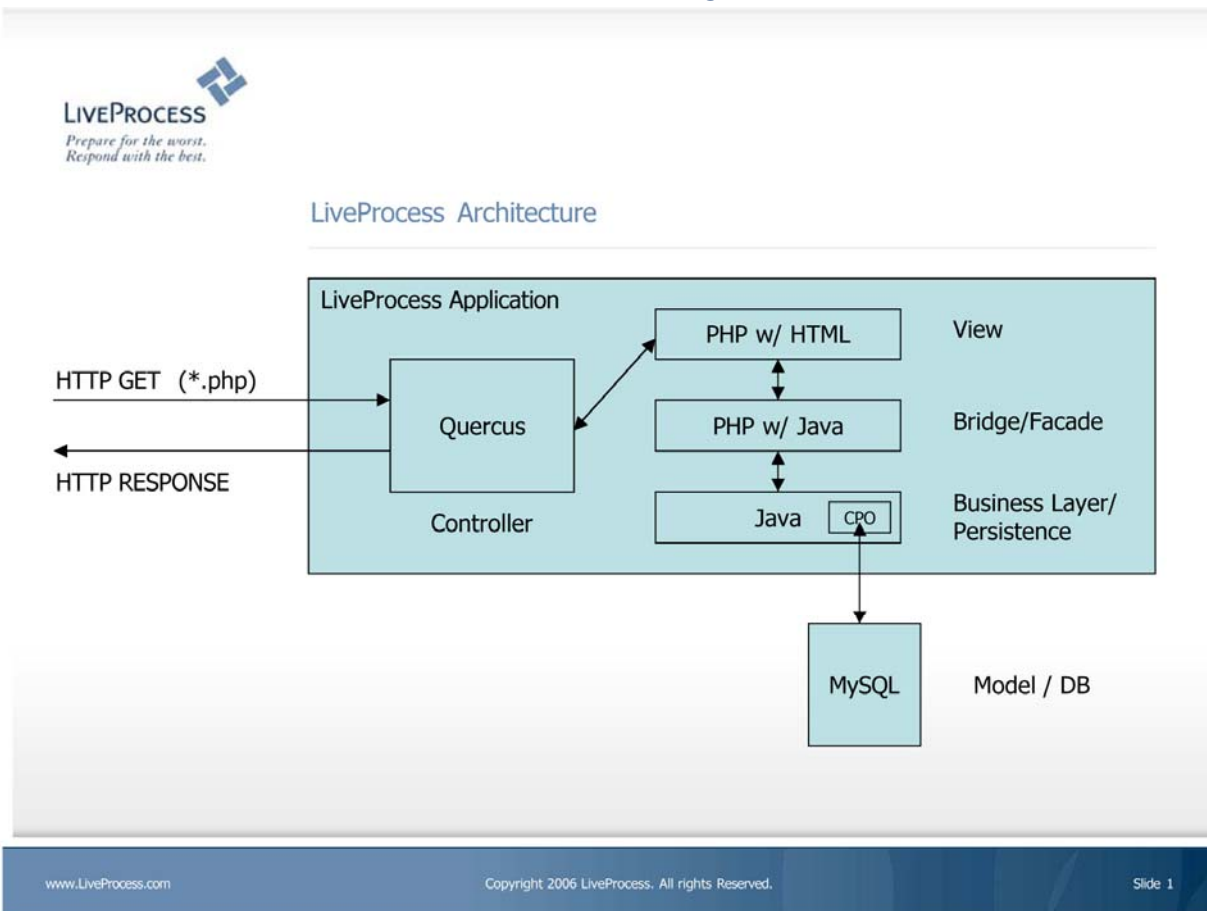
The benefits of Quercus Java-PHP architecture include:

- Ability to use PHP libraries
- Use of PHP5 object model for page templating
- PHP as Servlet better works than Zend solution or JSR223
- Multithreading
- Background tasks
- Event scheduling
- Java persistence
- Ability to use third party Java or PHP libraries to solve problems

Results

LiveProcess has chosen Quercus and Resin as their Platform of choice.

Architecture Diagram



About LiveProcess

LiveProcess is the leader in emergency preparedness' planning for the healthcare industry. The company, which was established in 2003, developed the first standardized software solution designed to help healthcare-related organizations prepare for and respond to emergencies. The LiveProcess platform provides a range of fully integrated tools to assist in emergency management including Hazard Vulnerability Analyses (HVAs), Incident Command System tools (ICS), Drills for Readiness & Compliance and Competency-Based Training. For more information on LiveProcess, please visit www.liveprocess.com.

About Caucho Technology

Caucho Technology is an engineering company devoted to reliable open source and high performance Java-PHP solutions. Caucho is a Sun Microsystems licensee whose products include Resin application server, Hessian web services and Quercus Java-PHP solutions. Caucho Technology was founded in 1998 and is based in La Jolla, California. For more information on Caucho Technology, please visit www.caucho.com.

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