



*\*Ohloh's acquisition by SourceForge was announced on May 28, 2009*

## **Application Server Trends among Open Source Developers**

Prepared for: Sun Microsystems  
Prepared by: Jason Allen, Scott Collison and Robin Luckey

**Abstract:** Ohloh performed custom analyses against Ohloh's directory of open source projects, specifically drilling into each project's source code history to yield Java and Application Server metrics. While our open source coverage is comprehensive across the entire open source space, for this report we focused specifically on Java-based projects. We have made a best-faith effort to have near 100% coverage of all Java-related open source projects.

Ohloh is unique in its ability to measure *development* activity directly from the primary source. Other reports in this vein rely upon data from voluntary survey responses, or upon secondary metrics such as product sales figures. These and similar strategies are only broad indicators of the true underlying activity. In contrast, Ohloh tracks the individual changes to source code as they are made by developers, and thus observes the act of software development itself. Ohloh data is accurate to the minute, the developer and the individual line of code. There is no closer way to objectively measure how developers are spending their time.

Ohloh tracks development metrics for 38,359 open source projects. Of those, 14,450 contain some Java code. We track over 250,000 open source developers, 32,866 have authored Java code and over 16,000 have provided geographic information. These metrics are collected from over 3,500 forges.

Ohloh performed a custom data analysis to determine the adoption of application servers among open source developers. Key findings in this report are:

- Of Java projects that target Java EE, GlassFish is the leading application server with just over 50% of projects targeting GlassFish (note that projects can target multiple application servers). Project adoption is a indicator of past and present health of an application server among open source developers.
- Of Java new project starts that target Java EE, GlassFish is the leading application server for new project starts with 73% of all Java EE projects. Project starts is a leading indicator that is a reliable predictor of future market success.

GlassFish has gone from being a **market lagging** application server among open source developers in 2004 to becoming the **market leading** application server among open source developers today. GlassFish is well-positioned for future dominance in the market place with a very commanding position among new projects coming on line today. With that said the overall growth of Java development among open source developers is flat.

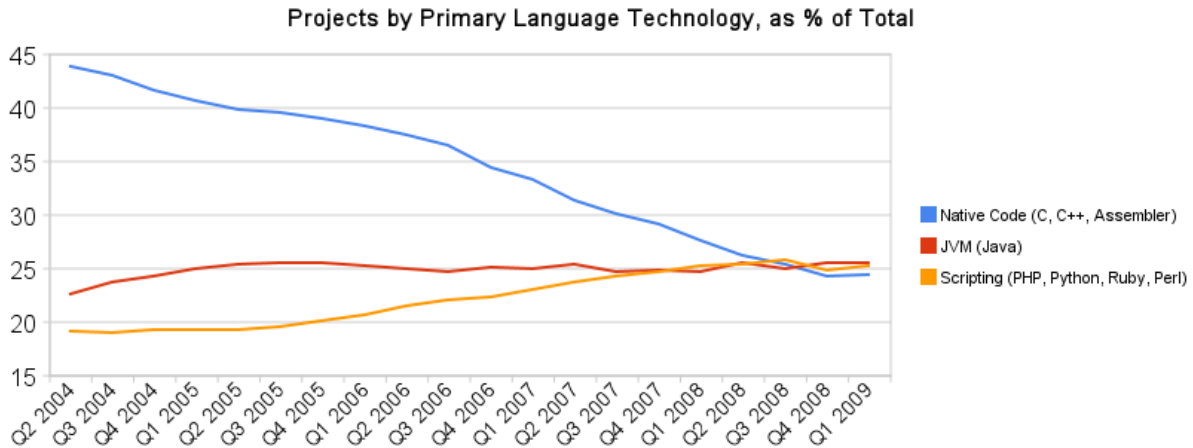
**DELIVERABLES:** This summary highlights the findings and includes backing information about what the data means and how it was gathered. Included with this document is a spreadsheet of the raw metrics.

## Application Server Trends among Open Source Developers

### 1. Programming Language Popularity

To illustrate programming language momentum, we plotted the "number of open source projects grouped by primary programming language, by quarter". For each calendar quarter, we tallied the number of open source projects and grouped them by the primary (or predominant) programming language in which they are written. Finally, we charted the "relative" numbers, as normalized against all open source projects for each quarter.

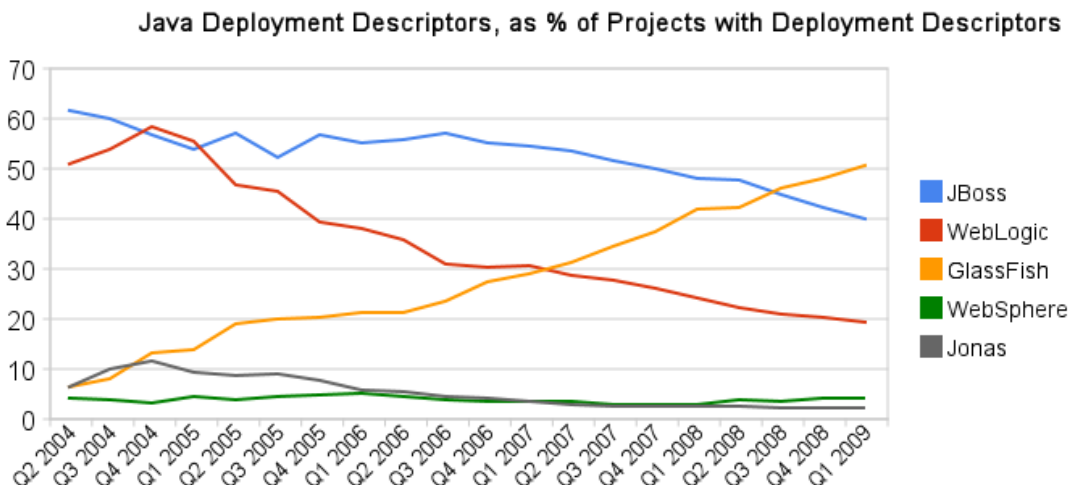
While Ohloh currently tracks over 70 programming languages, we single out here 4 important groups: scripting languages (Perl, Python, Ruby and PHP) vs native/compiled languages (C and C++) vs Java vs C#.



### 2. Application Server Adoption

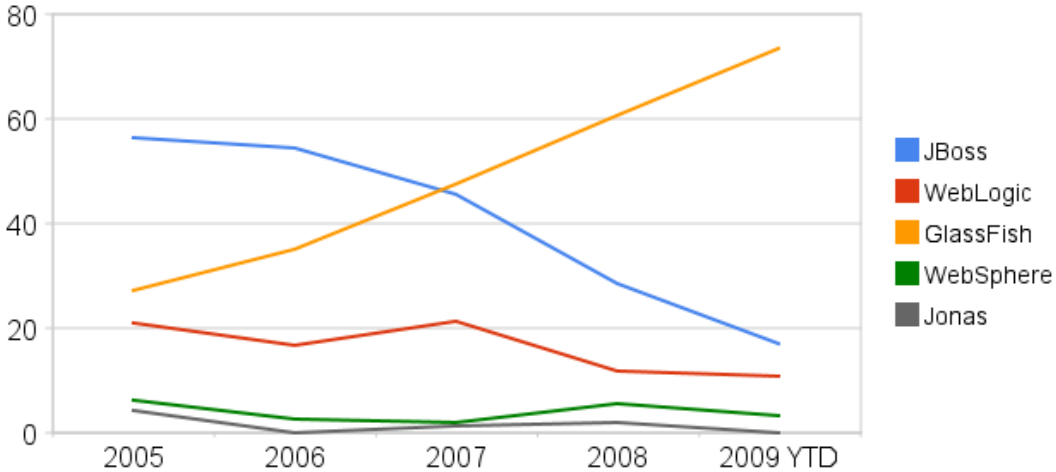
Overall, we found that roughly 75% of all Java projects on Ohloh contained at least one "import" statement relating to Java EE (javax.\*). Projects can target multiple application servers so the percentages add up to more than 100%. Diving in further, we measured the App Server adoption rates by measuring the App Server popularity measured by count of projects. An important note: due to its highly portable and standardized nature, measuring Java EE app server binding is somewhat tricky. Refer to [1] to learn more about our approach. For each quarter, we measured the number of projects that contain an App Server-specific deployment descriptor, and then normalized the result against the total number of projects with App Server-specific deployment descriptors.

Of Java projects that target Java EE, GlassFish is the leading application server with just over 50% of projects targeting GlassFish (note that projects can target multiple application servers). Project adoption is a indicator of past and present health of an application server among open source developers.



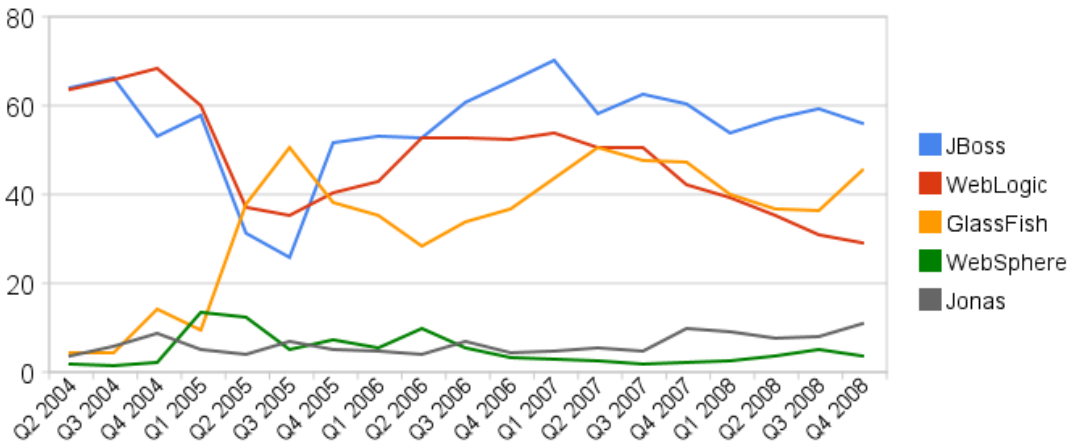
1. Of Java projects that target Java EE, GlassFish is the leading application server for new project starts with 73% of all Java EE projects. Project starts, the number of new projects across all communities for a given time period, is a leading indicator, and a reliable predictor of future market success. Projects can target multiple application servers so the percentages add up to more than 100%.

Java Deployment Descriptors By Quarter, as % of New Projects Starts

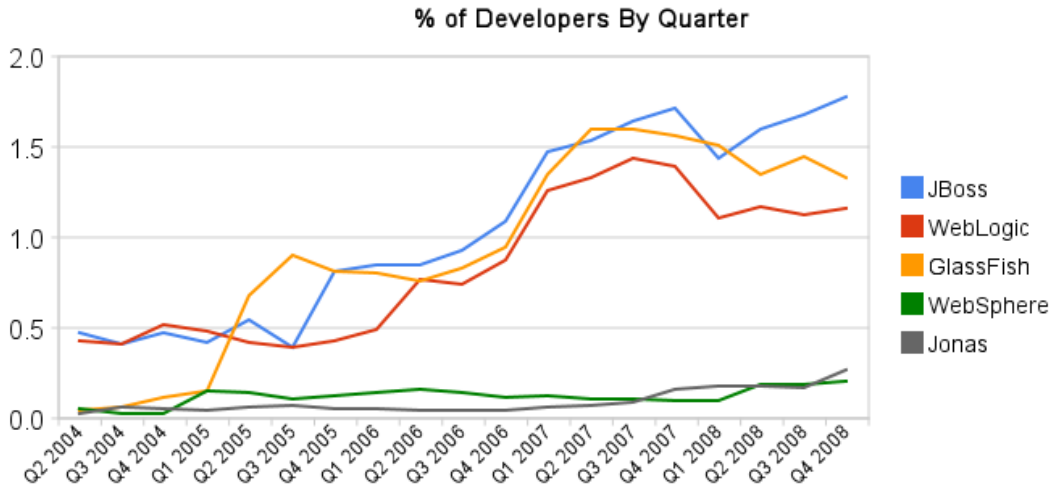


Commit activity reflects momentum of established projects. The graph below indicates the commit activity as a percentage of activity on projects with deployment descriptors. GlassFish is the second leading application server with 46% of all commits targeting GlassFish, while Jboss is the leader with 56%. Projects can target multiple application servers so the percentages add up to more than 100%.

Commit Activity, as % of Activity in Projects with Deployment Descriptors

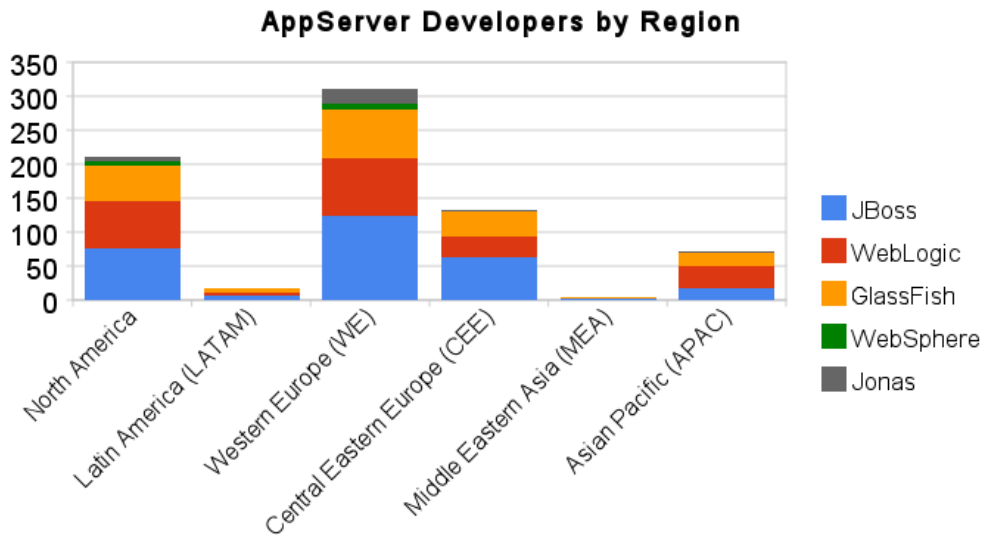


The graph below depicts the percentage of all open source developers that have worked on projects that target GlassFish. GlassFish is the second leading application server among open source developers with 1.2% of all open source developers behind JBoss with 1.7%



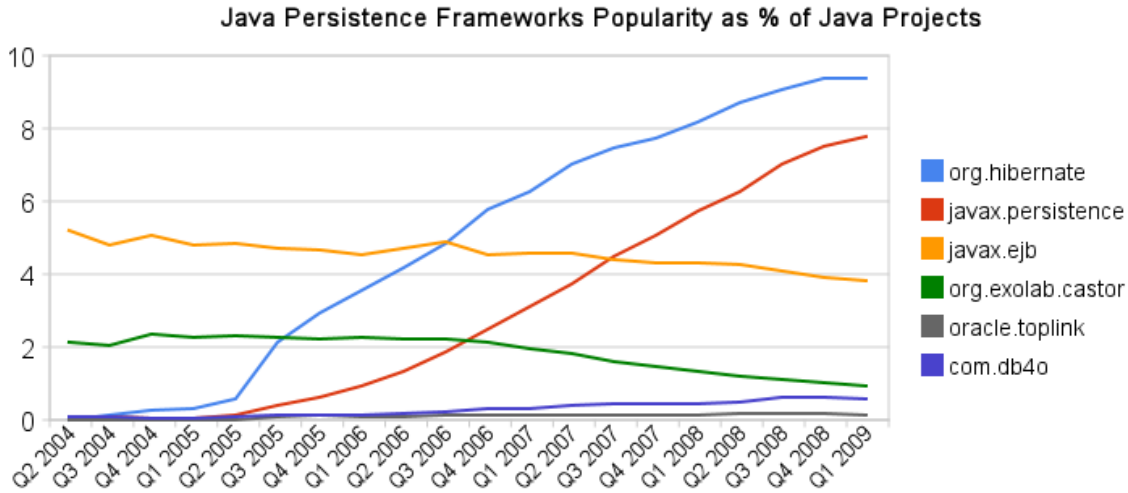
### 3. Geographic Distribution of Open Source Developers

We tracked the commits made by over 16,000 developers who provided geographical information and targeted an application server with their commit. The following is a breakdown across major regions by number of developers showing the number of developers targeting application servers and providing geographical information.



#### 4. Java Technology Adoption

We measured the occurrences of Java import statements in source code. This allows us to visualize Java technology adoption rates. Here we have the number of Java projects using popular persistence frameworks, determined by examining Java source code for import statements. Among these persistence frameworks Hibernate is the dominant one.



GlassFish Descriptors	sun-web.xml, sun-ejb-jar.xml, sun-application-client.xml, sun-application.xml
Weblogic Descriptors	weblogic-ejb-jar.xml, weblogic-ra.xml, weblogic-application.xml, client-application.runtime.xml, weblogic-cmp-rdbms-jar.xml
JBoss Descriptors	jboss-app.xml, jboss.xml, jboss-cmp-jdbc.xml
Websphere Descriptors	ibm-application-*.xml, ibm-web-*.xml, ibm-application-client-*.xml, ibm-webservices-*.xml, ibm-webservicesclient-*.xml
Jonas Descriptors	jonas-ejb-jar.xml

#### [2] Survivor Bias

Ohloh has much more comprehensive coverage of relatively recently developed projects (rather than old/abandoned projects). This skews metrics by showing continual growth over time. For more accurate trending results, we normalize absolute metrics against related totals.

