GlassFish, jMaki and Eclipse
Java EE 5
Ajax

Ludovic Champenois, Carla Mott

Sun Microsystems, Inc.
Who are we?

- Members of GlassFish Team
- Sun Employees
- Java EE and Web Tools Architect  
  > NetBeans, Eclipse, OpenSolaris
- Ajax jMaki tech lead
- Specifications, Engineering, Standards, Interoperability, ...
- [http://weblogs.java.net/blog/ludo/](http://weblogs.java.net/blog/ludo/)
- [http://weblogs.java.net/blog/carlavmott/](http://weblogs.java.net/blog/carlavmott/)
Sun and Eclipse...Eclipse and Sun:

(c) Copyright Eclipse contributors and others, 2000, 2007. All rights reserved. Java and all Java-related trademarks and logos are trademarks or registered trademarks of Sun Microsystems, Inc. in the U.S., other countries, or both. Eclipse is a trademark of the Eclipse Foundation, Inc.
Agenda

• What is GlassFish?
  > Feature Set
• GlassFish Eclipse Support
• What is jMaki?
• jMaki Eclipse Support
• Reference
Agenda

• What is GlassFish?
  > Feature Set
• GlassFish Eclipse Support
• What is jMaki?
• jMaki Eclipse Support
• Reference
What is GlassFish?

- **Open Source**
  - CDDL & GPL v2 (w/ CPE)

- **Java EE 5** Reference Implementation
  - Included in Java EE 5 SDK

- **Enterprise Quality**
  - High Availability, Clustering
  - .NET 3.0 Web services interoperability
  - World Record Performance

- **Community**
  - Sources, bug DBs, discussions at glassfish.java.net
  - Roadmaps, Architecture Documents
Timeline of Project GlassFish

Tomcat
Jasper
Catalina
JSTL
Struts
Crimson
XSLTC
Xalan
Xerces

**GlassFish Launch**
- J1'05
- June 2005

**v1**
- v1 UR1
- J1'06
- May 2006

**v2**
- v2 UR1
- v2.1
- Sept.
- 2007

**v3**
- 2008/2009
- (you are here)
GlassFish v1

- Released JavaOne, 2006
- 1st Java EE 5 compliant implementation
- Based on mature SJS Application Server 8.x code
- Established Java EE market momentum
- Productized as the Sun Application Server 9.0 PE
GlassFish v2

- Released Sep 2007
- Java EE 5 compliant with advanced features
- Enterprise-centric release
  - Clustering, Load-Balancing, HA
  - .NET 3.0 Web services interoperability
  - World Record Performance
  - Seamless IDE integration
    - NetBeans, Eclipse, IntelliJ
  - Developer, Enterprise, Cluster, Custom profiles
- Productized as Sun Java System Application Server 9.1
Ease of use - Administration
Ease-of-use – Update Center

![Update Center Screen](image)

### Available Updates

<table>
<thead>
<tr>
<th>Name</th>
<th>Date Published</th>
<th>Version</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Web Technologies</td>
<td>Oct 2, 2007</td>
<td>1.0</td>
<td>3 MB</td>
</tr>
<tr>
<td>Jersey (RESTful Web Services)</td>
<td>Sep 18, 2007</td>
<td>0.2.1</td>
<td>4 MB</td>
</tr>
<tr>
<td>Phobos</td>
<td>Sep 18, 2007</td>
<td>0.5.11</td>
<td>3 MB</td>
</tr>
<tr>
<td>JRuby on GlassFish</td>
<td>Sep 18, 2007</td>
<td>1.0</td>
<td>13 MB</td>
</tr>
<tr>
<td>Social Software</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weblog Server for GlassFish</td>
<td>Sep 18, 2007</td>
<td>1.0</td>
<td>11 MB</td>
</tr>
<tr>
<td>Composite Applications</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Open ESB Blueprints</td>
<td>Aug 30, 2007</td>
<td>1.0</td>
<td>685 KB</td>
</tr>
<tr>
<td>Open ESB V2 Preview 3</td>
<td>Aug 30, 2007</td>
<td>2.0</td>
<td>14 MB</td>
</tr>
<tr>
<td>Identity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Access Manager 7.1 Patch 1 EA</td>
<td>Aug 30, 2007</td>
<td>7.1</td>
<td>14 MB</td>
</tr>
<tr>
<td>Access Manager Blueprints</td>
<td>Aug 30, 2007</td>
<td>1.0</td>
<td>10 MB</td>
</tr>
<tr>
<td>Java EE 5 API Documentation</td>
<td>Aug 30, 2007</td>
<td>5.1</td>
<td>4 MB</td>
</tr>
<tr>
<td>Java EE 5 Samples</td>
<td>Aug 30, 2007</td>
<td>1.0</td>
<td>1 MB</td>
</tr>
<tr>
<td>Java EE Blueprints</td>
<td>Aug 30, 2007</td>
<td>1.0</td>
<td>10 MB</td>
</tr>
<tr>
<td>Portal</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Portlet Container</td>
<td>Aug 30, 2007</td>
<td>2.0</td>
<td>725 KB</td>
</tr>
<tr>
<td>Portlet Container Blueprints</td>
<td>Aug 30, 2007</td>
<td>1.0</td>
<td>55 KB</td>
</tr>
<tr>
<td>Web Services for Remote Portlets</td>
<td>Aug 30, 2007</td>
<td>1.0</td>
<td>3 MB</td>
</tr>
<tr>
<td>Java EE 5 Tutorial</td>
<td>Jan 18, 2007</td>
<td>1.0</td>
<td>75 KB</td>
</tr>
</tbody>
</table>

*Restart will be required.*  
*New*

### jMaki

**Version:** 1.0  
**Source:** Sun Microsystems Inc.  
**Homepage:** [https://ajax.dev.java.net](https://ajax.dev.java.net)

**Overview**

jMaki is an Ajax framework that provides a lightweight model for creating JavaServer Faces Ajax-enabled web applications using JSON.
Excellent Tools Integration

- NetBeans 5.5.1, 6.0
- Best integration with:
  - full Java EE 5 support
  - resource creation
  - remote debug
  - incremental deployment
  - profiling
  - wizards, etc...
- Additional features (SOA, UML, jRubyOnRails, ...)

- GlassFish (v1, v2, v3) plugin for Eclipse 3.3 (Europa)
- Genuitec's MyEclipse offers greater integration between IDE and GlassFish
- CodeGear JBuilder 2007
- IDEA Intellij 6.0, 7.0
Web Tier

- JSP Container
  > 10x perf. improvement in JSP compilation (JSR-199)
- Grizzly
  > Easy-to-use, highly scalable and customizable HTTP Framework
  > High performant buffers & parsing classes (java.nio)
  > Non-blocking SSL, Quality of Service constraints
  > Integrates with current Apache Tomcat HTTP Connector
  > Supports Comet (long-term HTTP connections)
- Hosting features
  > Alternate docroots
  > Webcontainer dynamically reconfigurable
World Record Performance
SpecjAppServer 2004

> July 2007: #1 score on T2000
> 883.66 JOPS@Standard for GlassFish v2
> Improved in areas not covered by benchmark
> 10% faster than BEA WebLogic
> 30% faster than IBM WebSphere 6.1

Disclaimers: SPEC and the benchmark name SPECjAppServer 2004 are registered trademarks of the Standard Performance Evaluation Corporation. Competitive benchmark results stated above reflect results published on www.spec.org as of 11/21/07. The comparison presented is based on GlassFish v2 UR1 run on 6 Sun SPARC Enterprise T5120 (1 chip, 8 cores/chip, 8 threads/core) 1.4GHz 6,439.36 SPECjAppServer2004 JOPS@Standard. For the latest SPECjAppServer 2004 benchmark results, visit http://www.spec.org/.
World Record Performance
SpecjAppServer 2004

> July 2007: Best $/perf. on full Open Source
  > 813.73 JOPS@Standard
  > GlassFish v2, OpenSolaris, Java 6, PostgreSQL
  > 3x the price/perf vs. Oracle on HP score

> November 2007: Massive Scalability Result
  > 8,439.36 JOPS@Standard (6 nodes, 18 instances)
  > Sun T5120 & E6900

You no longer need to chose between Open Source and Performance

Disclaimers: SPEC and the benchmark name SPECjAppServer 2004 are registered trademarks of the Standard Performance Evaluation Corporation. Competitive benchmark results stated above reflect results published on www.spec.org as of 11/21/07. The comparison presented is based on GlassFish v2 UR1 run on 6 Sun SPARC Enterprise T5120 (1 chip, 8 cores/chip, 8 threads/core) 1.4GHz 8,439.36 SPECjAppServer2004 JOPS@Standard. For the latest SPECjAppServer 2004 benchmark results, visit http://www.spec.org/.
GlassFish v3

- Small (Kernel < 100k)
- Fast (Startup in < 1 second)
- Modular (Java, Ruby, PHP, JavaScript, ...)
- Don't think of it as Java EE container
  > ... rather a container that can do Java EE
  > ... an ideal container for next gen web apps
- Support for upcoming Java EE 6 profiles
- Code and documentation available today
  > Technology Preview
(Some) Distributions & Contributors

Distributions
- Sun Java System AS 9.x
- JBoss 5
- TmaxSoft JEUS 6
- Oracle oc4j
- BEA WebLogic 10

Java EE RI & SDK

NetBeans™ IDE

Tools
- NetBeans 5.5, 6.0

Communities
- Eclipse Plugin
- Derby
- MQ
- Portal Server
- Open ESB
- SailFin Ericsson

Users and Other Groups

Maven Rep

Project GlassFish
GlassFish Adoption

- 5.5 million downloads since July '06
- Dozens of external committers
- Over 7,000 members
- Evans data survey of Linux users puts GF at #3 behind JBoss and "other" (Tomcat)
  > JBoss and IBM fell 5% while GlassFish / Sun increased
Agenda

• What is GlassFish?
  > Feature Set
• GlassFish Eclipse Support
• What is jMaki?
• jMaki Eclipse Support
• Reference
GlassFish Eclipse Plugin

- https://glassfishplugins.dev.java.net/
- Support Started in Feb 2006
- Eclipse Europa support in June 2007
- server plugin registered in the "Download additionnal server adapters"
Eclipse Support

- [https://glassfishplugins.dev.java.net/eclipse33/index.html](https://glassfishplugins.dev.java.net/eclipse33/index.html)
Eclipse Support

• Register
• Start Stop
• Debug
• Sun Deployment Descriptors (facets)
• All Java EE 5 Libs/APIs
• all Schema/DTDs registered
• Deploy, undeploy
Eclipse Support

- JPA
  - Standalone, or Java EE Apps
- Bundled Java DB (Derby Database)
- GlassFish V1, V2, and V3 previews support
- Demo:
Agenda

• What is GlassFish?
  > Feature Set
• GlassFish Eclipse Support
• What is jMaki?
• jMaki Eclipse Support
• Reference
jMaki: Goal

Build Ajax-enabled web applications following standard practices using the best toolkits and libraries.
What Is Project jMaki?

- Lightweight framework
- Open Source (BSD)
- Use the best of breed libraries and tools
  - Dojo, Yahoo, Script.aculo.us, Spry, Google, Gears, Flash, and your code
- Support for Java, Server-side JavaScript, PHP, Ruby
- Netbeans, Eclipse, Ant support
Why use jMaki

- Very rapid Ajax application development
- Defaults set out of the box
  > Convention over configuration
- Portable Widget libraries
  > Share your extensions / widgets libraries
- Standardizes Event / Data Models
  > Consistent programming model
- Use the tool of your choice
- Theming Support
- We are Open Ajax compliant - http://jmaki.com/oaa
jMaki Integrates the Best of Breed

- Google Gears
- Yahoo Maps
- Yahoo UI Widgets
- Yahoo Services (Geocoder)
- RSS Feeds
- Prototype
- Scriptaculous
- Dojo
- Prototscript
- jQuery
Multi-Server Support

JSP / JSF technology: index.jsp
<%@ taglib prefix="a" uri="http://jmaki/v1.0/jsp" %>
<a:widget name="hello" args="{name: 'Greg'}" />

PHP: index.php
<?php require_once 'Jmaki.php'; ?>
<?php addWidget( array( name=>'hello',
            args => "{name: 'Greg'}") ); ?>

Ruby: index.php
<%= jmaki_widget name='hello',
    args => {:name => 'Greg'}
-%>

Phobos index.ejs
<% library.jmaki.insert({
    component:"hello",
    args: {name: 'Greg'}
}); %>
jMaki Framework

- Client runtime services
- Server side services
- Widget component model
- Data and Event Models
  - Actions / Glue
- Layouts
- Themes
- XmlHttpProxy
- Extensions
Client Runtime

- Manages widgets
- Namespace
- Publish / Subscribe
- Script / Style Loading
Client Services

• Declarative events and Glue to wires widgets together
  > Based on publish and subscribe mechanism
  > Event bus on client
• Injector loads the contents of external page in current page
• Filter RSS data from web services
Widgets
Data Models

- Multi-View Containers
  - Tabbed Views
  - Accordions
  - Dynamic Container
- Trees
- Menus
  - Accordion Menu
  - Tabbed Menu
- Data Grids/Tables

http://wiki.java.net/bin/view/Projects/jMakiDataModels
Widget communication - Publish/Subscribe

- A means for one or more jMaki widgets to communicate with each other in a page using topics
- Publish/Subscribe is much like a server-side messaging system but it runs in the scope of an HTML page
- Anonymous communication => widgets are loosely coupled
- Peer to peer communication is also available

https://ajax.dev.java.net/publishsubscribe.html
Declarative Actions – Publish

```json
{menu: [
  {label: 'Actions', menu: [
    { label : 'Select',
      action :{topic: '/foo/select', message: { targetId : 'tab3'}}
    },
    { label :'Set Content',
      action :{topic: '/foo/setContent',
        message: { targetId : 'tab3', value : 'Hello There!'}}
    },
    { label :'Set Include',
      action :{topic: '/foo/setInclude',
        message: { targetId : 'tab3', value : 'main.jsp'}}
    }
  ]}
]}
```
jMaki Glue – Programmatic Events

• Allows you to provide un-obtrusive application behavior in a single place
• Based on publish/subscribe
• Ties the widgets together (loosely)
Glue Example

jmaki.subscribe("/tree", function(args) {
    var node = {
        label : 'Graft',
        expanded : true,
        children : [
            {label : 'Graft .1'},
            {label : 'Graft .2'}
        ]
    };

    // publish the update
    jmaki.publish("/tree/addNodes", {targetId : 'foo', value : node});
});
Server side runtime

- Ties client runtime to server side technology
- Renders script/CSS based on library types
- Handles data conversion as needed
XmlHttpProxy

- Allow widgets access to external RESTful web services (outside application domain)
- Support for RSS 1 and 2 Atom 1 and 2
- Provides customizable XML to JSON translation using XSL style sheets
- Basic authentication supported.
- Apply API key as needed
Tooling

- jMaki and Netbeans
- jMaki and Eclipse
- Demos
jMaki and Eclipse

- Eclipse 3.2 and newer 3.3 with WTP 2.0
- Dynamic Web Apps palette
- https://ajax.dev.java.net/eclipse
- Works nicely with Tomcat and Glassfish Java EE 5 application Server
- Same update center for Glassfish and Phobos
Extensible - Widget Libraries

- jMaki Charting
- jMaki Extras (Widget Set)
Extensible

- jMaki Charting
  > https://jmaki-charting.dev.java.net
- jMaki Widgets
  > https://widgets.dev.java.net
- jMaki Extensions
  > https://jmaki-ext.dev.java.net
- Your own library
For More Information

See Project jMaki website

> http://jmaki.com

>
Summary

• Framework for building Ajax enabled Web 2.0 applications
• Java, PHP, JavaScript, and Ruby Support
• Consistent Data Models
• Event handling with Actions and Glue
• Tool support with NetBeans, Eclipse, and Ant
• Extensible via Extensions and your own Widget libraries
Agenda

• What is GlassFish?
  > Feature Set
• GlassFish Eclipse Support
• What is jMaki?
• jMaki Eclipse Support
  > Demo
• Reference
Agenda

• What is GlassFish?
  > Feature Set
• GlassFish Eclipse Support
• What is jMaki?
• jMaki Eclipse Support
• Reference