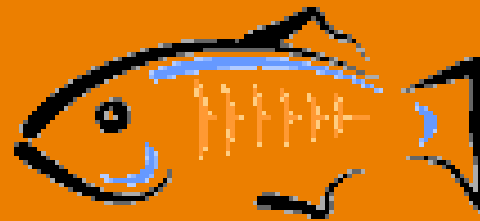




# GlassFish, jMaki and Eclipse

## 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/carlavmott/>



[ajax](#) [conf](#) [eclipse](#) [fitness](#)  
[glassfish](#) [indigo](#) [interoperability](#)  
[javaor](#) [k-ws](#) [jmaki](#) [jruby](#)  
[marath](#) [230](#) [metro](#) [microsoft](#) [mysql](#)  
[netbeans](#) [phobos](#) [photography](#)  
[presos](#) [railsconf](#) [ruby](#) [rubyonrails](#)  
[running](#) [runninglog](#) [runsfm](#)  
[screencast](#) [siliconvalleymarathon](#)  
[SUN](#) [suntechdays](#) [swdp](#) [tango](#) [toto](#)  
[training](#) [traveltips](#) [vista](#) [Wcf](#) [web2.0](#)  
[webservices](#) [windows](#)  
[wsaddressing](#) [wsit](#)

# Sun and Eclipse...Eclipse and Sun:

The logo features the word "eclipse" in a large, white, lowercase sans-serif font. A dark, 3D-rendered sphere is positioned behind the letters "c", "l", and "i". The word "Europa" is written in a smaller, white, uppercase sans-serif font below the "e" of "eclipse". The background is a dark blue gradient with a subtle grid pattern and light rays emanating from the sphere.

eclipse  
Europa

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# 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](http://glassfish.java.net)
  - > Roadmaps, Architecture Documents

# Timeline of Project GlassFish



Tomcat  
Jasper  
Catalina  
JSTL  
Struts

Crimson  
XSLTC  
Xalan  
Xerces

*GlassFish  
Launch*

**v1**

v1 UR1

**v2**

v2 UR1

v2.1

**v3**

JAXB  
JAX-RPC  
JSF

J1'05  
June 2005

J1'06  
May 2006

Sept.  
2007

2008/2009  
**(you are here)**

# GlassFish v1

- Released JavaOne, 2006
- 1<sup>st</sup> 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

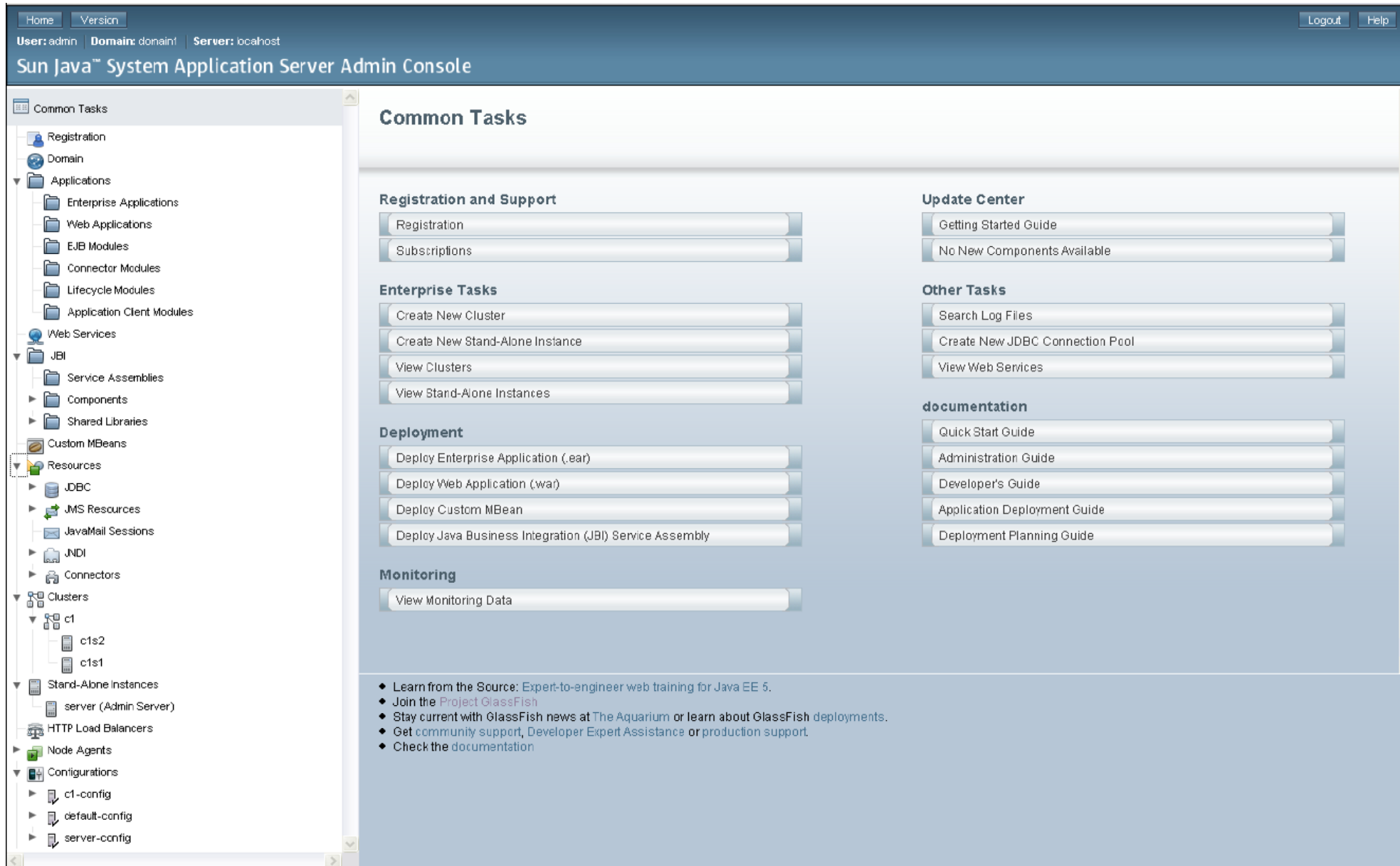


# GlassFish v2

- 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



Home Version Logout Help

User: admin Domain: domain1 Server: localhost

## Sun Java™ System Application Server Admin Console

**Common Tasks**

- Registration
- Domain
- Applications
  - Enterprise Applications
  - Web Applications
  - EJB Modules
  - Connector Modules
  - Lifecycle Modules
  - Application Client Modules
- Web Services
- JBI
  - Service Assemblies
  - Components
  - Shared Libraries
- Custom MBeans
- Resources
  - JDBC
  - JMS Resources
  - JavaMail Sessions
  - JNDI
  - Connectors
- Clusters
  - c1
    - c1s2
    - c1s1
- Stand-Alone Instances
  - server (Admin Server)
- HTTP Load Balancers
- Node Agents
- Configurations
  - c1-config
  - default-config
  - server-config

### Common Tasks

**Registration and Support**

- Registration
- Subscriptions

**Enterprise Tasks**

- Create New Cluster
- Create New Stand-Alone Instance
- View Clusters
- View Stand-Alone Instances

**Deployment**

- Deploy Enterprise Application (.ear)
- Deploy Web Application (.war)
- Deploy Custom MBean
- Deploy Java Business Integration (JBI) Service Assembly

**Monitoring**

- View Monitoring Data

**Update Center**

- Getting Started Guide
- No New Components Available

**Other Tasks**

- Search Log Files
- Create New JDBC Connection Pool
- View Web Services

**documentation**

- Quick Start Guide
- Administration Guide
- Developer's Guide
- Application Deployment Guide
- Deployment Planning Guide

- ◆ Learn from the Source: Expert-to-engineer web training for Java EE 5.
- ◆ Join the [Project GlassFish](#)
- ◆ Stay current with GlassFish news at [The Aquarium](#) or learn about GlassFish deployments.
- ◆ Get community support, Developer Expert Assistance or production support.
- ◆ Check the [documentation](#)

# Ease-of-use – Update Center

Check for Updates Help

Available Updates Installed Software Available Software Preferences

Select the software component desired to update the installation.

!	*		Name	Date Published	Version	Size
	☀	<input type="checkbox"/>	Web Technologies			
	☀	<input type="checkbox"/>	jMaki	Oct 2, 2007	1.0	3MB
	☀	<input type="checkbox"/>	Jersey (RESTful Web Services)	Sep 18, 2007	0.2.1	4MB
	☀	<input type="checkbox"/>	Phobos	Sep 18, 2007	0.5.11	3MB
	☀	<input type="checkbox"/>	JRuby on GlassFish	Sep 18, 2007	1.0	13MB
	☀	<input type="checkbox"/>	Social Software			
	☀	<input type="checkbox"/>	Weblog Server for GlassFish	Sep 18, 2007	1.0	11MB
	☀	<input type="checkbox"/>	Composite Applications			
	☀	<input type="checkbox"/>	Open ESB Blueprints	Aug 30, 2007	1.0	685KB
	☀	<input type="checkbox"/>	Open ESB V2 Preview 3	Aug 30, 2007	2.0	14MB
	☀	<input type="checkbox"/>	Identity			
	☀	<input type="checkbox"/>	Access Manager 7.1 Patch 1 EA	Aug 30, 2007	7.1	14MB
	☀	<input type="checkbox"/>	Access Manager Blueprints	Aug 30, 2007	1.0	10MB
	☀	<input type="checkbox"/>	Java EE 5 API Documentation	Aug 30, 2007	9.1	4MB
	☀	<input type="checkbox"/>	Java EE 5 Samples	Aug 30, 2007	1.0	1MB
	☀	<input type="checkbox"/>	Java EE Blueprints	Aug 30, 2007	1.0	10MB
	☀	<input type="checkbox"/>	Portal			
	☀	<input type="checkbox"/>	Portlet Container	Aug 30, 2007	2.0	725KB
	☀	<input type="checkbox"/>	Portlet Container Blueprints	Aug 30, 2007	1.0	55KB
	☀	<input type="checkbox"/>	Web Services for Remote Portlets	Aug 30, 2007	1.0	3MB
	☀	<input type="checkbox"/>	Java EE 5 Tutorial	Jan 18, 2007	1.0	758KB


Restart will be required. ☀ New

Select All Install

Details

Overview Tech Specs Support

**jMaki**



**Version:** 1.0  
**Source:** Sun Microsystems Inc.  
**Homepage:** <https://ajax.dev.java.net>

**Overview**

jMaki is an Ajax framework that provides a lightweight model for creating JavaScript-centric Ajax-enabled web applications using...

# 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



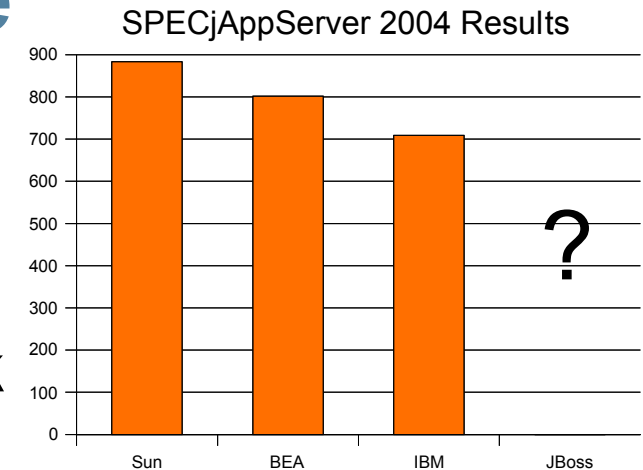
# Web Tier

- 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



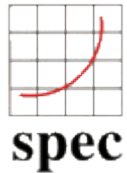
System Title	JOPS
IBM WebSphere Application Server 6.1 with DB2 8.2 on Sun Fire T2000 using Solaris 10	616.22
Oracle Application Server 10g Release 10.1.3.2 - Java Edition on Sun Fire T2000	733.22
BEA WebLogic Server 9.2 on Sun SPARC Enterprise T2000	801.70
GlassFish V2 (Sun Java Application Server 9.1) on Sun Fire T2000	883.66

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](http://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/>.

# 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*

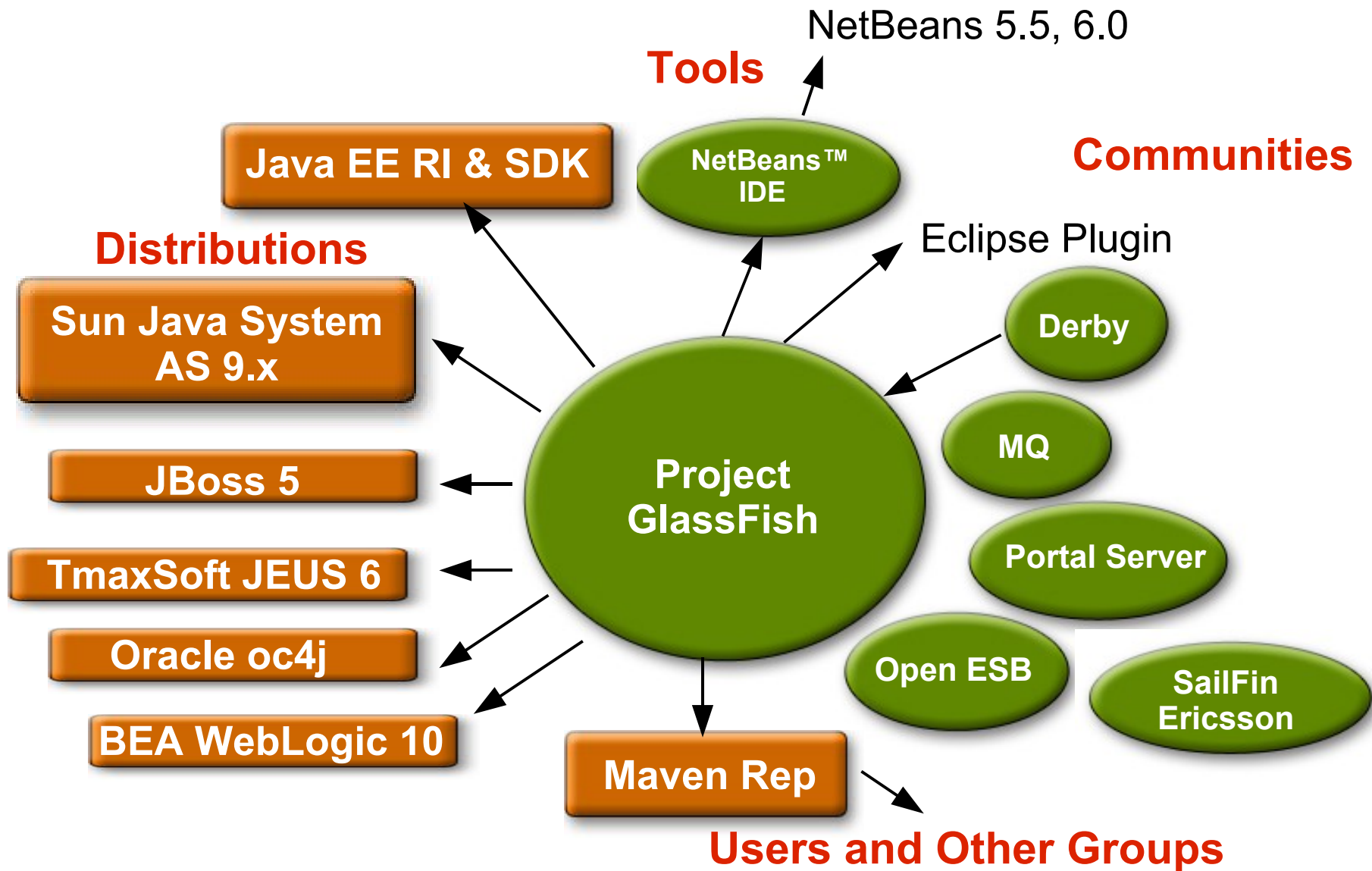
Disclaimers: SPEC and the benchmark name SPECjAppServer 2004 are registered trademarks of the Standard Performance Evaluation Corporation. Competitive benchmark results stated above reflect results published on [www.spec.org](http://www.spec.org) as of 11/21/07. The comparison presented is based on GlassFish 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

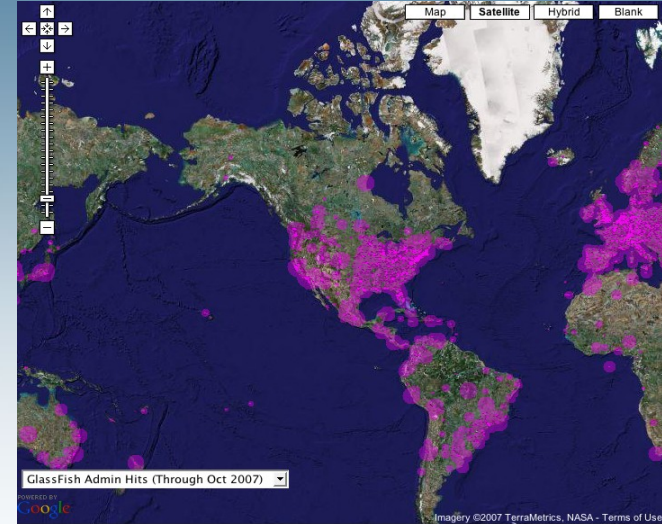


# (Some) Distributions & Contributors

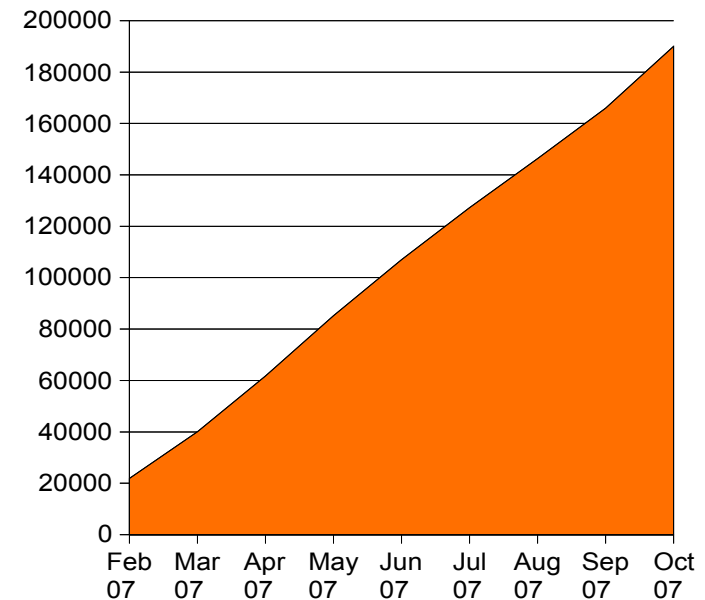


# GlassFish Adoption

- 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



Active Usage



# Agenda

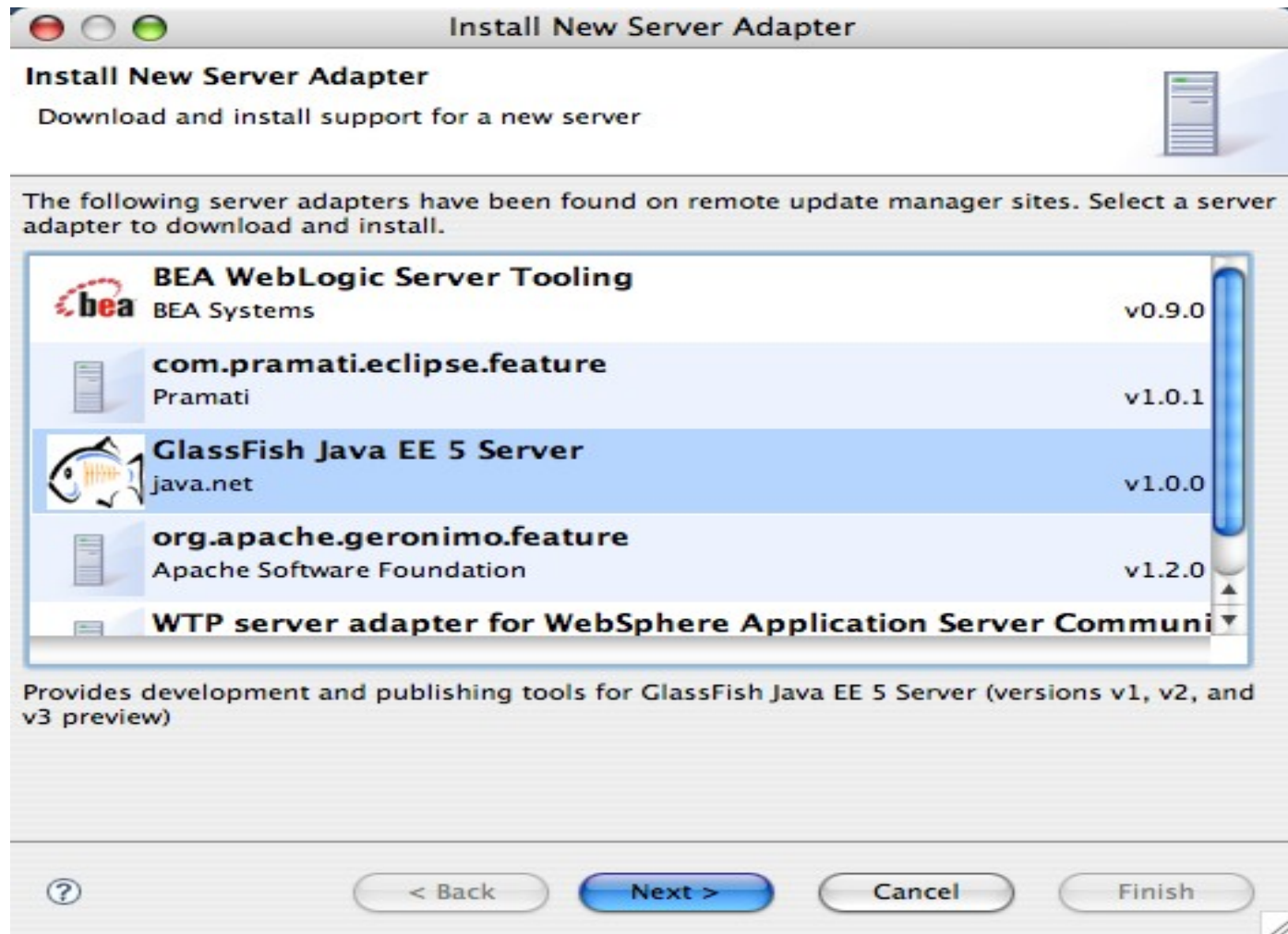
- What is GlassFish ?
  - > Feature Set
- **GlassFish Eclipse Support**
- What is jMaki?
- jMaki Eclipse Support
- Reference

# 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 additional server adapters"

# Eclipse Support

- <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 ?
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- **What is jMaki?**
- jMaki Eclipse Support
- Reference



# jMaki: Goal

Build Ajax-enabled web applications following standard practices using the best toolkits and libraries.

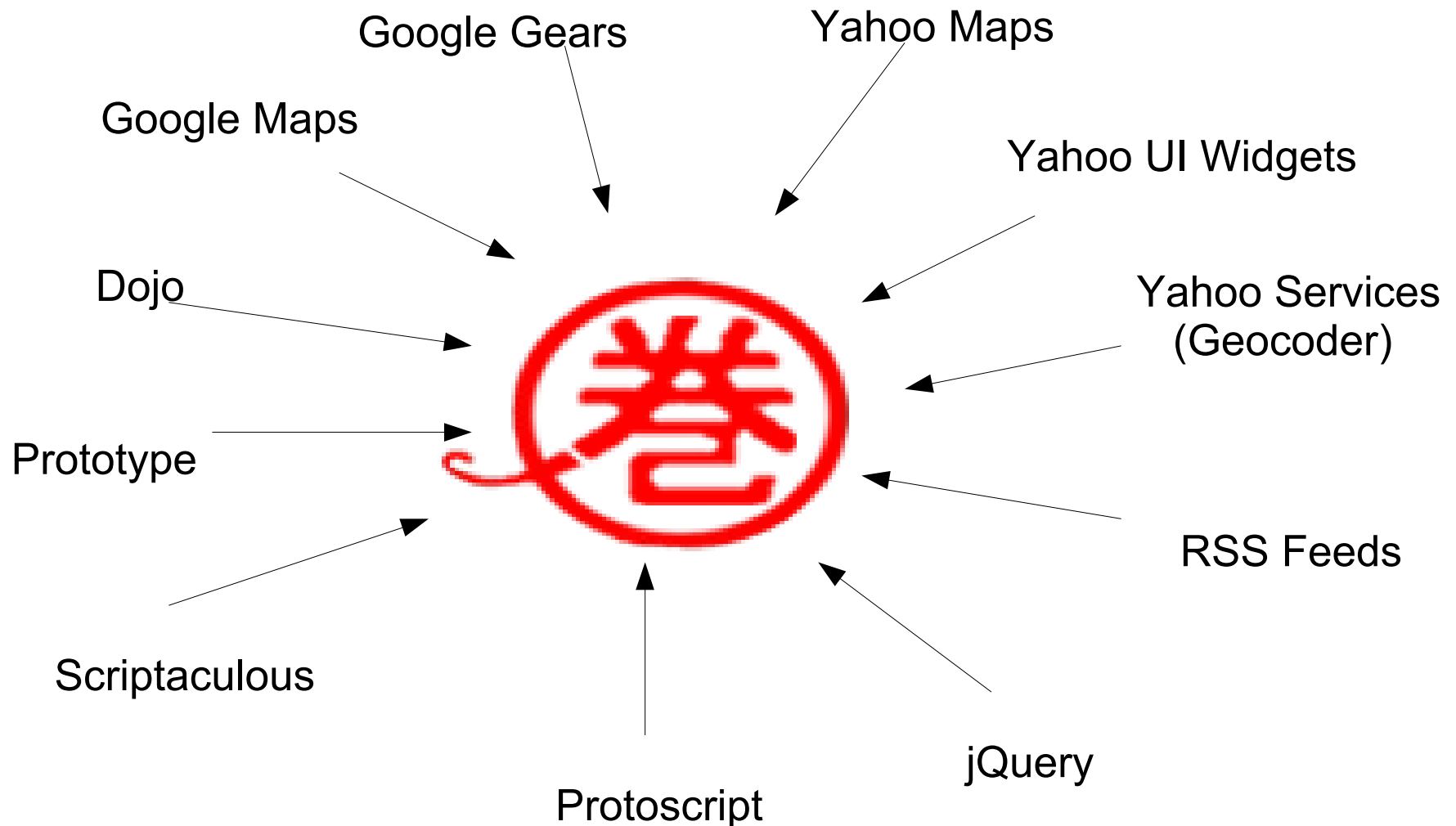
# What Is Project jMaki?

- 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



# 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

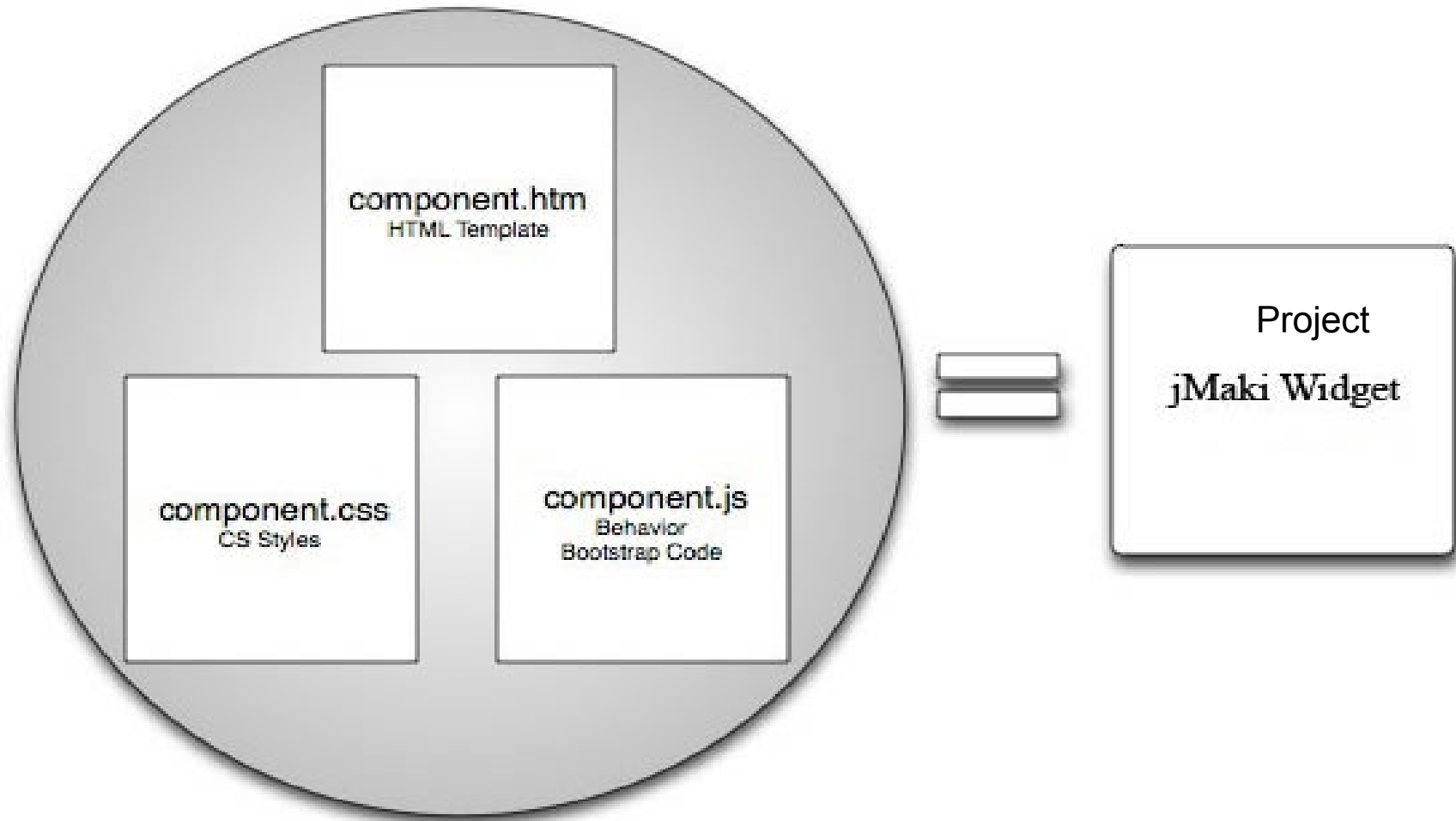
- Manages widgets
- Namespace
- Publish / Subscribe
- Script / Style Loading

# 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

# 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

```
{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



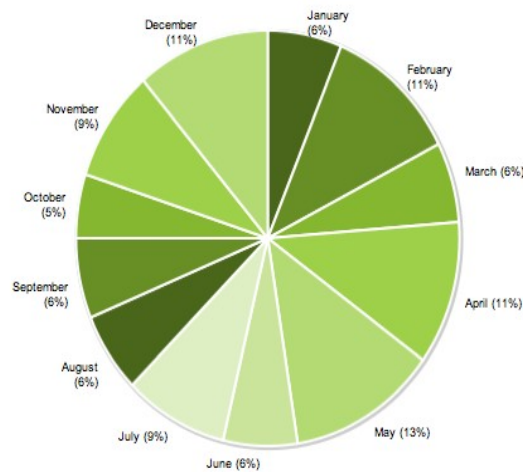
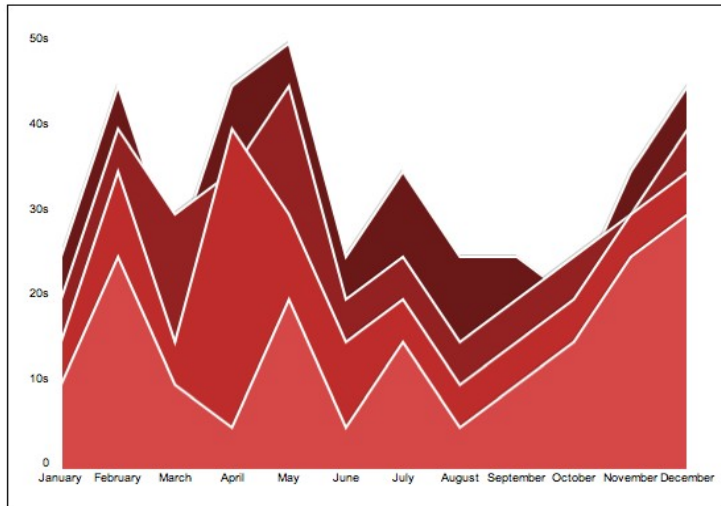
# Tooling

- jMaki and Netbeans
- jMaki and Eclipse
- Demos

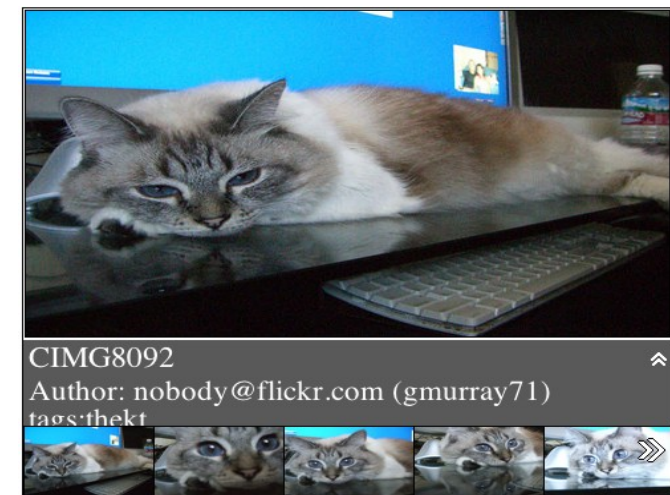
# jMaki and Eclipse

- 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

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