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GWT and jMaki: Expanding the GWT Universe

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Learn how to enhance Google Web Toolkit (GWT) to include many Ajax enabled components using the jMaki framework

A large, light blue graphic consisting of a stylized arrow pointing to the right, followed by the word "GOAL" in a bold, sans-serif font.

Agenda

- What is jMaki?
- jMaki model
- What is GWT?
- GWT model
- jMaki widgets and GWT
- Demo
- Summary

What is 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™ technology, server-side JavaScript™ technology, PHP, Ruby
- Netbeans™, Eclipse, Ant support

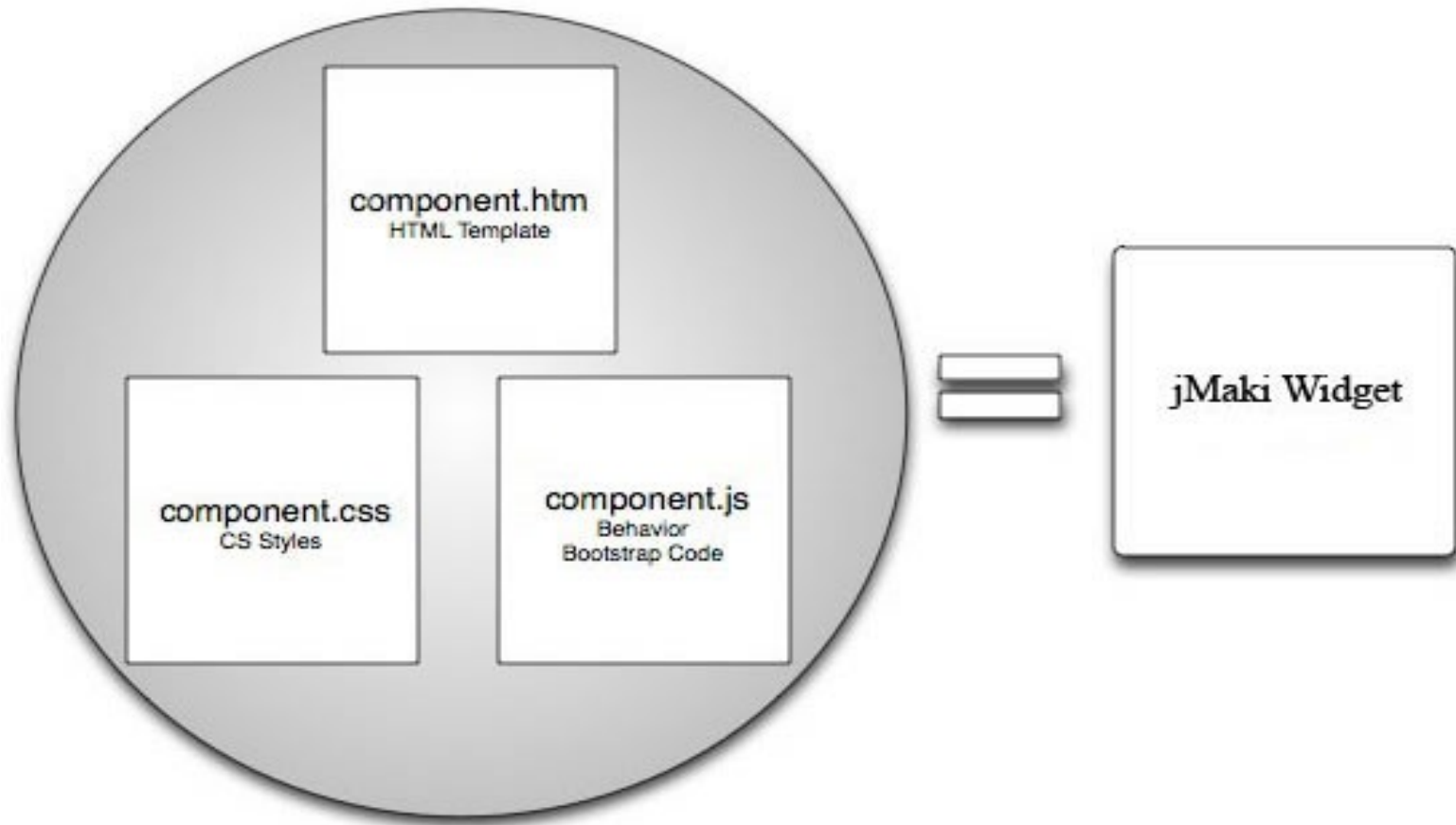
Why use jMaki?

- Hide complexities of JavaScript technology / CSS
- Portable widget libraries
 - Share your extensions / widgets libraries
- Standardizes event / data models
 - JSON based
 - Consistent programming model
- Easy integration of 3rd party JavaScript technology libraries, Adobe Flash, Google Gears
- Encourages re-usable JavaScript technology
- Integrates well with existing applications

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jMaki widgets



Hello World Widget

component.htm

```
<div id="${uuid}"></div>
```

component.js

```
jmaki.namespace("jmaki.widgets.hello");  
jmaki.widgets.hello.Widget = function(wargs) {  
    var mydiv = document.getElementById(wargs.uuid);  
    mydiv.innerHTML = "Hello " + wargs.args.name;  
}
```

index.jsp

```
<%@ taglib prefix="a" uri="http://java.sun.com/jmaki" %>  
<a:ajax name="hello" args="{name: 'GWT'}" />
```


jMaki Events

- Based on publish and subscribe mechanism
- Declarative events
 - Action property
 - No additional JavaScript code
- Programmatic events
 - Allows you to provide un-obtrusive application behavior in a single place
 - Ties the widgets together (loosely) based on topic names

jMaki Application Recipe

- Create skeleton application using Ant / Eclipse / Netbeans
- Choose a layout (CSS)
- Add widgets to page
- Test

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What is GWT?

- Framework for building Ajax applications
- Open source (Apache 2.0)
- Targeted at Java language users
- Java source is compiled to browser compliant JavaScript technology code

Why use GWT?

- Handles browser incompatibilities
- Creates optimized browser targeted code
- Provides easy continuous development
- Integrated client – server debugging
- Allows users to use tool of their choice
 - Eclipses / Netbeans / etc.
- No need to learn a new language
- Hides complexity of JavaScript technology and CSS
 - Don't need to know
- Provides reusable component model

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GWT Model

- Generate skeleton application using app generator or tool
- Set a layout (optional)
 - Border, Flow, etc.
- Add container or component
 - Containers -> Tabs, Panels, etc.
 - Components -> Buttons, Tables, etc.
- Compile (can be automatic)
- Test

Component configuration

```
<module>  
  <inherits name="com.google.gwt.user.User"/>  
  <entry-point  
class="com.google.gwt.sample.hello.client.Hello"/>  
</module>
```


Adding a widget

```
import com.google.gwt.core.client.EntryPoint;
import com.google.gwt.user.client.Window;
import com.google.gwt.user.client.ui.*;

public class Hello implements EntryPoint {

    public void onModuleLoad() {
        Button b = new Button("Click me", new ClickListener() {
            public void onClick(Widget sender) {
                Window.alert("Hello, jMaki");
            }
        });
        RootPanel.get().add(b);
    }
}
```

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jMaki + GWT : Marrying the best of both worlds

- jMaki script centric approach
 - Uses loosely typed JavaScript technology
 - Well defined life-cycle
 - Pre-wrapped libraries
- GWT takes a Java technology centric approach
 - Uses strongly typed Java language
 - Great developer experience and tooling
 - Familiar programming model

jMaki Wrapped Widget

```
package jmaki.client;
import jmaki.client.JMakiWidget;

public class IBrowse extends JMakiWidget {

    public IBrowse(int width, int height) {
        super(width,height);
    }

    public String getWidgetName(){
        return "jmaki.ibrowser";
    }
}
```

Widget.gwt.xml

```
<module>  
  <inherits name="com.google.gwt.core.Core"/>  
  <source path="client"/>  
  <public path="public"/>  
  <script src="resources/jmaki.js"/>  
  
  <stylesheet src="resources/jmaki/ibrowser/component.css"/>  
  <script src="resources/jmaki/ibrowser/component.js"/>  
  
</module>
```

Main.gwt.xml

```
<module>  
  <inherits name="jmaki.Widget"/>  
  <inherits name="com.google.gwt.user.User"/>  
  <entry-point class="jmaki.store.client.MainEntryPoint"/>  
</module>
```

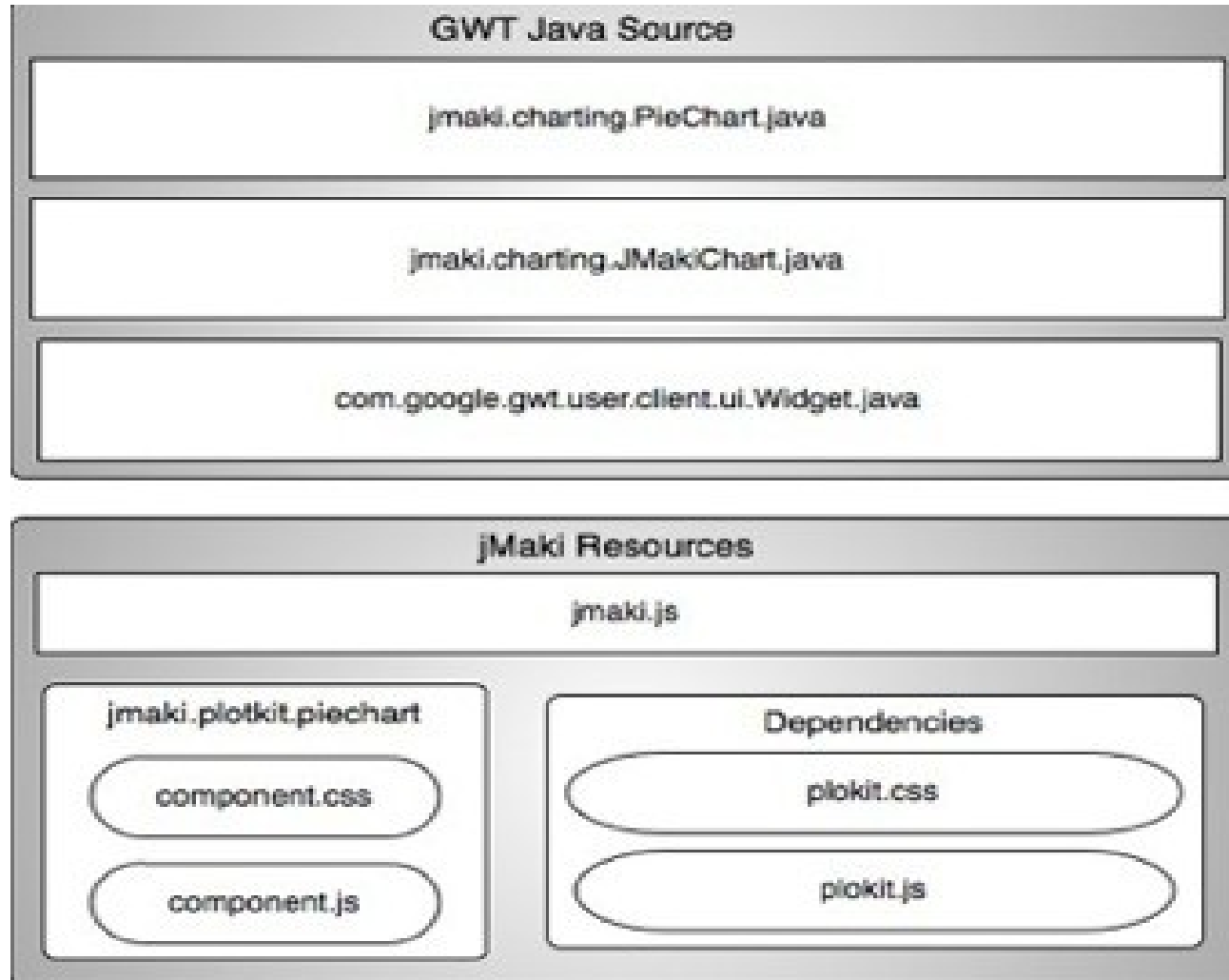
Add Component to Application

```
public class MainEntryPoint implements EntryPoint {  
    ...  
    public void onModuleLoad() {  
        DockPanel dp = new DockPanel();  
        IBrowse ib = new IBrowse(400,400);  
        RootPanel.get().add(ib);  
        dp.add(am, DockPanel.WEST);  
        dp.add(ib, DockPanel.CENTER);  
        ...  
        RootPanel.get().add(dp);  
    }  
}
```

jMaki Charting

- Dynamic Charts including:
 - Bar chart
 - Pie chart
 - Line chart
 - Area chart
- Existing open source implementation
- Feature rich with browser based rendering
- Browser neutral
- Updatable without page reload (Ajax enabled)

jMaki Charting for GWT



jMaki Charts in GWT

- Extended JmakiWidget.java
- Created Java DataSet, Axes, Markers Objects
- Bound relevant Java calls for creating and manipulating charts

Summary

- jMaki provides great support for JavaScript technology integration
- GWT provides a great Java developer experience
- jMaki enables GWT developers easy access to the world of JavaScript technology libraries
- Don't re-create the wheel

Resources

- Everything on jMaki
 - <http://jmaki.org>
- GWT
 - <http://code.google.com/webtoolkit/>

THANK YOU



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