

JBoss Community

GOING MOBILE

With Your RichFaces Applications

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JAX - San Francisco

2012-07-09

THE PLAN

Why the Mobile Web?
Why JSF?
Why RichFaces?



WHO AM I?

Senior Software Engineer at Red Hat

RichFaces Project Lead

Represent Red Hat on the JSF 2.2 EG (JSR-344)

Seam Faces module lead



WHY MOBILE?

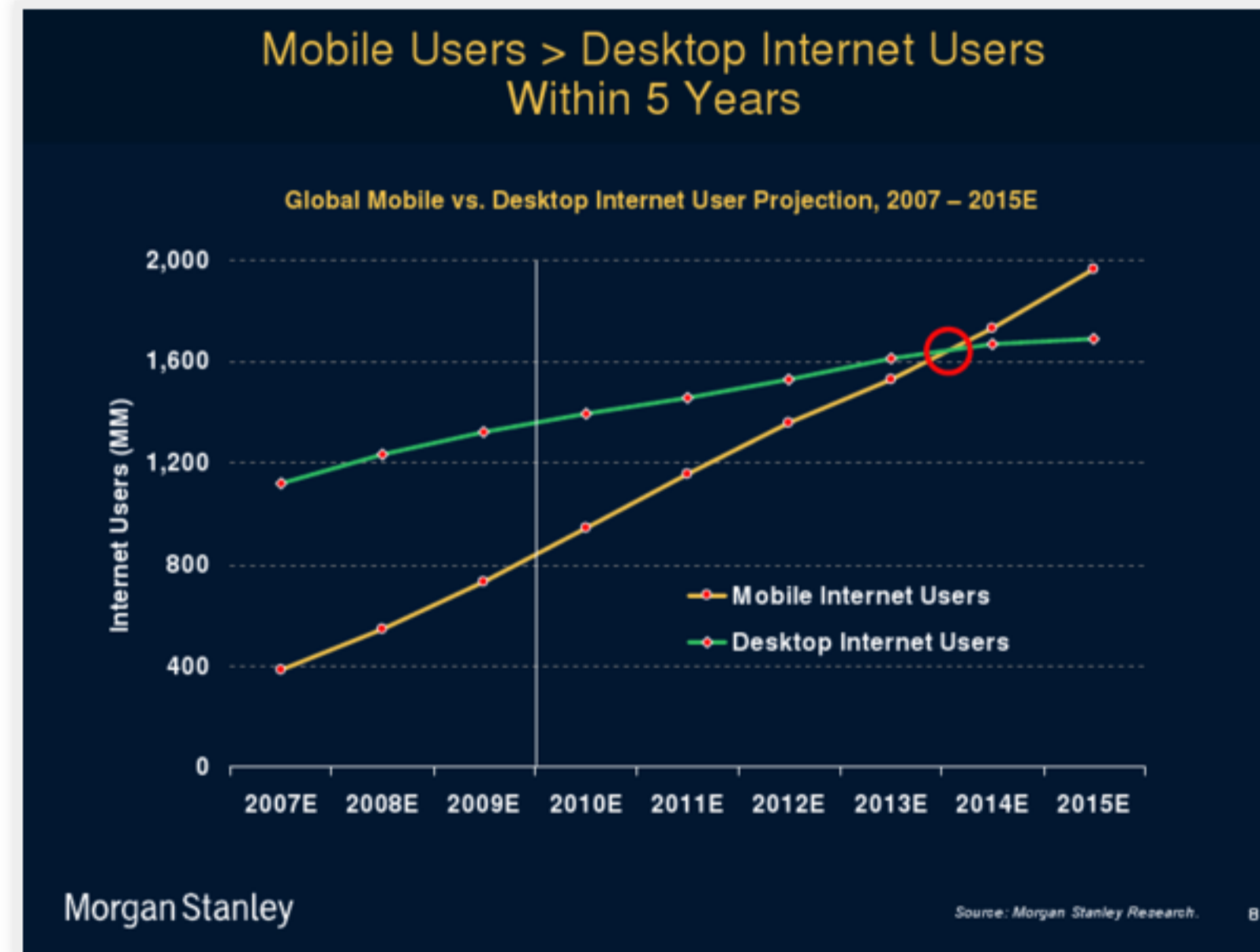
I write desktop apps!



SMARTPHONES!



MOBILE PHONES ARE EVERYWHERE!



CHOOSE: NATIVE APP OR MOBILE

Native:

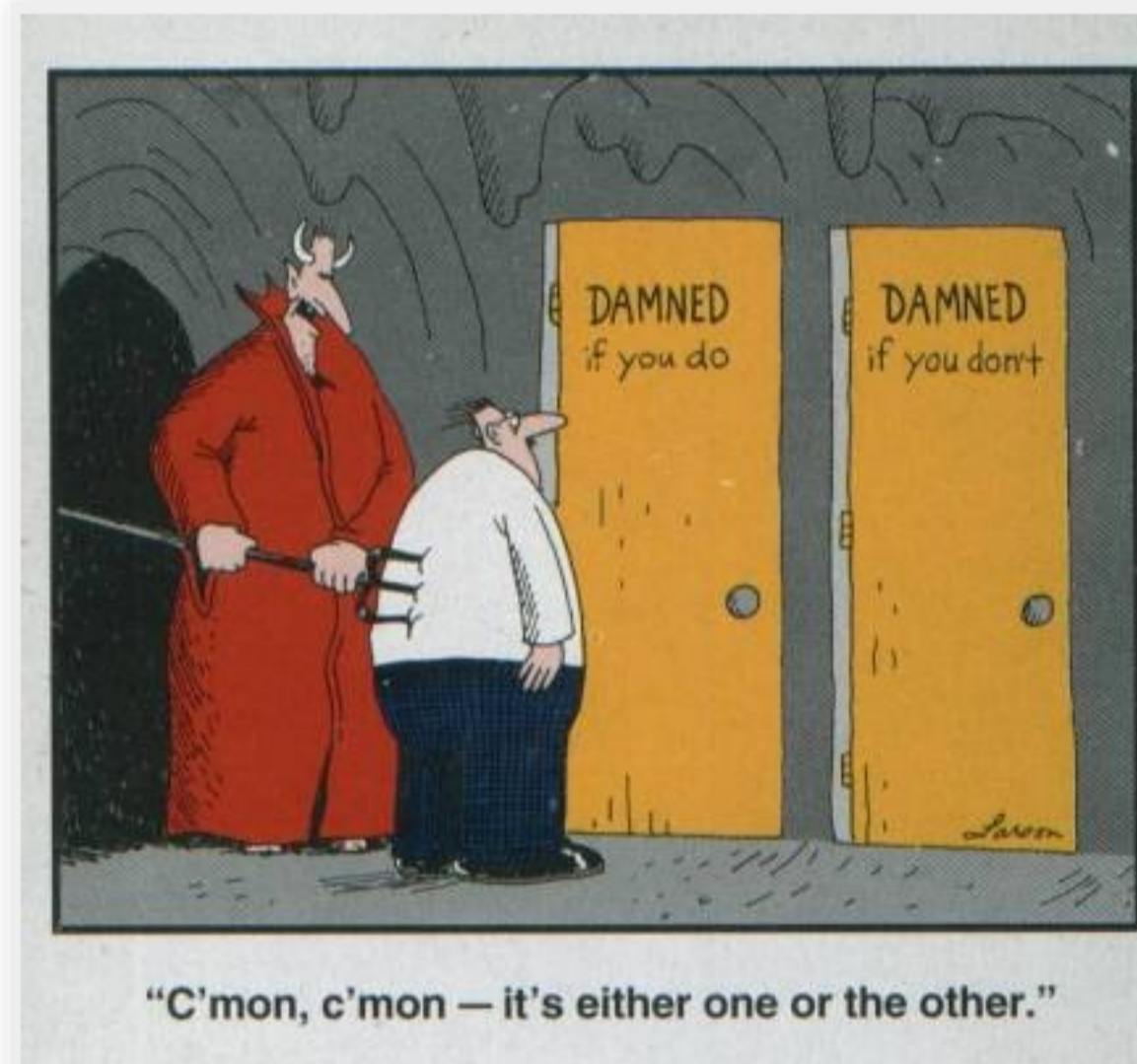
- Responsive
- Touch-specific controls
- Native L&F

Web:

- Common across platforms
- HTML 5 / CSS 3 / javascript

CHOOSE: NATIVE APP OR MOBILE

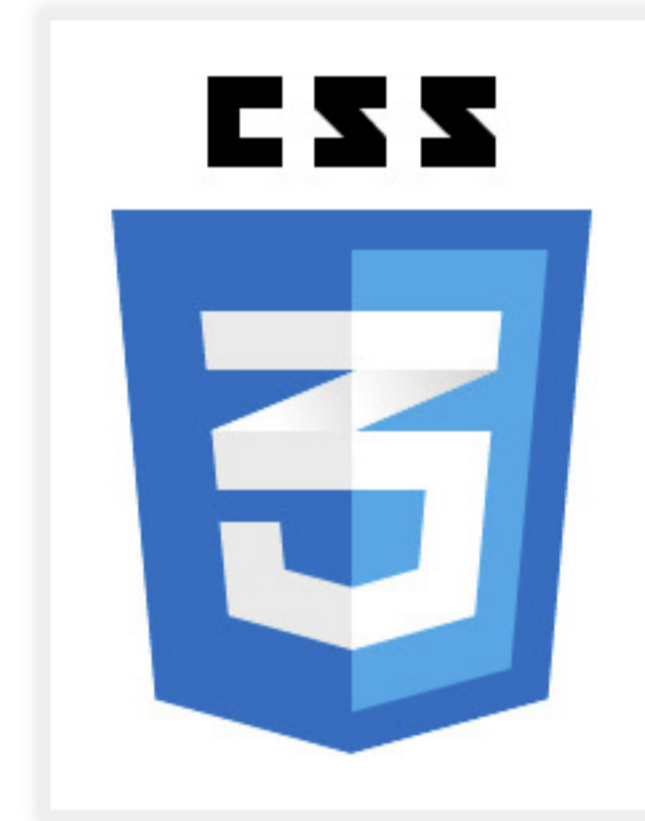
So how do I choose?



**YOU NEED A MOBILE WEB
APP REGARDLESS!**

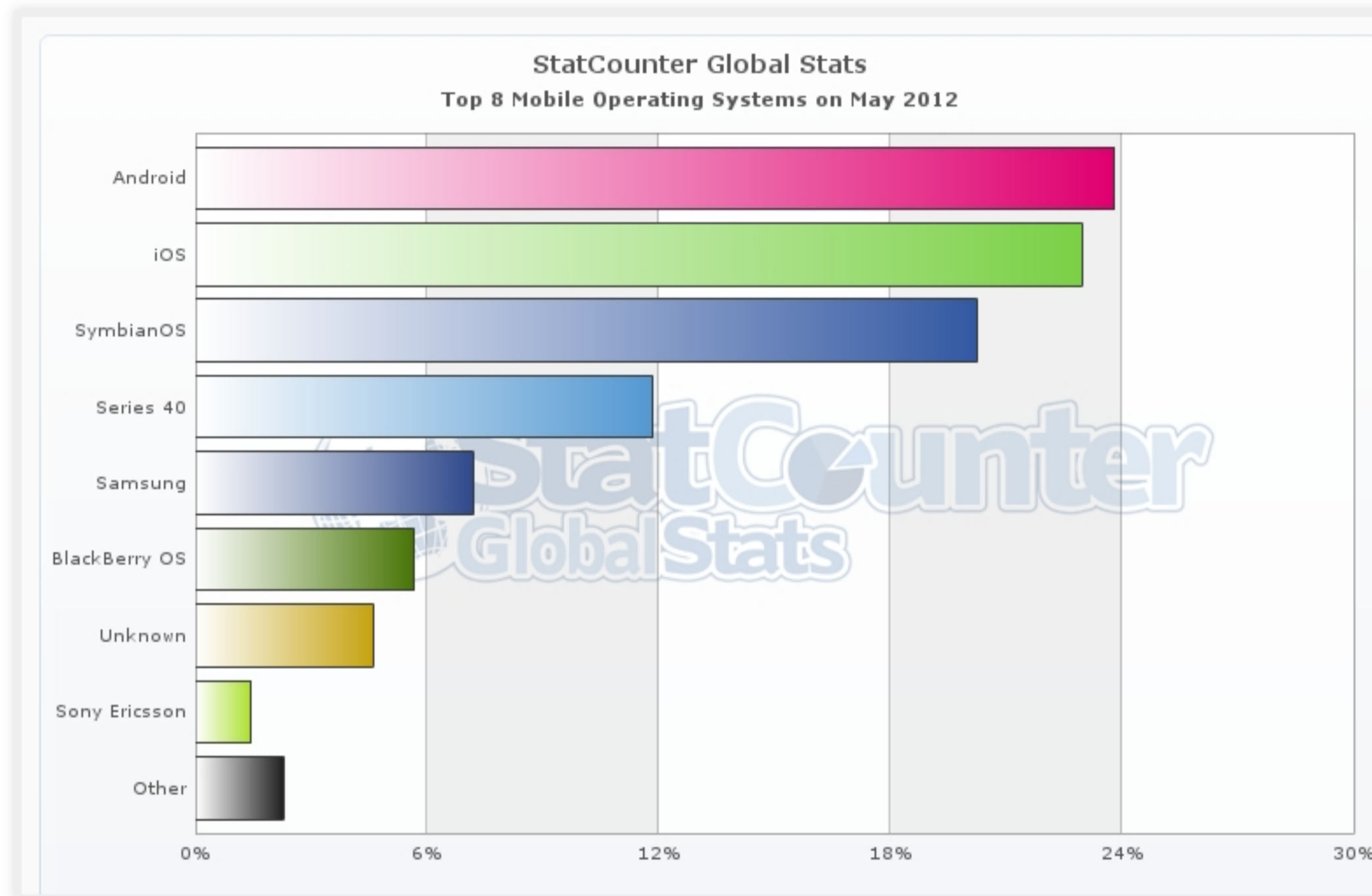
MOBILE WEB IS READY

HTML 5
CSS 3
JavaScript



Html 5 Web App → Native App

TARGET = WEBKIT



JAVASCRIPT APIS

Geo-location

Local Storage

Web Sockets

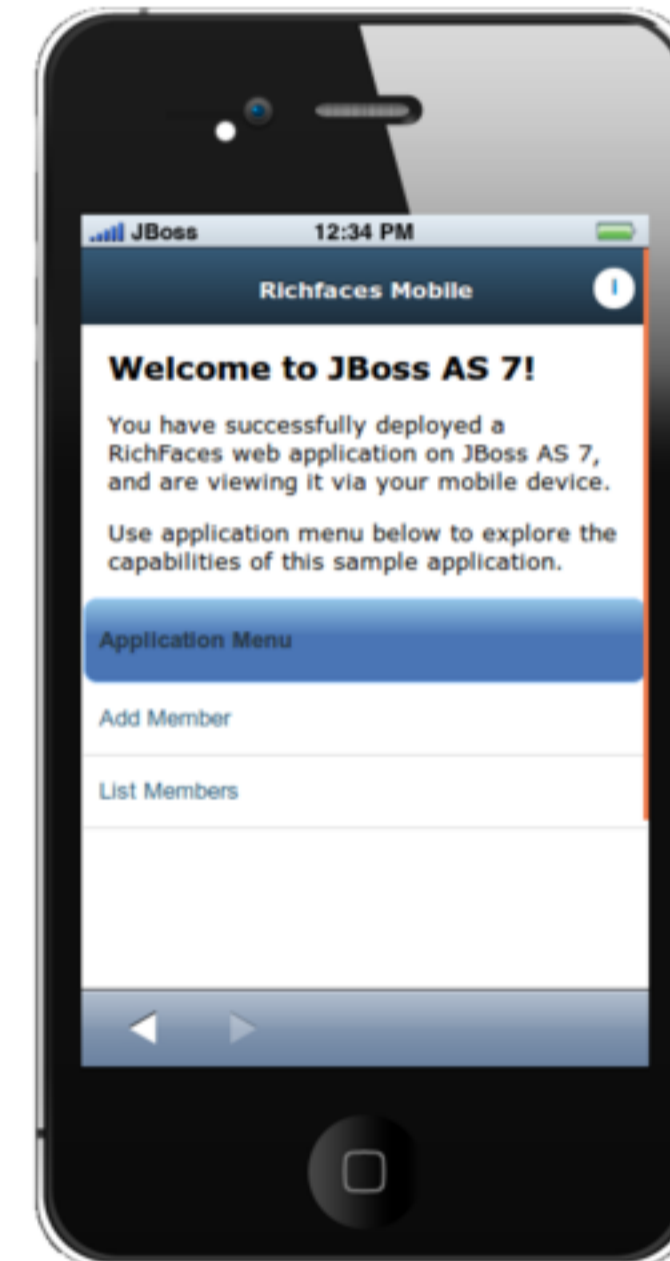
Canvas

Drag and Drop

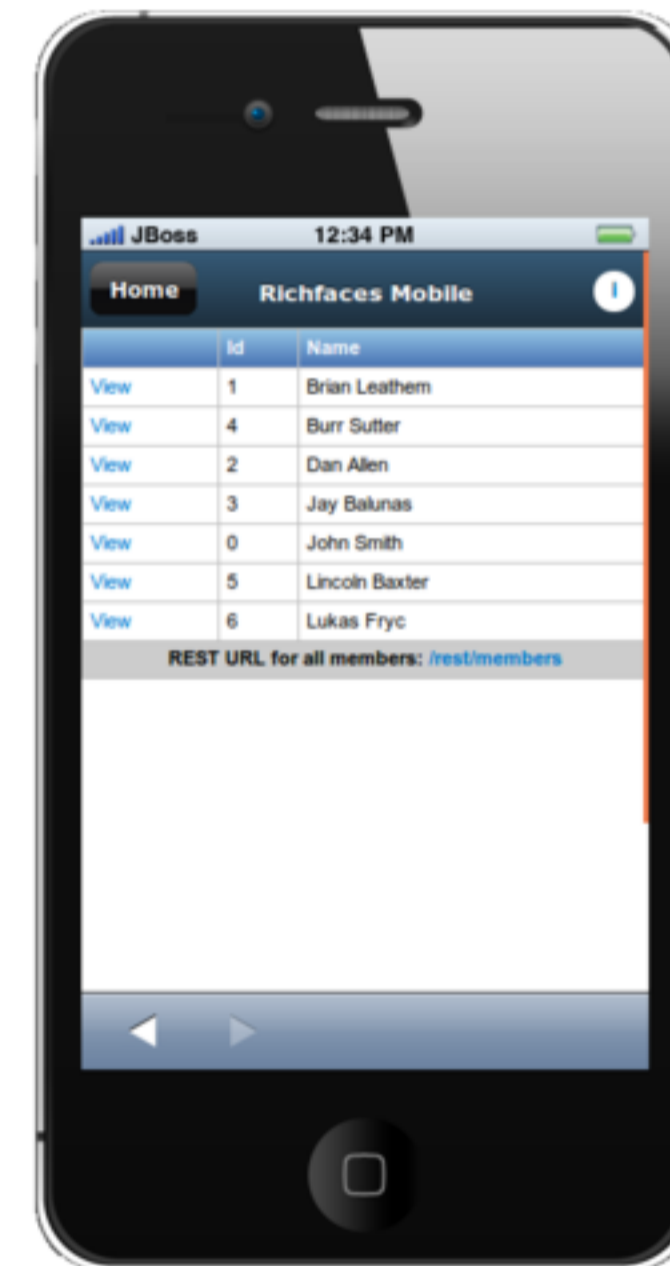
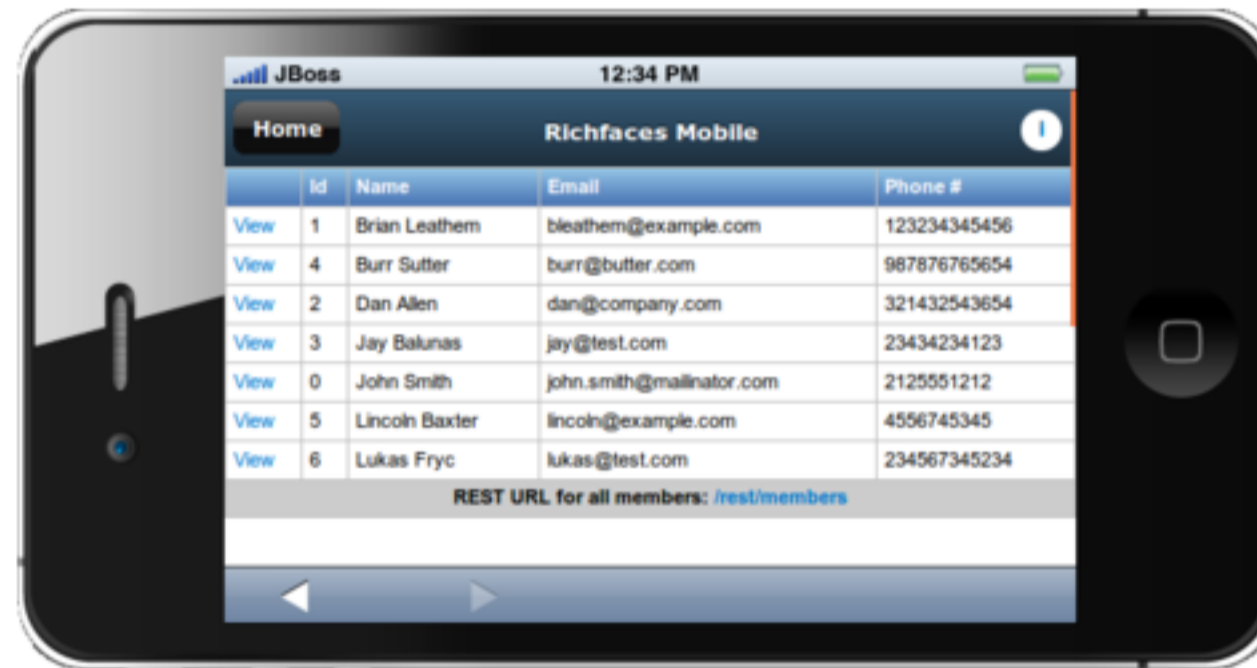
bit.ly/webkit-comparison

HIDE THE LOCATION BAR

```
hideURLBar: function() {  
    //hide the url bar on mobile devices  
    setTimeout(scrollTo, 100, 0, 1)  
}
```

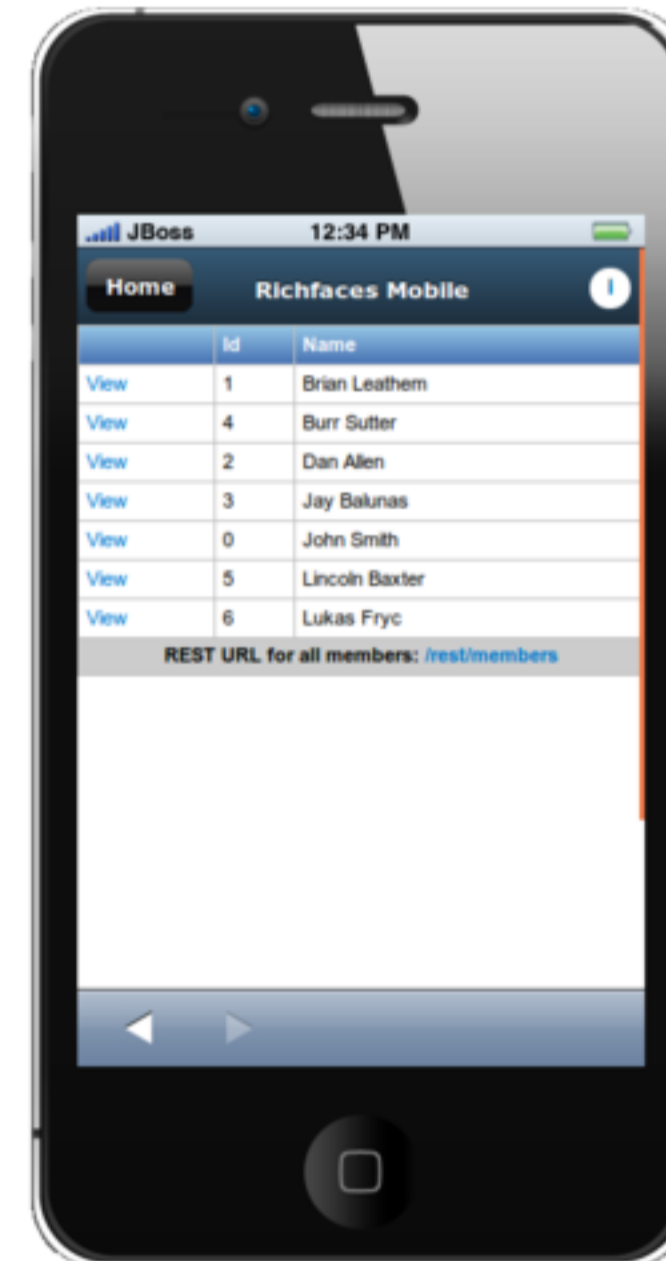


ORIENTATION DETECTION



ORIENTATION DETECTION

```
/* portrait screen width */  
@media screen and (max-width: 480px) {  
  .portrait {  
  }  
  .landscape {  
    display:none;  
  }  
}  
  
/* landscape/desktop device widths */  
@media screen and (min-width: 481px) {  
  .portrait {  
    display:none;  
  }  
  .landscape {  
  }  
}
```



HARDWARE ACCELERATION

Activate The GPU For Compositing Each Page

```
.page {  
  ...  
  -webkit-transform: translate3d(0, 0, 0);  
}
```

HTML 5 PRESENTATION

```
<section>
  <h2>The plan</h2>
  <ul>
    <li>Why the Mobile Web?</li>
    <li>Why JSF?</li>
    <li>Why RichFaces?</li>
  </ul>
</section>
```

PLETHORA OF FRAMEWORKS



PLETHORA OF FRAMEWORKS



+ JSF !!

WHY JSF?

What Do We Like About JSF?



JSF BECAUSE...

Standardized as part of Java EE



JSF BECAUSE...

Ajax is baked-in
to the framework

AJAX

JSF BECAUSE...

Component-oriented
programming model



JSF BECAUSE...

Facelets:
A powerful templating mechanism



JSF BECAUSE...

Build on our investment in JSF/RichFaces technology!



ADAPTING JSF TO BE “MOBILE READY”

Responsive

Touch-specific controls

Mobile L&F

ADAPTING JSF TO BE “MOBILE READY”

Responsive

- Single Page programming model (via JSF AJAX)

Touch-specific controls

Mobile L&F

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- Single Page programming model (via JSF AJAX)

Touch-specific controls

- CSS 3 styling

Mobile L&F

ADAPTING JSF TO BE “MOBILE READY”

Responsive

- Single Page programming model (via JSF AJAX)

Touch-specific controls

- CSS 3 styling

Mobile L&F

- Component libraries

DEVICE DETECTION



DEVICE DETECTION

User Agent String

```
Mozilla/5.0 (X11; Linux x86_64) AppleWebKit/536.5  
(KHTML, like Gecko) Chrome/19.0.1084.56 Safari/536.5
```


DEVICE DETECTION

Server Side: UAgentInfo

```
public class UAgentInfo implements Serializable {  
    ...  
    public void initDeviceScan() {  
        this.isIphone = detectIphoneOrIpod();  
        this.isAndroidPhone = detectAndroidPhone();  
        this.isTierTablet = detectTierTablet();  
        this.isTierIphone = detectTierIphone();  
        this.isTierRichCss = detectTierRichCss();  
        this.isTierGenericMobile = detectTierOtherPhones();  
    }  
    ...  
}
```

DEVICE DETECTION

JSF Bean: UserAgent

```
@Model
public class UserAgent {

    private UAgentInfo uAgentInfo;

    @PostConstruct
    public void init() {
        FacesContext context = FacesContext.getCurrentInstance();
        HttpServletRequest request = (HttpServletRequest)
            context.getExternalContext().getRequest();
        String userAgentStr = request.getHeader("user-agent");
        String httpAccept = request.getHeader("Accept");
        uAgentInfo = new UAgentInfo(userAgentStr, httpAccept);
    }
}
```

DEVICE DETECTION

URL Rewriting: ReWrite

```
public Configuration getConfiguration(final ServletContext context) {  
    return ConfigurationBuilder.begin()  
        .defineRule()  
        .when(Direction.isInbound()  
            .and(Path.matches("/").or(Path.matches("/index.jsf")))  
            .and(UserAgent.isMobile()))  
        .perform(Forward.to("/mobile/"));  
}
```

THE RICHFACES VALUE ADD

For mobile JSF apps



THE RICHFACES SHOWCASE

Mobile compatible components
<http://showcase.richfaces.org>



A4J:PUSH

Facelet Source

```
<a4j:push address="pushCdi"
  ondataavailable="jQuery('<li/>').text(event.rf.data)
  .prependTo('#messages')" />
<ul id="messages" />
```

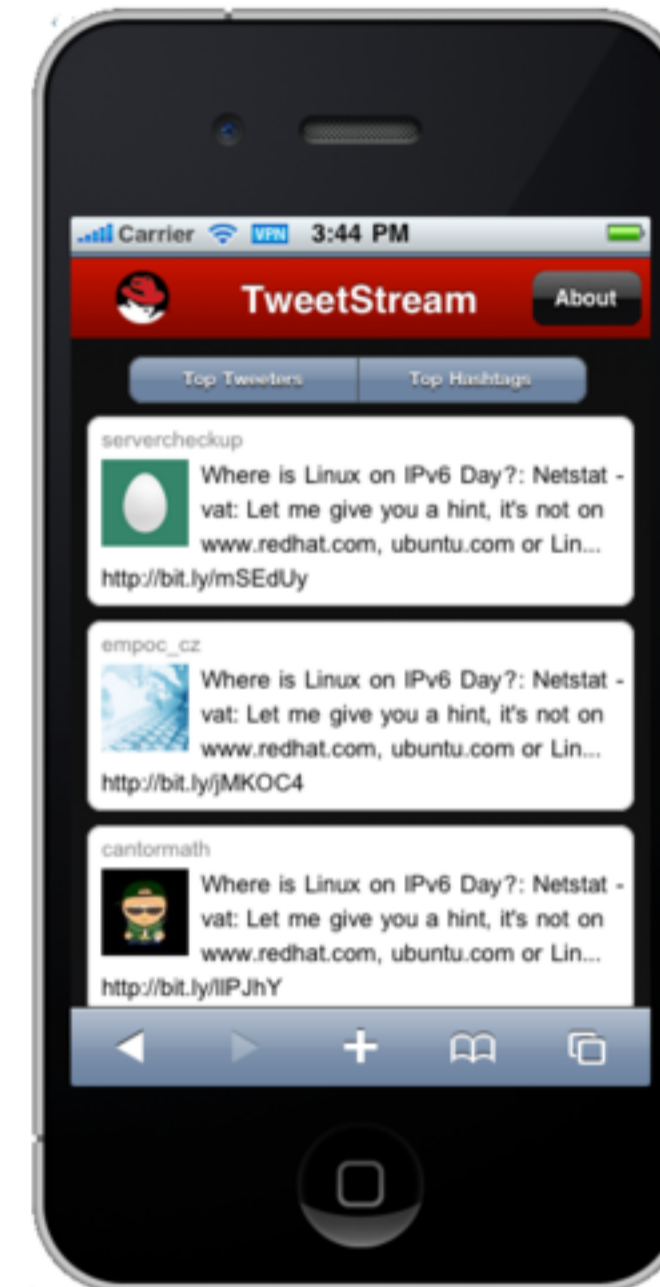
Java Source

```
@Inject
@Push(topic = "pushCdi")
Event<String> pushEvent;

public void sendMessage() {
    pushEvent.fire("My Message");
}
```

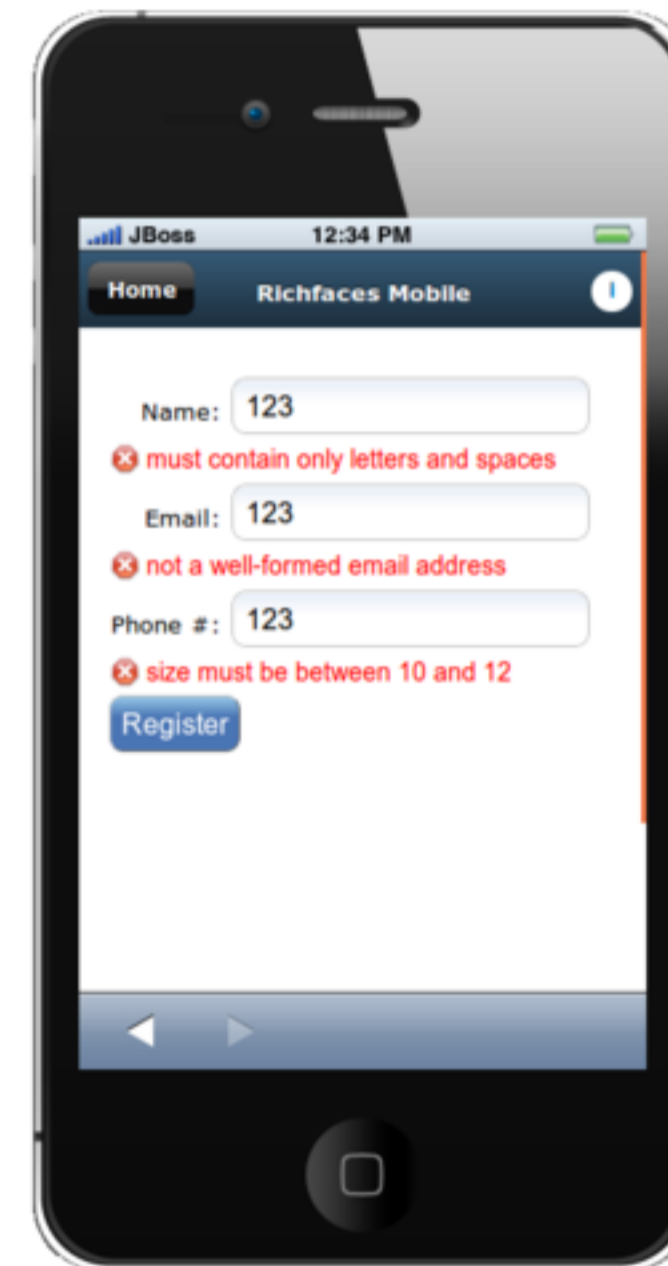
A4J:PUSH IN TWEETSTREAM

JBW 2011 Keynote



CLIENT-SIDE VALIDATION

Perform validation locally



A4J:JSFUNCTION

A facelet component interface to the JSF AJAX API

```
<a4j:jsFunction name="updateName" render="showname">  
  <a4j:param name="name" assignTo="#{functionBean.text}" />  
</a4j:jsFunction>
```

CASE STUDY: "KITCHENSINK" QUICKSTART

localhost:8080/jboss-as-kitchensink/index.jsf

Welcome to JBoss!

You have successfully deployed a Java EE 6 web application.

Your application can run on:

JBoss Enterprise Application Platform (Supported) & **JBoss Application Server 7** (Community)

Member Registration
Enforces annotation-based constraints defined on the model class.

Name:

Email:

Phone #:

Members

Id	Name	Email	Phone #	REST URL
0	John Smith	john.smith@mailinator.com	2125551212	/rest/members/0

REST URL for all members: /rest/members

This project was generated from a Maven archetype from JBoss.

JBoss Community

- Learn more about JBoss Enterprise Application Platform 6.
 - Documentation
 - Product Information
- Learn more about JBoss AS 7.
 - Getting Started Developing Applications Guide
 - Community Project Information

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1

2

3

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Learn more about JBoss AS 7.

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- Getting Started Deploying Applications
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localhost:8080/jboss-as-kitchensink/index.jsf

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Your application can run on
JBoss Enterprise Application Platform 6.0 (Supported) & JBoss Application Server 7.1 (Community)

Member Registration
Enforces annotation-based constraints defined on the model class.
Name:
Email:
Phone #:

Members

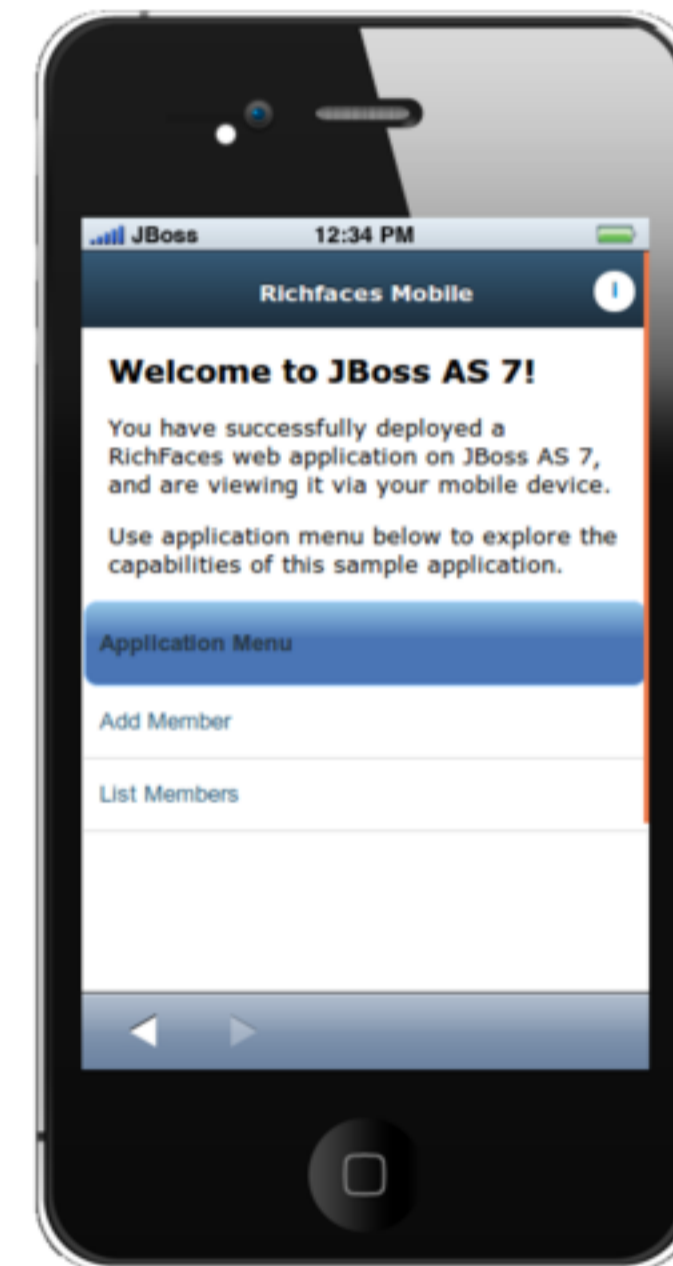
Id	Name	Email	Phone #	REST URL
0	John Smith	john.smith@mail.com	2125551212	/rest/members/0

REST URL for all members: /rest/members

This project was generated from a Maven archetype from JBoss.

KITCHENSINK: “MOBILIZED”

Demo time!



MANIPULATE THE LOCATION HASH

Directly, using html links

```
<a href="#about">i</a>
```

Using javascript

```
<rich:panelMenuItem label="Add Member"  
    onclick="location.hash='new' "  
    mode="client" />
```


MOBILE COMPATIBLE WITH SLIDFAST

A collection of lightweight CSS and Javascript assets

“VANILLA” JSF MOBILE FACELET

```
<?xml version="1.0" encoding="UTF-8"?>
<ui:composition template="/WEB-INF/templates/mobile.xhtml"
    xmlns:ui="http://java.sun.com/jsf/facelets"
    xmlns:f="http://java.sun.com/jsf/core"
    xmlns:h="http://java.sun.com/jsf/html">
  <ui:define name="content">
    <h:outputStylesheet name="mobile.css" library="css" />
    <h:outputScript>
      //initialize mobile RichFaces with slidfast
      slidfast{
        defaultPageID: 'home-page',
        callback: 'handleHashChange',
        backButtonID: 'back-button'
      };
    </h:outputScript>
    <div id="browser">
      <header>
        <div>
          <div id="back-button" class="hide-button">Home</div>
          <div id="info-button" class="right-header-button info-link">
            <a href="#about">1</a>
          </div>
          <p>Mobile JSF</p>
        </div>
      </header>
      <h:form id="mobileForm">
        <div id="page-container">
          <div id="home-page" class="page stage-left">
            <ui:include src="/mobile/home.xhtml"/>
          </div>
          <div id="new" class="page stage-right">
            <ui:include src="/mobile/new.xhtml"/>
          </div>
          <div id="list" class="page stage-right">
            <ui:include src="/mobile/list.xhtml"/>
          </div>
          <div id="about" class="page stage-right">
            <ui:include src="/mobile/about.xhtml"/>
          </div>
        </div>
      </h:form>
    </div>
  </ui:define>
</ui:composition>
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                 xmlns:h="http://java.sun.com/jsf/html">
    <ui:define name="content">
      <h:outputStylesheet name="mobile.css" library="css"/>
      <h:outputScript>
        //initialize mobile RichFaces with slidfast
        slidfast({
          defaultPageID: 'home-page',
          callback: 'handleFlashChange',
          backButtonID: 'back-button'
        });
      </h:outputScript>
      <div id="browser">
        <header>
          <div>
            <div id="back-button" class="hide-button">Home</div>
            <div id="info-button" class="right-header-button info-link">
              <a href="#about">i</a>
            </div>
          </div>
          <p>Mobile JSF</p>
        </div>
        </header>
        <h:form id="mobileForm">
          <div id="page-container">
            <div id="home-page" class="page stage-left">
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            </div>
            <div id="about" class="page stage-right">
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  <ui:define name="content">
    <h:outputStylesheet name="mobile.css" library="css" />
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```

```
      //initialize mobile RichFaces with slidfast
      slidfast({
        defaultPageID: 'home-page',
        callback: 'handleHashChange',
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      });
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```
    </h:outputScript>
    <div id="browser">
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        </div>
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          <ui:include src="/mobile/list.xhtml" />
        </div>
        <div id="about" class="page stage-right">
          <ui:include src="/mobile/about.xhtml" />
        </div>
      </div>
    </h:form>
```

```
  </div>
</ui:define>
</ui:composition>
```

SINGLE-PAGE PROGRAMMING MODEL

```
<h:form id="mobileForm">
  <div id="page-container">
    <div id="home-page" class="page stage-left">
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    </div>
    <div id="new" class="page stage-right">
      <ui:include src="/mobile/new.xhtml"/>
    </div>
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      <ui:include src="/mobile/list.xhtml"/>
    </div>
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  </div>
</h:form>
```


SINGLE-PAGE PROGRAMMING MODEL

```
<h:form id="mobileForm">
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    </div>
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    </div>
    <div id="list" class="page stage-right">
      <ui:include src="/mobile/list.xhtml"/>
    </div>
    <div id="about" class="page stage-right">
      <ui:include src="/mobile/about.xhtml"/>
    </div>
  </div>
</h:form>
```

SCALE W/ DYNAMIC UI:INCLUDE

```
<div id="page-container">
  <div id="home-page" class="page stage-left">
    <ui:include src="/mobile/home.xhtml"/>
  </div>
  <div id="app-page" class="page stage-right">
    <ui:include src="#{pageBean.page}"/>
  </div>
</div>
```

SCALE W/ DYNAMIC UI:INCLUDE

```
<div id="page-container">  
  <div id="home-page" class="page stage-left">  
    <ui:include src="/mobile/home.xhtml"/>  
  </div>  
  <div id="app-page" class="page stage-right">  
    <ui:include src="#{pageBean.page}"/>  
  </div>  
</div>
```

UPDATE THE PAGEBEAN - JSF

```
<h:inputHidden id="page" value="#{pageBean.location}" />
<h:outputScript >
  var handleHashChange = function (page) {
    var hiddenInput = 'mobileForm:page';
    $(document.getElementById(hiddenInput)).val(page);

    var options = {
      execute: hiddenInput,
      render : '@form',
      onevent : function(event) {
        if(event.status == 'success') {
          slidfast.core.slideTo('app-page');
        }
      }
    }
    jsf.ajax.request(hiddenInput, null, options);
  }
</h:outputScript>
```

UPDATE THE PAGEBEAN - JSF

```
<h:inputHidden id="page" value="#{pageBean.location}" />
<h:outputScript >
  var handleHashChange = function (page) {
    var hiddenInput = 'mobileForm:page';
    $(document.getElementById(hiddenInput)).val(page);

    var options = {
      execute: hiddenInput,
      render : '@form',
      onevent : function(event) {
        if(event.status == 'success') {
          slidfast.core.slideTo('app-page');
        }
      }
    }
    jsf.ajax.request(hiddenInput, null, options);
  }
</h:outputScript>
```

UPDATE THE PAGEBEAN - JSF

```
<h:inputHidden id="page" value="#{pageBean.location}" />
<h:outputScript >
    var handleHashChange = function (page) {
    var hiddenInput = 'mobileForm:page';
    $(document.getElementById(hiddenInput)).val(page);

    var options = {
        execute: hiddenInput,
        render : '@form',
        onevent : function(event) {
            if(event.status == 'success') {
                slidfast.core.slideTo('app-page');
            }
        }
    }
    jsf.ajax.request(hiddenInput, null, options);
}
</h:outputScript>
```

UPDATE THE PAGEBEAN - JSF

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<h:inputHidden id="page" value="#{pageBean.location}" />
<h:outputScript >
  var handleHashChange = function (page) {
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    $(document.getElementById(hiddenInput)).val(page);

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      onevent : function(event) {
        if(event.status == 'success') {
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<h:inputHidden id="page" value="#{pageBean.location}" />
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  var handleHashChange = function (page) {
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    $(document.getElementById(hiddenInput)).val(page);

    var options = {
      execute: hiddenInput,
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      onevent : function(event) {
        if(event.status == 'success') {
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        }
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    }
    jsf.ajax.request(hiddenInput, null, options);
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</h:outputScript>
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UPDATE THE PAGEBEAN - JSF

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<h:inputHidden id="page" value="#{pageBean.location}" />
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  var handleHashChange = function (page) {
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      execute: hiddenInput,
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        if(event.status == 'success') {
          slidfast.core.slideTo('app-page');
        }
      }
    }
    jsf.ajax.request(hiddenInput, null, options);
  }
</h:outputScript>
```

UPDATE THE PAGEBEAN - RICHFACES 4.2

```
<h:outputScript target="head">
<a4j:jsFunction name="handleHashChange"
    render="@form"
    oncomplete="slidfast.core.slideTo('app-page')">
    <a4j:param name="page" assignTo="#{pageBean.location}"/>
</a4j:jsFunction>
```

UPDATE THE PAGEBEAN - RICHFACES SANDBOX

```
<slidfast:pageChanger activePage="#{pageBean.location}" render="app-page" />
```

UPDATE THE PAGEBEAN - RICHFACES SANDBOX

```
<slidfast:pageChanger activePage="#{pageBean.location}" render="app-page" />
```

```
<slidfast:page id="app-page" stage="right">  
  <ui:include src="#{pageBean.page}" />  
</slidfast:page>
```

“SLIDFAST” JSF MOBILE FACELET

```
<?xml version="1.0" encoding="UTF-8"?>
<ui:composition template="/WEB-INF/templates/mobile.xhtml"
    xmlns:ui="http://java.sun.com/jsf/facelets"
    xmlns:h="http://java.sun.com/jsf/html"
    xmlns:slidfast="http://richfaces.org/slidfast">
  <ui:define name="content">
    <h:outputStylesheet name="app.css" library="css"/>
    <h:outputStylesheet name="mobile.css" library="css"/>
    <div id="browser">
      <header>
        <div>
          <div id="back-button" class="hide-button">Home</div>
          <div id="info-button" class="right-header-button info-link">
            <a href="#about">i</a>
          </div>
          <p>Richfaces Mobile</p>
        </div>
      </header>
      <h:form id="mobileForm">
        <slidfast:pageChanger id="pageChanger" activePage="#{pageBean.location}" render="app-page" />
        <slidfast:pageContainer id="pageContainer">
          <slidfast:page id="home-page" stage="left">
            <ui:include src="/mobile/home.xhtml"/>
          </slidfast:page>
          <slidfast:page id="app-page" stage="right">
            <ui:include src="#{pageBean.page}"/>
          </slidfast:page>
        </slidfast:pageContainer>
      </h:form>
    </div>
    <h:outputStylesheet library="org.richfaces" name="rf-mobile-skin.css" />
  </ui:define>
</ui:composition>
```

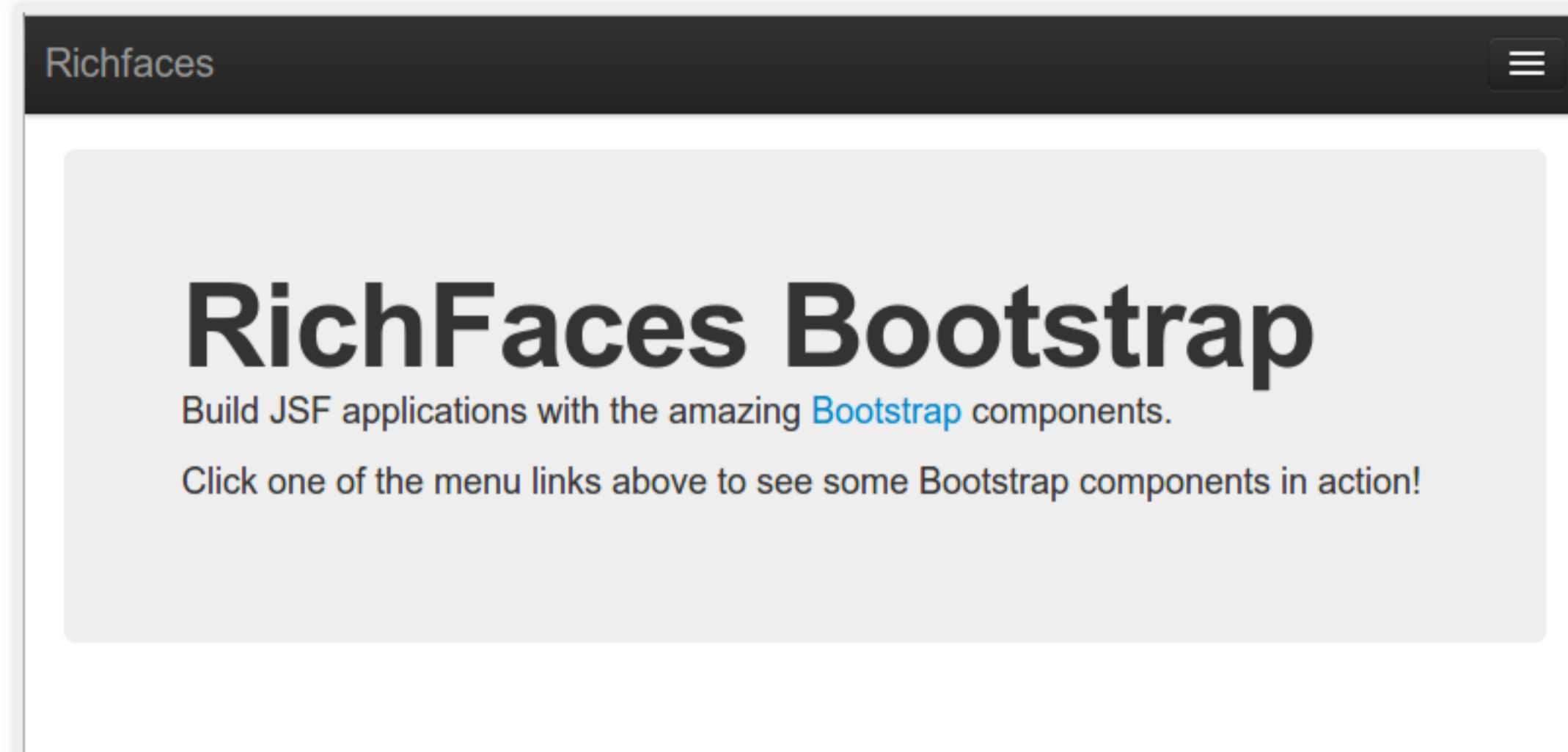
“SLIDFAST” JSF MOBILE FACELET

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        </div>
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      <h:form id="mobileForm">
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        <slidfast:pageContainer id="pageContainer">
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        <slidfast:pageContainer id="pageContainer">
          <slidfast:page id="home-page" stage="left">
            <ui:include src="/mobile/home.xhtml"/>
          </slidfast:page>
          <slidfast:page id="app-page" stage="right">
            <ui:include src="#{pageBean.page}"/>
          </slidfast:page>
        </slidfast:pageContainer>
      </h:form>
    </div>
    <h:outputStylesheet library="org.richfaces" name="rf-mobile-skin.css" />
  </ui:define>
</ui:composition>
```

RESPONSIVE LAYOUT



The screenshot shows a web application interface. At the top left, the word "Richfaces" is displayed in a dark header bar. To its right is a hamburger menu icon. The main content area features a large heading "RichFaces Bootstrap" in a bold, black font. Below the heading, there are two lines of text: "Build JSF applications with the amazing [Bootstrap](#) components." and "Click one of the menu links above to see some Bootstrap components in action!".

THE END?

THE END?

**THE BEGINNING - OF YOUR MOBILE ADVENTURE WITH
RICHFACES!**

CREDITS

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Permissions beyond the scope of this license may be available at <https://github.com/bleathem/talks/tree/master/2012-JBW>.

ADDITIONAL RESOURCES

Source code:

[JBoss-as Kitchensink quickstart](#)

[JBoss-as Kitchensink quickstart | mobile w/ Vanilla JSF](#)

[JBoss-as Kitchensink quickstart | mobile w/ RichFaces](#)

Articles:

[HTML 5 Rocks article - introduces and motivates the slidfast approach](#)

[RichFaces Mobile wiki page - all things RichFaces + mobile](#)

[Getting Started With Mobile RichFaces](#)

STAY IN THE LOOP

Project website: <http://richfaces.org>

Twitter: <https://twitter.com/#!/richfaces>

Google+: <http://richfaces.org>

RichFaces Forums: <https://community.jboss.org/en/richfaces?view=discussions>

Blog feed: <http://planet.jboss.org/feed/richfacesall>

IRC: #richfaces