

JUDCon

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The Mobile Web Revealed for the Java Developer

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Who am I

- RichFaces Project Lead
- JBoss Core Developer
- JSF 2.2 Expert Group
- Red Hat W3C Member



Are You A Mobile Developer?

Mobile Developer?

- Do you have mobile requirements today?
- How about the near future?
- Will your bosses know what they want?
- Will you be ready for it?

Even if you said NO

The answer is probably YES

Why?

- 1 billion smart phones today
- 2014 mobile internet > desktop internet
- End of 2010 53% of companies will have deployed iPhones
- Tablet revenue to surpass \$49B by 2015
- And on, and on, and on...

<http://www.thefonestuff.com/news/10/Mobile-Phone-Facts-2011.html>
Aberdeen Group dec 2009

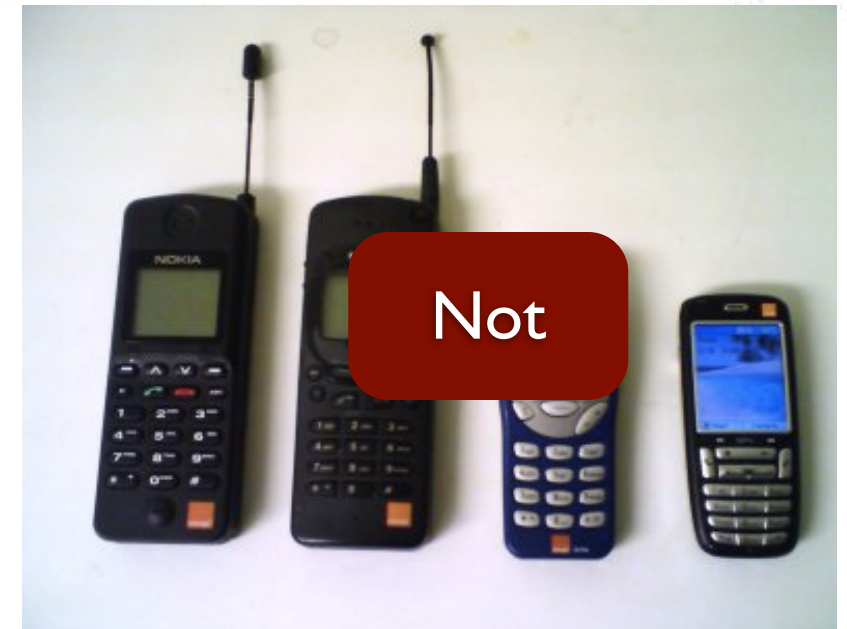
So Now What?

What you need to know

- Native, Web, Hybrid Applications
- The Mobile Web
- HTML5 Influence
- Framework Support
- Links & Wrap Up

A Mobile Device Is:

- Smartphone & tablet devices
- Support complex native applications
- Access to the standard web via advanced browsers



iOS 4



 **BlackBerry**


**Windows
Mobile**

Native, Mobile Web, Hybrid

- Whats the difference, and why I care?
- What can the apps do?
- Can I use the skills I already have?
- How can I maintain it?

Native

- Full access to device features
 - Software & hardware
- Performance
- Advanced graphics
- Offline support
- Built in market place and purchasing
- Developer tools from vendors

Native

- New languages & APIs
- Time to market
- Controlled marketplace & process
- Porting to multiple devices
- Upgrading
- Public i.e. not for intranet
- Lock in

Mobile Web

- Write once, run anywhere*
- Use skills you already have
- Upgrades = refresh
- Creative freedom
- Same back end services
- Intranet as well as Internet

Mobile Web

- Limited access to device features
- Limited performance & graphics
- Cross browser support issues
- Quirky network connections
- No offline access
- Market Awareness

Hybrid Apps

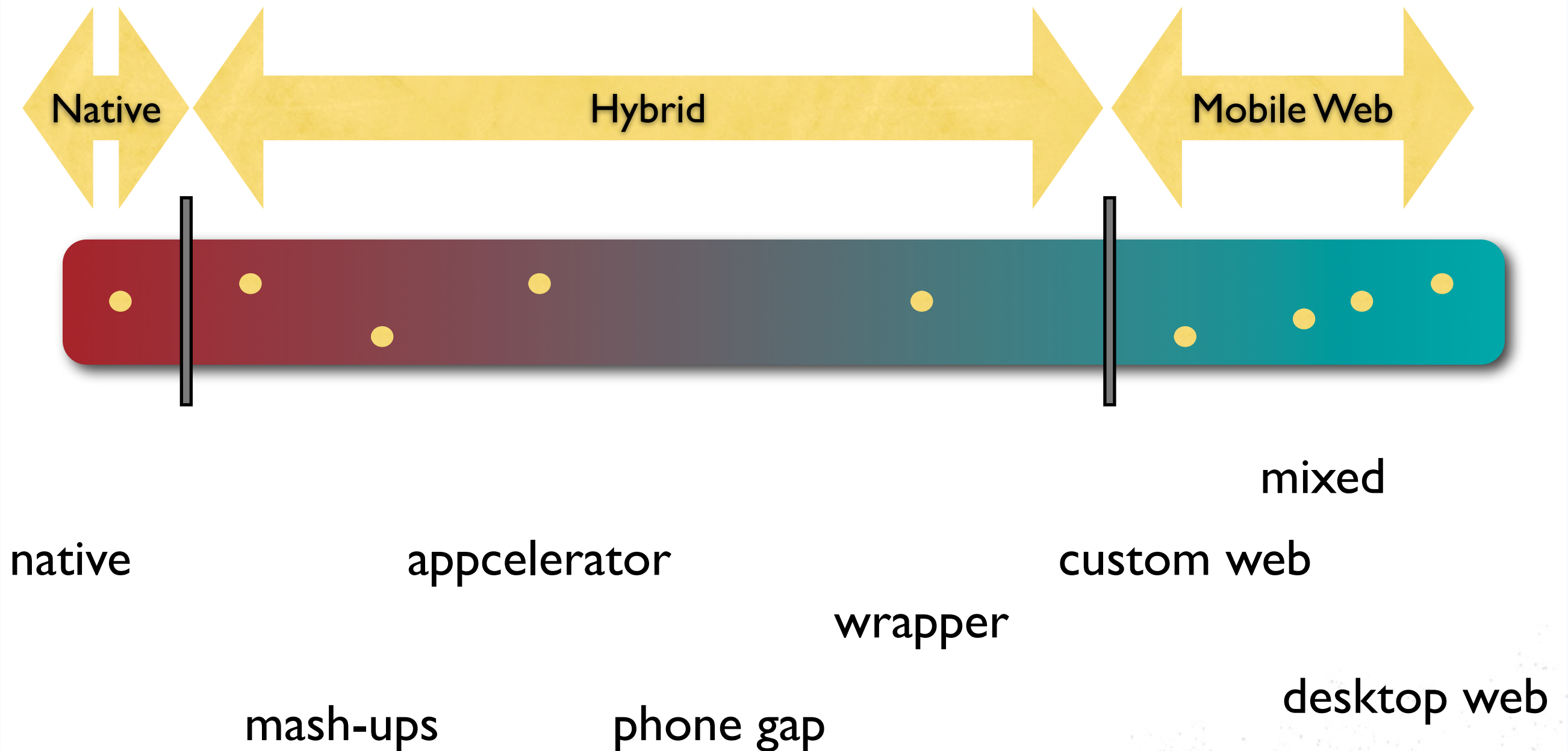
- Known by lots of names
- Mixes mobile & web technologies
- Many vendors are offering solutions
- Claims “best of both”
- Lots of variations
- Usually boils down to a native application

Hybrid Apps
Widgets
HTML5 Apps
Mobile Widgets
Mobile Web-Apps

Hybrid App Variations

- Native app that pulls in web content
- Native app “compiled” from web technologies
- Native app shell around a browser
 - Varying degrees

The Spectrum



So how do you choose?

What you need to know

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- **The Mobile Web**
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A Great Time For The Mobile Web

- Billions in revenue, and investments
- Device makers & carriers are driving technology
- HTML 5 technologies advancing
- Near native application support is possible
- Huge developer base with existing skills
- Native apps are increasingly silo'ed tech

<http://www.gomoneews.com/mobile-web-application-development-platforms-will-generate-2-6-billion-by-201/>

<http://venturebeat.com/2011/04/07/how-html5-will-kill-the-native-app/>

Why The Enterprise Needs The Mobile Web

- You're not making the next angry birds!
- Large investments & requirements already in place
- Intranet support can be a blocker for many
- You don't target the device the device targets you
- Transactions, security, messaging, persistence
- Cloud functionality only strengthens the argument

What Mobile Web

- Standard web site with compatibility
- Minor variations for compatibility
- One page using Markup/CSS to adjust content.
- Device/format specific pages with advanced support for app like behaviors

Things to consider

- Context and Navigation
- Progressive Enhancement
- Design & Usability
- Device/feature detection

Context and Navigation

- Define your use-cases
- Limit transitions, and clicks
- Why is the user accessing your site
 - From where?
 - From what?
- Is functionality different by device?
- Don't offer the world, offer workflows

Progressive Enhancement

- Basic **content** is accessible to all browsers
- Basic **functionality** is accessible to all browsers
- **Semantic markup** contains all content
- Enhanced layout is provided by externally linked **CSS**
- Enhanced behavior provided by externally linked **JavaScript**

Design & Usability

- Use view port & scaling
- Load only data that is needed
- Don't rely too heavily on resolution
- Don't bunch controls
- Avoid internal scrollbars
- Avoid fluff & complex branding
- Don't launch new pages
- Limit input text that is needed



Bookmarks

- Are your pages “bookmarkable” ?
- Does the one URL handle all devices?
- Can the user choose the style?

Device Detection

Header Inspection

```
HTTP_HOST == myproxylists.com
HTTP_USER_AGENT == Mozilla/5.0 (iPad; U; CPU OS 4_3_2 like Mac OS X; en-us) AppleWebKit/533.17.9 (KHTML, like Gecko) Version/5.0.2 Mobile/8H7 Safari/6533.18.5
HTTP_ACCEPT == application/xml,application/xhtml+xml,text/html;q=0.9,text/plain;q=0.8,image/png,*/*;q=0.5
HTTP_ACCEPT_LANGUAGE == en-us
HTTP_ACCEPT_ENCODING == gzip, deflate
HTTP_CONNECTION == keep-alive
REMOTE_ADDR == xx.xxx.x.xxx
REMOTE_PORT == 53298
REQUEST_METHOD == GET
REQUEST_URI == /my-http-headers
REQUEST_TIME == 1304015649
REMOTE_HOST == pool-xx-xxx-x-xxx.fios.verizon.net
COUNTRY == [US] UNITED STATES
```

iPad Request Header

What Can We Tell?

- Operating system
- Browser type & version
- IP address
- Can infer
 - Carrier
 - Country
 - Device brand & model

How do I do that?

```
//Retrieve and parse the header
FacesContext facesContext = FacesContext.getCurrentInstance();

Map<String, String> headerList = facesContext.
    getExternalContext().getRequestHeaderMap();

String userAgent = headerList.get("user-agent");

//Parse, and manage everything.....
```

Don't do
this to
yourself

What can help me?

- Light weight
 - Mobile ESP
- Full featured
 - WURFL DataBase
- Commercial
 - DeviceAtlas

Mobile ESP Example

```
FacesContext context = FacesContext.getCurrentInstance();
HttpServletRequest request = (HttpServletRequest)context.
    getExternalContext().getRequest();

userAgentStr = request.getHeader("user-agent");
httpAccept = request.getHeader("Accept");
uAgentProc = new UAgentInfo(userAgentStr, httpAccept);

uAgentProc.detectIphone();
uAgentProc.detectIphoneOrIpad();
uAgentProc.detectAndroid();
uAgentProc.detectTabletTier();
uAgentProc.detectXbox();
```

Feature Detection

- Considered more “future proof”
- Enhances or replaces device detection
- Typical browser based
- JavaScript object, attribute checking
- Good for handling the nuances
- Several projects and vendors available

Modernizr Example

Simple JavaScript File to load

```
.multiplebgs div p {  
    /* properties for browsers that  
       support multiple backgrounds */  
}  
.no-multiplebgs div p {  
    /* optional fallback properties  
       for browsers that don't */  
}
```



My Advice

- Device detection = high level content form-factor
- Feature detection = nuances within a device type



Caution

- If you offer your site publicly
 - Some carriers use transcoders
 - Change your content on the wire
 - Need to be aware & test from external areas



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HTML5

"HTML5 is anything you want it to be as long as it's new and cool."

-Peter Paul Koch

HTML5

- New semantic tags
 - `<header>`, `<aside>`, `<section>`, etc...
- Video & Audio tags
- New input types, and form elements
 - `type=email`, `date`, `tel`, `color`, etc...
- Offline Web Cache

Non-HTML5 HTML5

- Canvas 2D
- Geolocation
- Web Storage
- Web Workers
- Web Socket
- Server-side Events
- Device Orientation Events

`<canvas>`

`window.geolocation`

CSS 3

- Media Queries
 - Display size
 - Orientation
 - Aspect Ratio
- Borders, backgrounds, and colors
 - Gradient colors
 - Rounded corners
- Selectors
- Transitions*

Not All Cherries

- Different vendors have different levels of support
- Custom tags, styles for specific browsers
- Specifications are a long way from final
- Some special handling likely always needed



Keep Up On The Latest

<http://quirksmode.org>

- Regularly updated browser support tests
- Spans OS's, Browsers, Devices
- Covers HTML 5, Webkit extensions, and more

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Framework Support

- Home spun markup, custom JavaScript, and JQuery
- Google web toolkit (GWT)
- JSF2 + RichFaces 4

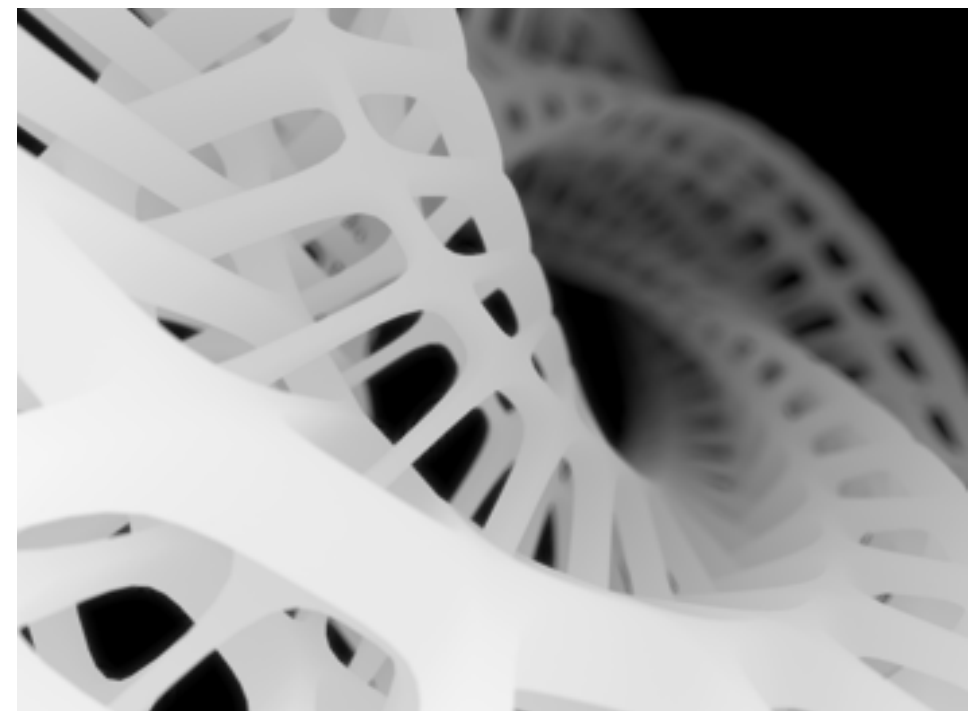
Home Spun

- Amazing flexibility
- Page structure, style, scripts all in your control
- Separation of concerns
- jQuery and others to help you through
- Detailed optimizations
- Container supported content available

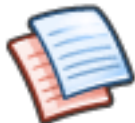


Home Spun

- Amazingly flexible
- You own it all
- Extensive HTML, JavaScript, CSS skills
- Lots to manage, develop, and maintain
- Get wrapped up in the details quickly
- Limited MVC support



GWT



- Open source & backed by Google
- Write apps mostly using Java
- JavaScript compiler
- GWT handles a great deal of browser issues
- User agent support determined at compile time
- Several projects exist to assist in mobile development
 - <https://github.com/dennisjzh/GwtMobile>
 - <http://code.google.com/p/gwt-mobile-webkit/>
 - <http://www.m-gwt.com/>

GWT

- Really one vendor
- Non-standard
- Support options are limited
- CSS still required for style
- Limited “official” mobile information available
- Mobile projects are either immature, or stale.



or



JSF 2 &



- Standard based
- Full EE6 stack of features
- Balanced between implementation & details
- Backed by many vendors, and options
- Mobile integration today
- Advanced mobile features in development
- Enterprise support available

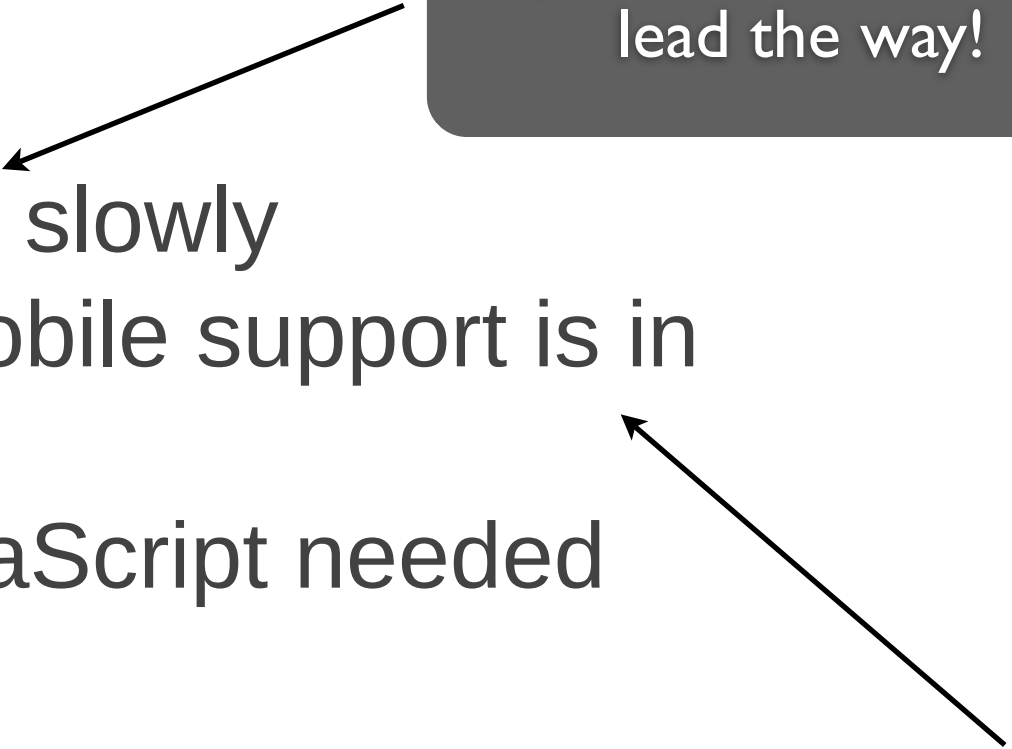
Complexity When You Need It

- Handle the details
 - Don't hide them
- Access to JavaScript/CSS
- Use as much or as little of EE as you like
- Participate, extend, and adjust as needed



JSF 2 & RichFaces

Project like RichFaces can lead the way!



- Specifications can move slowly
- Integrated, advanced mobile support is in development
- Some skills in CSS, JavaScript needed

Functionality based.
Not too much, not too little

Nearly full functionality
available today

So How Do I Choose?

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For more information

JBoss Projects

- <http://jboss.org>
- <http://richfaces.org>
- <http://richfaces.org/showcase>
- <http://jboss.org/errai>

Mobile Web

- <http://jquerymobile.com>
- <http://sproutcore.com>
- <http://code.google.com/webtoolkit>
- <http://wurfl.sourceforge.net>
- <http://mobileesp.com>
- <http://modernizr.com>

Specification Info

- <http://html5rocks.com>
- <http://www.w3c.org>
- <http://jcp.org>
- <http://quirksmode.org>

Device Dev Sites

- <http://developer.apple.com>
- <http://developer.android.com>
- <http://blackberry.com/developers>
- <http://msdn.microsoft.com/en-us/windowsmobile/>

Filling The Gap: Going Mobile With JBoss Technologies Today

11:30 Today!!

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Q&A

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