

JBoss Community

'POLY-FRAMEWORK' WEB APPLICATIONS WITH JAVA EE

Brian Leathem
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THE PLAN

Web applications implemented with

- multiple web frameworks
- preserving a consistent experience



WHO AM I?

Senior Software Engineer at Red Hat
RichFaces Project Lead



THE PROBLEM...

We want to mix web frameworks so we can:

- modernize a legacy application
- accomodate teams with disparate expertise
- use the best tool for the job

... use the shiny new technology

DEMO

<https://polyglotwidgets-richfaces.rhcloud.com/>

GENDERAL CONSIDERATIONS

Client-side

- Consistent L&F
- Consistent behaviour

Server-side

- Shared state
- Programming model

USE A CSS FRAMEWORK



- Web-framework independent
- Re-usable accross frameworks

CSS FRAMEWORKS

Bootstrap: <http://twitter.github.com/bootstrap>

Foundation: <http://foundation.zurb.com/>

GroundWorkCSS: <http://groundwork.sidereel.com>

Ink: <http://ink.sapo.pt/>

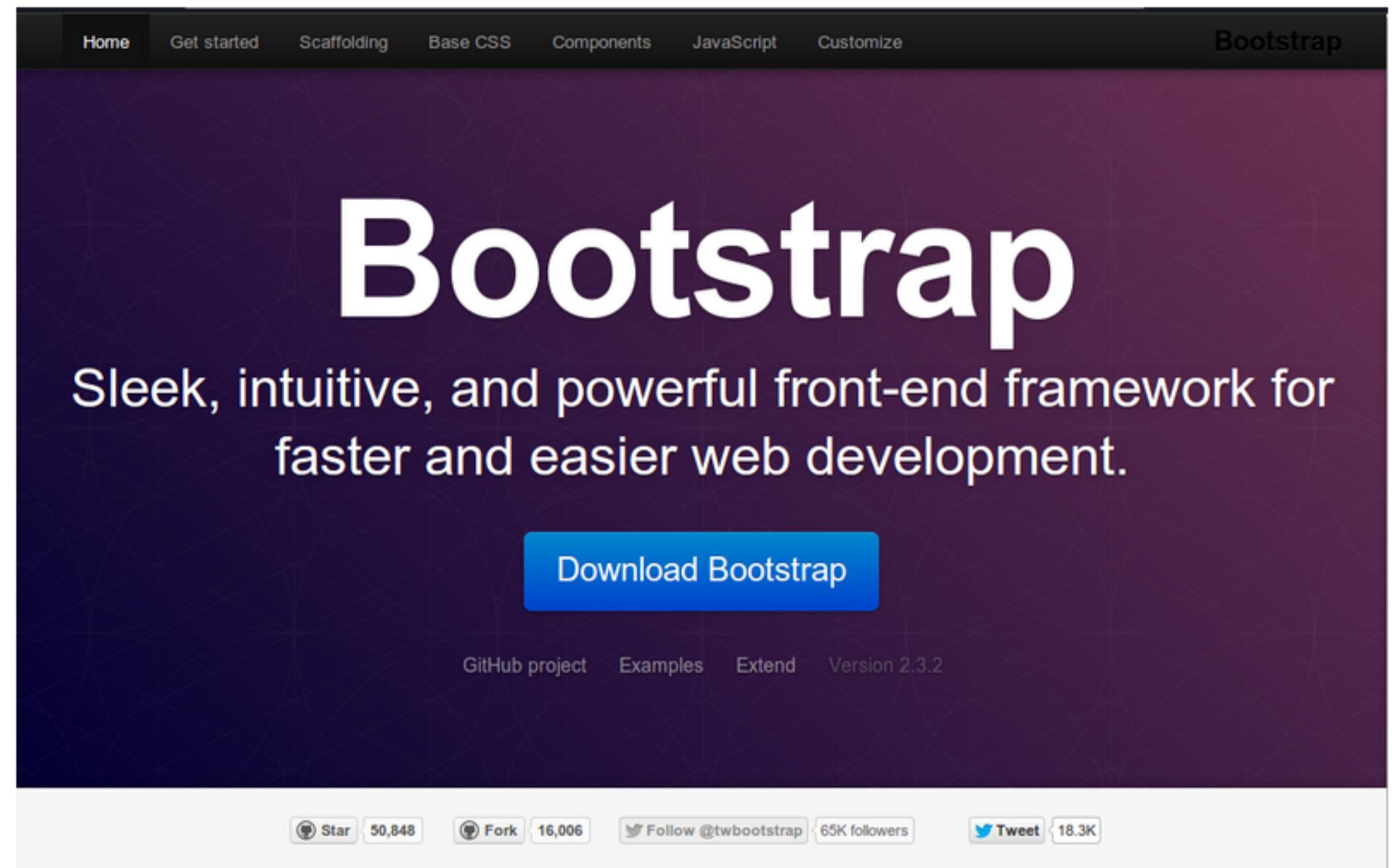
Gumby: <http://gumbyframework.com/>

Maxmertkit: <http://www.maxmert.com/>

Responsive Grid System:

<http://www.responsivegridsystem.com/>

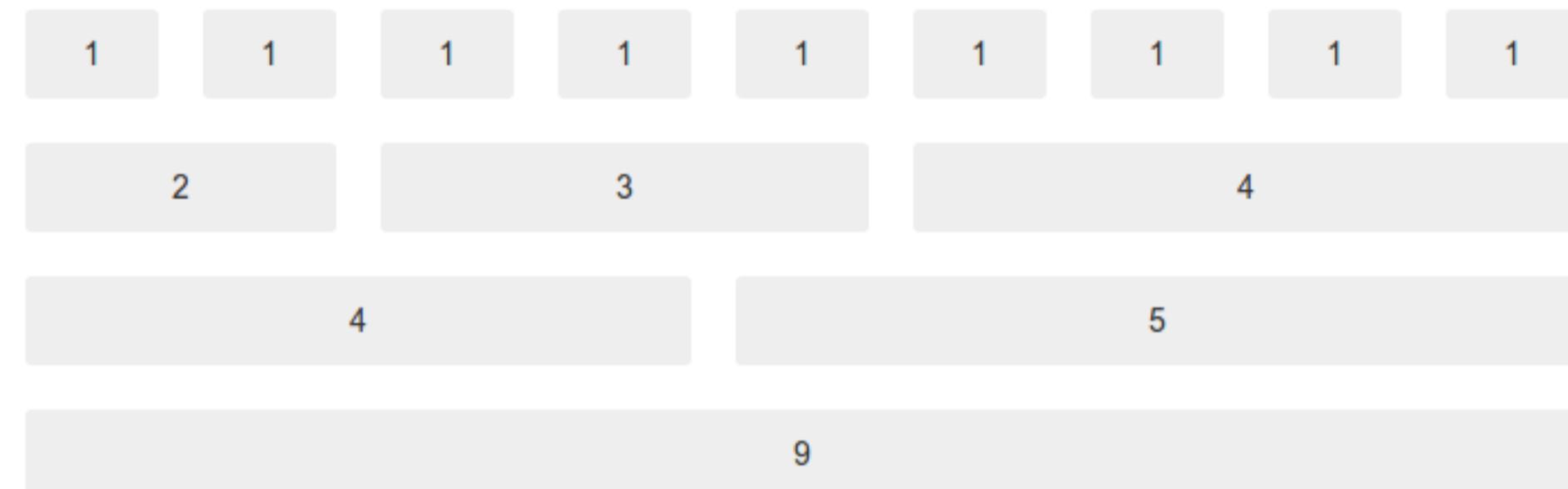
Base: <http://matthewhartman.github.com/base/>



BOOTSTRAP | SCAFFOLDING

Live grid example

The default Bootstrap grid system utilizes **12 columns**, making for a 940px wide container without [responsive features](#) enabled. With the responsive CSS file added, the grid adapts to be 724px and 1170px wide depending on your viewport. Below 767px viewports, the columns become fluid and stack vertically.



<http://twitter.github.io/bootstrap/scaffolding.html>

BOOTSTRAP | BASE CSS

Default styles

For basic styling—light padding and only horizontal dividers—add the base class `.table` to any `<table>`.

Example

#	First Name	Last Name	Username
1	Mark	Otto	@mdo
2	Jacob	Thornton	@fat
3	Larry	the Bird	@twitter

```
1. <table class="table">
2. ...
3. </table>
```

<http://twitter.github.io/bootstrap/base-css.html>

BOOTSTRAP | COMPONENTS

Overview and examples

Use any button to trigger a dropdown menu by placing it within a `.btn-group` and providing the proper menu markup.

Example

Action ▾ Action ▾ Danger ▾ Warning ▾ Success ▾ Info ▾ Inverse ▾

Action

Another action

Something else here

Separated link

```
1. <div c
2.   <a c
3.     Ac
4.     <s
5.       </a>
6.       <ul class="dropdown-menu">
7.         <!-- dropdown menu links -->
8.       </ul>
9.     </div>
```

<http://twitter.github.io/bootstrap/components.html>

BOOTSTRAP | CUSTOMIZABLE

3. Customize variables

[Reset to defaults](#)

Scaffolding

@bodyBackground

@white

@textColor

@grayDark

Links

@linkColor

#08c

Typography

@sansFontFamily

'Helvetica Neue', Helvetica, I

@serifFontFamily

Georgia, 'Times New Roman', T:

@monoFontFamily

Menlo, Monaco, 'Courier New',

@baseFontSize

14px

Form states &

alerts

@warningText

#c09853

@warningBackground

#fcf8e3

@errorText

#b94a48

@errorBackground

<http://twitter.github.io/bootstrap/customize.html#variables>

<http://lesscss.org/>

```
@base: #f938ab;

.box-shadow(@style, @c) when (iscolor(@c)) {
  box-shadow:      @style @c;
  -webkit-box-shadow: @style @c;
  -moz-box-shadow:   @style @c;
}
.box-shadow(@style, @alpha: 50%) when (isnumber(@alpha)) {
  .box-shadow(@style, rgba(0, 0, 0, @alpha));
}
.box {
  color: saturate(@base, 5%);
  border-color: lighten(@base, 30%);
  div { .box-shadow(0 0 5px, 30%) }
}
```

LESS | VARIABLES

```
@nice-blue: #5B83AD;  
@light-blue: (@nice-blue + #111);  
  
#header { color: @light-blue; }
```

css output:

```
#header { color: #6c94be; }
```

<http://lesscss.org/#-variables>

LESS | MIXINS

```
.bordered {  
    border-top: dotted 1px black;  
    border-bottom: solid 2px black;  
}
```

mix in:

```
#menu a {  
    color: #111;  
    .bordered;  
}  
.post a {  
    color: red;  
    .bordered;  
}
```

<http://lesscss.org/#-mixins>

LESS | PARAMETRIC MIXINS

```
.border-radius (@radius) {  
    border-radius: @radius;  
    -moz-border-radius: @radius;  
    -webkit-border-radius: @radius;  
}
```

mix in:

```
#header {  
    .border-radius(4px);  
}  
.button {  
    .border-radius(6px);  
}
```

<http://lesscss.org/#-parametric-mixins>

LESS | NESTING

```
#header {  
    color: black;  
}  
#header .navigation {  
    font-size: 12px;  
}  
#header .logo {  
    width: 300px;  
}  
#header .logo:hover {  
    text-decoration: none;  
}
```

```
#header {  
    color: black;  
  
    .navigation {  
        font-size: 12px;  
    }  
  
    .logo {  
        width: 300px;  
        &:hover {text-decoration: none}  
    }  
}
```

<http://lesscss.org/#-nested-rules>

LESS | OPERATIONS

```
@base: 5%;  
@filler: (@base * 2);  
@other: (@base + @filler);  
  
color: (#888 / 4);  
background-color: (@base-color + #111);  
height: (100% / 2 + @filler);
```

<http://lesscss.org/#-operations>

LESS | BUILT-IN FUNCTIONS

```
@base: #f04615;  
@width: 0.5;  
  
.class {  
  width: percentage(0.5); // returns `50%`  
  color: saturate(@base, 5%);  
  background-color: spin(lighten(@base, 25%), 8);  
}
```

<http://lesscss.org/#-functions>

COMPILING LESS

Javascript:

- less.js

Java (less.js via rhino):

- lesscss-java
- wro4j

Overview:

RichFaces is a component library for JSF and an advanced framework for easily integrating AJAX capabilities into business applications.

- 100+ AJAX enabled components in two libraries
- a4j: page centric AJAX controls
- rich: self contained, ready to use components
- Whole set of JSF benefits while working with AJAX
- Dynamic resources handling
- Testing facilities for components, actions, listeners, and pages
- Large and active community



JSF 2 and RichFaces 4:

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JSF 2 and RichFaces 4:

```
@import "lib/bootstrap/less/variables.less";
@import "lib/bootstrap/less/mixins.less";

.skin {

    .rf-ac, .rf-ac-itm-hdr, .rf-ac-itm-cnt, .rf-ac-itm-hdr {
        font-size: @baseFontSize;
        font-family: @baseFontFamily;
        line-height: @baseLineHeight;
        border-color: @navbarBorder;
        background-color: @white;
        border: none;
    }

    .rf-ac {
        border: 1px solid @navbarBorder;
        border-top: none;
        .border-radius(@baseBorderRadius);
        overflow:hidden;
    }

    .rf-ac-itm-hdr {
        border-top: 1px solid @navbarBorder;
        background-image: none;
        padding: 5px 15px;
        color: @linkColor;
    }

    .rf-ac-itm-cnt {
        border-top: 1px solid @navbarBorder;
        padding: 10px 16px;
    }
}
```

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@import "lib/bootstrap/less/variables.less";
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    .rf-ac, .rf-ac-itm-hdr, .rf-ac-itm-cnt, .rf-ac-itm-hdr {
        font-size: @baseFontSize;
        font-family: @baseFontFamily;
        line-height: @baseLineHeight;
        border-color: @navbarBorder;
        background-color: @white;
        border: none;
    }

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    .rf-ac-itm-hdr {
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        background-image: none;
        padding: 5px 15px;
        color: @linkColor;
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        border-top: 1px solid @navbarBorder;
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```

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        line-height: @baseLineHeight;
        border-color: @navbarBorder;
        background-color: @white;
        border: none;
    }

    .rf-ac {
        border: 1px solid @navbarBorder;
        border-top: none;
        .border-radius(@baseBorderRadius);
        overflow:hidden;
    }

    .rf-ac-itm-hdr {
        border-top: 1px solid @navbarBorder;
        background-image: none;
        padding: 5px 15px;
        color: @linkColor;
    }

    .rf-ac-itm-cnt {
        border-top: 1px solid @navbarBorder;
        padding: 10px 16px;
    }
}
```

```
@import "lib/bootstrap/less/variables.less";
@import "lib/bootstrap/less/mixins.less";

.skin {

    .rf-ac, .rf-ac-item-hdr, .rf-ac-item-cnt, .rf-ac-item-hdr {
        font-size: @baseFontSize;
        border-radius: @baseBorderRadius;
        border: 1px solid @navbarBorder;
        padding: 10px 16px;
        color: @linkColor;
        background-color: @white;
        border-bottom: 1px solid @navbarBorder;
    }

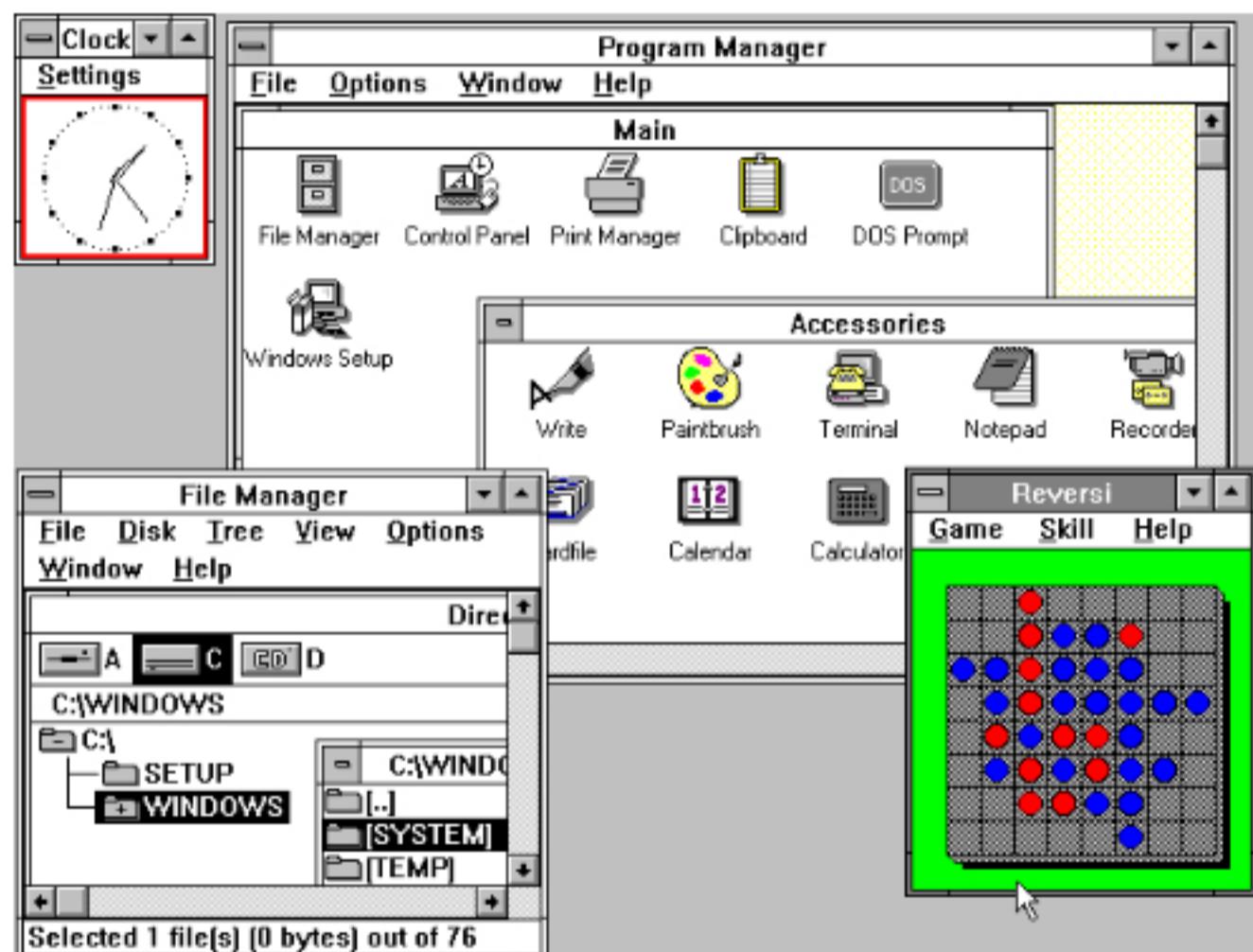
    .rf-ac-item-hdr {
        border-top: none;
        border-radius: 0 0 0 0;
        padding: 5px 15px;
        color: @linkColor;
        background-color: @white;
        border: 1px solid @navbarBorder;
        border-bottom: none;
    }

    .rf-ac-item-cnt {
        border-top: none;
        border-radius: 0 0 0 0;
        padding: 10px 16px;
        color: @linkColor;
        background-color: @white;
        border: 1px solid @navbarBorder;
    }
}
```

DEMO

<http://localhost:8000/accordion.html#!watch>

... AND FEEL



- Behaviour
- "Moving" parts

JSF COMPONENTS



RichFaces



ICEfaces
ICEfaces



OpenFaces



ORACLE®

GWT LIBRARIES



GWT built-in components

Sencha GXT

GWT Components Library

GWT-EXT

Rocket GWT

Tatami

SmartGWT

Vaadin

HTML 5 WIDGETS



jQuery UI
Kendo UI
jQWidgets
YUI
jQuery TOOLS
Sencha Ext JS

JQUERY UI

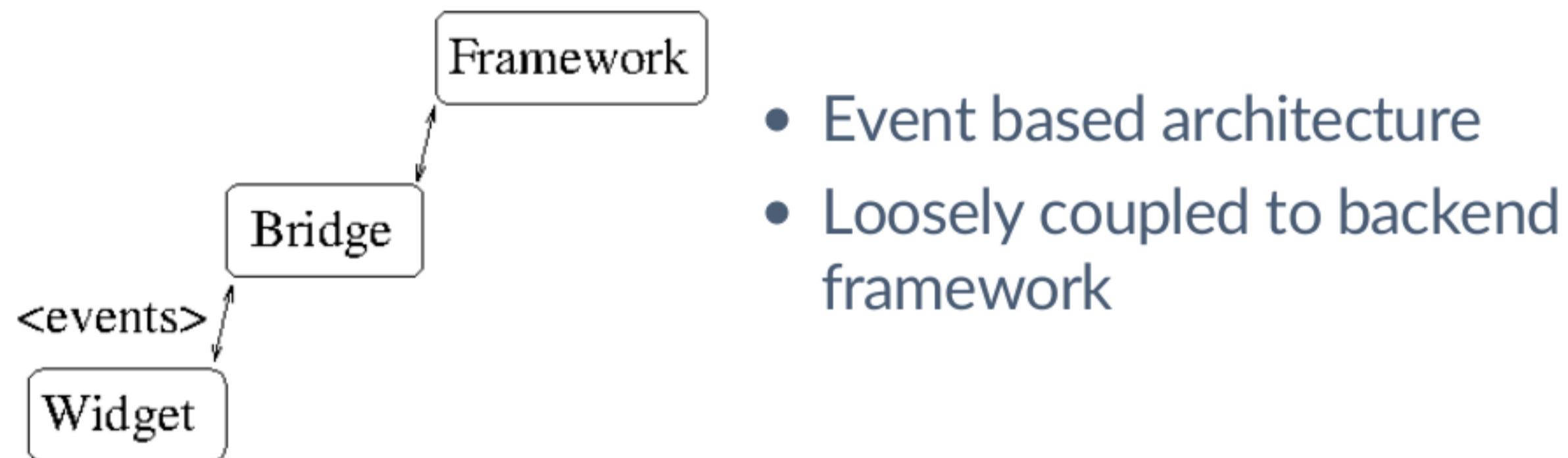
RICHFACES WIDGETS



- Standalone javascript widgets
- Framework independent
- <http://www.w3.org/TR/NOTE-HTMLComponents>
- Used in RichFaces 5

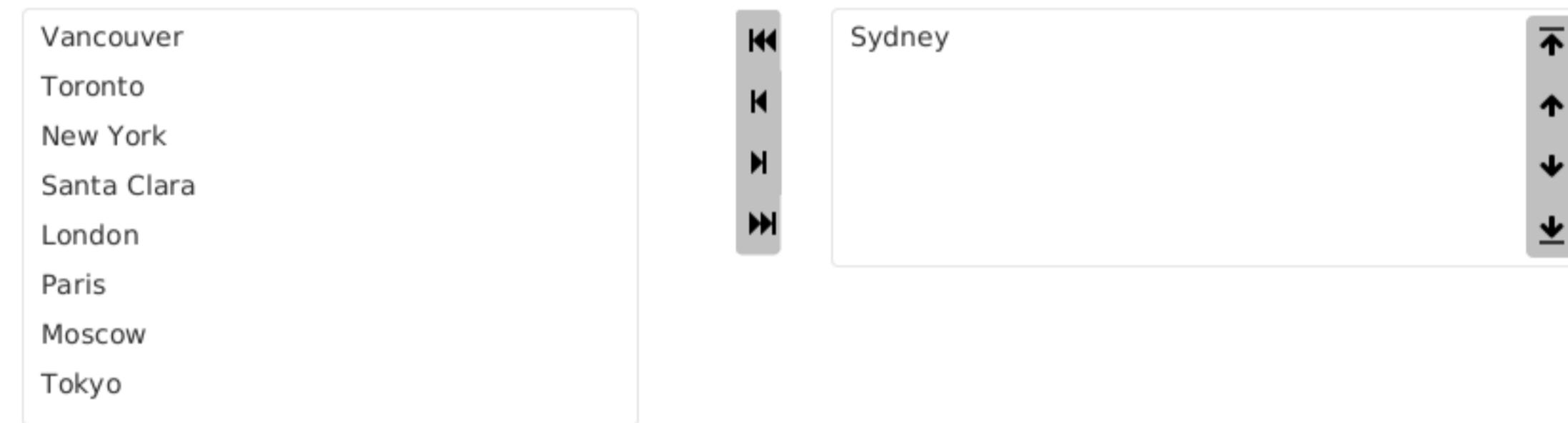
<https://github.com/richfaces/richfaces-widgets>

RICHFACES WIDGETS



EXAMPLE

PickList Widget:



SERVER-SIDE



- Shared server state
- Consistent programming model
- Front-end independent

SERVER-SIDE



- Shared server state
- Consistent programming model
- Front-end independent

CDI

CDI | DEPENDENCY INJECTION

Retrieve a contextual instance of a Bean

```
public class CapitalsObserver {  
    @Inject  
    CapitalsBean capitalsBean;  
  
    @Inject @Push(topic = "capitalsSelected")  
    private Event jsfEvent;  
  
    ...  
}
```

CDI | CONTEXTS

Scope:

- determines lifecycle of instances
- maps clients to instances

Context:

- implements the scope

`@SessionScoped` `@RequestScoped` `@DependentScoped`
`@ConversationScoped` `@ApplicationScoped`

CDI | CONTEXTS

```
...
@SessionScoped
public class CapitalsBean {
    ...
    @PostConstruct
    public void init() {
        selectedCapitals = new ArrayList();
        selectedCapitals.add(capitals.get(0));
    }
    ...
}
```

CDI | EVENTS

Event producer:

```
public class CapitalsBean {  
    @Inject @Server  
    private Event serverEvent;  
    ...  
    public void setSelectedCapitals(List selected) {  
        this.selectedCapitals = selected;  
        serverEvent.fire(new CapitalsSelected(selected));  
    }  
}
```

CDI | EVENTS

Event observer:

```
public class CapitalsObserver {  
  
    public void observeClientEvent(  
        @Observes @Client  
        CapitalsSelected capitalsSelected) {  
        ...  
    }  
  
    public void observeServerEvent(  
        @Observes @Server  
        CapitalsSelected capitalsSelected) {  
        ...  
    }  
}
```

SERVER SENT EVENTS

RichFaces

RichFaces Push

Errai

Errai RPC

HTML 5/Javascript

Atmosphere Framework

CREDITS

<http://openclipart.org/detail/22860/money-bag-icon-by-chovynz>

<http://openclipart.org/detail/29356/bug-by-ddoo>

<http://openclipart.org/detail/171299/indecisive-silhouette.svg-by-tulvur-171299>

<http://openclipart.org/detail/89245>

http://commons.wikimedia.org/wiki/File:Windows_3.1x_Captura.jpg



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Based on a work at [github.com](https://github.com/bleathem/talks/tree/master/2013-JAX).

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FURTHER READING

Blog

<http://www.bleathem.ca/blog/2012/11/polyglot-widgets.html>

Source

<https://github.com/bleathem/polyglot-widgets>

richfaces-widgets

<https://github.com/richfaces/richfaces-widgets>

STAY IN THE LOOP

Project:	http://richfaces.org/
Twitter (me):	@bleathem
Google+:	+RichFaces
Forums:	RichFaces User Forum
IRC	#richfaces
Slides:	http://www.bleathem.ca/talks/2013-JAX