

Cross-Platform Mobile Apps with HTML, JavaScript, and PhoneGap

Christophe Coenraets
@ccoenraets

Resources



@ccoentraets



<http://coentraets.org>



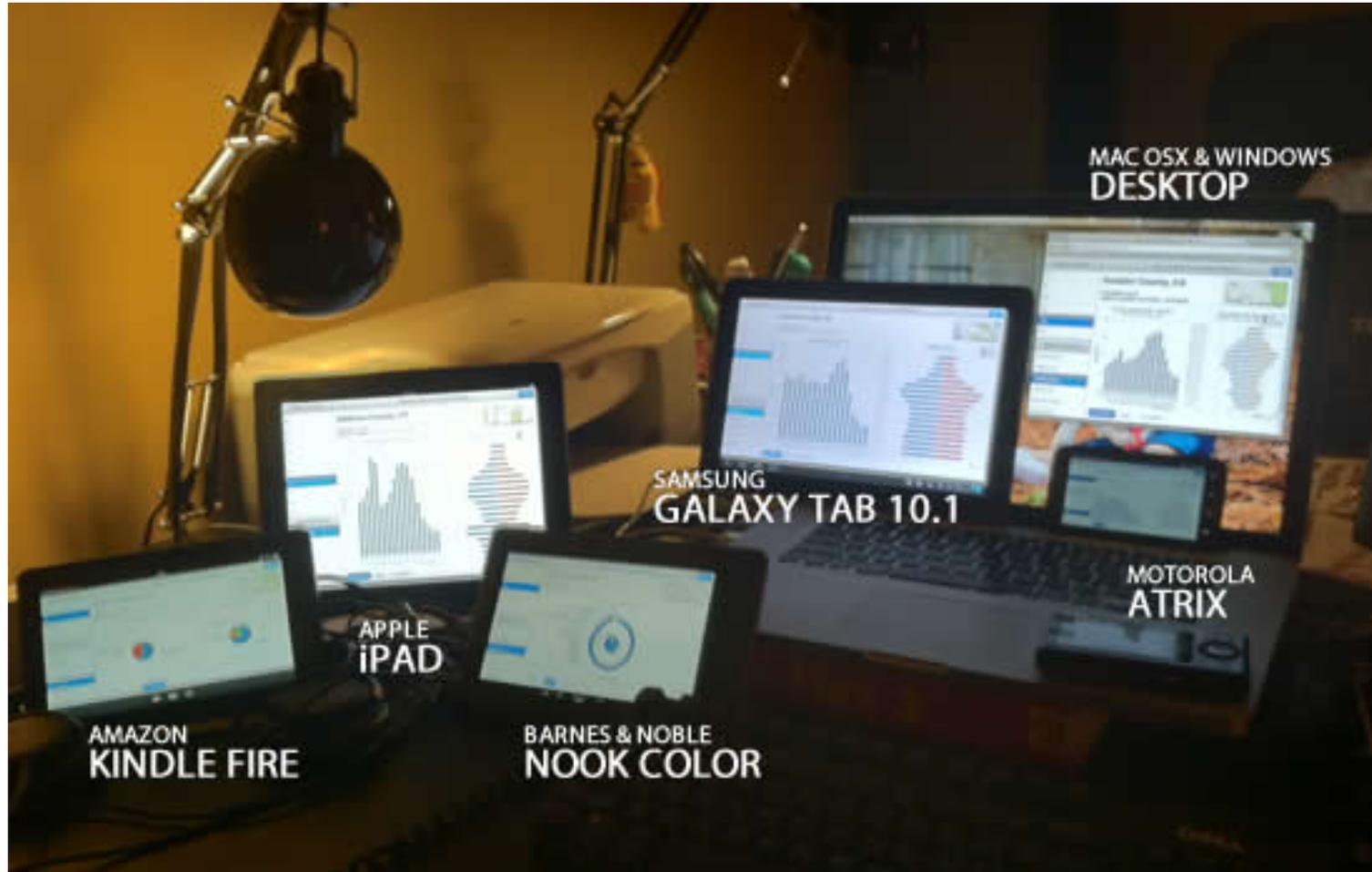
<http://github.com/coentraets>



ccoentrae@adobe.com

What?

Mobile Application Development Challenge



The “Gap”



Phone**Gap**

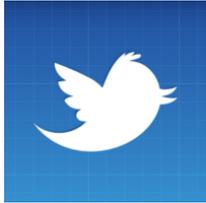
- § Package HTML/JS/CSS assets as **Native Application**
- § Expose **device capabilities** as JavaScript APIs consistent across platforms

The “Gap”



- § PhoneGap is a “wrapper” and a “bridge”
- § PhoneGap is *NOT*:
 - § A full-stack JavaScript framework
 - § An architectural framework
 - § A UI framework

PhoneGap works with any Framework

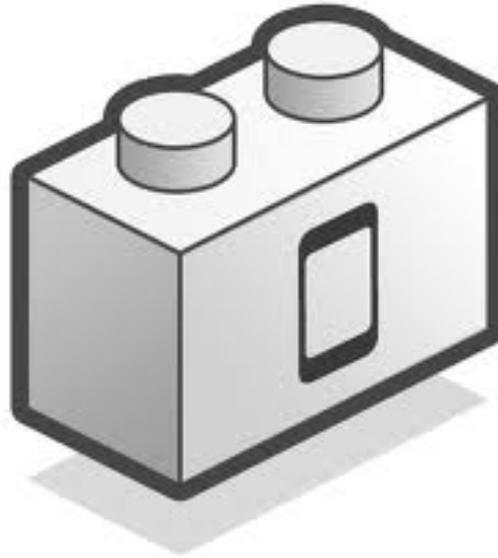


Access to Device Features

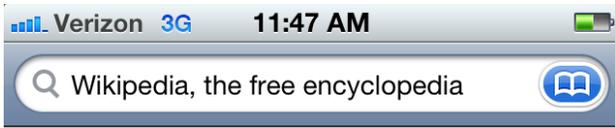
	 iOS iPhone / iPhone 3G	 iOS iPhone 3GS and newer	 Android	 OS 4.6-4.7	 OS 5.x	 OS 6.0+	 WebOS	 WP7	 Symbian	 Bada
ACCELEROMETER	✓	✓	✓	✗	✓	✓	✓	✓	✓	✓
CAMERA	✓	✓	✓	✗	✓	✓	✓	✓	✓	✓
COMPASS	✗	✓	✓	✗	✗	✗	✗	✓	✗	✓
CONTACTS	✓	✓	✓	✗	✓	✓	✗	✓	✓	✓
FILE	✓	✓	✓	✗	✓	✓	✗	✓	✗	✗
GEOLOCATION	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
MEDIA	✓	✓	✓	✗	✗	✗	✗	✓	✗	✗
NETWORK	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NOTIFICATION (ALERT)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NOTIFICATION (SOUND)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
NOTIFICATION (VIBRATION)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
STORAGE	✓	✓	✓	✗	✓	✓	✓	✓	✓	✗

What if you need more?

- § PhoneGap is extensible with Plugins model that enables you to write your own native logic to access via JavaScript
- § All phonegap APIs are plugins
- § There are lots of open source plugins at <https://github.com/phonegap/phonegap-plugins>



DEMO: What does a PhoneGap app look like?



Today's featured article

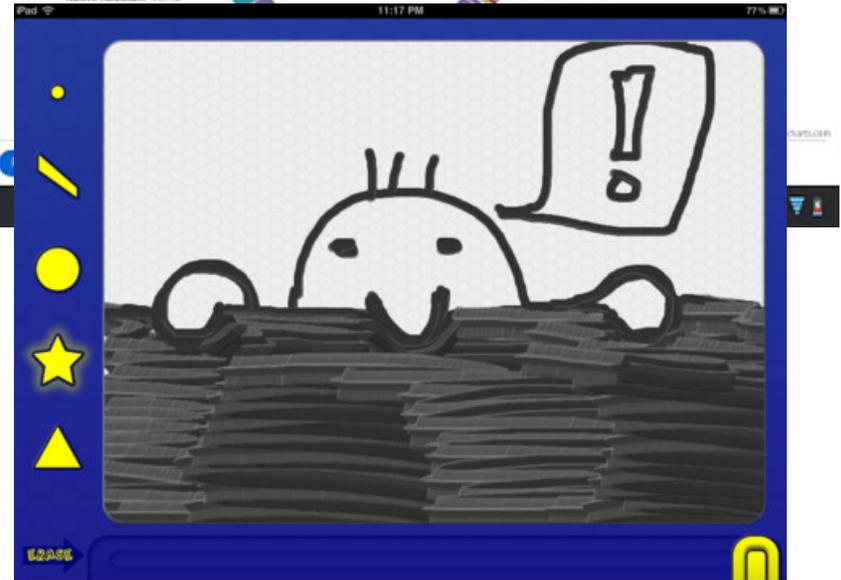
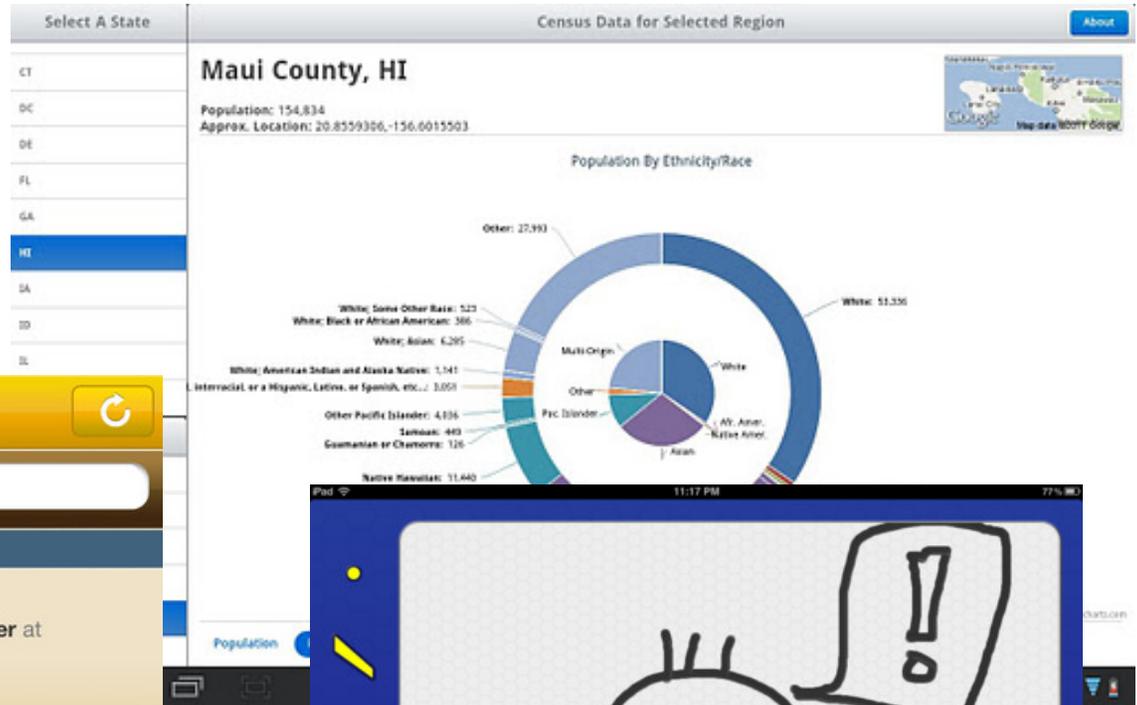
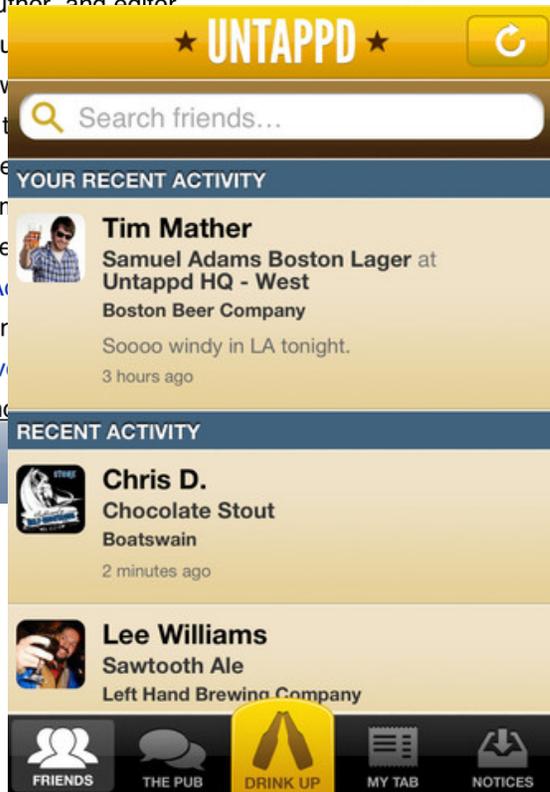


W. E. B. Du Bois (1868–1963)

was an American [civil rights](#) activist, author, and editor.

After graduation from Fiske University where he was the first African American to graduate, he became

professor of history, sociology, and economics at Fiske University. Du Bois, one of the founders of the [National Association for the Advancement of Colored People](#), rose to national prominence as the leader of the [Niagara Movement](#) and the [African-American](#) activists who

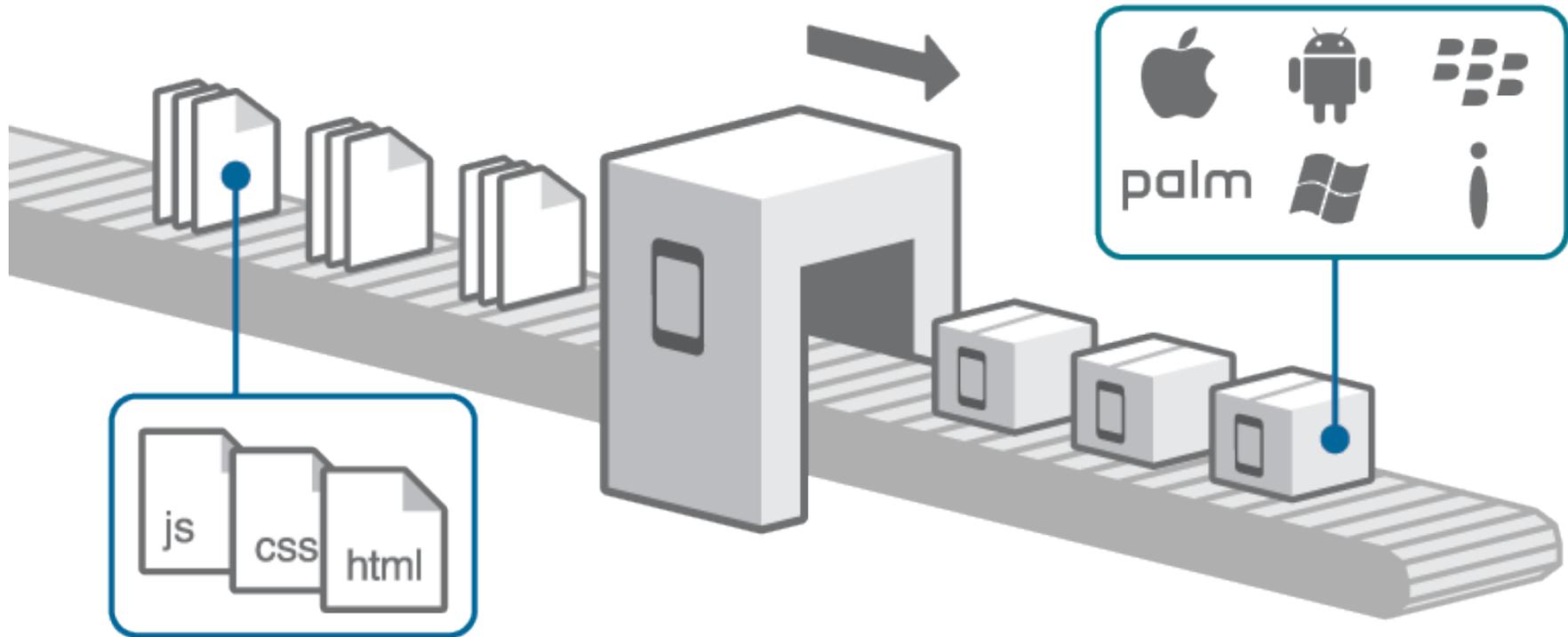




Apache Cordova is a platform for building native mobile application using **HTML, CSS** and **JavaScript**

- § PhoneGap/Cordova was contributed to Apache by Adobe
- § You can get involved today!

<http://incubator.apache.org/cordova/>



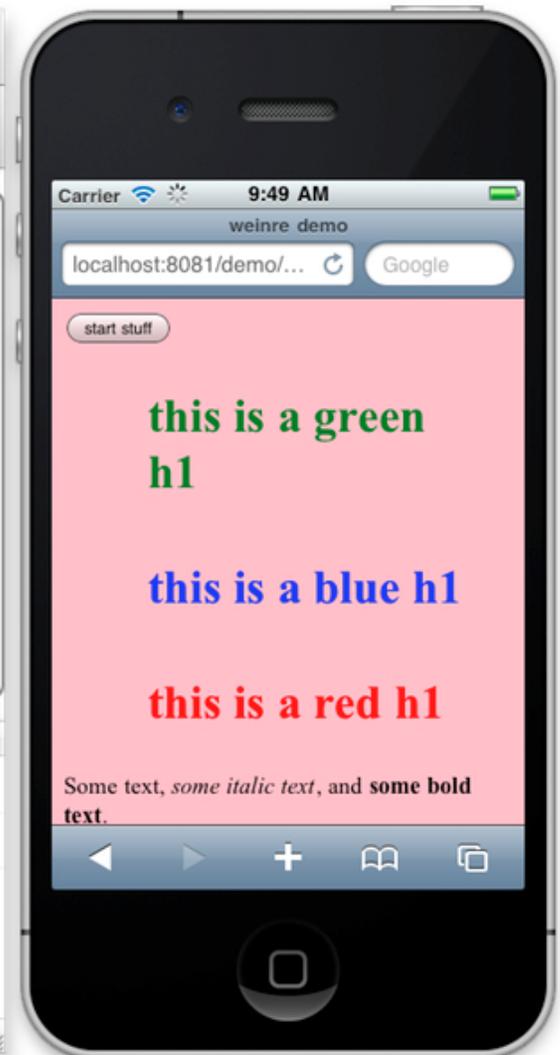
- § Continuous deployment
- § No SDK required
- § GitHub compatible
- § Remote debugging

Debugging with Weinre

The screenshot shows the Weinre web interface. The top navigation bar includes 'Remote', 'Elements', 'Resources', 'Network', 'Timeline', and 'Console'. The main content area is divided into three sections:

- HTML:** Shows the source code of the page. The selected element is `<h1 class="blue">this is a blue h1</h1>`.
- Computed Style:** Displays the styles for the selected element. The 'Matched CSS Rules' section shows:

```
.blue {
  color: blue;
}
h1 {
  color: green;
  margin: 0.5em;
  margin-left: 1em;
  padding: 0.4em;
  padding-left: 0.8em;
}
```
- JavaScript Console:** Shows the execution of `document.body.style.backgroundColor = "pink"`.

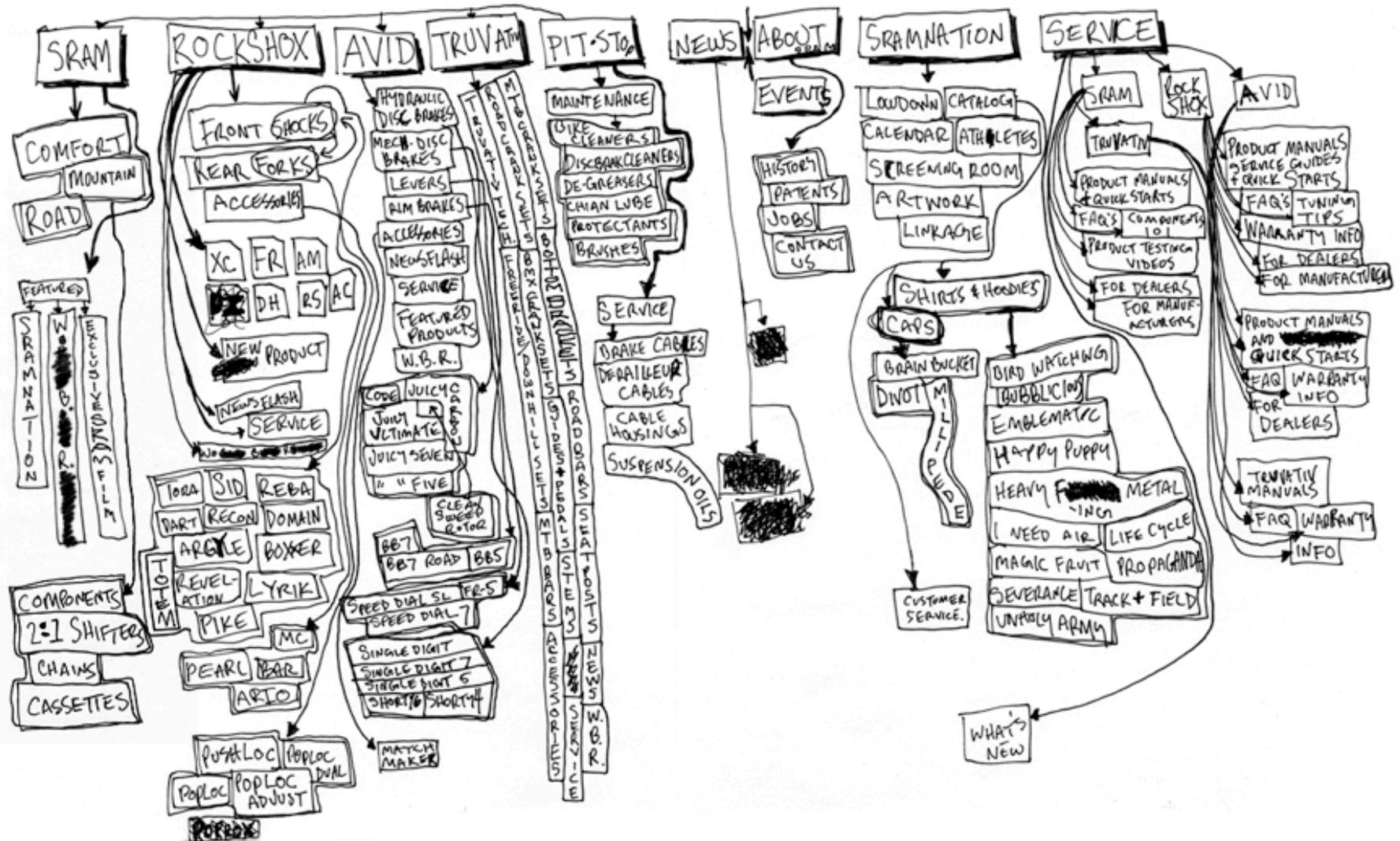


How?

Before

sitemap

Every single page we have



After: “Single Page App”

```
<html>
```

```
<head>
```

```
  <title>My Huge App</title>
```

```
  <script src="my-huge-app.js"></script>
```

```
</head>
```

```
</body><body>
```

```
</html>
```

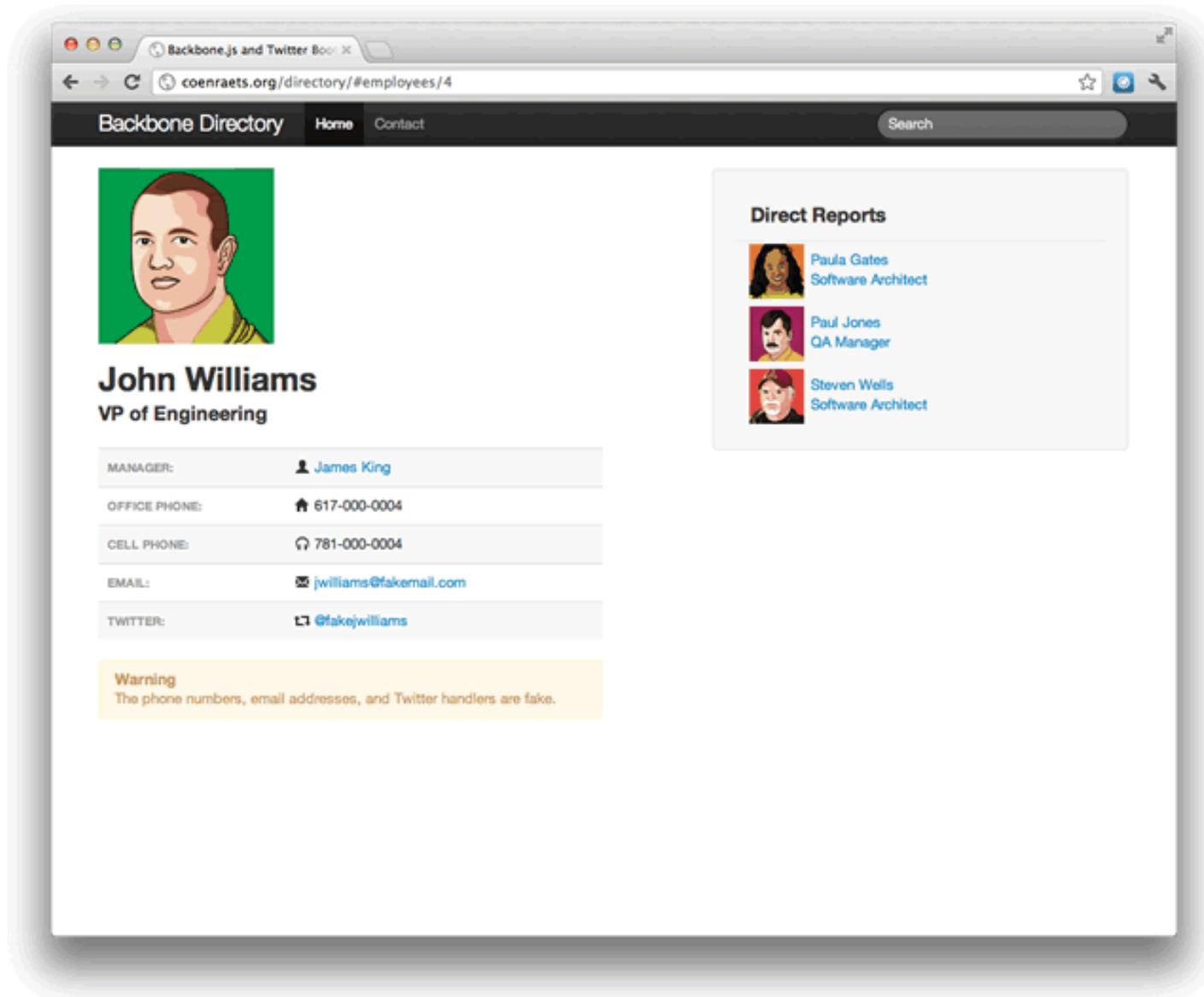
Characteristics of a Single Page App

- § Views are built dynamically
- § Templates to the rescue
- § History handled by # or push state
- § Data obtained through RESTful JSON, JSONP services
- § Structure / Patterns needed to handle complexity

Choosing a stack



Example: Backbone Directory



<http://github.com/ccoenraets/backbone-directory>

Backbone.js Routing

```
1 var AppRouter = Backbone.Router.extend({
2
3   routes:{
4     "":"list",
5     "employees/:id":"employeeDetails"
6   },
7
8   list:function () {
9     var employeeList = new EmployeeCollection();
10    $('#content').html(new EmployeeListView({model: employeeList}).render().el);
11  },
12
13  employeeDetails:function (id) {
14    var employee = new Employee({id:id});
15    employee.fetch();
16    $('#content').html(new EmployeeView({model: employee}).render().el);
17  }
18 });
```

Backbone.js Models and REST

```
1 window.Employee = Backbone.Model.extend({
2     urlRoot: "/backbone-directory/api/employees"
3 });
4
5 window.EmployeeCollection = Backbone.Collection.extend({
6     model: Employee,
7     url: "/backbone-directory/api/employees"
8 });
```

Employee Directory RESTful API

HTTP Method	URL
GET	api/employees/1
POST	api/employees
DELETE	api/employees/1

Backbone.js Views

```
1 window.EmployeeView = Backbone.View.extend({
2
3     template:_.template($('#tpl-wine-details').html()),
4
5     initialize:function () {
6         this.model.bind("change", this.render, this);
7     },
8
9     render:function (eventName) {
10        $(this.el).html(this.template(this.model.toJSON()));
11        return this;
12    },
13
14    events:{
15        "click .save":"saveWine"
16    },
17
18    saveWine:function () {
19        this.model.set({ name:$('#name').val()});
20        this.model.save();
21        return false;
22    }
23 });|
```

Templates: Before

```
$('#employeePic').attr('src', 'pics/' + employee.firstName + '_' + employee.lastName + '.jpg');
$('#fullName').text(employee.firstName + ' ' + employee.lastName);
$('#employeeTitle').text(employee.title);
$('#city').text(employee.city);
if (employee.managerId>0) {
    $('#actionList').append('<li><a href="employeeDetails.html?id=' + employee.managerId + '"><p class="line1">View Manager</p>' +
        '<p class="line2">' + employee.managerFirstName + ' ' + employee.managerLastName + '</p></a></li>');
}
if (employee.reportCount>0) {
    $('#actionList').append('<li><a href="reportList.html?id=' + employee.id + '"><p class="line1">View Direct Reports</p>' +
        '<p class="line2">' + employee.reportCount + '</p></a></li>');
}
if (employee.email) {
    $('#actionList').append('<li><a href="mailto:' + employee.email + '"><p class="line1">Email</p>' +
        '<p class="line2">' + employee.email + '</p></a></li>');
}
if (employee.officePhone) {
    $('#actionList').append('<li><a href="tel:' + employee.officePhone + '"><p class="line1">Call Office</p>' +
        '<p class="line2">' + employee.officePhone + '</p></a></li>');
}
if (employee.cellPhone) {
    $('#actionList').append('<li><a href="tel:' + employee.cellPhone + '"><p class="line1">Call Cell</p>' +
        '<p class="line2">' + employee.cellPhone + '</p></a></li>');
    $('#actionList').append('<li><a href="sms:' + employee.cellPhone + '"><p class="line1">SMS</p>' +
        '<p class="line2">' + employee.cellPhone + '</p></a></li>');
}
```

Templates: After

```
<div>
  
  <div class="employee-details">
    <h3><%= firstName %> <%= lastName %></h3>
    <p><%= title %></p>
  </div>

  <ul class="action-list">
    <% if (managerLastName) { %>
    <li><a href="#employees/<%= managerId %>"><h3>View Manager</h3><p><%= managerName %></p></a></li>
    <% } %>
    <li><a href="#employees/<%= id %>/reports"><h3>View Direct Reports</h3><p><%= reportCount %></p></a></li>
    <li><a href="tel:<%= officePhone %>"><h3>Call Office</h3><p><%= officePhone %></p></a></li>
    <li><a href="tel:<%= cellPhone %>"><h3>Call Cell</h3><p><%= cellPhone %></p></a></li>
    <li><a href="sms:<%= cellPhone %>"><h3>SMS</h3><p><%= cellPhone %></p></a></li>
    <li><a href="mailto:<%= email %>"><h3>Email</h3><p><%= email %></p></a></li>
  </ul>
</div>
```

§ Check out Mustache.js, Underscore.js, Handlebar.js, etc

Resources



@ccoentraets



<http://coentraets.org>



<http://github.com/coentraets>



ccoentrae@adobe.com