BPM + Mobile

Building a hybrid mobile app for BPM

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Agenda

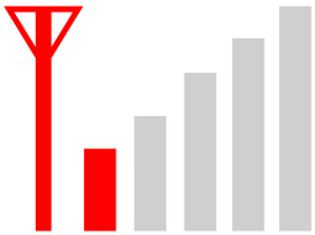
- Why mobile?
- Unique challenges of mobile
- 3 options for mobile BPM
- How we leveraged the MobileFirst Platform
- Our demo scenario
- The demo
- How we built the app
- Next steps and useful resources

Why build a mobile BPM application?

- Enhance new or existing business processes
- Access tasks or cases on the move
- Improve process completion time
- Enrich your business processes with
  - Images
  - Video
  - Contextual information
    - Geolocation
    - Sensor data
- Work offline

There are some unique challenges when building mobile apps

- Devices aren't always online
- They have limited battery and network capacity
- Our apps can be interrupted in unexpected ways
  - SMS
  - Calls
  - Notifications
- Apps can be run on a plethora of devices and screen sizes
- How do we secure data being stored on the device?
- Developing, supporting and maintaining apps on X number of platforms



3 options for mobile BPM

Browser Access

Written in HTML5 JavaScript and CSS3. Quick and cheap to develop, but less powerful than native.

Browser Access

Hybrid Apps – Web

HTML5 code and Worklight runtime libraries packaged within the app and executed in a native shell.

Downloadable

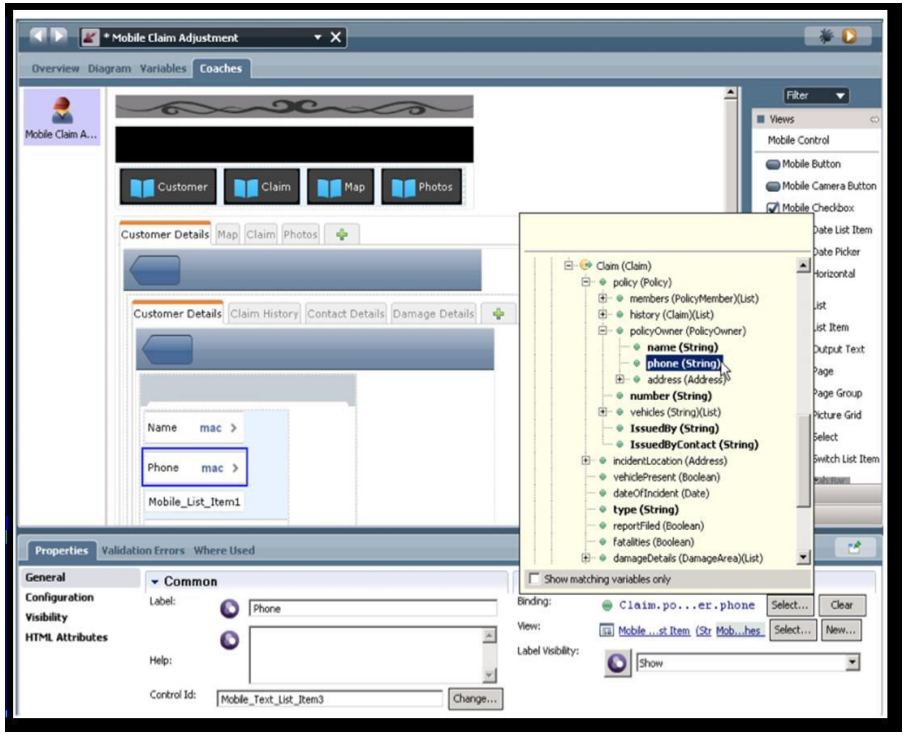
Native Apps

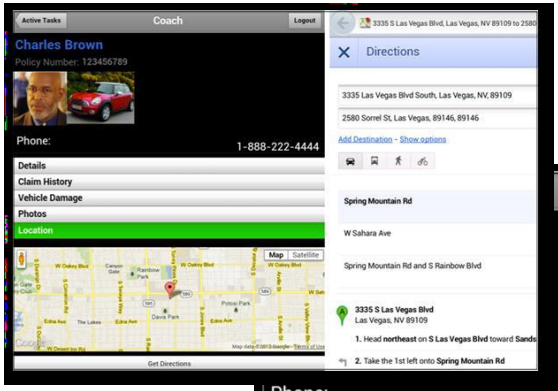
Platform-specific. Requires unique expertise, pricy and long to develop. Can deliver higher user experience.

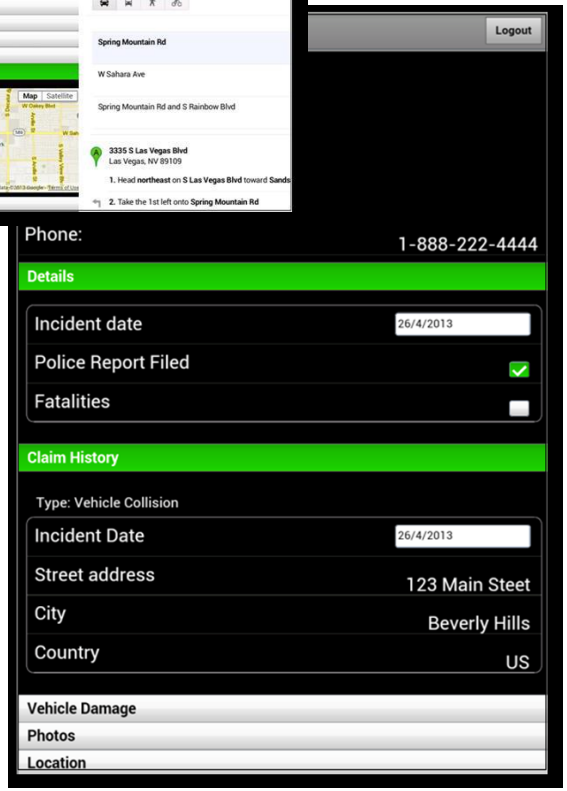
Downloadable

The coach is built within Process Designer and is surfaced to the mobile app

- Tasklist is retrieved via REST
- App accesses coach via iFrame
- Task view/Coach is implemented in BPM







The coach view is built within Process Designer and is surfaced to the mobile app(cont)

Advantages

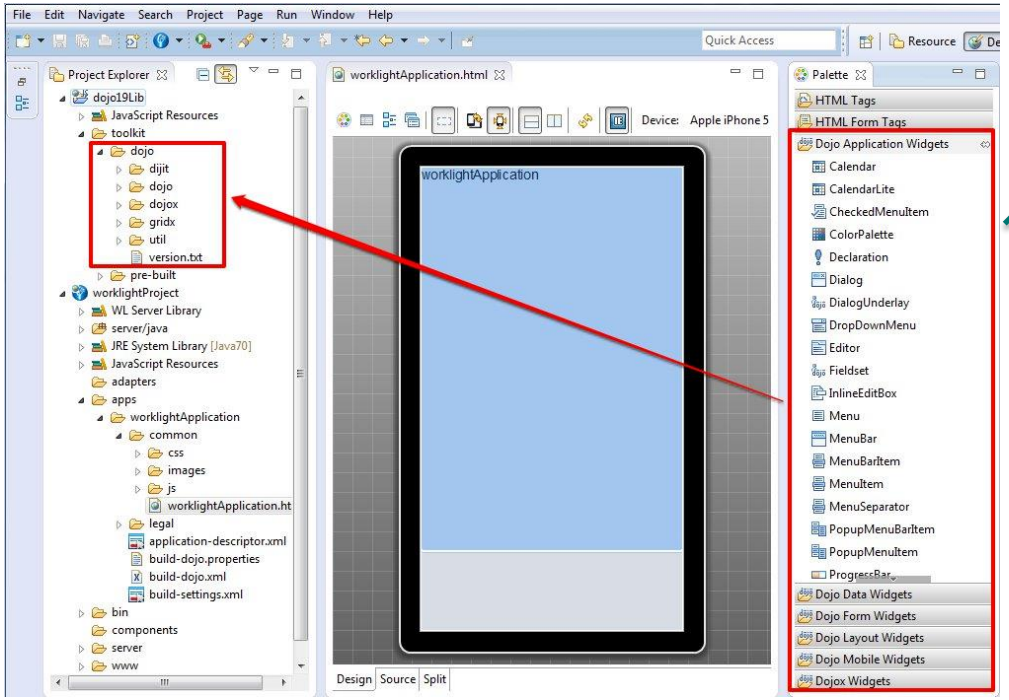
- One app to do all. Support new tasks without changing app
- Task view is implemented with the process
- Faster implementation

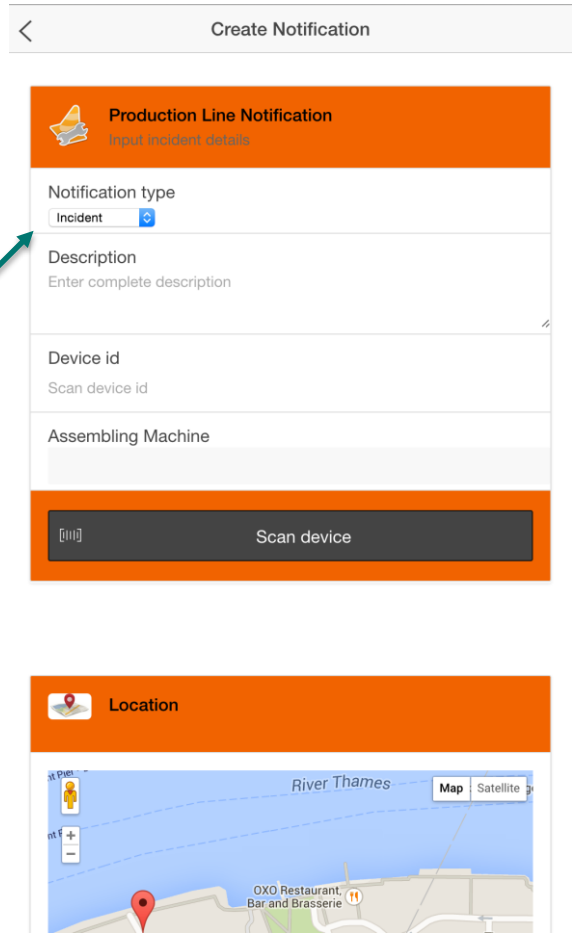
Disadvantages

- Requires direct http access from app to BPM Portal.
- No offline task processing possible
- Harder to to use device functionality e.g Camera
- Harder to optimise for Mobile usage e.g Reduce mobile services traffic

The coach view is built within the mobile app and the IBM BPM Rest API's are used to surface the data

- Tasklist is retrieved via REST
- Task info is accessed via REST
- Coach is rendered in the app
- Task view is implemented in the mobile app





The Coach view is built within the Mobile platform and the IBM BPM Rest APIs are used to surface the data(cont)

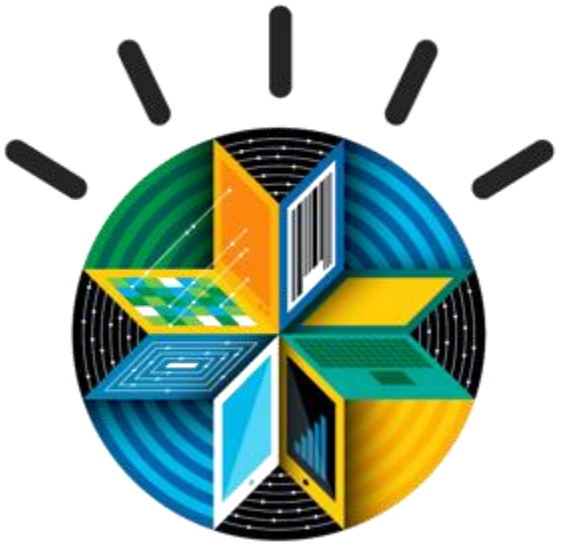
Advantages

- Richer UI possible
- Access to device native functions
- Offline possible
- Process optimised for mobile
- No need to access HTML over the air. Some security advantages

Disadvantages

- App needs to be extended for new tasks
- Separation between task and process development
- Task versioning might be required
- Data mapping (task <-> UI) needs to be implemented by hand

How can the MobileFirst Platform help?



- Build HTML5, hybrid or fully native apps
- Use the cross platform SDK's to help with
  - Geolocation
  - Device network status
- JSON store is an encrypted on device object store for keeping information securely on a device
- Use the security framework to handle access to protected resources such as a REST endpoint or SOAP web service.

Storyboard: Manufacturing incident management

Maintenance Expert

1

Fault detected and remediation process launched

Production Line breaks down. The ME is made aware, creates an Incident and an alert notifies the Maintenance Manager.

Maintenance Manager

2

Receives notification and dispatches a Service Engineer

The Maintenance Manager dispatches a Service Engineer on site.

This failure causes the production to stop so MM raises a critical situation.

Service Engineer

3

Reviews, makes a diagnostic on site, orders spare parts

The service engineer assesses problem and orders spare parts.

Spare parts urgent delivery to fix the critical situation.

Service Engineer On Site

4

Service Engineer Repairs fault.

Service Engineer collects spare parts, repairs the fault and provides the new status of the production line

Maintenance Manager

5

Reviews Status and closes incident.

Maintenance Manager assesses the new status of the Production Line and closes the incident and the critical situation.

Time for a demo…

How did we build the Incident Management app?

UI framework provides:

- CSS/JS framework
- Responsive grid
- Modal dialogs
- Forms
- Typography

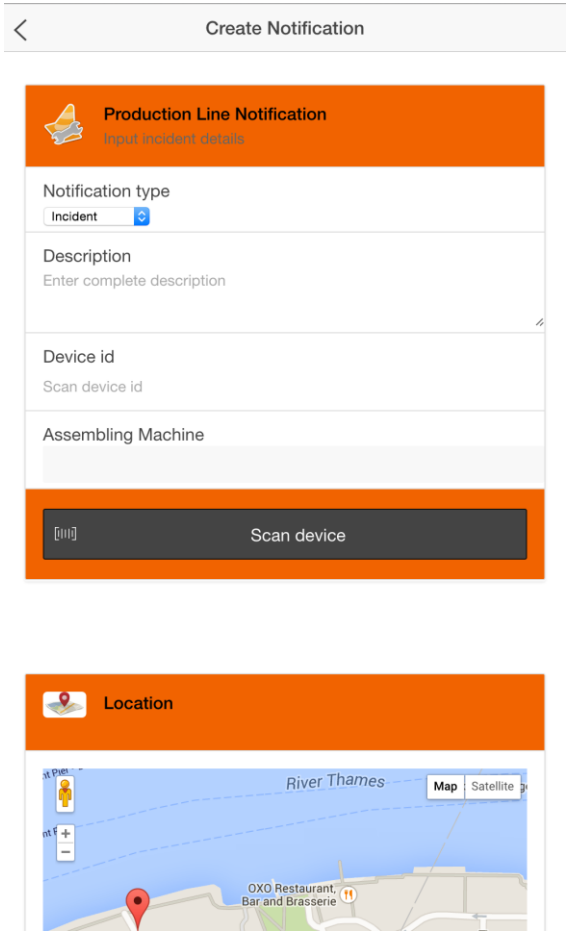
App dev framework provides:

- 1 or 2 way data-binding
- HTML templates
- App modularisation
- Reusable services
- Dependency injection

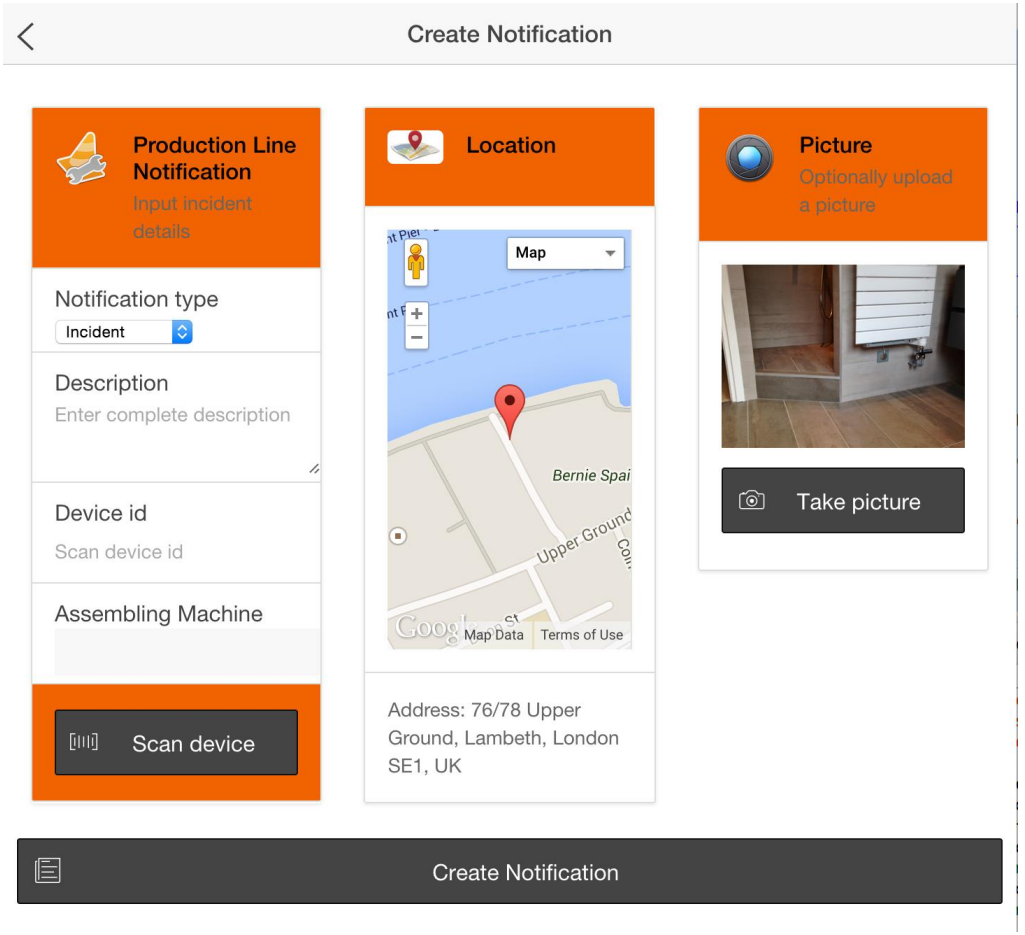
Responsive design

We built a responsive UI using ionic's CSS grid system

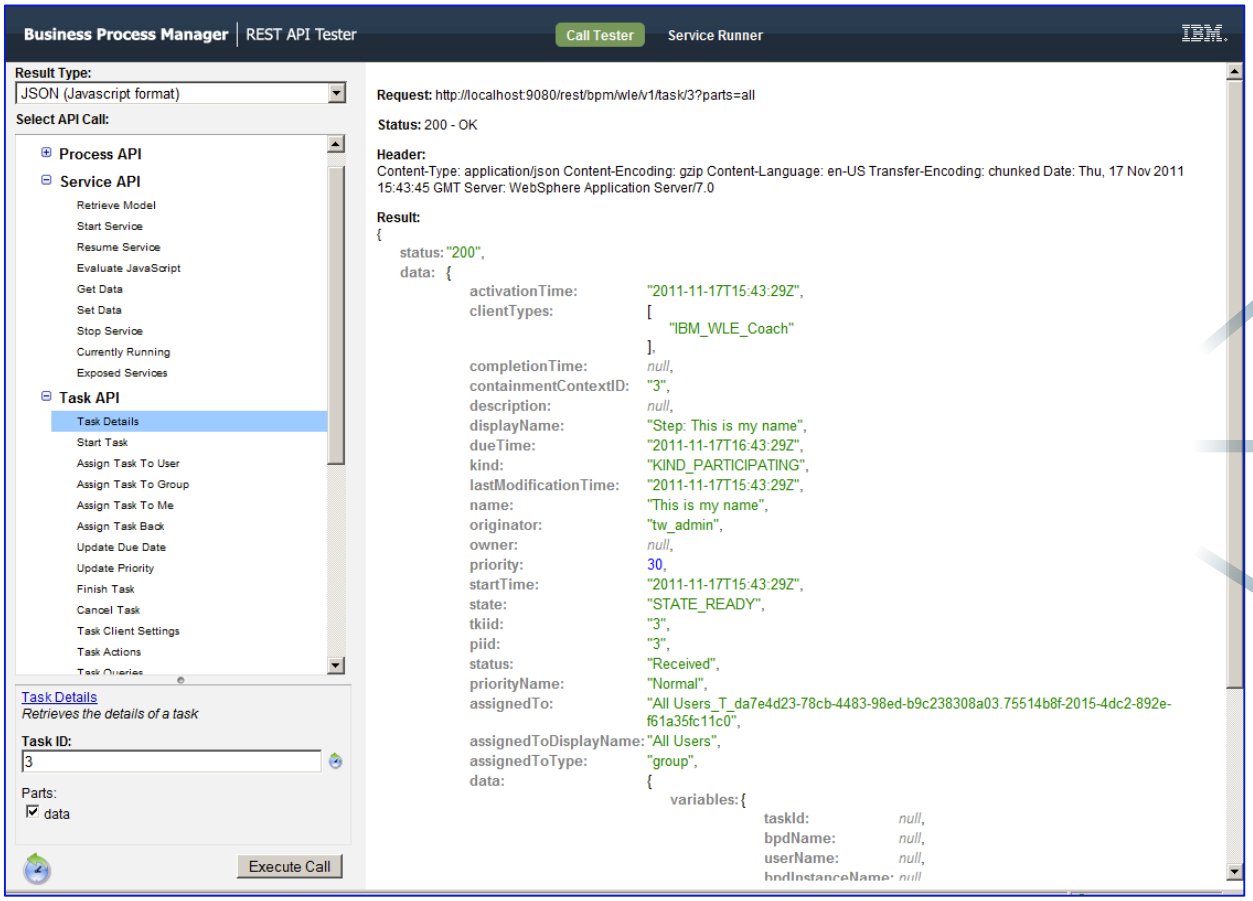
Small screen size



Large screen size



BPM REST API tester



Desktop Browsers

Smartphones

Tablets

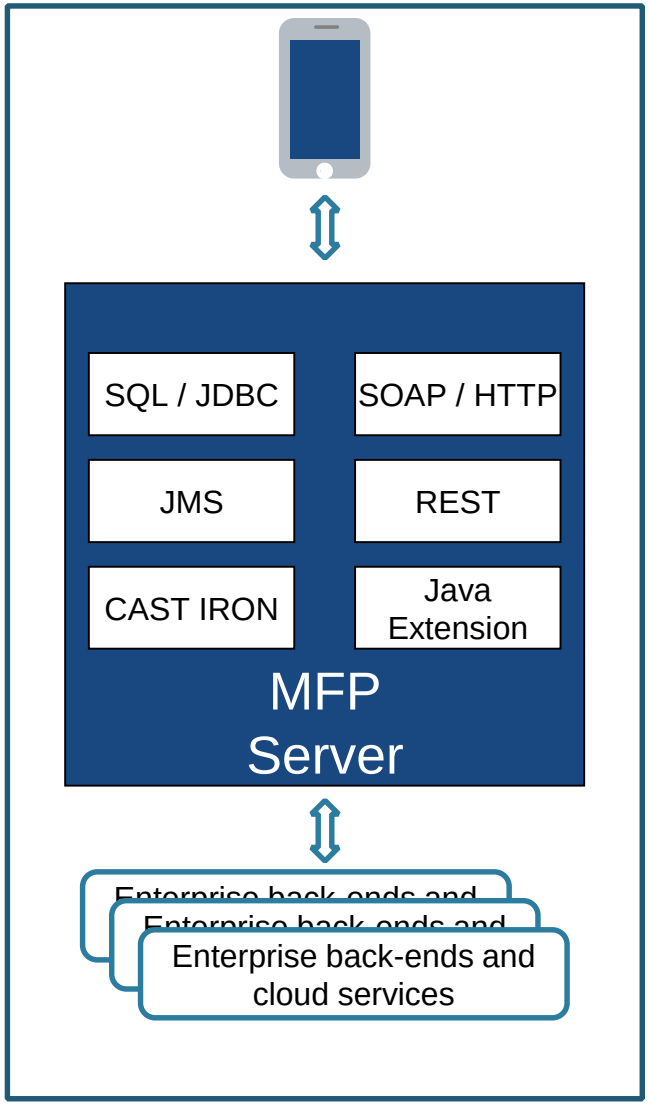
WebSphere Portal

WebSphere Application Server

IBM BPM V8 Process Portal and iOS Mobile App use this API

BPM REST API + MobileFirst Platform adapters

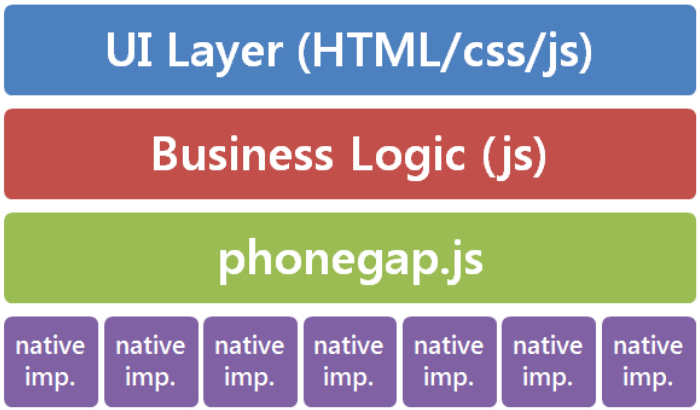
```
function getTasks(userId) {
        var input = {
            method : 'get',
            returnedContentType : 'json',
            path : '/rest/bpm/wle/v1/tasks/query/IBM.DEFAULTALLTASKSLIST_75',
            headers : {'Authorization' : 'Basic YWRtaW46YWRtaW4='},
            parameters: {
                interactionFilter :'ASSESS_AND_WORK_ON',
                queryFilter : 'PROCESS_APP_ACRONYM' + '=' + "'INCIJOA'",
                handleAs : 'json'
            }
        };

        var returnedTasks = WL.Server.invokeHttp(input);
        var items = {tasks:[]};
        if(returnedTasks.data && returnedTasks.data.items &&
returnedTasks.data.totalCount>0) {
            for(var i=0; i<returnedTasks.data.totalCount; i++) {
                var task = returnedTasks.data.items[i];
                items.tasks.push(task);
            }
        }
        return items;
}
```

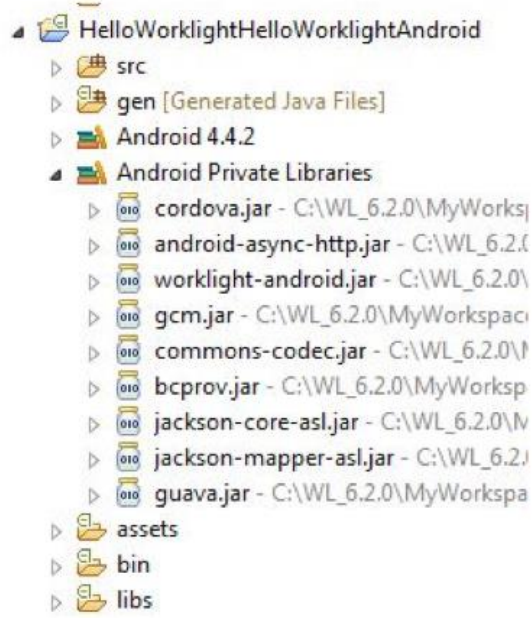


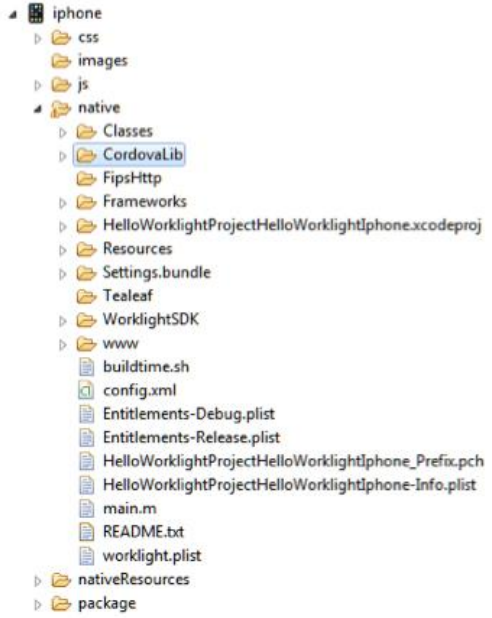
Apache Cordova: accessing the native device functions

Cordova provides a set of cross platform API's to access the native device functions and execute native code from JavaScript

The Cordova framework is integrated into all Mobile environments in IBM MobileFirst Platform Foundation.







Gotcha's

- Process behaviour embedded in coaches is a no-no! The process is no longer solely driven by a coach
  - The process should behave the same whether driven via a coach or REST api
- Consider creating unique entry points into the process for mobile

Three ways to get started with BPM + Mobile

1. **Get MFP Developer Edition here:**
   https://developer.ibm.com/mobilefirstplatform/documentation/getting-started/

2. Follow this excellent tutorial:
   https://ibm.biz/BdE5PZ

3. Learn more at **http://www.ibm.com/mobilefirst**
   Interact with us **@ibmmobile** and **#ibmmobile**