



PHONEGAP

Solving Mobile Fragmentation Problems

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Topics



OBJECTIVES

- Understand PhoneGap
- Create a mobile application with PhoneGap on one platform (iOS or Android) then build it to another platforms

PREREQUISITE

- Have knowledge
 - HTML, JavaScript & CSS
 - JQuery & JQuery Mobile
 - At least one of
 - Android development
 - iOS development

ASSESSMENT DISCIPLINES

- Class Participation: 40%
- Assignment: 60%
- Final Exam: 0%
- Passing Scores: 70%

SET UP ENVIRONMENT

- Android SDK, or
- MAC machine with XCode

AGENDA

- What is PhoneGap?
- Why PhoneGap?
- How to use PhoneGap?

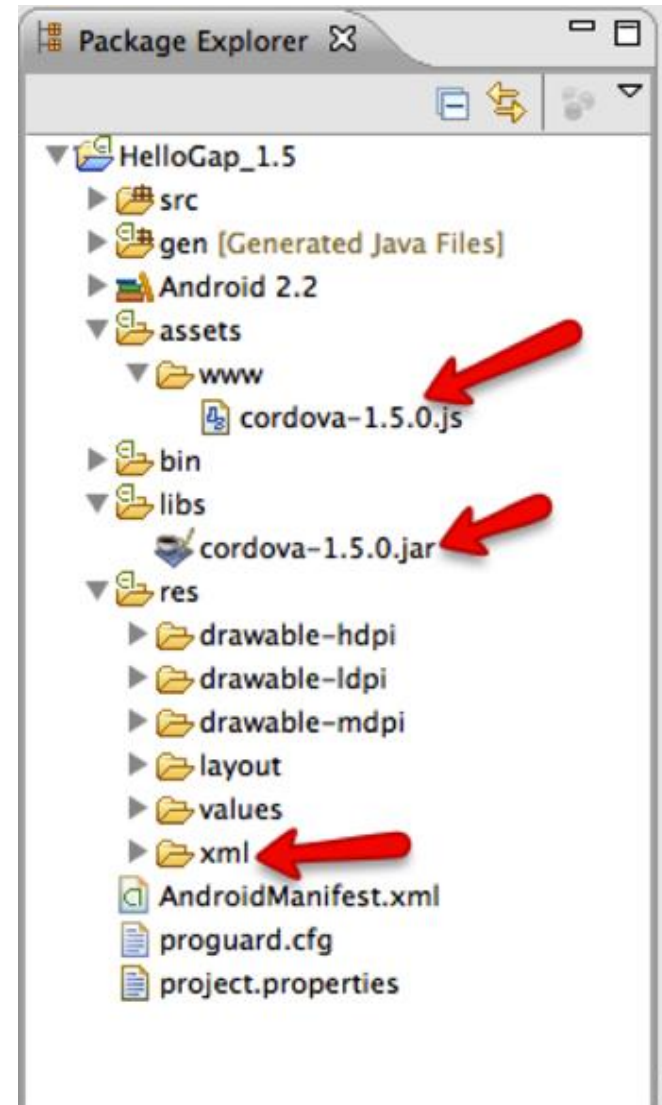
Q
&
A

And what it is not?

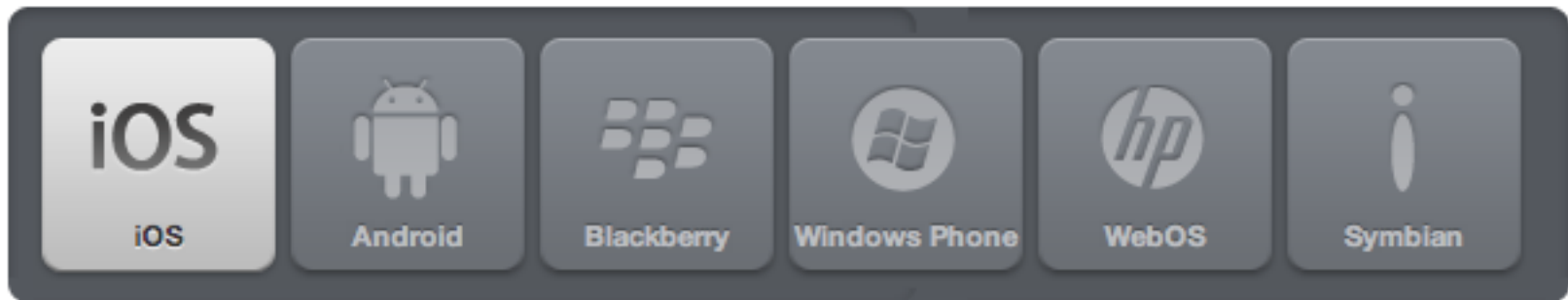
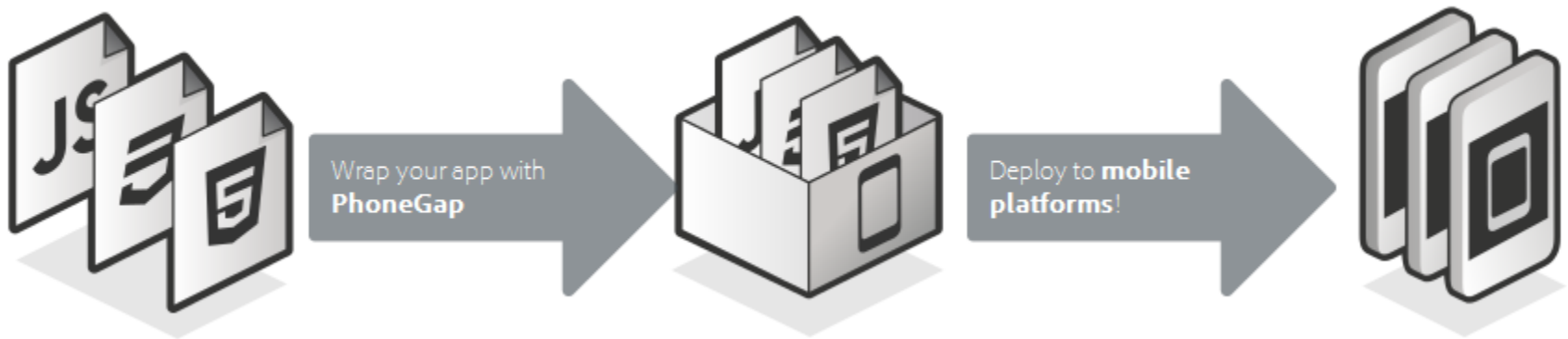
WHAT IS PHONEGAP?

WHAT IS PHONEGAP?

- PhoneGap is
 - open-source,
 - cross-platform mobile development framework
- Enables building of mobile device applications using **JavaScript, HTML** and **CSS**



VISUAL VIEW



PHONEGAP APPLICATIONS

- The PhoneGap applications are **hybrid**
 - They are neither truly native nor purely web based
 - All layout rendering is done via the web view instead of Objective-C
 - Much of the functions of HTML5 are supported
 - Some of device APIs are supported

SUPPORTED FEATURES

| | iPhone / iPhone 3G | iPhone 3GS and newer | Android | Blackberry OS 5.x | Blackberry OS 6.0+ | WebOS | Windows Phone 7 + 8 | Symbian | Bada |
|--------------------------|-----------------------|----------------------------|---------|----------------------|-----------------------|-------|---------------------------|---------|------|
| Accelerometer | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Camera | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Compass | X | ✓ | ✓ | X | X | ✓ | ✓ | X | ✓ |
| Contacts | ✓ | ✓ | ✓ | ✓ | ✓ | X | ✓ | ✓ | ✓ |
| File | ✓ | ✓ | ✓ | ✓ | ✓ | X | ✓ | X | X |
| Geolocation | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Media | ✓ | ✓ | ✓ | X | X | X | ✓ | X | X |
| Network | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Notification (Alert) | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Notification (Sound) | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Notification (Vibration) | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Storage | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | X | X |

EXAMPLES

Geo location

```
navigator.geolocation.getCurrentPosition(geolocationSuccess,  
                                         [geolocationError],  
                                         [geolocationOptions]);
```

Contacts

```
navigator.contacts.find(contactFields, contactSuccess, contactError,  
                        contactFindOptions);
```

Capture Image

```
navigator.device.capture.captureImage(  
    CaptureCB captureSuccess, CaptureErrorCB captureError, [CaptureImageOptions  
options]  
);
```

And many more...

WHAT IT IS NOT?

- Not an UI Framework
- Not a Packaging Framework
- Not an IDE

So...

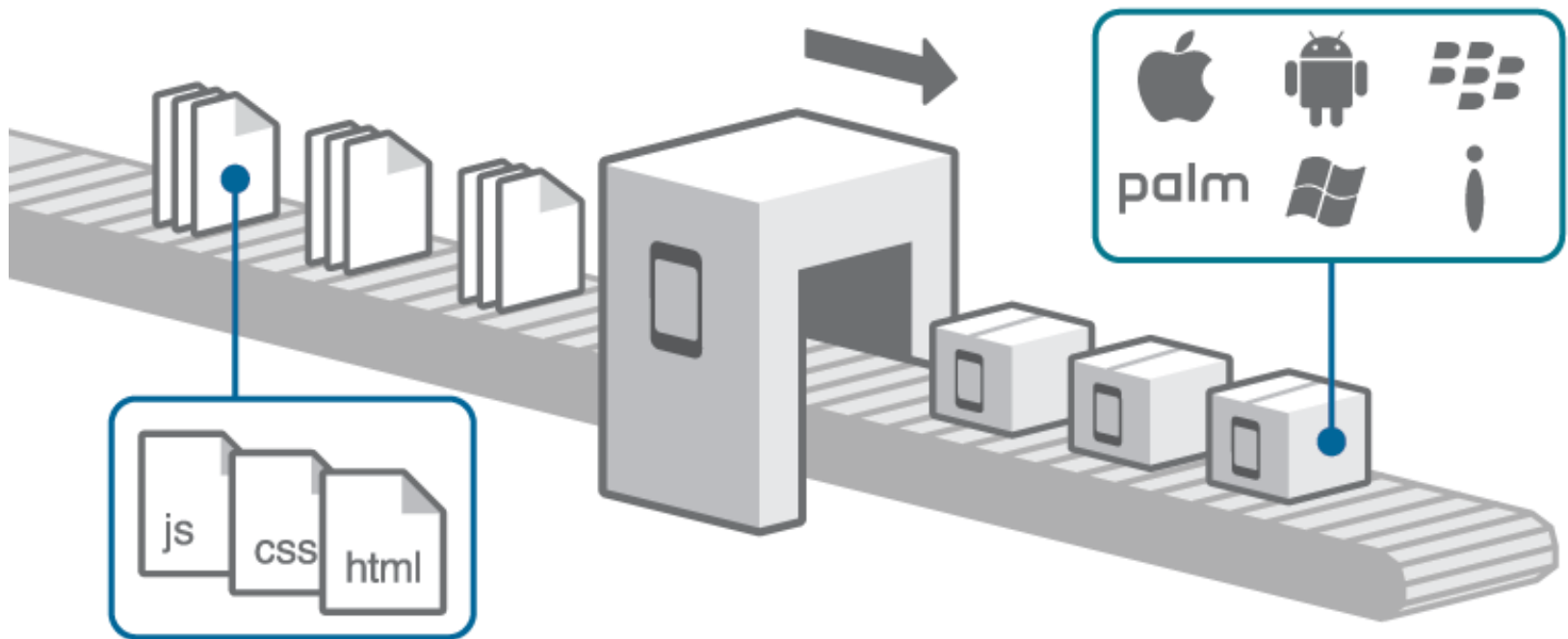
- You still need to use
 - Android,
 - BlackBerry,
 - iOS,
 - Windows Phone and etc
- ...(Development Environment) to build and package the final mobile application

WHY PHONEGAP?


PROS OF PHONEGAP DEVELOPMENT

- HTML5, CSS and JavaScript skills vs. Objective-C, Java and C#
- single code base for all platforms
 - Android, BlackBerry, iOS, WP, mobile web
- advantage of distribution and integrated payment
 - Via the App Store or Android Market

PHONEGAP BUILD






PHONEGAP BUILD






HelloPhoneGap


no description








 Builds

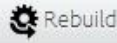
 Collaborators


 Settings


| App ID | PhoneGap | Owned by | Last built (12) | Source |
|--------|---------------|-----------------------|-----------------|-------------|
| 457027 | Version 2.9.0 | vannguyents@gmail.com | 1 minute | zip package |

ios


No key selected





 error





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 error












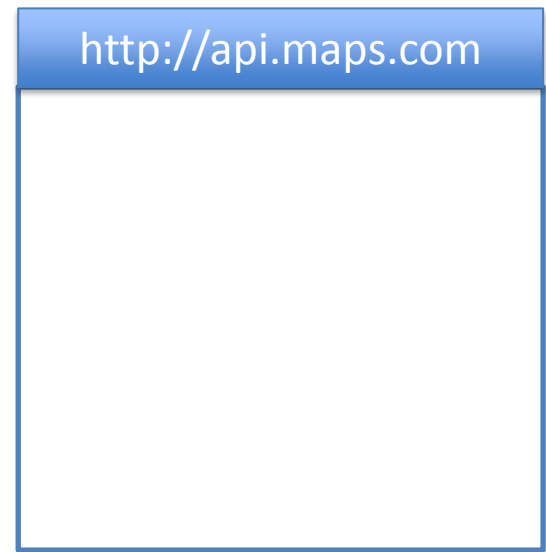
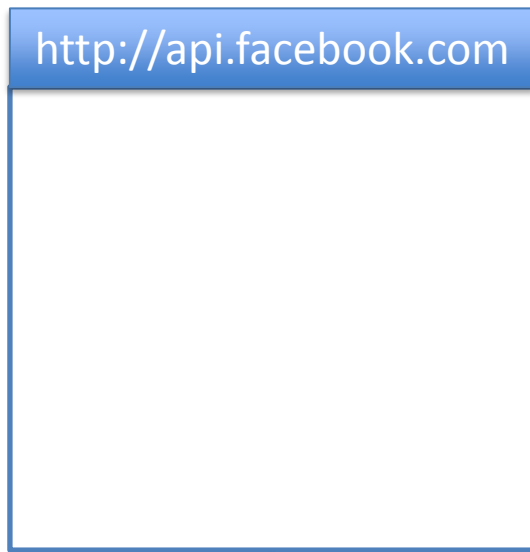


HEAVEN FOR MASHUPS

UNDERSTAND JS MASHUPS

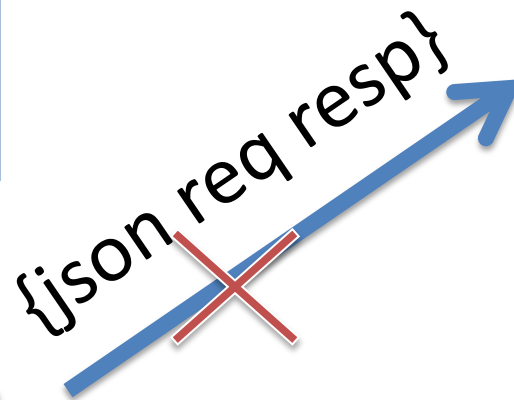
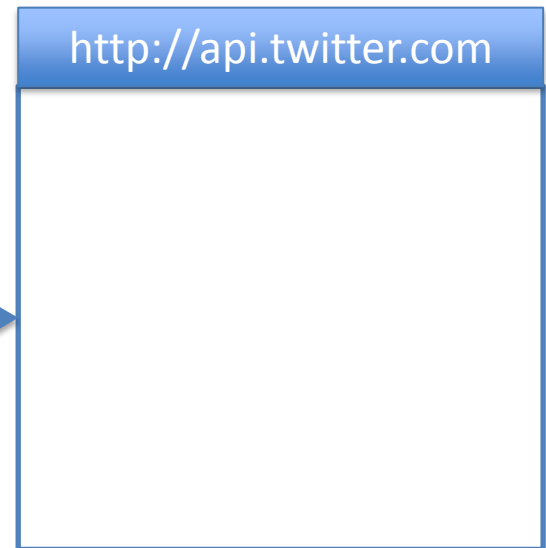
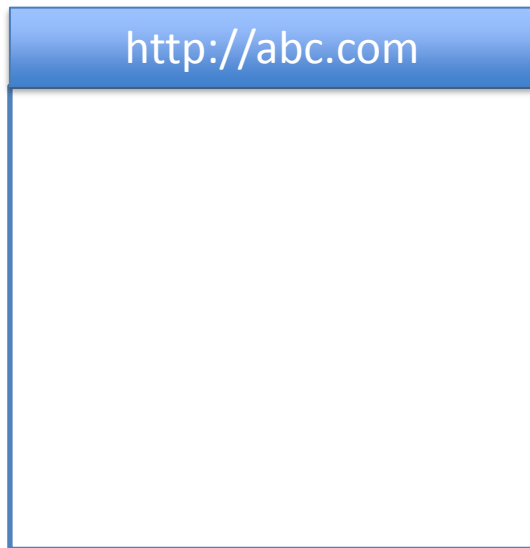
- Understand Single Origin Policy
- How this problem does not affect PhoneGap Apps?
- Think about possibilities without the need of a server

UNDERSTAND THE PROBLEM

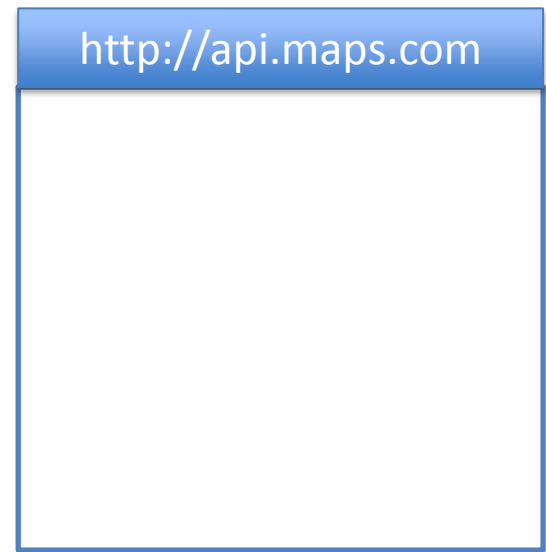
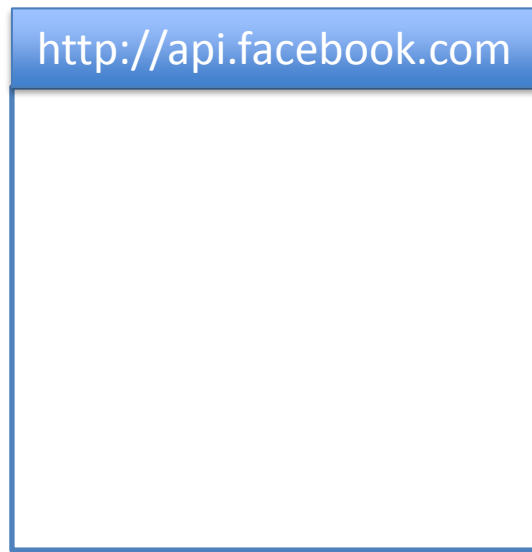


Single Origin Policy
restricts this

~~{json req resp}~~

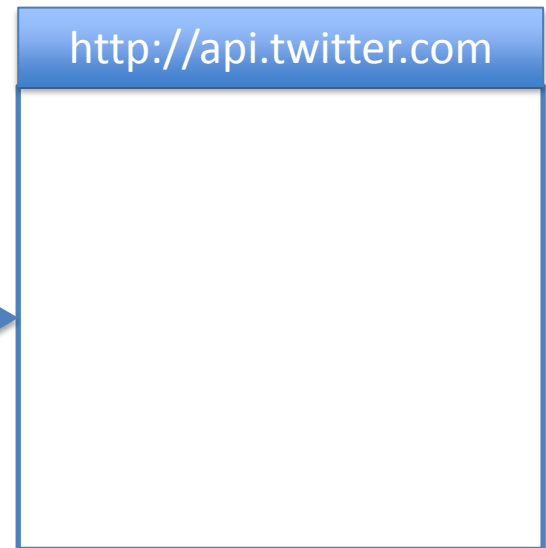
A blue arrow pointing from the bottom-left box to the top-right box, with the text "{json req resp}" written along it. The entire arrow and text are crossed out with a large red 'X'.

TRADITIONAL SOLUTIONS

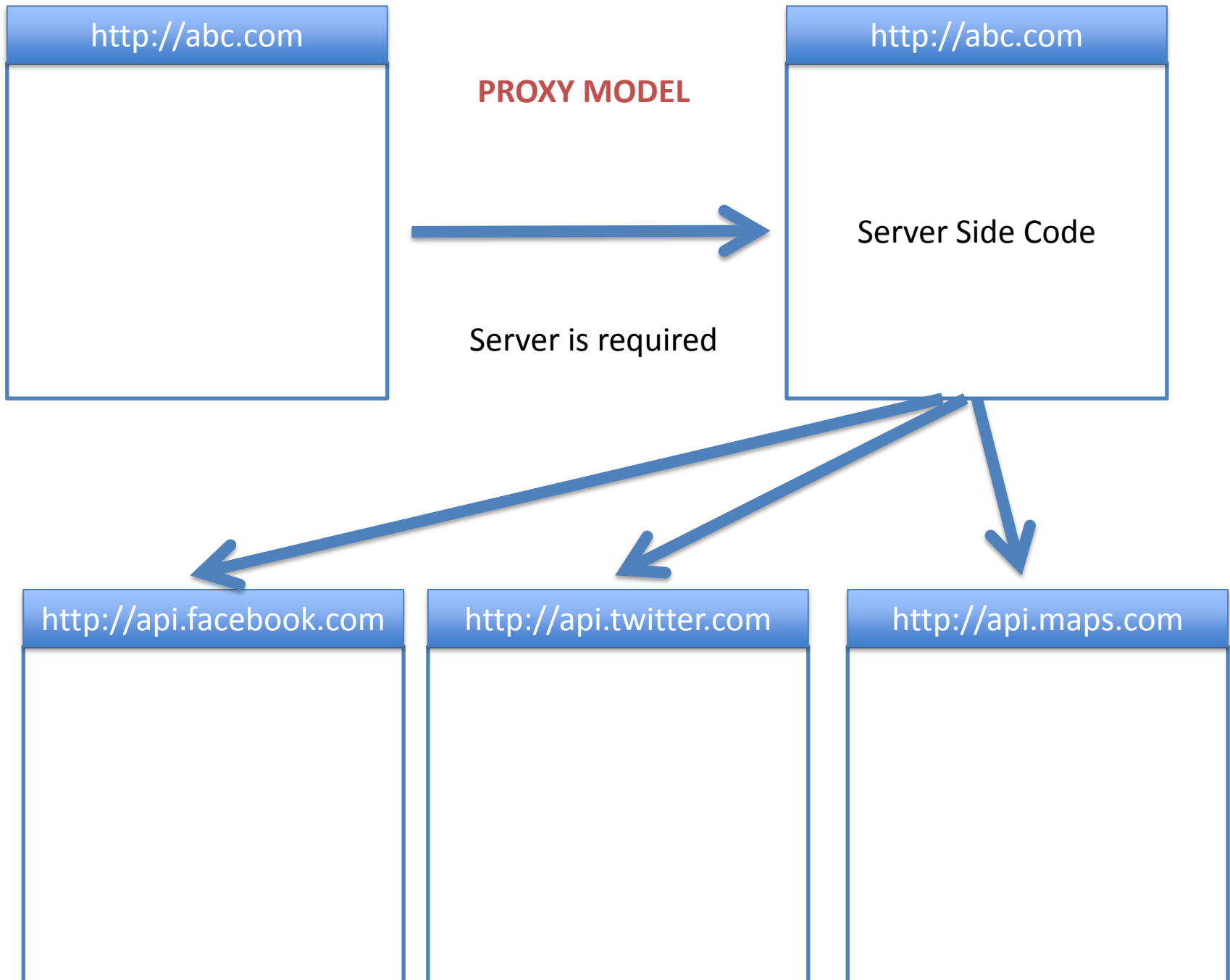


Single Origin Policy

{jsonp req resp}

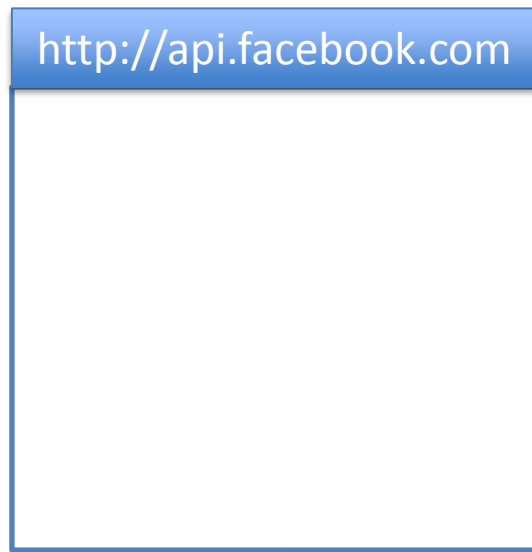


***JSONP makes
cross domain
request
possible***



WHAT'S DIFFERENT ABOUT PHONEGAP?

PhoneGap Apps don't have any
domain names.

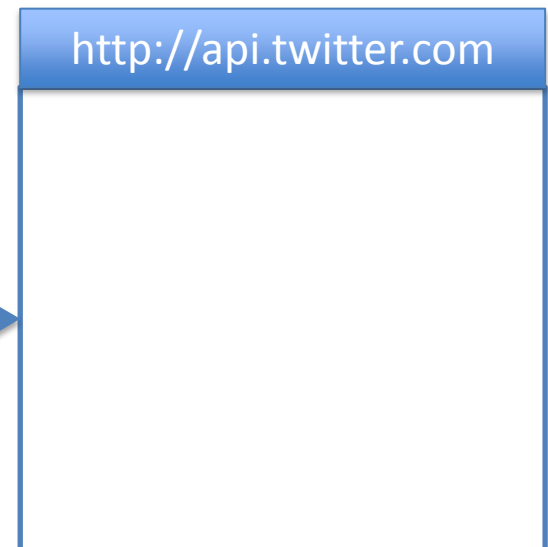
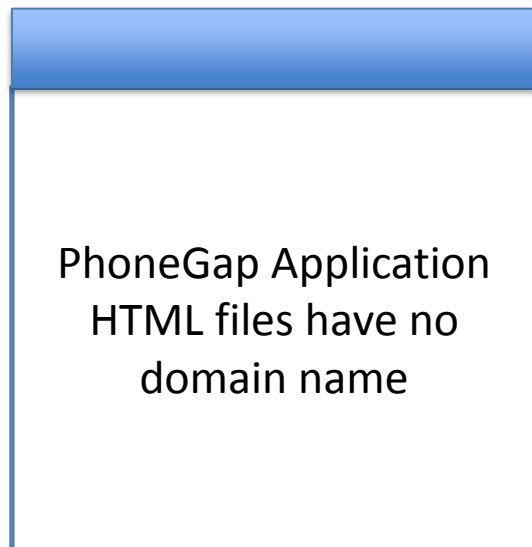


Single Origin Policy
Does not apply



{json req resp}

A diagram showing a PhoneGap application (bottom-left) sending a request to the Twitter API (bottom-right). The Twitter API box is empty, representing a successful request.



CONS OF PHONEGAP DEVELOPMENT

- **Data Processing:** Native languages are much faster than JavaScript for data processing on the device.
- **Background Processing:**
 - provide a smooth user experience: calculating the GPS positions in the background, for example.
 - PhoneGap is not multi-threaded and hence do not support background processing.
- **Access advanced native functionality:**
 - StatusBarNotification, PushNotification
 - Bluetooth, PowerManagement
 - Speech Recognizer, SMS
 - ...more
- **Advanced Graphics: Game.**

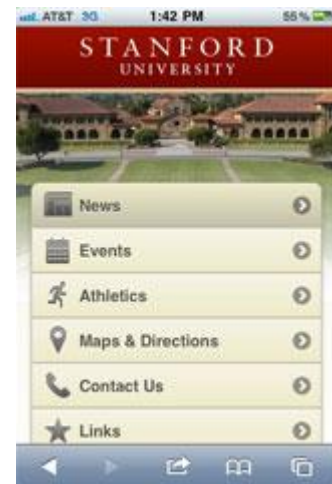
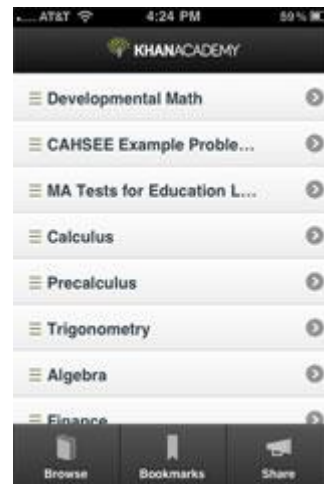
HOW TO USE PHONEGAP?

Native Looking?

DEVELOPING PHONEGAP UI

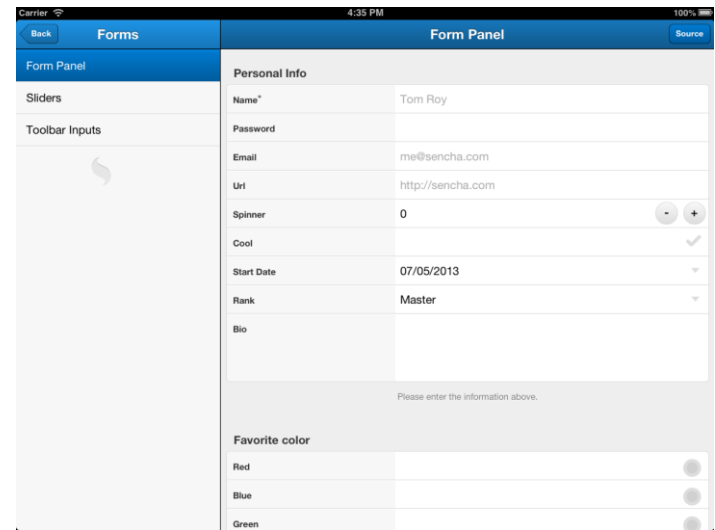
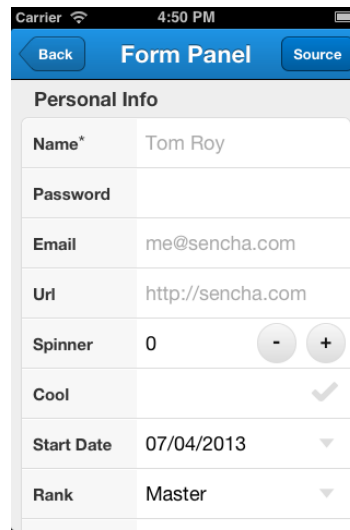
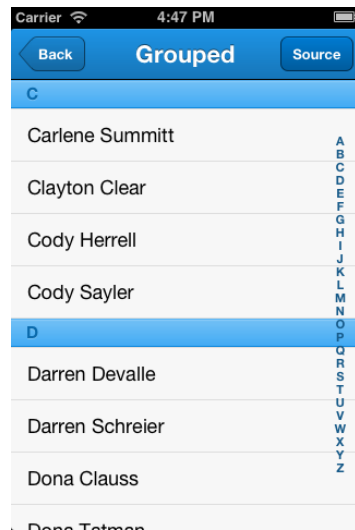
JQUERYMOBILE

Best for Simpler only Smart Phone UI



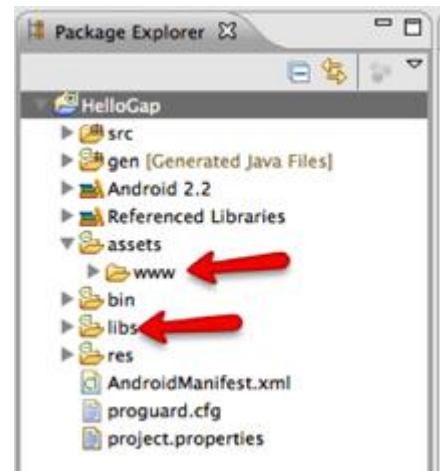
SENCHA TOUCH

Best for Complex SmartPhone/Tablet UI



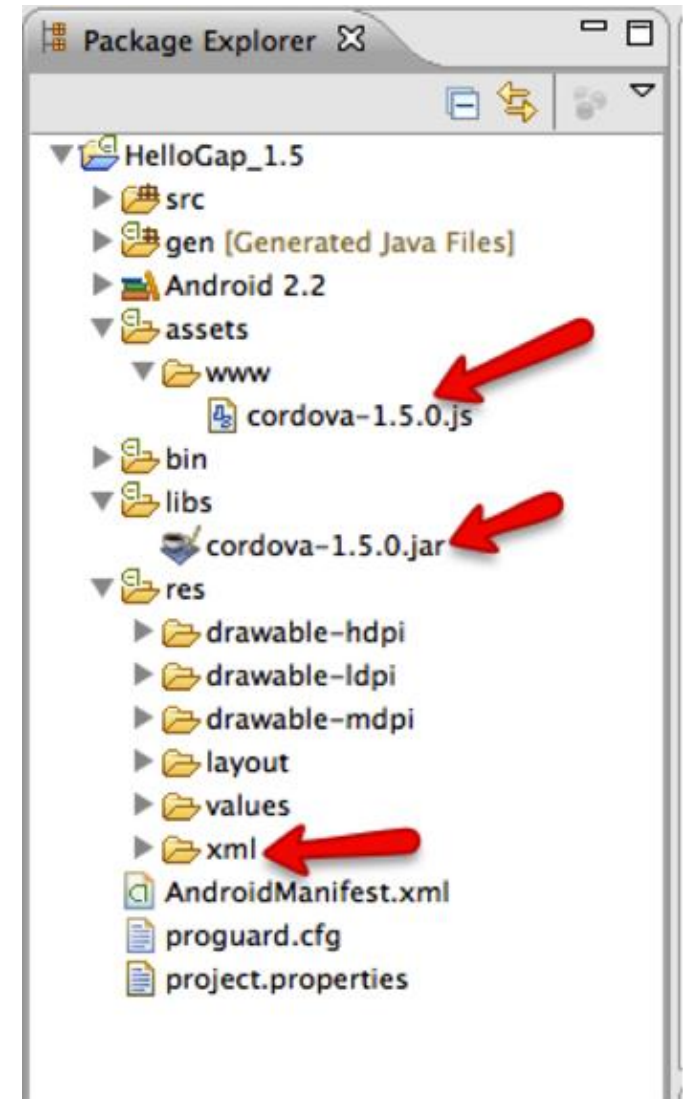
GETTING STARTED FOR ANDROID

- Create an android project
 - File -> New -> Android Project
- In the root directory of the project, create two new directories
 - /libs and /assets/www
- Create an index.html file in /assets/www



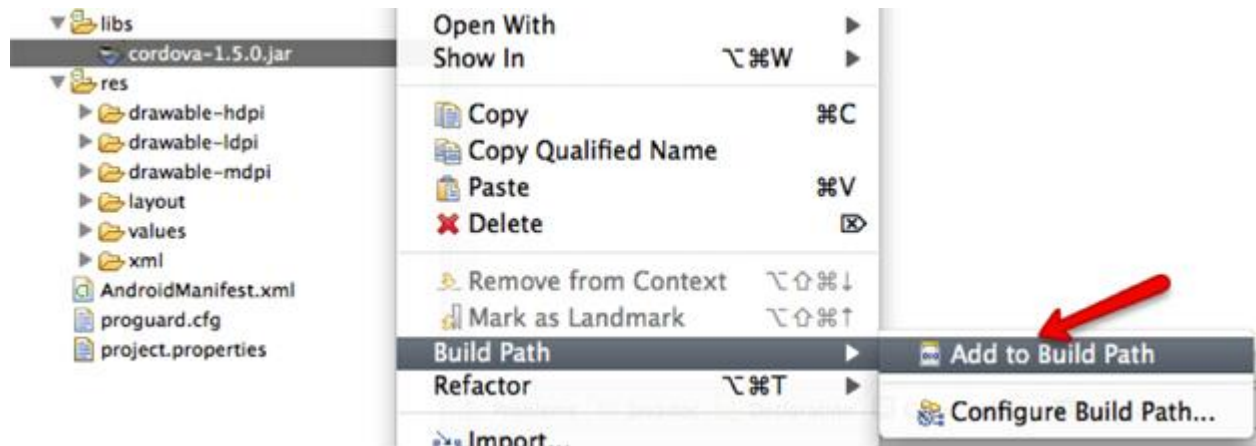
GETTING STARTED FOR ANDROID (2)

- Copy cordova.js to the assets/www directory within your Android project.
- Copy cordova.jar to the libs directory within your Android project.
- Copy the xml directory into the res directory within your Android project



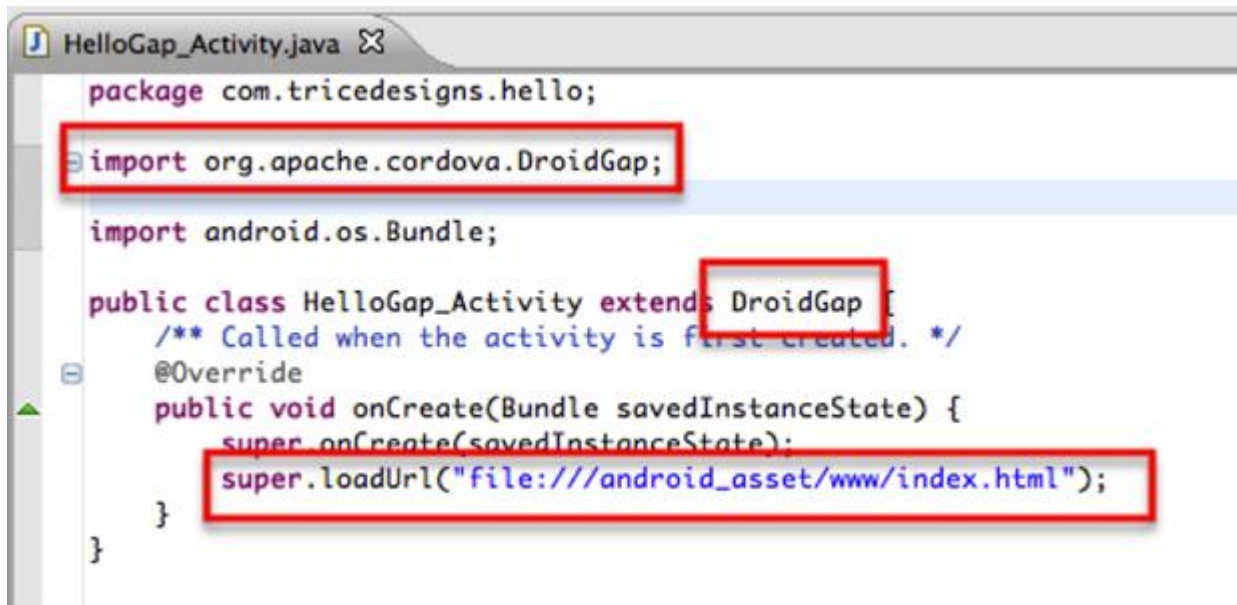
GETTING STARTED FOR ANDROID(3)

- Add the cordova.jar library to the build path



GETTING STARTED FOR ANDROID (4)

- Make a few adjustments to the project's main Java file
 - Change the class's extend from Activity to DroidGap
 - Replace the setContentView() line with `super.loadUrl("file:///android_asset/www/index.html");`
 - Add `import org.apache.cordova.DroidGap;`



```
package com.tricedesigns.hello;

import org.apache.cordova.DroidGap;

import android.os.Bundle;

public class HelloGap_Activity extends DroidGap {
    /** Called when the activity is first created. */
    @Override
    public void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        super.loadUrl("file:///android_asset/www/index.html");
    }
}
```

GETTING STARTED FOR IOS

- Will be done via Assignment

PHONEGAP – REMOTE DEBUG

- PhoneGap Desktop
 - <https://github.com/jxp/phonegap-desktop>
 - Demo: <http://jxp.github.com/phonegap-desktop/demo/>
- Ripple Emulator
 - <http://emulate.phonegap.com/>
 - Chrome Browser
 - Ripple Chrome Extension
- Debug Build
 - <https://build.phonegap.com/docs/advanced-debugging>

CONCLUSION

- PhoneGap is a cross-platform mobile development framework
 - Based on HTML5 and JavaScript
 - Using web standards
- PhoneGap is useful
 - For creation of small apps
 - When there is a lack of human resources
 - Need a single app deployed on many OS
- Native app developments is always better!

The end

THANKS FOR LISTENING