Building mobile app using Cordova and AngularJS, common practices

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Agenda

● What is cordova?
● How to choose proper JS framework
● Building mobile app using Cordova and AngularJS
● Common fails, performance issues
● Improve your development
What is Cordova

- Set of device APIs that allow a mobile app developer to access native device function
- A web app that is executed in webview of a mobile app
Difference between Cordova and Phonegap

- PhoneGap is a distribution of Apache Cordova
- You can think of Apache Cordova as the engine that powers PhoneGap, similar to how WebKit is the engine that powers Chrome or Safari
Cordova plugins? How they compare with native app

- Bridge between native API with web frontend
- Plugin is a bit of add-on code that provides an interface to native components
Native app
Hybrid cordova app
Simplified

UI Layer (HTML/css/js)

Business Logic (js)

phonegap.js

native imp.  native imp.  native imp.  native imp.  native imp.  native imp.  native imp.
When to use cordova?

- Before starting the project and making the architecture ask yourself this: Am I going to end up writing too many plugins?
  - If YES go NATIVE
  - If NO go Cordova
We do not want cordova if we end like this!!!
Performance: Cordova vs Native

● FACT: Native will always be faster!
● 2-3 years ago there was a big difference in performance
  ○ Reason: slow phones
● Currently the difference if not big. With the fast phones you will get near native performance
  ○ Ofc if you don’t make stupid things in js :(
How to choose the right JS framework?

- The answer is you can use everything. But then you will end up in chaos
- So the proper answer is the one you are most familiar, and will satisfy the project needs
- But there is one ground rule. Less frameworks, better performance
Javascript, a sword without a hilt!
http://www.google.com/trends/explore?hl=en-US&q=ember.js,+angularjs,+backbone.js,+sencha touch&cmpt=q
AngularJS

- With great power comes great responsibility!
- “Superheroic JavaScript MVW Framework” even the logo is superheroic.
Key features of AngularJS

- MVC architecture for client app
- Dependency injection
- 2 way data-binding
- Directives
- Easy extendable
- Tons of online examples how to make certain component or solve some problem
Building your first Cordova app with AngularJS

- You will need:
  - To install the Cordova CLI
  - Download angular.js, angular-ui-router.js
  - For purpose of the demo leaflet.js, angular-leaflet-directive.js
Let's build a Cordova app using Cordova and AngularJS.
Common fails that we do when we are making angularJS applications

- DOM tree modifications
- Avoid using $scope.$watch and $scope.apply()
- Do not use heavy frameworks, for single functionality
Digest exception

- Happening very often when used on old devices like iPhone 4, 1Ghz single core processor
- Usually the cause is bad coding with watch and apply, with repeats in html, but sometimes can not be avoided.
- How to solve it? Leave it as it is. The time will solve it because the users are changing phones often
- The real solution, avoid using watches and scope.apply
What is wrong with third party code?

- Lets examine angular-leaflet-directive.js
- Will always work perfectly if used on a browser, on mobile device depends of the speed of the device
- Now the question is how to avoid watch/apply? Write your own directives!
items.forEach(function (place) {
    $scope.markers.push({
        lat: place.venue.location.lat,
        lng: place.venue.location.lng,
        message: place.venue.name
    });
});

What is wrong with this code?
var list = [];

items.forEach(function (place) {
    list.push({
        lat: place.venue.location.lat,
        lng: place.venue.location.lng,
        message: place.venue.name
    });
});

$scope.markers.push(list);
How to improve your development

- Use SPA in development
- Avoid using filters in html, that can be done in controller
- Avoid reflows/redraws
- Automate things as much as possible
- Make build scripts to avoid cordova build with CLI
- Use directives as much as possible
How to improve your development

- Use hardware acceleration and use transform3d when trying to make some animation
- Use fastclick.js
- Use sprite sheets
- Cache as much as possible, always cache the static data, cache query selectors
- Limit shadows and gradients
How to improve your performance

- Do not wait for the data to display the UI
- Use watches only when you need to monitor change that is happening outside angular
- Use setTimeout with 0 to make a new thread
- Reduce global variables
- Avoid pure javascript initialization, some things can initialize before cordova is ready
Ionic

- Built in UI and interaction
- Incorporated with angularJS
- Focused on building native/hybrid mobile apps rather than mobile websites
- Really short demo
Questions?

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