

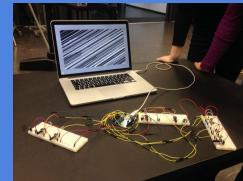
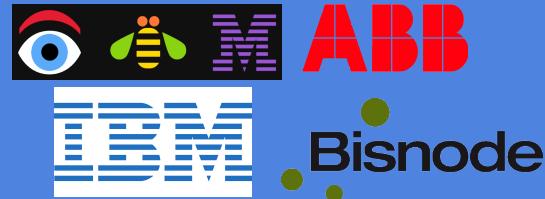


ionic

Building Hybrid Apps with AngularJS and Ionic

Roman Rast

- **What I do**
 - Mobile App Dev
 - UX / Interaction Design
 - Frontend
 - Zühlke
- **Slides and stuff**
 - <https://github.com/romanrast/fhnwionic>
- **Flipboard** my Ionic magazin +180 followers
 - <http://flip.it/q-lfz>
- **Twitter**
 - @romanrast
- **Contact**
 - roman.rast@zuehlke.com



Use Web Technologies



Ionic

- HTML5 Framework for hybrid mobile apps
- Build on AngularJS
- Uses Cordova
- First alpha in 2013, 1.0 Beta 2014, 1.0 2015
- High performance
- iOS > 7, Android > 4.1
- Open source
- Many Frameworks built-in
 - AngularJS, Cordova, Gulp, Sass, NodeJS, Bower
- Custom directives/components -> <ion-list>
- Drifty Co



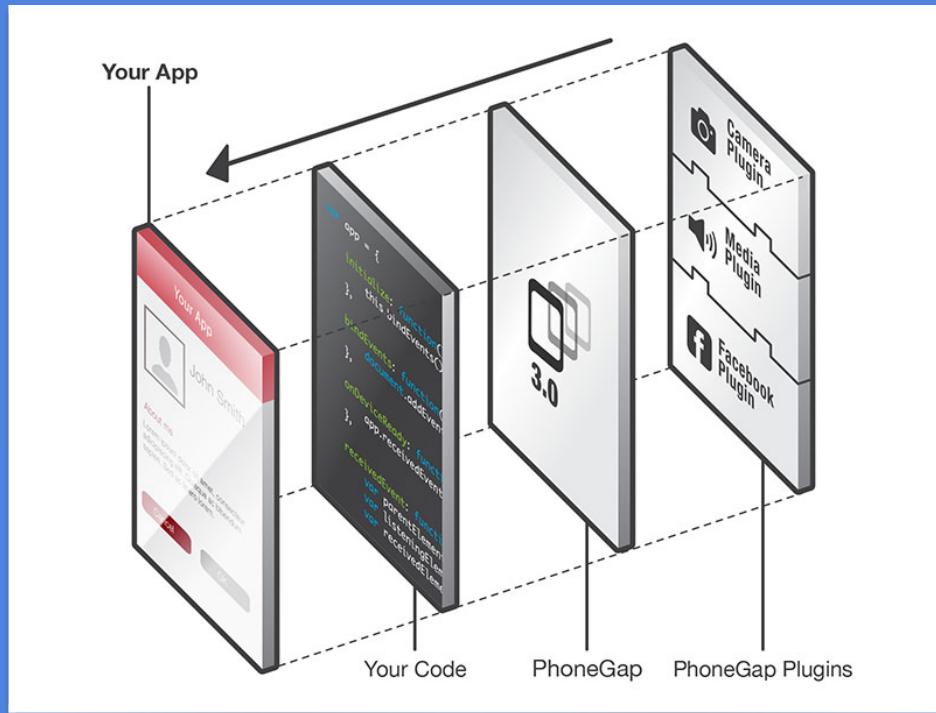
Architecture





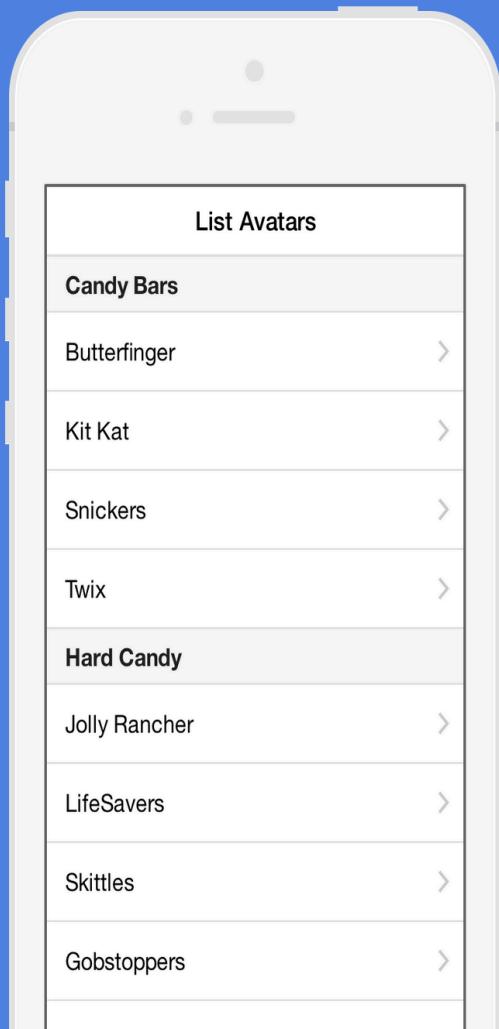
- Wraps app into a native app
- App uses WebView (browser of the phone without url bar and other stuff)
- Offers APIs to access camera, contacts, accelerometer finger print scanner etc.
- Develop a single code base for iOS and Android...
- PhoneGap/Cordova - Adobe





Pro | Cons

Pro	Cons
Open-source and free	Rendering complex UI can be slow
AngularJS, HTML, CSS	Not the best choice for graphic intense UI
SASS support	Android can be a hard to show same performance on mid-range phones
Offers large number of 3rd party resources, plugins, themes, starter apps (ngCordova Plugins, ionic market, ionicons)	
Great forum	
One code base for iOS and Android (almost)	



Lists

```
<div class="list">

  <div class="item item-divider">
    Candy Bars
  </div>

  <a class="item" href="#">
    Butterfinger
  </a>

  <a class="item" href="#">
    Kit Kat
  </a>

  ...
</div>
```

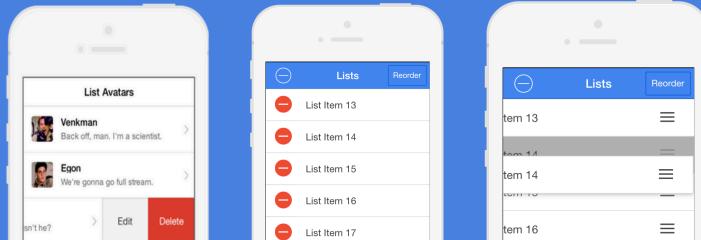
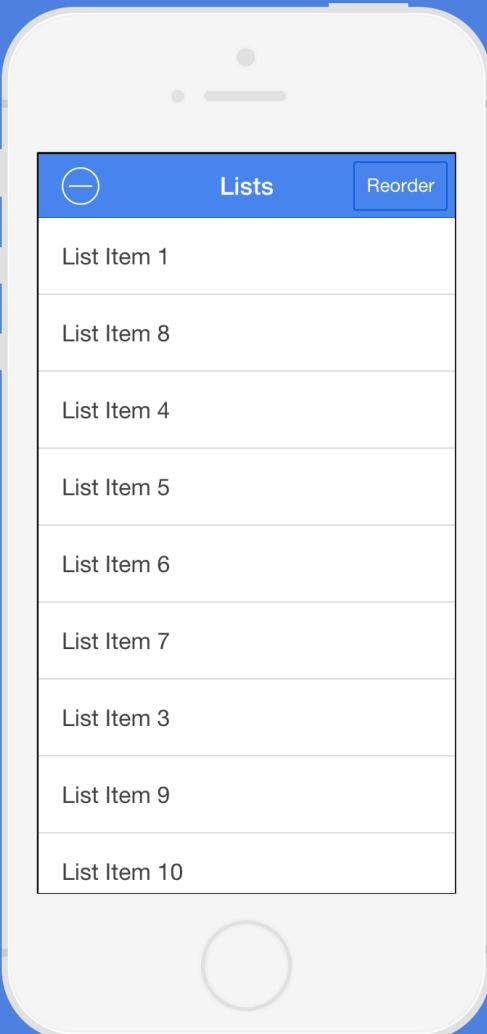
Complex Lists

- AngularJS Directive
- Buttons exposed by swiping
- Reorder
- Delete

```
<ion-list>

  <ion-item ng-repeat="item in items" item="item">
    List Item {{ item.id }}
  </ion-item>

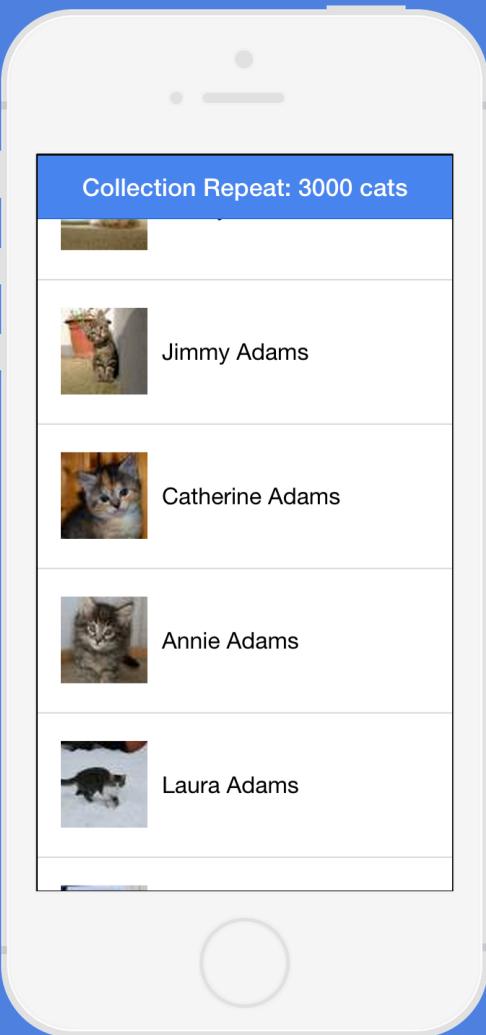
</ion-list>
```



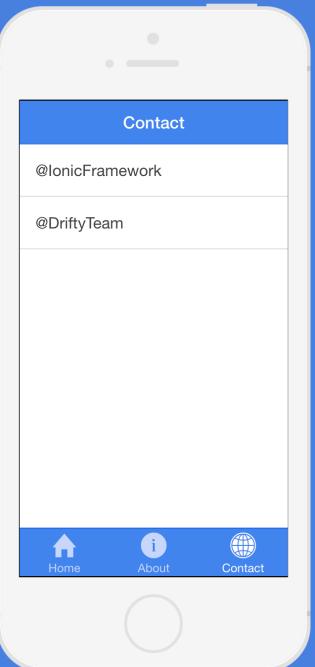
Collection Repeat

- Similar to Angular's `ng-repeat`
- Inspired by iOS's UICollectionView
- Scroll through thousands of items
- Only renders the viewable items
- Smooth jank-free scrolling

```
<div class="list">
  <div collection-repeat="c in contacts">
    <h2>{{ c.name }}</h2>
    <p>{{ c.email }}</p>
  </div>
</div>
```



Tabs



The image shows a white iPhone displaying a mobile application. The screen has a blue header bar with the word "Contact". Below the header, there are two lines of text: "@IonicFramework" and "@DriftyTeam". At the bottom of the screen is a blue navigation bar with three tabs: "Home" (with a house icon), "About" (with a person icon), and "Contact" (with a globe icon). The "Contact" tab is currently selected.

Tabs

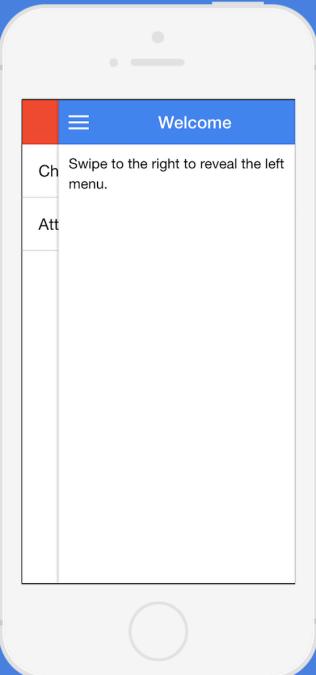
- Nested views
- Each tab has its own nav history
- Abstract states in AngularUI Router

```
<ion-tabs>
  <ion-tab title="Home" icon="ion-home">
    <ion-nav-view name="home"></ion-nav-view>
  </ion-tab>

  <ion-tab title="About" icon="ion-information">
    <ion-nav-view name="about"></ion-nav-view>
  </ion-tab>

  <ion-tab title="Contact" icon="ion-ios7-world">
    <ion-nav-view name="contact"></ion-nav-view>
  </ion-tab>
</ion-tabs>
```

Side Menu



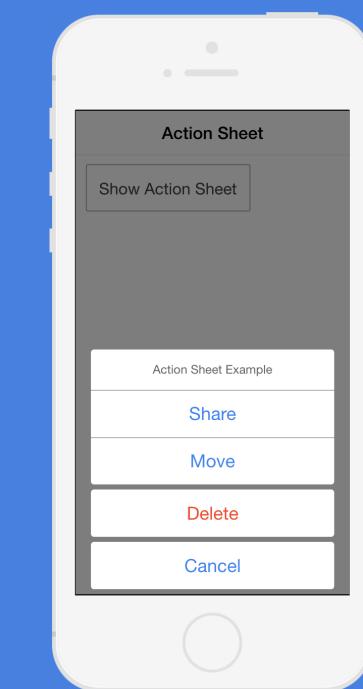
The image shows a white smartphone with a black screen. On the screen, there is a mobile application interface. At the top, there is a blue header bar with a red section on the left containing three horizontal lines (a menu icon) and the word "Welcome" on the right. Below the header, there is some text: "Ch" followed by "Swipe to the right to reveal the left menu." and "Att". The main content area is currently empty. To the right of the phone, the text "Side Menu" is displayed in large white letters. Below this, a block of code is shown:

```
<ion-side-menus>
  <ion-side-menu-content>
    <ion-nav-view name="menuContent"></ion-nav-view>
  </ion-side-menu-content>

  <ion-side-menu side="left">
    <ion-header-bar class="bar-assertive">
      <h1 class="title">Left Menu</h1>
    </ion-header-bar>

    <ion-content>
      ...
    </ion-content>
  </ion-side-menu>
</ion-side-menus>
```

Action Sheet

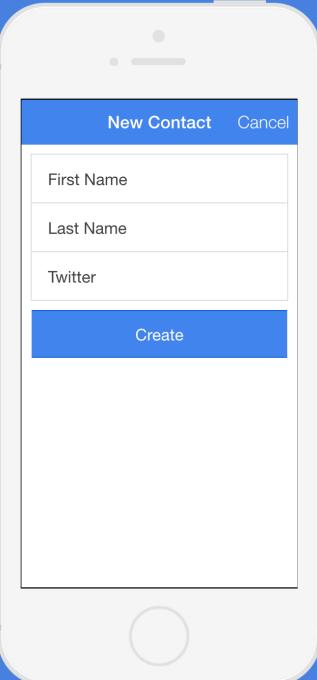


Action Sheet

- AngularJS Service
- Inject into controllers

```
$ionicActionSheet.show({
  titleText: 'Action Sheet Example',
  buttons: [
    { text: 'Share' },
    { text: 'Move' },
  ],
  destructiveText: 'Delete',
  cancelText: 'Cancel',
  buttonClicked: function(index) {
    console.log('BUTTON CLICKED', index);
    return true;
  }
});
```

Modal

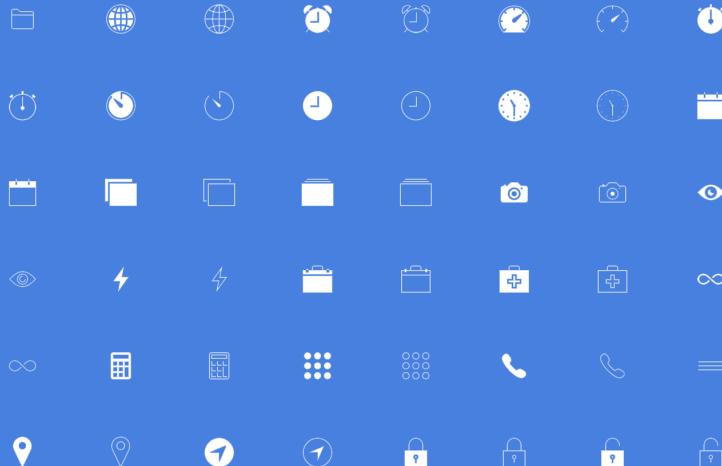


Modal

- AngularJS Service
- Inline or external template

```
$ionicModal.fromTemplateUrl('modal.html', {  
  scope: $scope  
}).then(function(modal) {  
  $scope.modal = modal;  
});
```

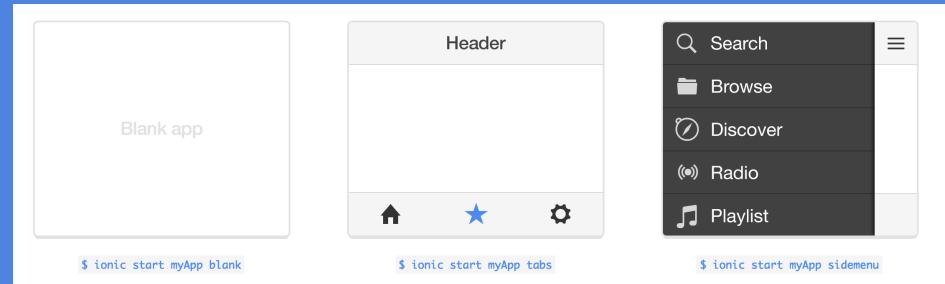
Ionicons



Over 700 MIT licensed font-icons included
ionicons.com

Installation

- Install Node.js (<https://nodejs.org/>)
- \$ npm install -g cordova ionic
- \$ sudo ionic start myApp tabs
- \$ cd myApp
- (change access right if necessary on mac)
- \$ sudo ionic platform add ios | android
- \$ sudo ionic build ios
- \$ sudo ionic setup sass
- \$ sudo ionic serve
- \$ sudo ionic run ios | ionic run android (when device is plugged in)



Keep Xcode and iOS versions always up to date!

Plugins

- Out of the box
 - cordova-plugin-splashscreen
 - cordova-plugin-statusbar
 - ionic-plugin-keyboard
 - More on ngCordova
 - <http://ngcordova.com/>

```
angular.module('starter', ['ionic', 'starter.controllers', 'starter.services'])

.run(function($ionicPlatform) {
  $ionicPlatform.ready(function() {
    // Hide the accessory bar by default (remove this to show the accessory bar above the keyboard
    // for form inputs)
    if (window.cordova && window.cordova.plugins && window.cordova.plugins.Keyboard) {
      cordova.plugins.Keyboard.hideKeyboardAccessoryBar(true);
      cordova.plugins.Keyboard.disableScroll(true);

    }
    if (window.StatusBar) {
      // org.apache.cordova.statusbar required
      // StatusBar.styleDefault();
      $cordovaStatusBar.style(1) //Light
    }
  });
})
```

CLI

```
$ cd myApp
```

```
# Add iOS and Android platform for cordova
```

```
$ ionic platform add ios | $ ionic platform add android
```

```
# Build Debug version
```

```
$ ionic build ios | $ionic build android
```

```
# Build Prod version
```

```
$ ionic build ios --release
```

```
# Run in Browser
```

```
$ ionic serve
```

```
$ ionic serve --lab
```

```
# Run in emulator
```

```
$ ionic emulate ios
```

```
# Run on real device if connected
```

```
$ ionic run ios
```

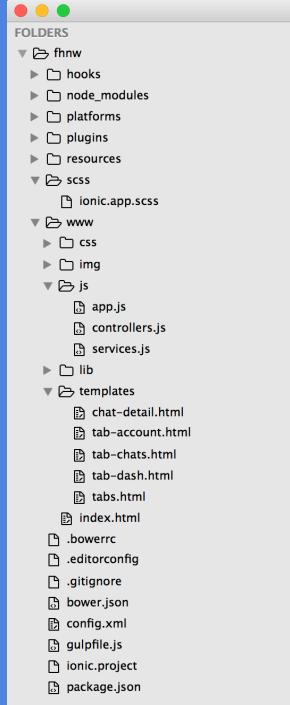
```
$ ionic run android
```

```
$ ionic package debug android (debug or release | android or ios)
```

Prepare Your Device

- Android - activate developer mode
 - Settings/about phone tip on Android Version until message appears
 - Go back to Settings, then Developer options and check USB debugging
- iPhone
 - Just plug in an press play in xcode – yay!

App Structure



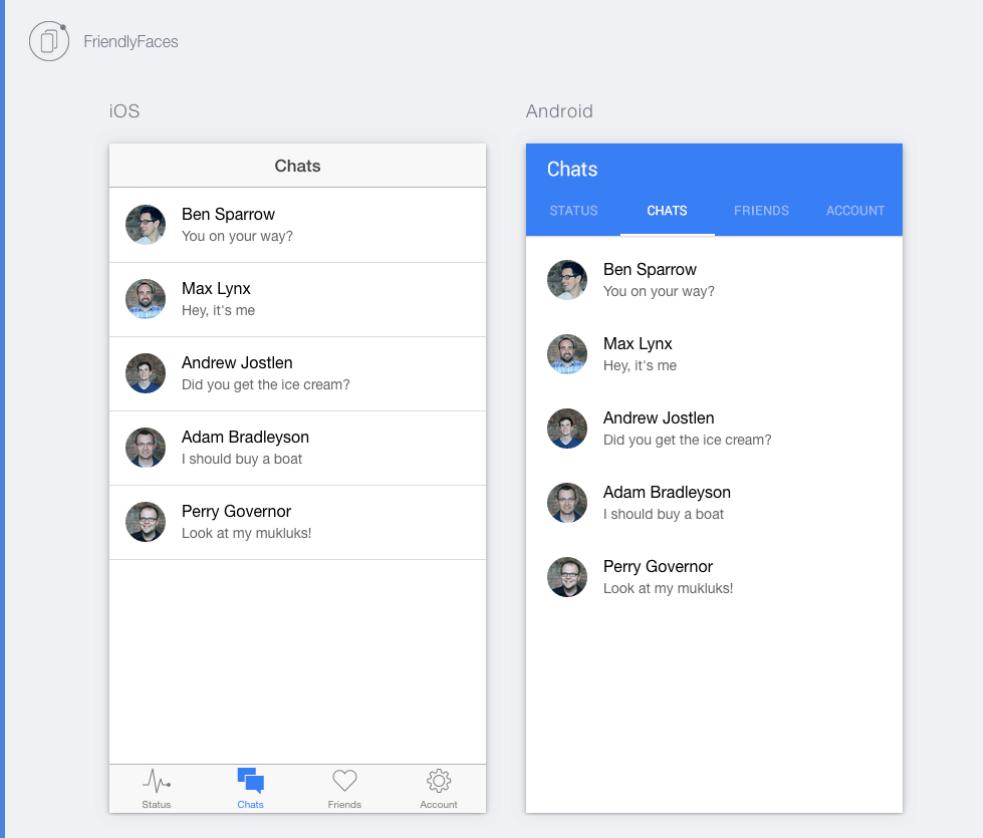
- Hooks
- Plugins
- **www**
 - bowerrc
 - gitignore
 - config.xml
 - gulpfile.js
 - package.json
 - **css**
 - **img**
 - **js**
 - **scss**

App Structure

- Work in the **www** folder on the **root** of your app
- The code will be copied down to platforms/ios and android
- For iOS go to platforms/ios/xxx.xcodeproj to run app on device or Simulator

iOS vs Android

iOS swipe back



Android nav
on top

Debugging & Testing

- Use Google CHROME!
- Developer Tools

localhost:8100/#/tab/chats

iPhone 6 ▾ 375 × 667 100% ⓘ

Elements Console Sources Network Timeline Profiles Resources Security Audits AngularJS

Styles Computed Event Listeners DOM Breakpoints Properties

Filter + .cls

```

<div class="list">
  <!-- ngRepeat: chat in chats -->
  <ion-item class="item-remove-animate item-avatar item-icon-right item item-complex item-right-editable" ng-repeat="chat in chats" type="item-text-wrap" href="#/tab/chats/0" style="background-color: #f0f0f0;">
    <!-- end ngRepeat: chat in chats -->
    <ion-item class="item-remove-animate item-avatar item-icon-right item item-complex item-right-editable" ng-repeat="chat in chats" type="item-text-wrap" href="#/tab/chats/1">
      <!-- end ngRepeat: chat in chats -->
      <ion-item class="item-remove-animate item-avatar item-icon-right item item-complex item-right-editable" ng-repeat="chat in chats" type="item-text-wrap" href="#/tab/chats/2">
        <!-- end ngRepeat: chat in chats -->
        <ion-item class="item-remove-animate item-avatar item-icon-right item item-complex item-right-editable" ng-repeat="chat in chats" type="item-text-wrap" href="#/tab/chats/3">
          <a class="item-content" ng-href="#/tab/chats/3" href="#/tab/chats/3">
            
            <h2 class="ng-binding">Admiral Ackbar</h2>
            <p class="ng-binding">It's a trap!!</p>
            <i class="icon ion-chevron-right icon-accessory"></i>
            <button class="button clear ion-star button-clear ion-star-button-energized ng-hide" ng-click="toggleStar(chat)" ng-show="chat.star"></button>
          </a>
          <div class="item-options invisible"></div>
        </ion-item>
        <!-- end ngRepeat: chat in chats -->
        <ion-item class="item-remove-animate item-avatar item-icon-right item item-complex item-right-editable" ng-repeat="chat in chats" type="item-text-wrap" href="#/tab/chats/4">
          <!-- end ngRepeat: chat in chats -->
        </div>
        </ion-list>
      </div>
      <div class="scroll-bar scroll-bar-v"></div>
    </ion-content>
  </ion-view>
  </ion-nav-view>
</ion-tabs>
</ion-page>

```

Styles Computed Event Listeners DOM Breakpoints Properties

Filter + .cls

```

element.style { }
}
.item, .item h1, .item h2, .item h3, .item h4, .item h5, .item h6, .item p, .item-content, .item-content h2, .item-content h3, .item-content h4, .item-content h5, .item-content h6, .item-content p {
  overflow: hidden;
  text-overflow: ellipsis;
  white-space: nowrap;
}
.item h2 {
  margin: 0 2px 0;
  font-size: 16px;
  font-weight: normal;
}
h2 {
  font-size: 30px;
}
h1, .h1, h2, .h2, h3, .h3 {
  margin-top: 20px;
  margin-bottom: 10px;
}
h1, h2, h3, h4, h5, h6, .h1, .h2, .h3, .h4, .h5, .h6 {
  color: #000;
  font-weight: 500;
  font-family: "apple-system", "Helvetica Neue", "Roboto", "Segoe UI", sans-serif;
  line-height: 1.2;
}
body, html, div, span, applet, object, iframe, h1, h2, h3, h4, h5, h6, p, blockquote, pre, a, acronym, address, b, big, cite, code, del, dfn, em, small, ins, kbd, q, s, samp, small, strike, strong, sub, sup, tt, var, b, i, u, center, dl, dt, dd, ol, ul, li, fieldset, form, label, legend, table, caption, tbody, tfoot, thead, tr, th, td, article, aside, canvas, details, embed, fieldset, figure, figcaption, footer, header, hgroup, menu, nav, output, ruby, section, summary, time, mark, audio, video {
  -webkit-tap-highlight-color: transparent;
}

```

Console

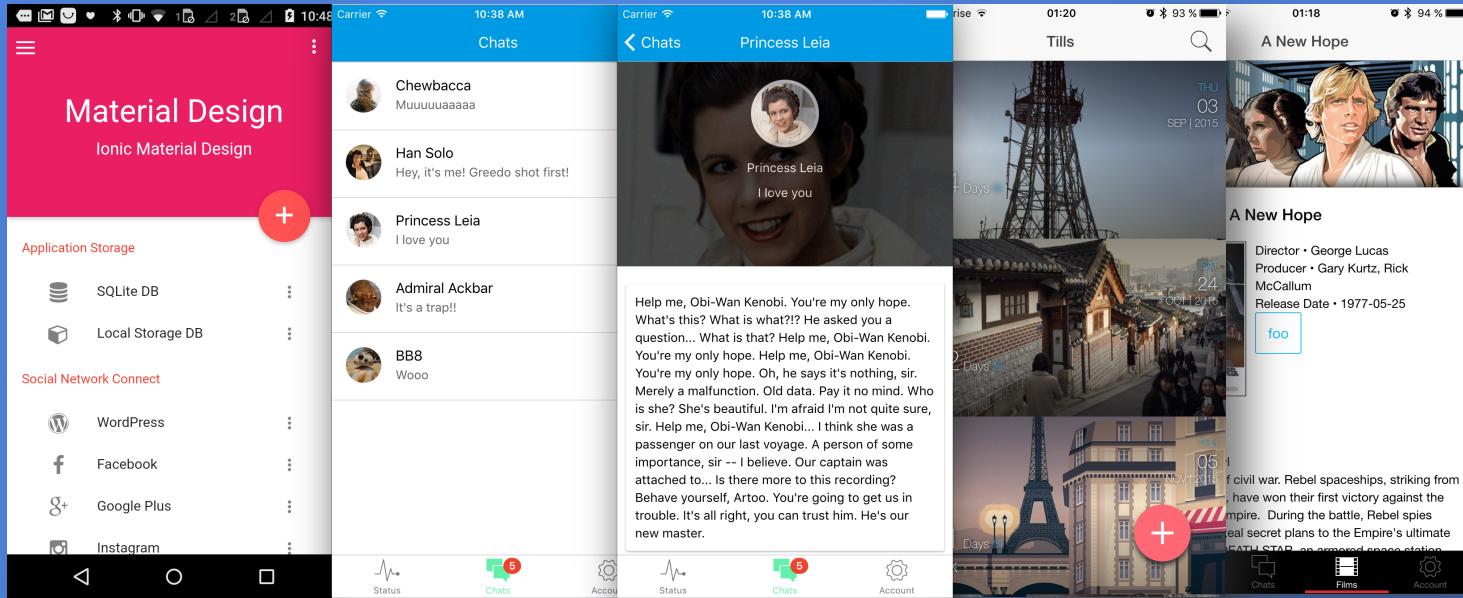
top Preserve log

Filter Regex Hide network messages All Errors Warnings Info Logs Debug Handled

> XHR finished loading: GET "<http://localhost:8100/templates/tab-account.html>".
 > XHR finished loading: GET "<http://localhost:8100/templates/chat-detail.html>".
 > XHR finished loading: GET "<http://localhost:8100/templates/tab-chats.html>".

ionic.bundle.js:23826
 ionic.bundle.js:23826
 ionic.bundle.js:23826

Demo Time



Android

Android Prerequisite

- Android SDK
 - Ant
-

MacOs

- brew install ant
- Having ANDROID_HOME environment variable set (in your .bashrc or .bash_profile file)

Path to your sdk in your file system

- export ANDROID_HOME=~/Library/Android/sdk

Android Splashscreen

- In config.xml
- FadeSplashScreenDuration only works on iOS (Android will crash)

```
<!-- for activating android splashscreen -->
<preference name="ShowSplashScreen" value="true" />
<preference name="SplashScreen" value="screen"/>
<preference name="SplashScreenDelay" value="3000"/>
<preference name="AutoHideSplashScreen" value="true" />
<preference name="SplashShowOnlyFirstTime" value="false" />
<preference name="FadeSplashScreen" value="false"/>
<!-- <preference name="FadeSplashScreenDuration" value="0.3"/> -->
<feature name="SplashScreen">
  <param name="android-package" value="org.apache.cordova.splashscreen.SplashScreen" />
</feature>
```

Add plugins

Use ngCordova plugins (<http://ngcordova.com>)

Install

```
$ bower install ngCordova (in root of app)
```

Then in index.html add src to ng-cordova.js before cordova.js

```
<script src="lib/ngCordova/dist/ng-cordova.js"></script>
<script src="cordova.js"></script>
```

Then Inject as an Angular dependency

```
angular.module('myApp', ['ngCordova'])
```

Add the plugin to your project using the Cordova CLI

```
$ cordova plugin add cordova-plugin-media-capture
```

Wrap each plugin call with the deviceready event - important !

```
$ionicPlatform.ready(function() {
  $cordovaPlugin.someFunction().then(success, error);
});
```

```
module.controller('MyCtrl', function($scope,
$cordovaCapture) {
```

Performance

- **Comes with latest version of Ionic!**
- On Android → Crosswalk
- Chromium
- Develop around device fragmentation
- Provide a feature rich experience on all Android 4.x devices
- Easily debug with Chrome DevTools
- Improve the performance of your HTML, CSS, and JavaScript
- Increases app size by about 20Mb

```
# add the Crosswalk browser to your Android project  
$ ionic browser add crosswalk
```

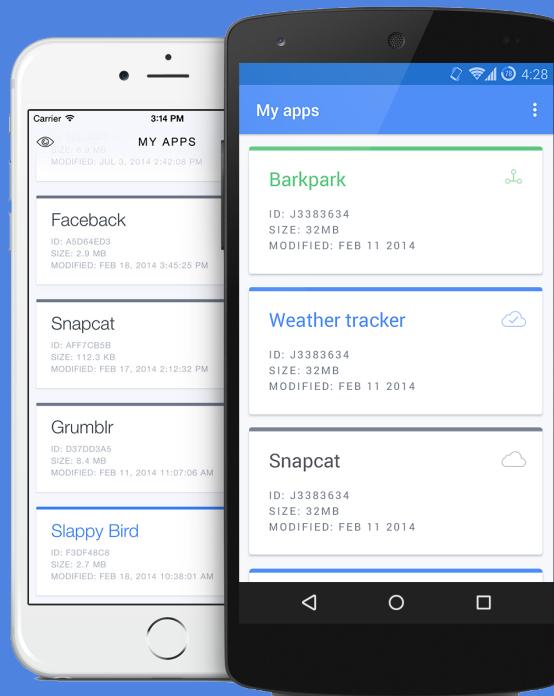
Ionic View

- Send your app to users for testing

\$ ionic login

\$ ionic upload

\$ ionic share EMAIL

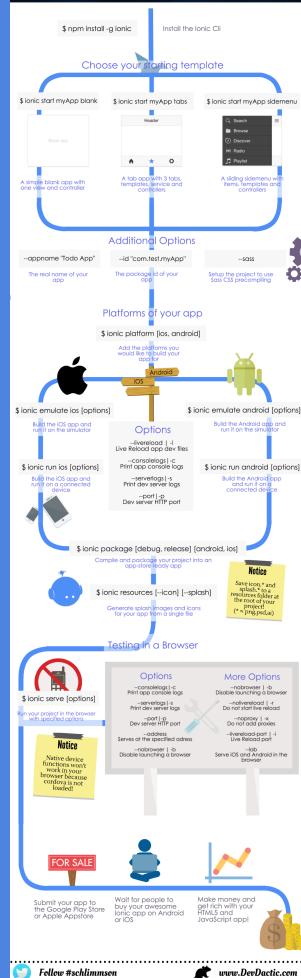


Links

- <http://ionicframework.com/>
- <http://ngcordova.com/>
- <https://www.airpair.com/javascript/posts/a-year-using-ionic-to-build-hybrid-applications>
- Flipboard my Ionic magazin +180 followers
 - <http://flip.it/q-lfz>

ionic Cheatsheet

by devDuctic
from zero to app!



ngCordova

CORDOVA WITH THE POWER OF **ANGULARJS**

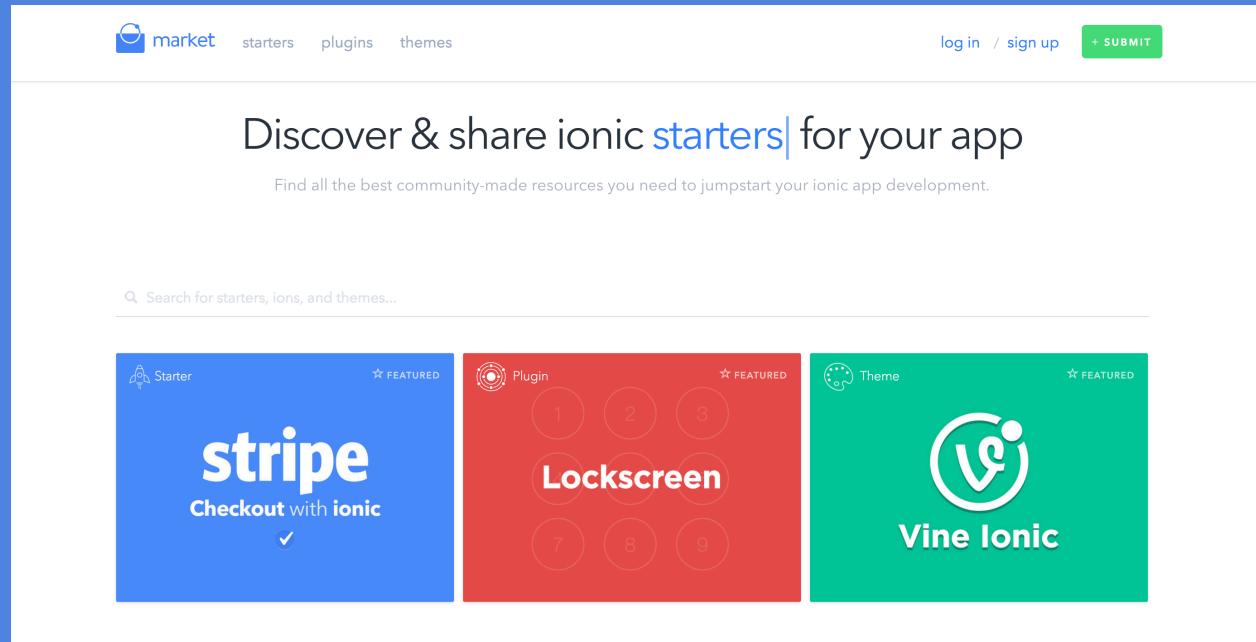
ngCordova is a collection of **70+** AngularJS extensions on top of the Cordova API that make it easy to build, test, and deploy Cordova mobile apps with AngularJS.



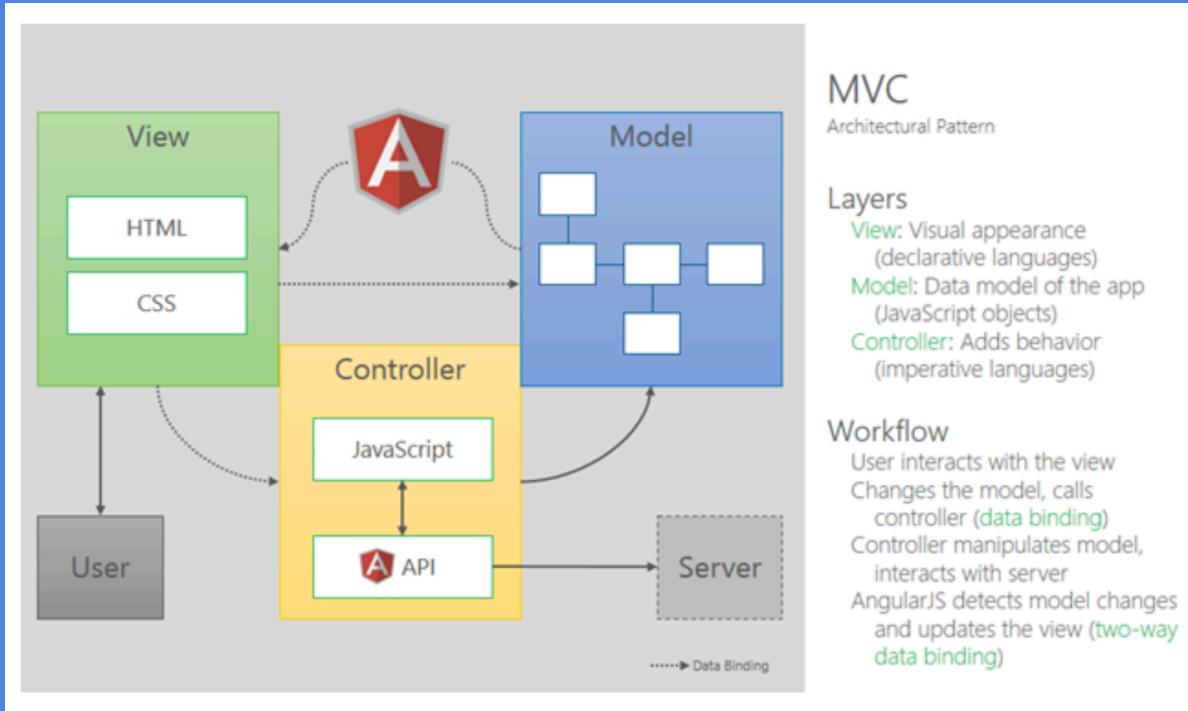
Market.ionic.io

- <http://market.ionic.io/>

- Themes
- Starters
- Plugins



MVC



MVC

- View = Templates (chats.html)
 - www/templates/...
- Controllers = angular.module('starter.controllers', []).controller('DashCtrl', function(\$scope) {})
 - www/js/controllers.js
- Model = best in services.js, call it with REST and read/persist in db
 - www/js/services.js

SPA (Single Page Application)

The diagram illustrates the SPA architecture through code snippets and corresponding DOM structures.

Code Snippets:

```
angular.module('helloWorldApp', [])
  .config(function ($routeProvider) {
    $routeProvider
      .when('/', {
        templateUrl: 'views/main.html',
        controller: 'MainCtrl'
      })
      .when('/about', {
        templateUrl: 'views/about.html',
        controller: 'AboutCtrl'
      })
      .otherwise({
        redirectTo: '/'
      });
  });

angular.module('helloWorldApp')
  .controller('MainCtrl', function ($scope) {
```

DOM Structure:

- Yellow Box:** `<div class="container" ng-view="">`
- Blue Box:** `<div class="hero-unit">
 <h1>'Allo, 'Allo!</h1>
</div>`

Arrows from the code snippets point to their corresponding DOM elements, indicating the mapping between routes and view templates.

SPA Single Page Apps

Define routes with [`\$routeProvider`](#) service
Placeholder with `..` (e.g. `/admin/users/:userId`)
Access route parameter values with [`\$routeParams`](#) service

Define where view should be included in index.html using [`ng-view`](#)

URL Modes
Hashbang and HTML5 mode
See [`\$location`](#) service docs for details

