AngularJS, Ionic und PhoneGap
Der Stack für neue Mobile-Apps

Philipp Burgmer

theCodeCampus / Weigle Wilczek GmbH

ABOUT ME

Philipp Burgmer

- Software Engineer / Consultant / Trainer
- Focus: Frontend, Web Technologies

- WeigleWilczek GmbH
- burgmer@w11k.com

ABOUT US

The Code Campus / WeigleWilczek / W11k

- Software Design, Development & Maintenance
- Consulting, Trainings & Project Kickoff

- Web Applications with AngularJS
- Native Rich Clients with Eclipse RCP

MOBILE-APPs TODAY

- Native Apps
- Often Mobile Versions of Web-App
- Special Skills for Each Platform Required
  - Language
  - SDK
  - Toolchain
- Hard to Create Same UX

WHAT ABOUT ...

- Support All Major Platforms
- Same Code Base for All Those Platforms
- Reuse Web-Technology Knowledge
- Same UX on All Platforms

TOO GOOD TO BE TRUE
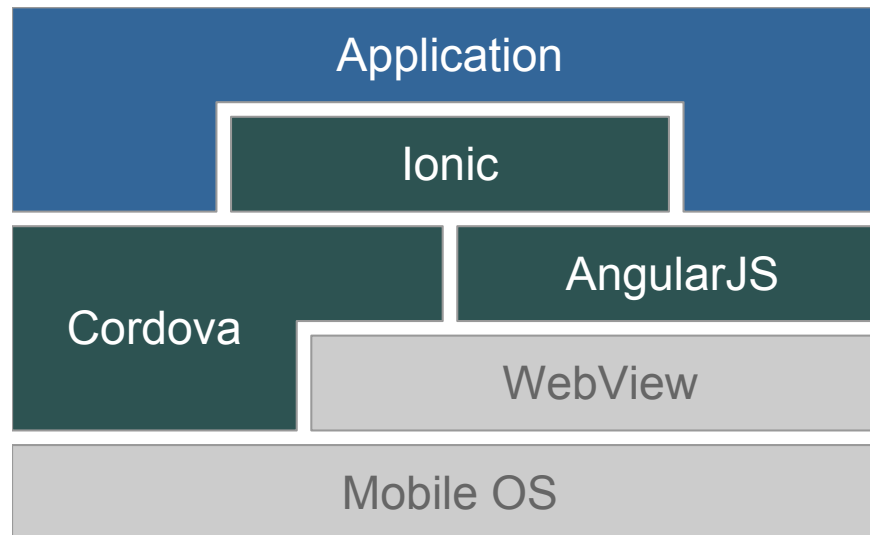
BUT WE ARE ON TRACK

DEVELOP MOBILE APPS WITH PHONEGAP, ANGULARJS AND IONIC

- Web-Technologies (HTML, JavaScript, CSS)
- Native Look & Feel

- Architecture
- Setup
- Development
- APIs
- Optimisation

ARCHITECTURE

THE BIG PICTURE

APACHE
CORDOVA™

- Better Known as PhoneGap
- Nitobi » Adobe » Apache
- Mobile Apps with Web Technologies

- cordova.apache.org
- Supported Platforms: iOS, Android, Windows 8, Windows Phone 7 / 8, BlackBerry 5+, ...
- Current Version: 3.5.0
- License: Apache 2.0

CORDOVA ARCHITECTURE

- Native App
  - Wrapper to Run Web App
  - Native Code for Each Platform
- Plugins
  - JavaScript-Native-Adapter to Access Mobile OS Features
  - Native Code for Each Platform
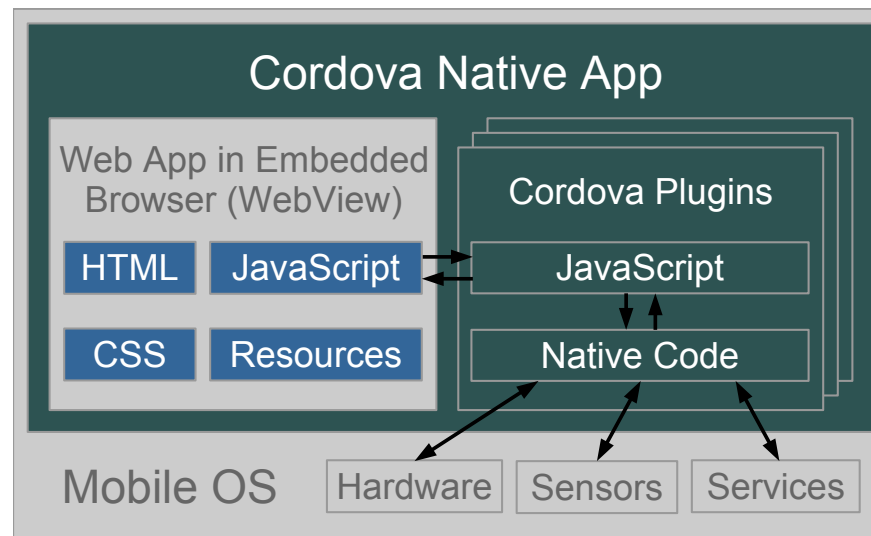
CORDOVA PLUGINS

- 362 Plugins in Registry

org.apache.cordova

- Camera
- Battery Status
- Console
- Contacts
- Device Information + Motion + Orientation
- Dialogs
- File + File Transfer

PhoneGap

- Distribution of Cordova
- Eco-System
- Services like PhoneGap Build

- phonegap.com
- Developed by Adobe
- License: Apache 2.0

HTML enhanced for web apps!

angularjs.org

- JavaScript-Framework for Rich Browser Applications
- Brings Core UI Concepts like MVC and DataBinding to Browser
- Extends HTML instead of abstract it

- angularjs.org
- Supported Browsers: Chrome, Firefox, Safari, IE8+, Opera, Android, Chrome Mobile, iOS Safari
- Current Versions: 1.2.23 and 1.3.0-rc.0
- License: MIT

- Frontend-Framework
- CSS Optimized for Mobile App
- AngularJS Directives, Services and Controller
  - Touch Support
  - Navigation
  - Menus & Dialogs
- Cordova Plugin(s)

- ionicframework.com
- Supported Platforms / Browsers: iOS, Android
- Current Version: 1.0.0-beta.11
- License: MIT

Onsen UI

- Very Similar to Ionic
- JavaScript & CSS Frontend-Framework
- Cordova and AngularJS based
- Directives and Services

- onsenui.io
- Supported Platforms / Browsers: Android 2.3+, iOS 6+, Firefox OS, Chrome, Safari
- Current Version 1.1.2
- License: Apache 2.0

SETUP

PREREQUISITES

Installed and in Path:

- Node.JS | `node`
- Git | `git`
- Ruby | `ruby`

NATIVE PLATFORM SDKs

Install at Least One of the Supported Platforms:

- Android SDK
  - Available for All Major OS (Windows, Mac OS, Linux)
  - Slow Simulator
- iOS
  - Available on Mac OS only
  - Fast Simulator

ANDROID SDK

Prerequisites

- Java | `java`
- Ant | `ant`

Packages

iOS SDK

- Xcode
- iOS 7 SDK
- iOS Simulator

WEB SDKs

Required

- Apache Cordova | `cordova`
- Ionic | `ionic`

Optional:

- Ripple Emulator | `ripple`
- iOS Sim | `ios-sim`

WEB TOOLS

- Bower | `bower`
- Grunt | `grunt`
- Compass | `compass`

IONIC BOX

- Vagrant Box with All the Tools Installed
- No Need to Install Everything Locally
- VirtualBox and Vagrant Required

DEMO

PROJECT STRUCTURE

```
▶ 📁 hooks
▼ 📁 merges
    📁 android
    📁 ios
▼ 📁 platforms
    ▶ 📁 android
    ▶ 📁 ios
▼ 📁 plugins
    📄 org.apache.cordova.device
    ▶ 📁 com.ionic.keyboard
    ▶ 📁 org.apache.cordova.console
    📄 android.json
    📄 ios.json
▶ 📁 scss
▶ 📁 www
    📄 bower.json
    📄 config.xml
    📄 gulpfile.js
    📄 ionic.project
    📄 package.json
    📄 README.md
```
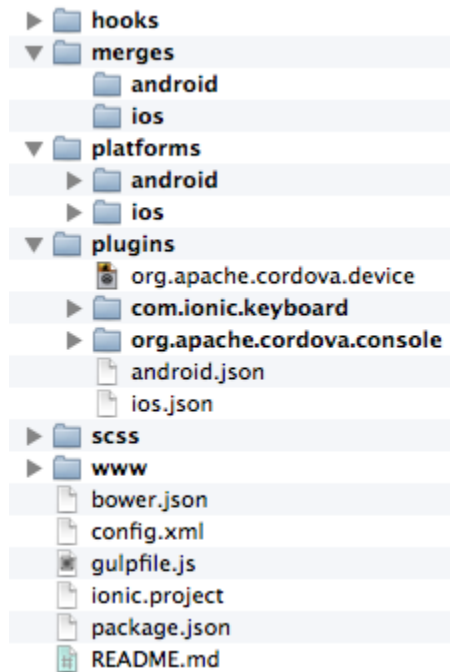
Cordova

- hooks
- merges
- platforms
- plugins
- www
- config.xml

Ionic

- ionic.project

Custom

- scss
- bower.json
- Gulpfile.js
- package.json

TOOLS

CORDOVA CLI

- Required to Configure and Build Cordova Project

- Run `cordova` to See All Available Commands
- Commands to Configure Project
- Commands to Build Project

IONIC CLI

- Ionic Consists of Two Things:
  - Framework (also Available via Bower)
  - Command Line Interface (via NPM)
- CLI Not Required to Develop Ionic App
- Different Versioning

- Run `ionic` to See All Available Commands
- Shortcuts to Cordova CLI
- `create` and `serve`
- `login` and `upload`

RIPPLE EMULATOR

- Emulates Android Device in Browser
- Requires Android as Platform
- Start Server and Open Browser via `ripple emulate`
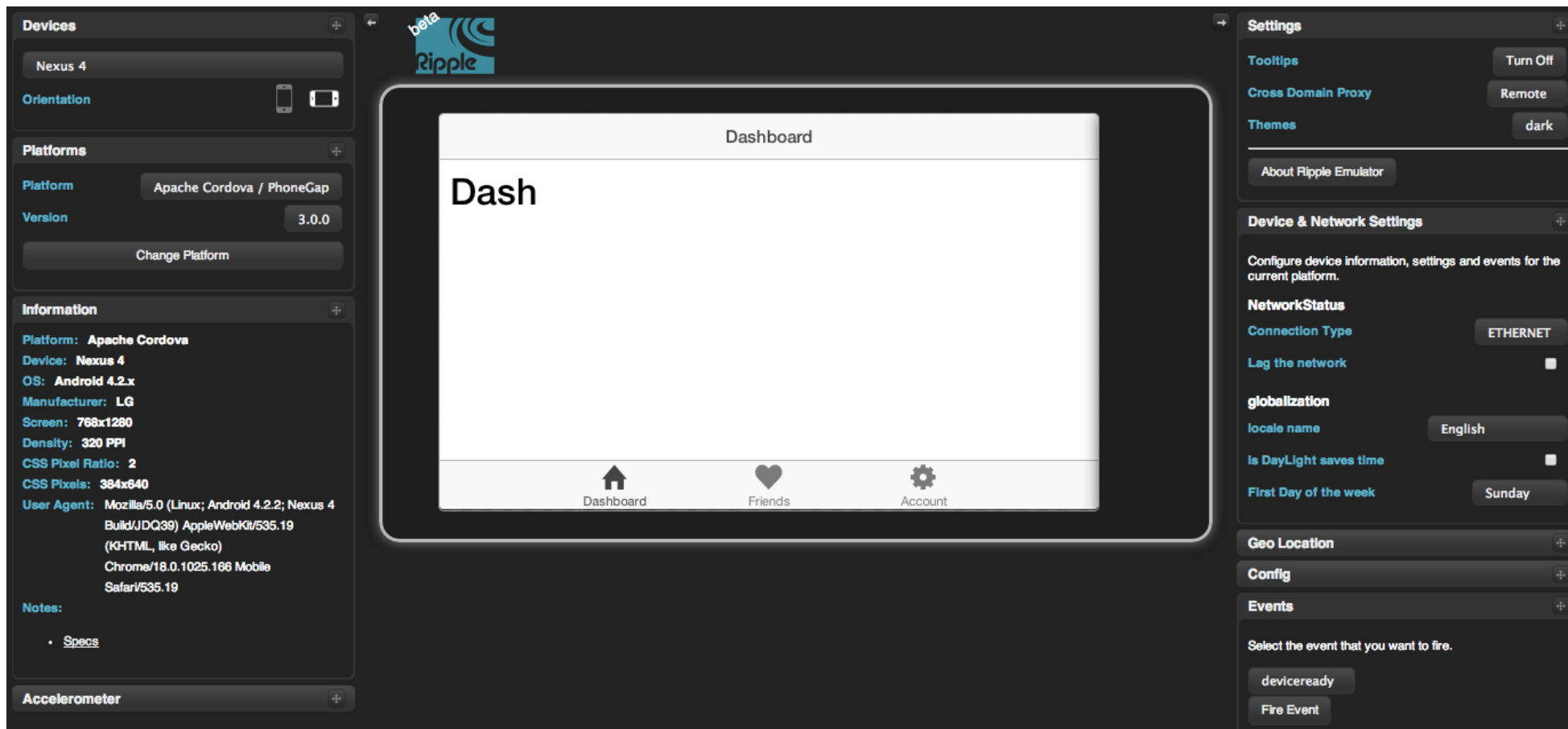
PLATFORM SIMULATORS

Android

- Android SDK Required
- `cordova platform add android` or `ionic platform android`
- `cordova emulate android` or `ionic emulate android`
- Take a Nap or Drink Some Coffee ...

iOS

- Xcode, iOS Simulator and ios-sim Required
- `cordova platform add ios` or `ionic platform ios`
- `cordova emulate ios` or `ionic emulate ios`

APIs

ANGULARJS

- API Documentation: docs.angularjs.org/api
- Pay Attention: Documentation for latest Build (Select Box at The Top Left Corner)
- Basic Tutorial: docs.angularjs.org/tutorial
- Great Tutorial Videos: egghead.io

IONIC

- API Doc and Guides at ionicframework.com/docs
- Lot of Live Demos and Code Examples

- All Directive Starts with Prefix `ion` (Nice!)
- All Services Uses `$ionic` Prefix (Bad Practice?)
- Uses Angular-UI Router

NG-CORDOVA

- AngularJS Wrapper for Common Cordova Plugins
- Tight Integration: Uses Promises and $timeout
- Independent of Ionic

- github.com/driftyco/ng-cordova
- Current Version: 0.1.3-alpha
- License: MIT

OPTIMISATION

PERFORMANCE HINTS

- Avoid Overlapping Elements (Popups, Overlays)
- Try to Keep the DOM Small, Create Multiple Small States
- HTML Tables Are Sluggish
- Transport Really Needed Data Only
- Use Caching
- Minimize Code
- Test Performance on Real and Old Devices

PROJECT STRUCTURE

- Use Bower to Manage Frontend Dependencies
- Use a Build System to Optimize Your App (Minimize Code, ...)

HOOKS

- Hook into CLI commands
- Something Executable (Scripts with Hash-Bang)
- Subfolders in `hooks`
- See README for a List Of Available Hooks
- Can Be Used to Build Frontend (Modify `www` Content)
- Pay Attention: No `www` Folder ➡ No Valid Cordova Project!

FABS

FABULOUS ANGULARJS BUILD SYSTEM

- Helps to Structure Code (Feature-Oriented-Structure)
- Dev-Mode with Server, Proxy and LiveReload
- SASS and LESS Support
- Spec and End-2-End Test
- Mock Data for Tests and Developing
- Bower to Manage Frontend Dependencies
- Project- and Per-Developer Configuration
- Building Distribution
  - Annotating AngularJS Dependencies (Transform to Array-Notation)
  - Code Minimization
  - Running End-2-End Tests Against Build Application

- github.com/w11k/fabs
- Yeoman Generator: `generator-fabs`

Philipp Burgmer

burgmer@w11k.com

www.w11k.com

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