Capacitor :
from PWA to native app in 5 minutes

Horacio Gonzalez @LostInBrittany

Who am I?

Introducing myself and introducing OVH

Horacio Gonzalez

@LostInBrittany

Spaniard lost in Brittany, developer, dreamer and all-around geek

OVH
Team DevRel

DevFest du Bout du Monde

Finist Devs

WARP 10 MEETUP

Google Developers Experts 2019
Web Technologies
GDE
Flutter

OVH : Key Figures

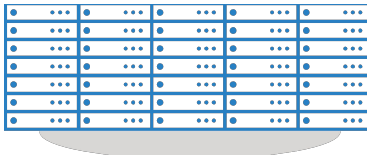
1.3M Customers worldwide in 138 Countries
1.5 Billions euros investment over five years
30 Datacenters (growing)
350k Dedicated Servers
200k Private cloud VMs running
650k Public cloud Instances created in a month
15TB bandwidth capacity
35 Points of presence
4TB Anti DDoS capacity
Hosting capacity : 1.3M Physical Servers

+ 2 500 Employees in 19 countries
20 Years of Innovation

OVH: A Global Leader on Cloud

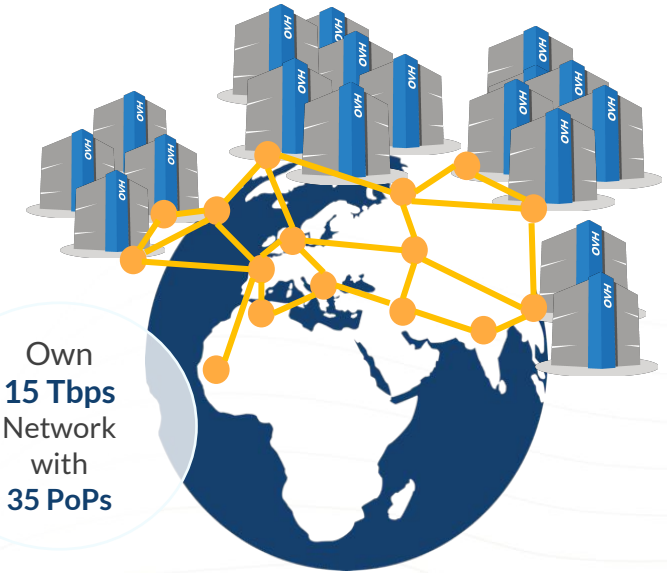
200k Private cloud VMs running

1 **Dedicated IaaS Europe**



Hosting capacity : **1.3M** Physical Servers

360k Servers already deployed



Own **15 Tbps** Network with **35 PoPs**

2018
27 Datacenters

2020
50 Datacenters

> **1.3M** Customers in **138** Countries

Ranking & Recognition

1st **European** Cloud Provider*

1st **Hosting** provider in Europe

1st **Provider** Microsoft Exchange

Certified vCloud Datacenter

Certified Kubernetes platform (CNCF)

Vmware **Global Service Provider** 2013-2016

Veeam Best Cloud Partner of the year (2018)

* *Netcraft 2017 -*

OVH: Our solutions

Cloud

- VPS
- Public Cloud
- Private Cloud
- Serveur dédié
- Cloud Desktop
- Hybrid Cloud

Mobile Hosting

- Containers
- Compute
- Database
- Object Storage
- Securities
- Messaging

Web Hosting

- Domain names
- Email
- CDN
- Web hosting
- MS Office
- MS solutions

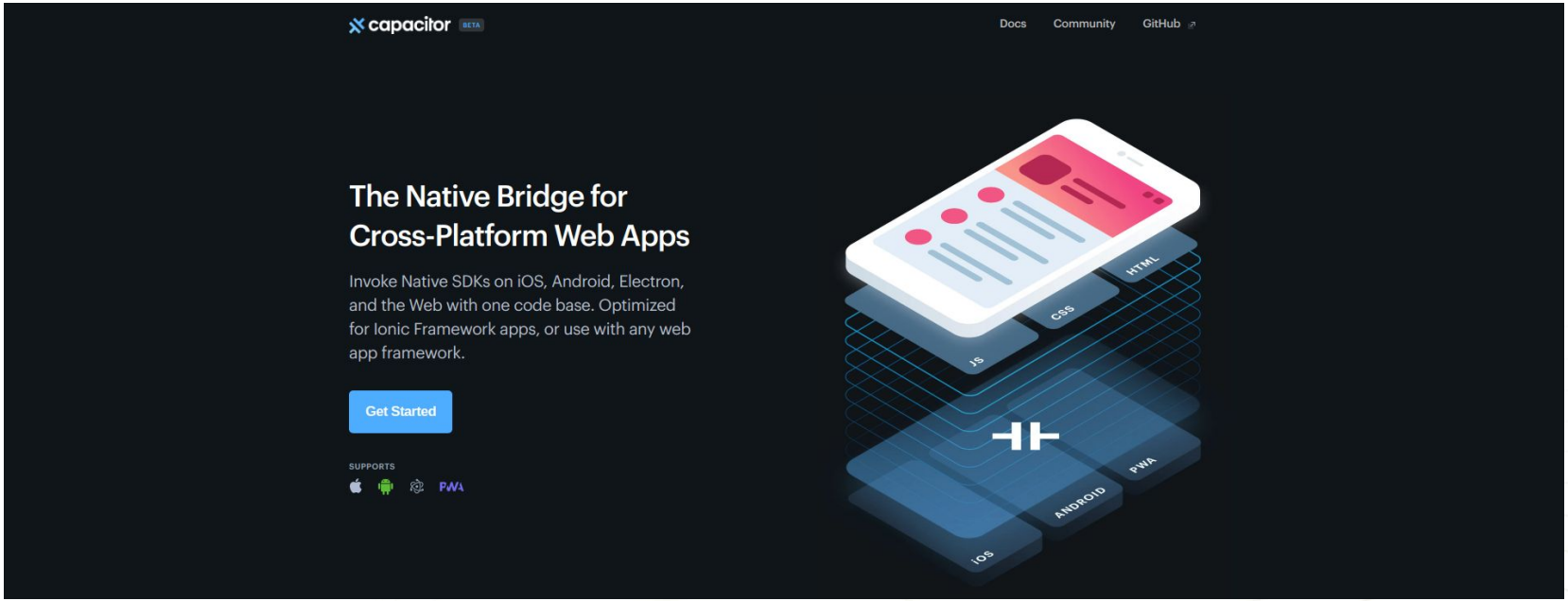
Telecom

- VoIP
- SMS/Fax
- Virtual desktop
- Cloud HubiC
- Over theBox

Capacitor

The Native Bridge for Cross-Platform Web Apps

What's Capacitor?



Cross-platform app runtime making it easy to build web apps that run natively on iOS, Android and web

Spiritual heir to Apache Cordova

Evolution, not revolution

Spiritual heir to Apache Cordova

Support for many Cordova plugins

Extensible and evolutif

- Close to web-standards
- Plugin API
  - Swift on iOS
  - Java on Android
  - JavaScript for the web

Developer Friendly

Easy to get started

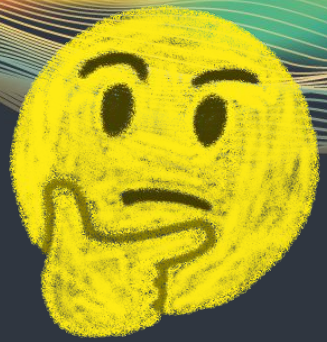
Works on any framework

You still need the platform tools

Android Studio and/or Xcode
to build the native packages

Weren't you a PWA advocate?

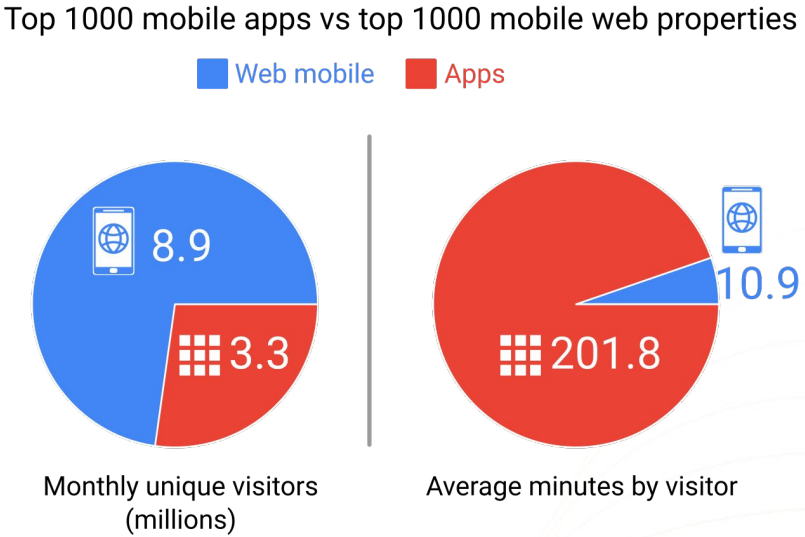
And you are also championing Flutter!
Where is the coherence, guy?



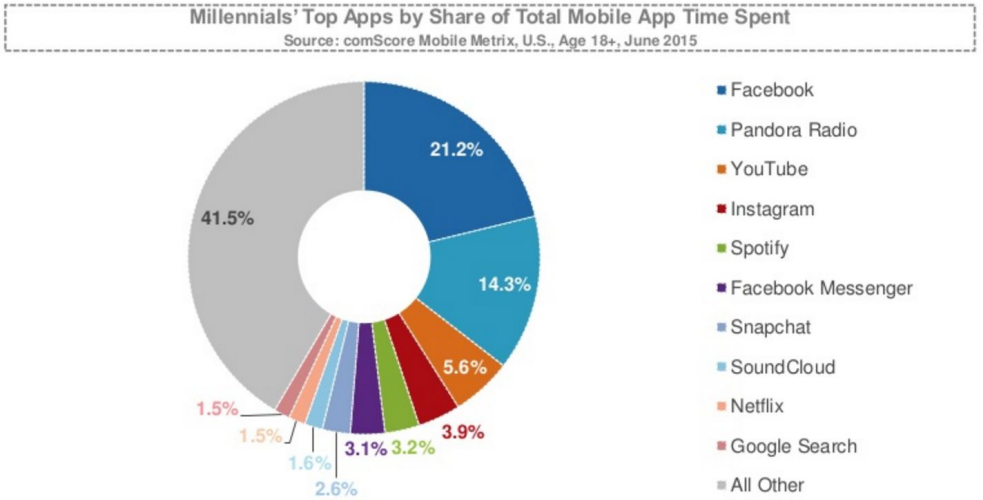
Well, I am a PWA advocate indeed

I rooted for PWA before it was fancy...

And I know the numbers...



Source: comScore Mobile Metrix 2015, U.S., Age 18



Apps drive engagement, web drive visitors...

20 biggest apps account for 80% of user time

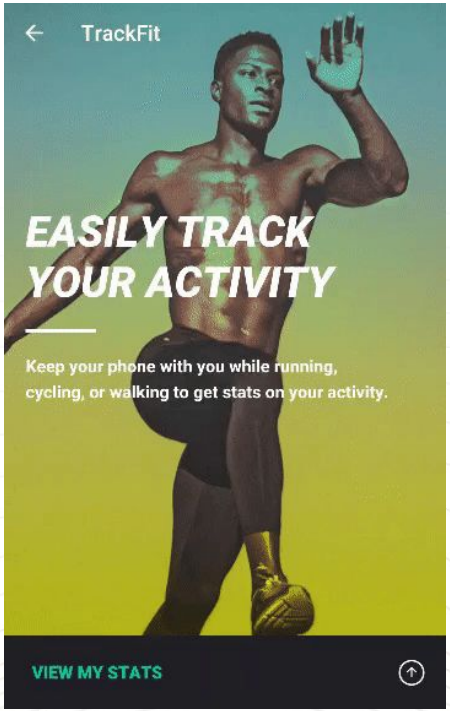
An engineer role is to choose

The right tool for the right problem

If you need super fancy UX

60 FPS, slick animations, an experience more than an app

Then go full **native**



And BTW, do it in **Flutter**

For more normal needs

The Washington Post

AMP helps the Washington Post increase returning users from mobile search by 23%!

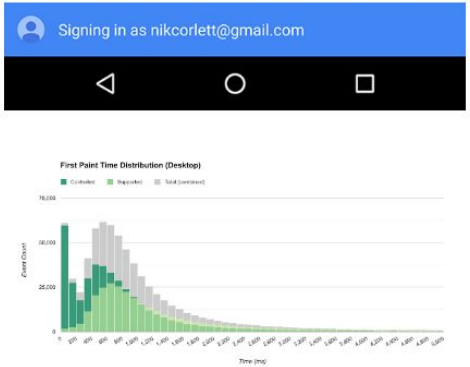
"We are committed to improving speed across the board. If our site takes a long time to load, it doesn't matter how great our journalism is, some people will leave the page before they see what's there"
David Merrell, Senior Product Manager, The Washington Post

READ MORE

AliExpress

"Smarter shopping, better living!" is the motto of AliExpress, a website where shoppers can buy everything from baby clothes to refrigerators directly from China. Part of the Alibaba Group, the global online retail marketplace is now a popular e-commerce site in America, Russia, and Brazil.

READ MORE



Measuring the Real-world Performance Impact of Service Workers

One of the most significant benefits of service workers (from a performance perspective, at least) is their ability to proactively control the caching of assets. A web application that can cache all of its necessary resources should load substantially faster for returning visitors. But what do these gains actually look like to real users? And how do you even measure this?

READ MORE

A well done PWA is simply enough

But if you need to be in the store?

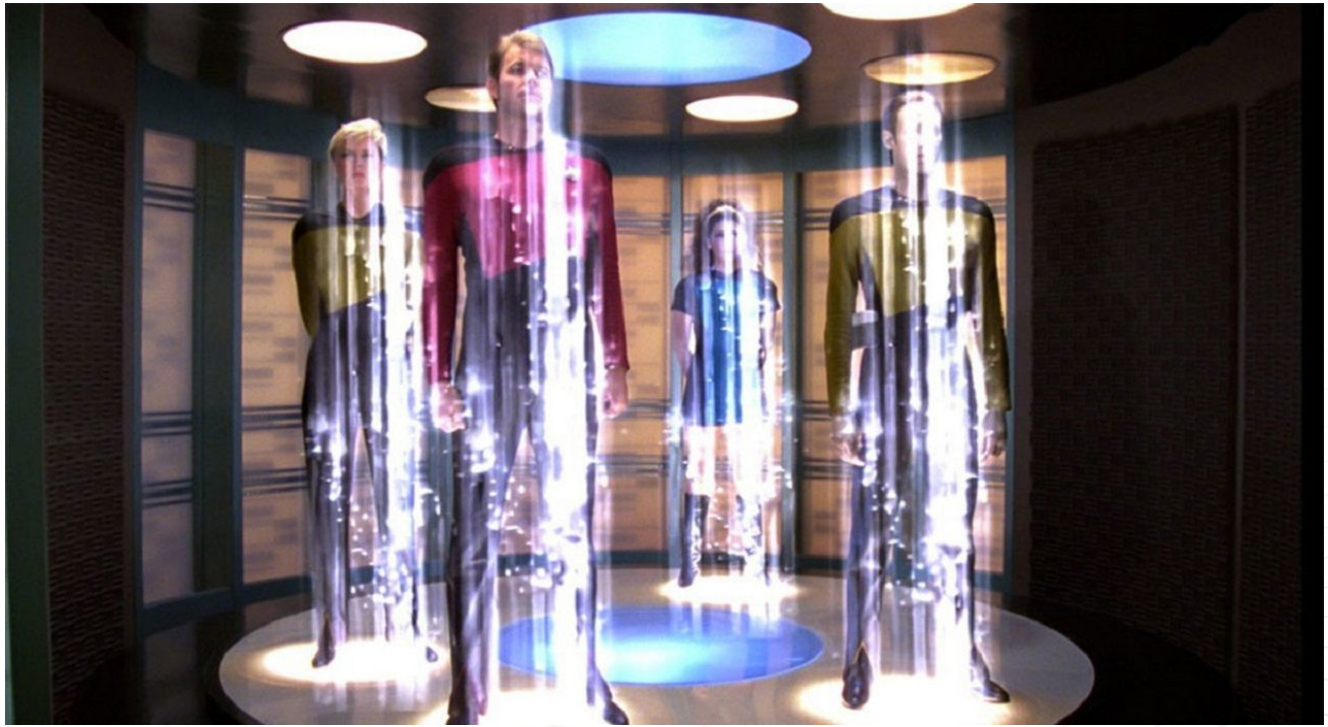
PWA

For many reasons, not all objective...

Hybrid PWA apps

The best of two worlds

Capacitor take your PWA to the store



In a simple, quick and painless way

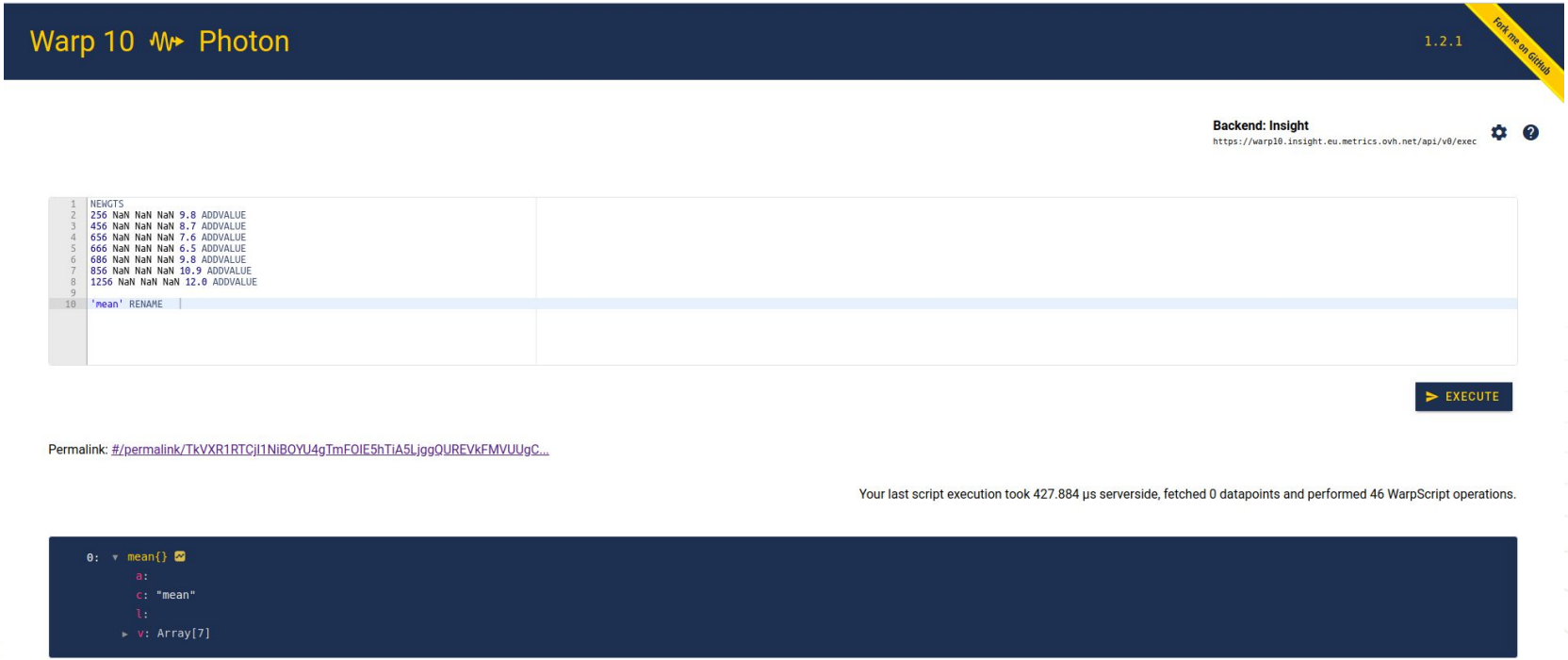
First steps testing Capacitor

Adding Capacitor to an existing app

From web to native

Giving superpowers to you webapp

Testing with a real webapp



Warp 10 Photon - IDE for Warp 10

Step 1 - Add Capacitor to the app

- Install Capacitor

```
cd my-app
```

```
npm install --save @capacitor/core @capacitor/cli
```

- Init Capacitor

```
npx c
```

- Add Android and/or iOS and/or Electron support

```
npx cap add android
```

Step 2 - Copy to Android

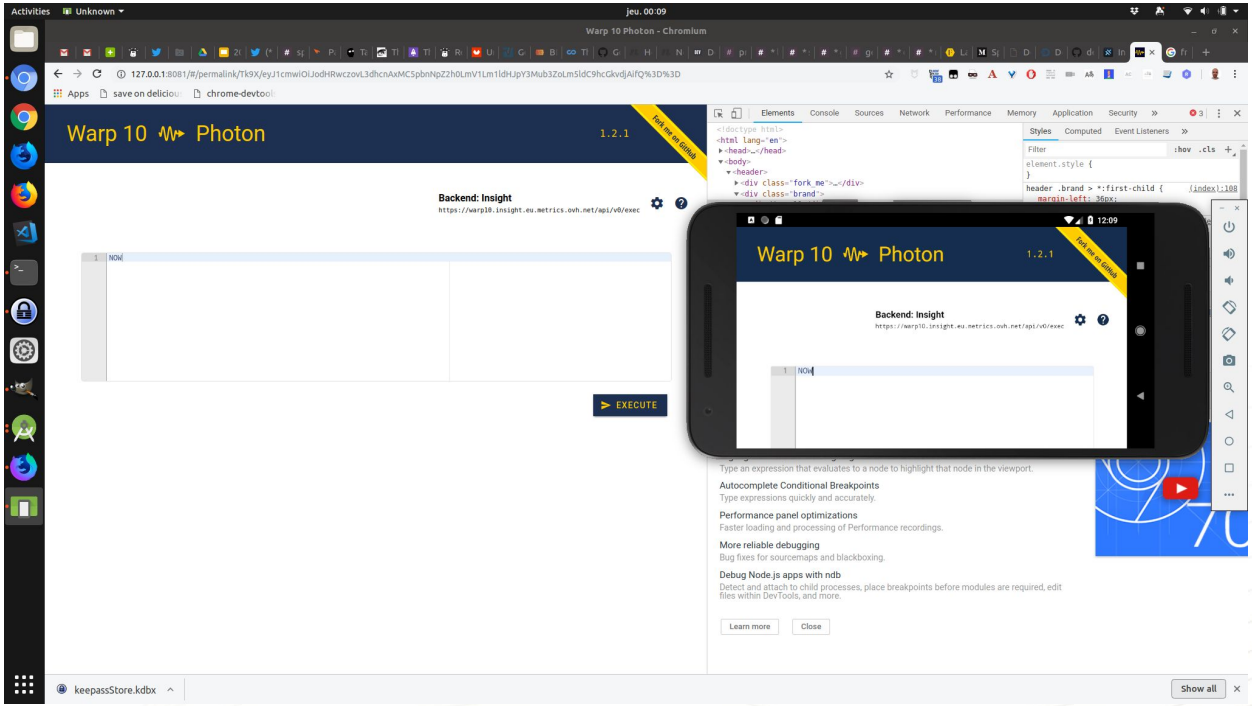
- Edit `capacitor.config.json` to choose the built folder
- Copy the built resources to Android

```
npx cap copy
```

- Launch Android Studio

```
npx cap open android
```

Step 3 - Test



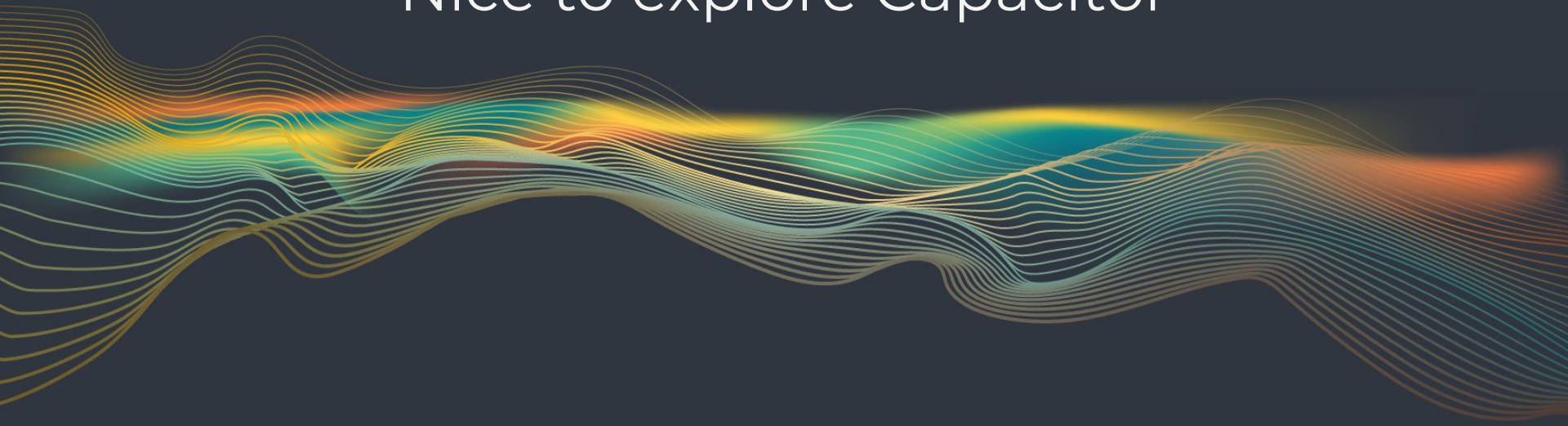
And our webapp is now a native app

First test: successful!

Capacitor 1 - Scepticism 0

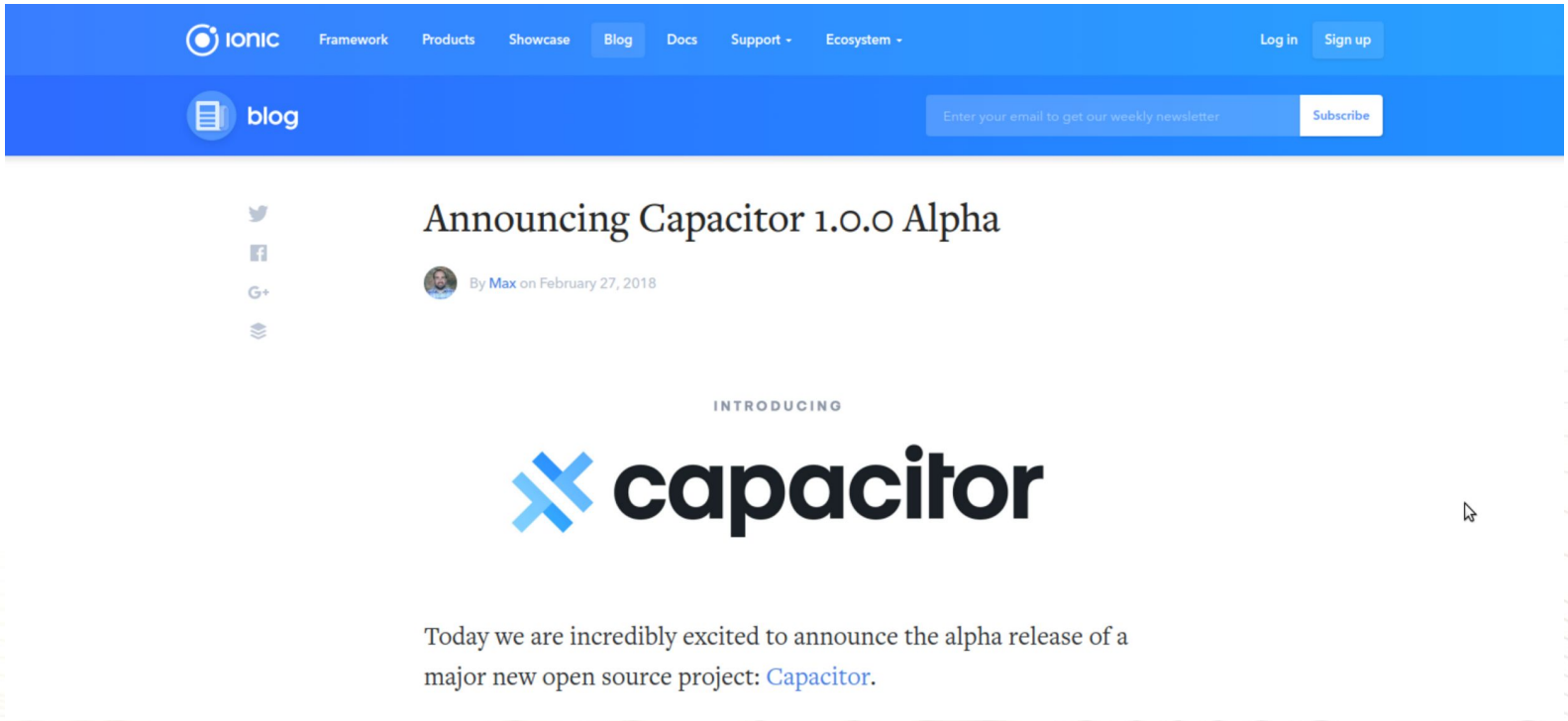
The Capacitor example app

Nice to explore Capacitor



Made by the Ionic team

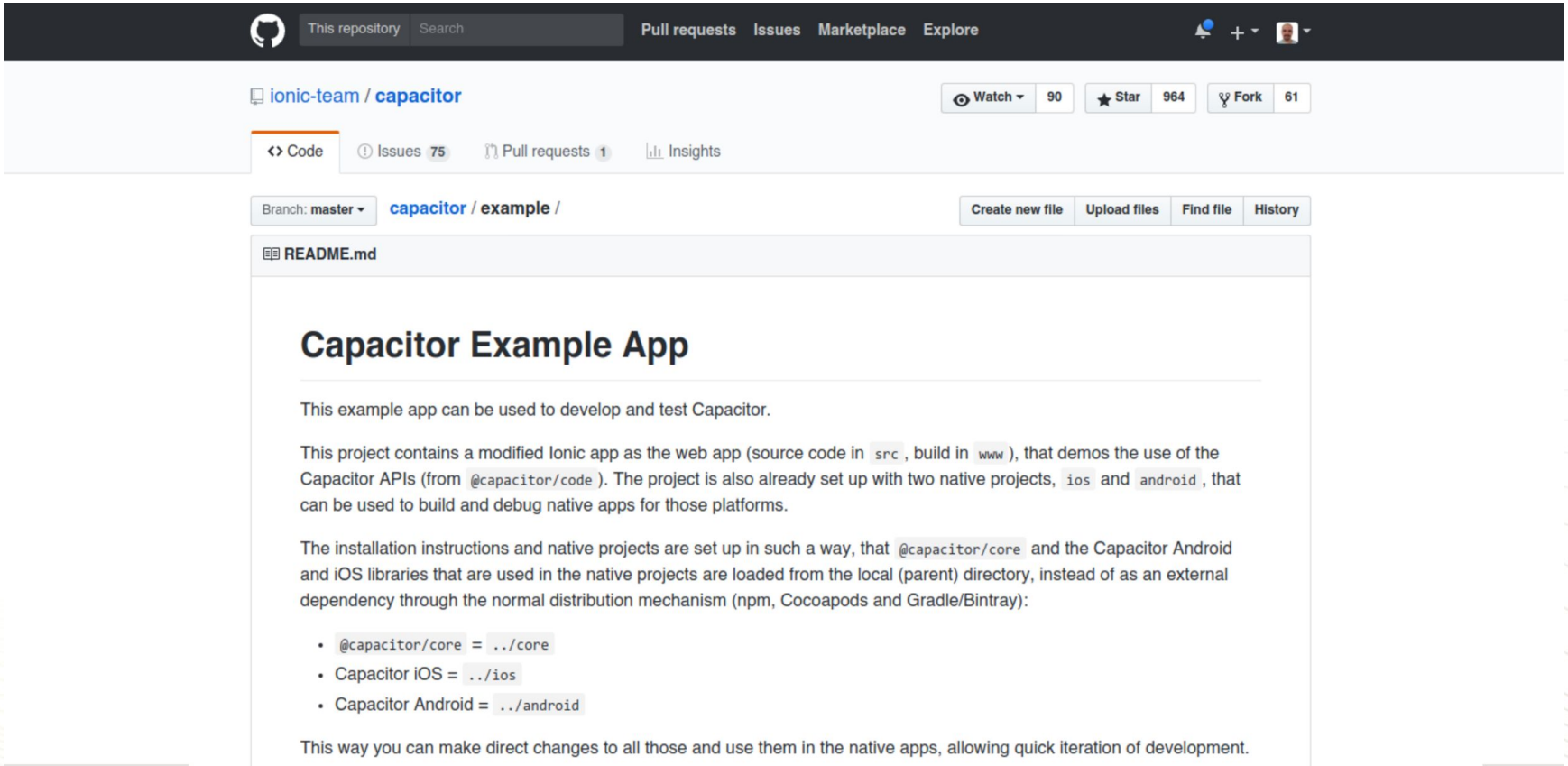
To replace Cordova in Ionic 4



Official example built on Ionic

Showcasing Ionic 4

Let's try the official example



Using directly the Capacitor repository

Custom built project, not a production app

`@capacitor/core` and native libs loaded from local directory

Let's build the Android version

1. Build Capacitor Core Module

Start by building the Capacitor Core Module in `/core`:

```
cd ../core

npm install
npm run build
npm link
```

2. Build Example App

Switch back over to this example project in `/example` where you first install dependencies and link in the `@capacitor/core` you just built in the step before, then build the app and copy the build files to the correct `public` directories for both the iOS and Android example apps:

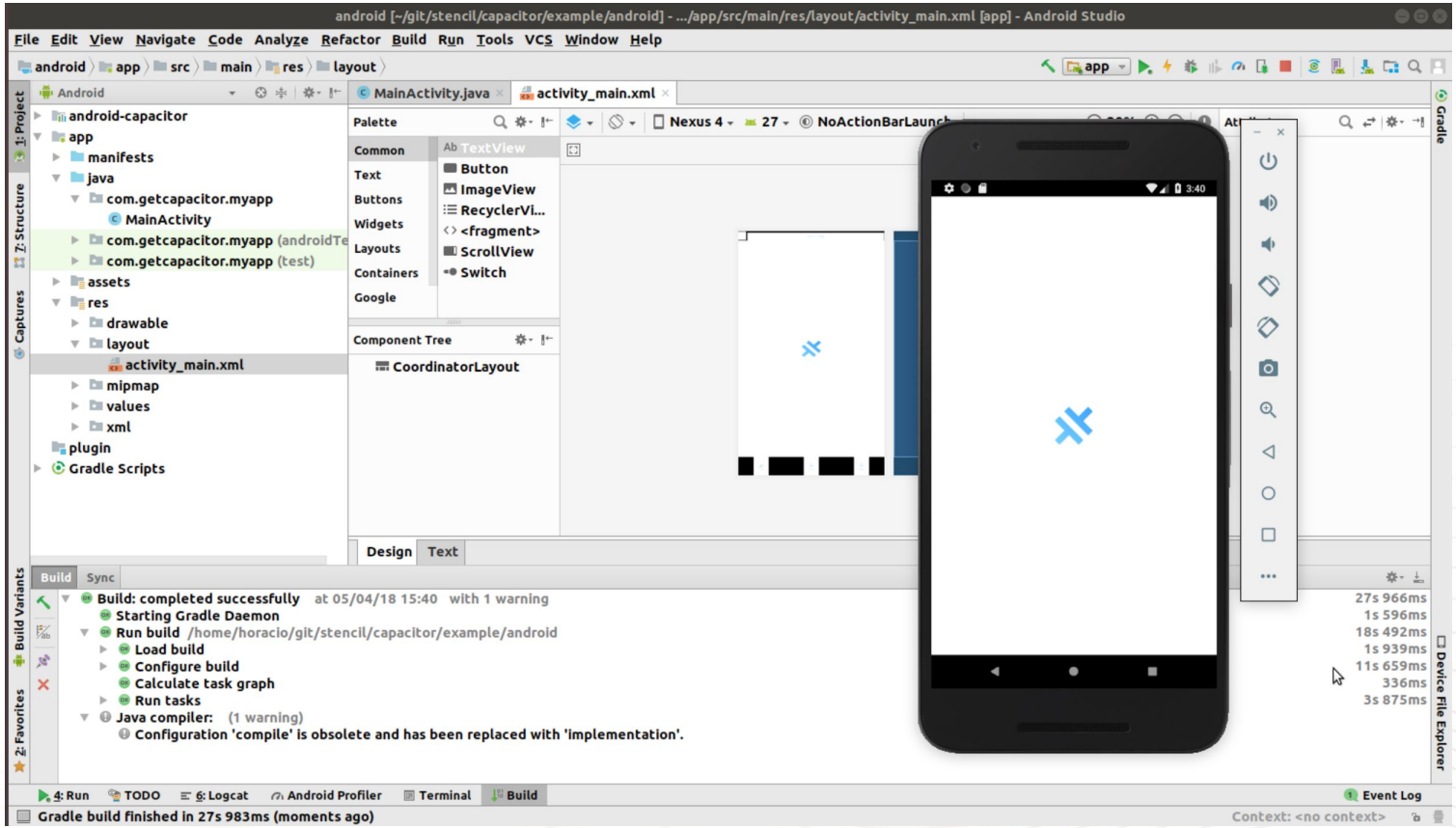
```
cd ../example

npm install
npm link @capacitor/core

npm run build
npm run copy
```

3. Build and run the native Capacitor Apps

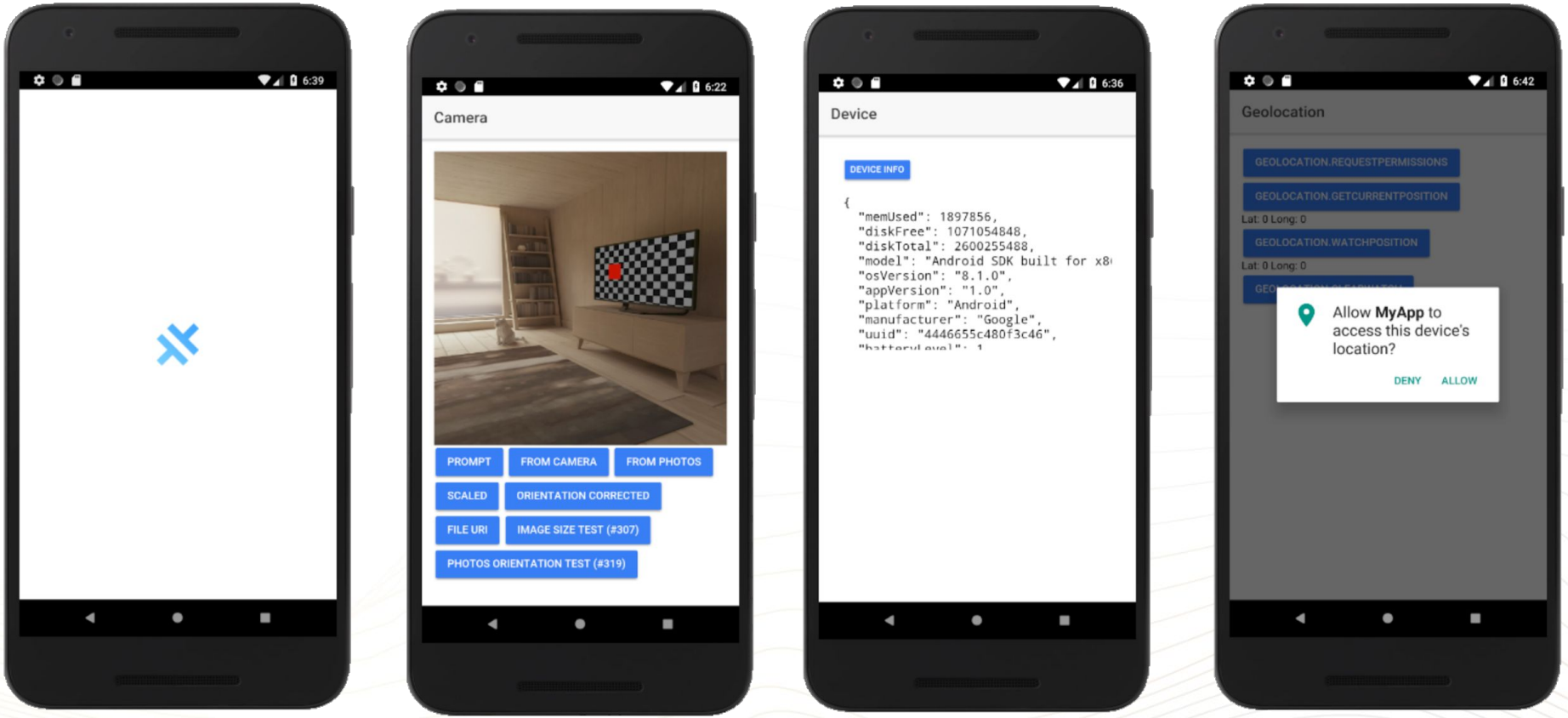
Now that everything is in place you can build the native Capacitor Apps:

Some pre-building and building needed...

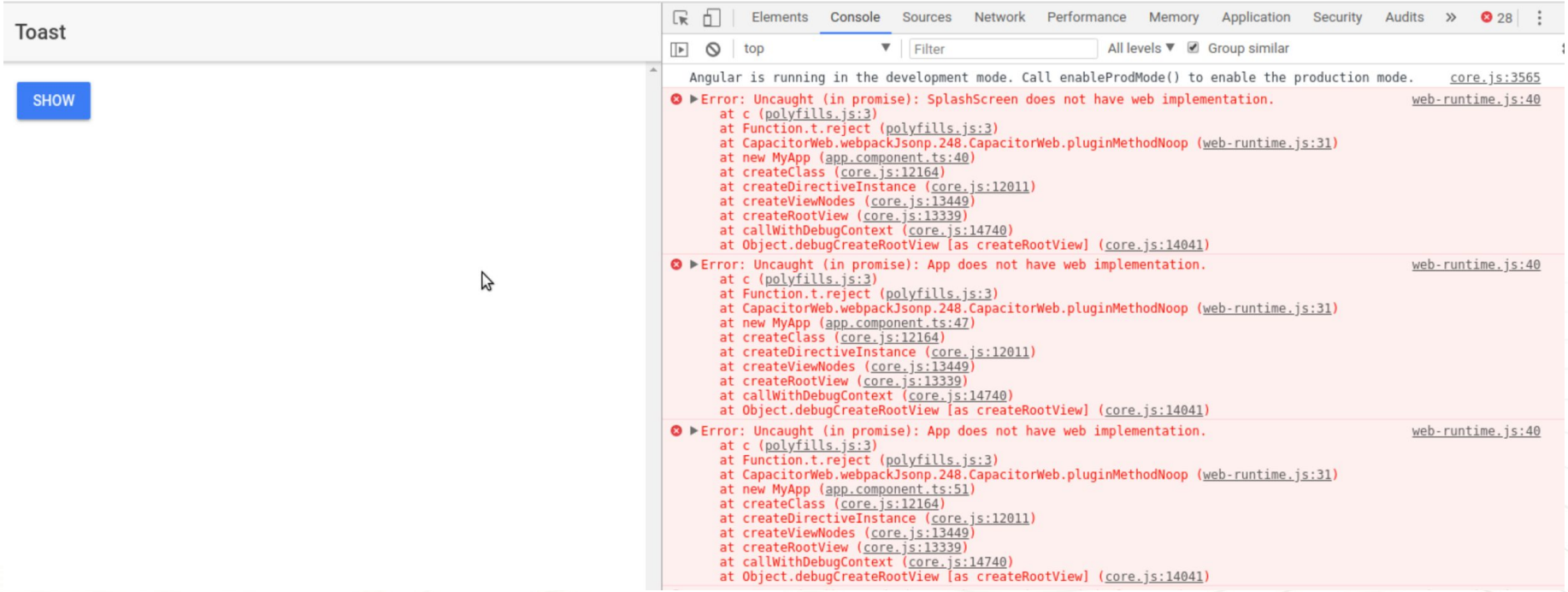
We now have an Android project



Easy and painless Android app

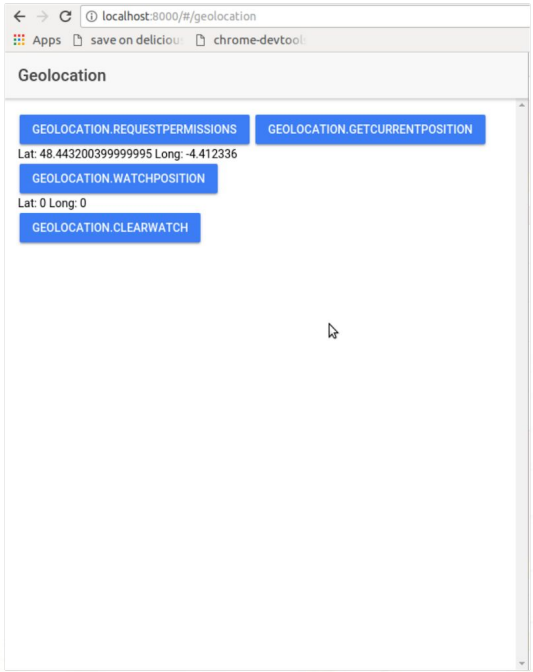


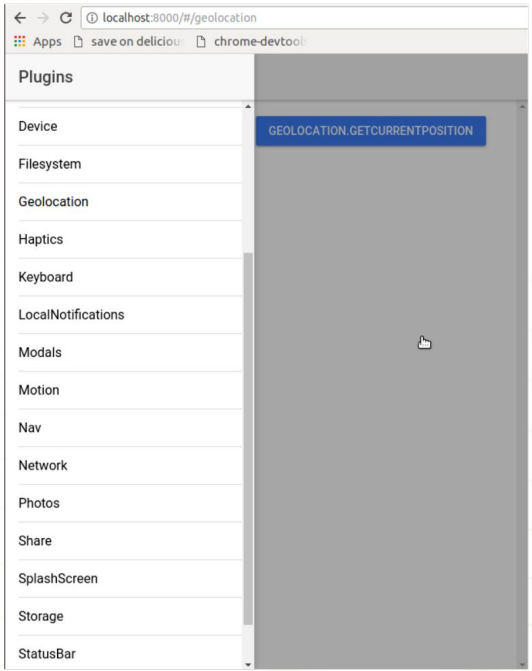
And in PWA mode?

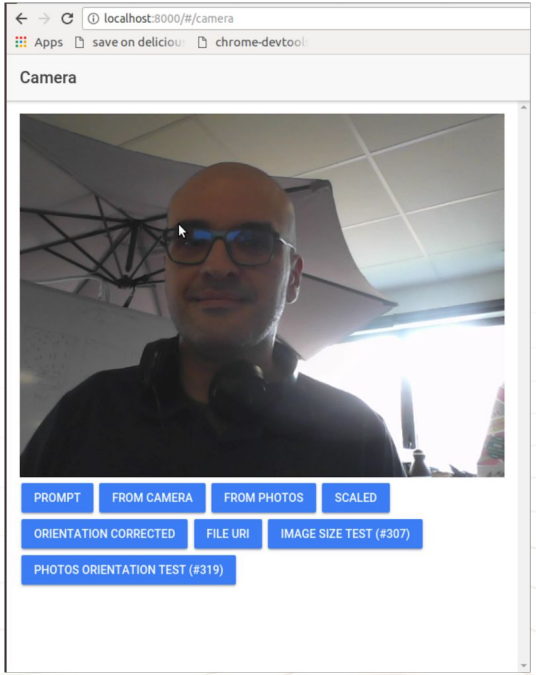


Some elements haven't web implementation (yet?)

But it still works!







It fails gracefully for unsupported plugins

Second test: successful!

Capacitor 2 - Scepticism 0

Let's try something harder

Stencil & capacitor

Capacitor without Ionic

I want to use it Capacitor
with my own toolset

I'm a Web Components guy

And I speak a lot about Polymer

But Polymer is in a transition phase

Polymer 2.x : bower based

Polymer 3: npm based but recommended only for legacy

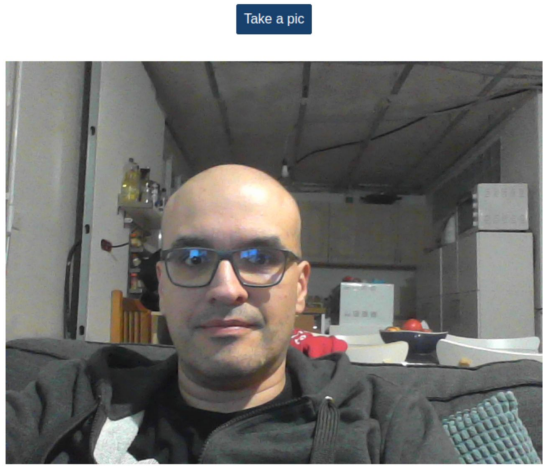
LitElement: the new, lightweight, blazing fast library by Polymer team

So what to use?

Stencil, of course!

The magical, reusable web component compiler

Let's begin with a simple example



A Camera app, working well on web mode

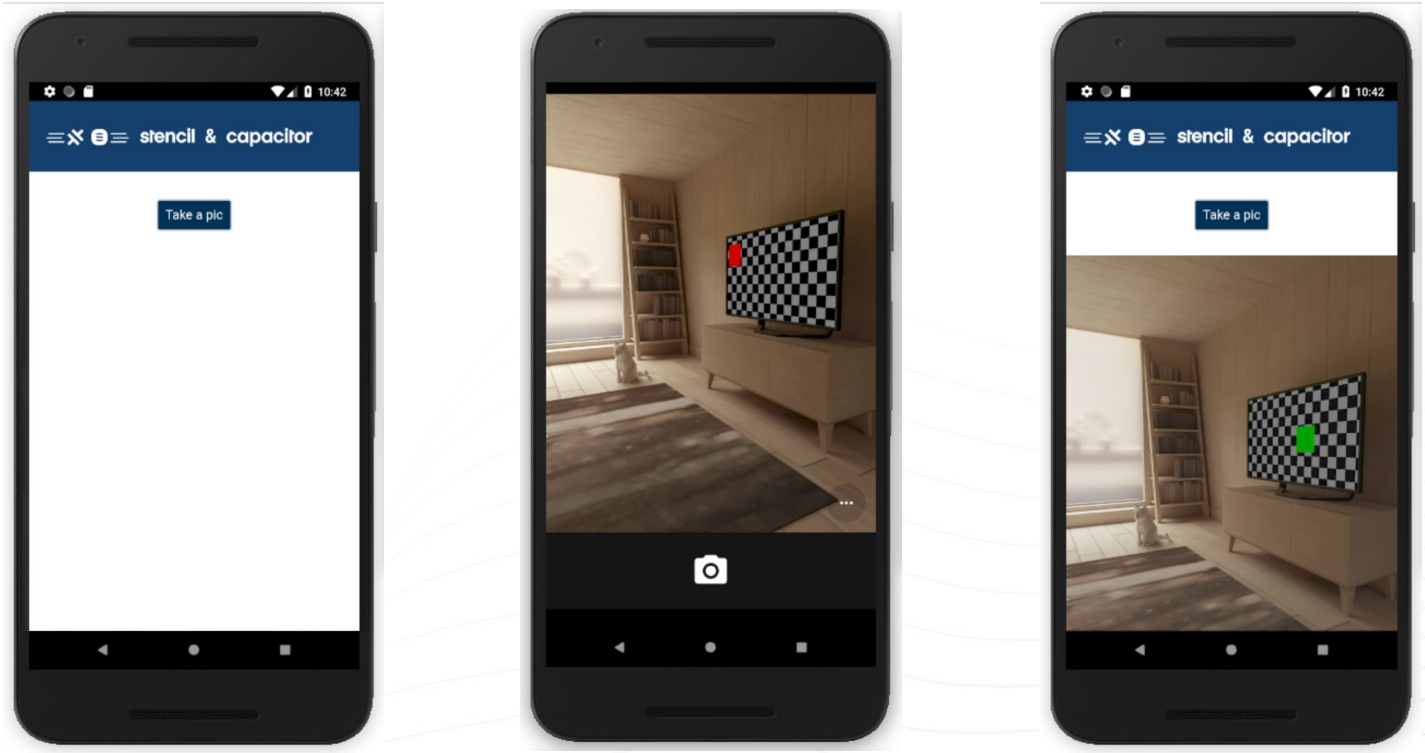
Using standard Media Capture and Streams API

Let's charge it with Capacitor

We want the same behavior

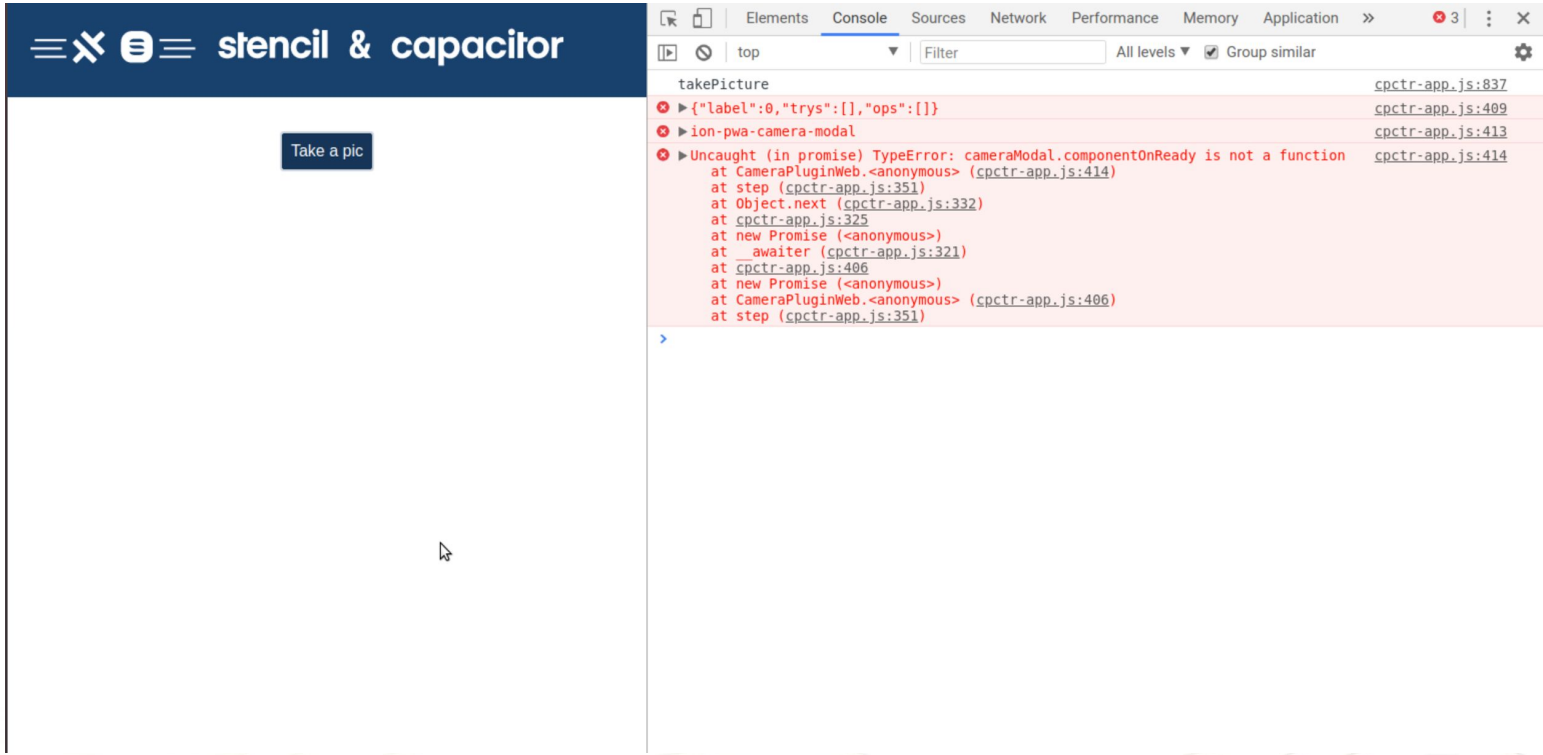
But now in Android, iOS, Electron AND web

And does it work?



Yes it does... in native mode only!

But not in PWA mode :(



And a big question: why?

Well, let's spot the differences...

Searching on the example code

hmmmm, @ionic/pwa-elements, what's that?

@ionic/pwa-elements

capacitor BETA

Docs Community GitHub

Getting Started

Introduction
Required Dependencies
Installation
PWA Elements
Using with Ionic

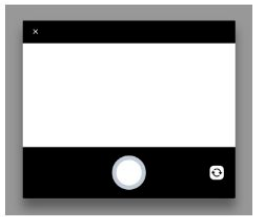
Basics

Development Workflow
Opening Native IDE
Building your App
Running your App
Using Cordova Plugins
Native Project Configuration
Progressive Web Apps

iOS

PWA Elements

Some Capacitor plugins, such as `Camera`, have web-based UI available when not running natively. For example, calling `Camera.getPhoto()` will load a responsive photo-taking experience when running on the web or electron:



This UI is implemented using a subset of the Ionic Framework web components. Due to the magic of Shadow DOM, these components should not conflict with your own UI whether you choose to use Ionic or not.

Web-based alternatives for some Capacitor plugins

Adding @ionic/pwa-elements

Simply install them:

```
npm install @ionic/pwa-elements
```

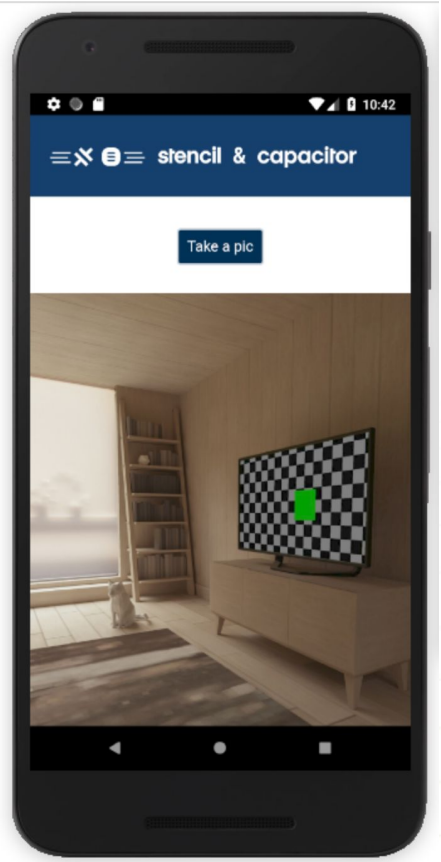
And then import them:

```
import '@ionic/pwa-elements';
```

And then...

It's a kind of magic!

On Android and Web



stencil & capacitor

Take a pic

Second test: successful!

Capacitor 3 - Scepticism 0

And in Real Life?

Because examples are examples...

Use case 1: Putting PWA into store

It simply works, easy and painless!

Use case 2: Progressive enhancing

Giving your PWA an extra P when going native

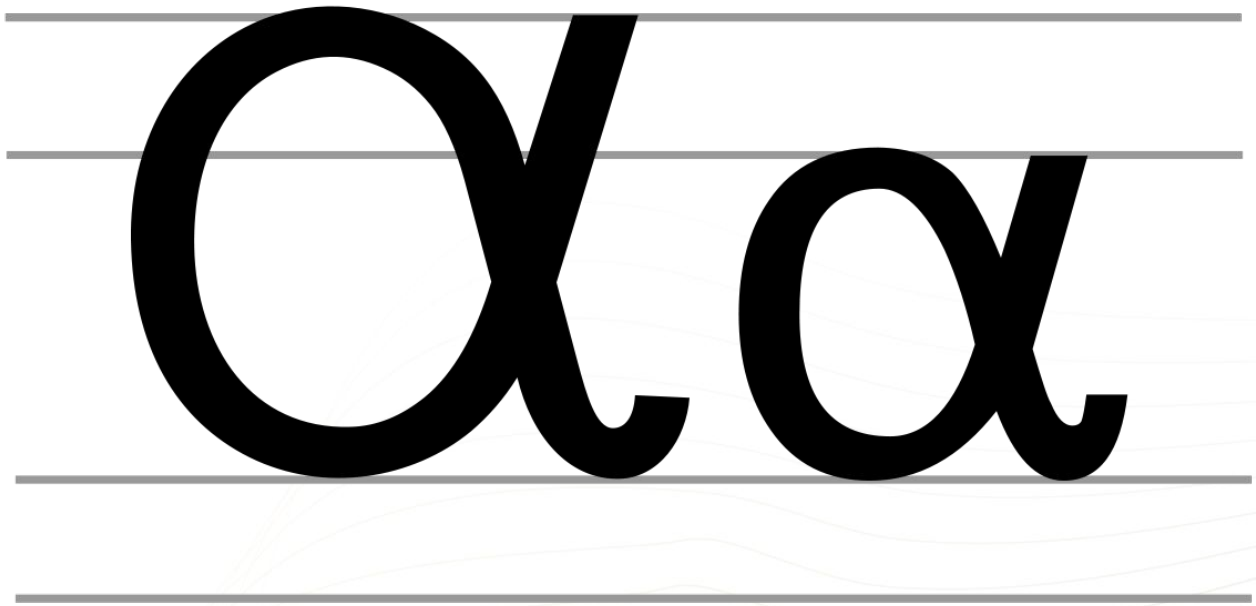
And Capacitor already works

A true winner

Conclusions

Capacitor or not?

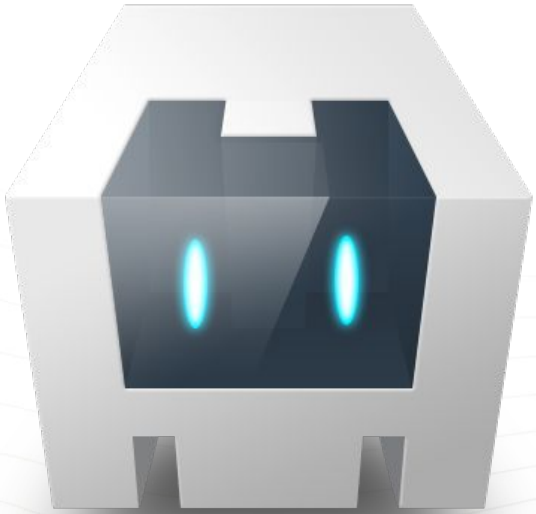
Still fairly recent



There are small glitches

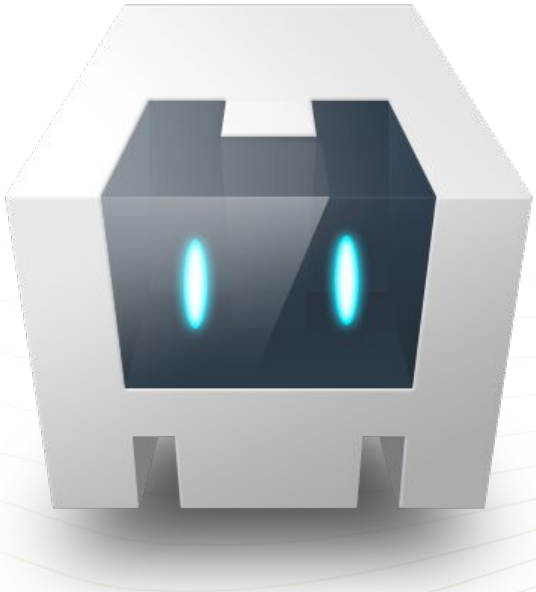
Doc could be more detailed, with more examples

Easy to use



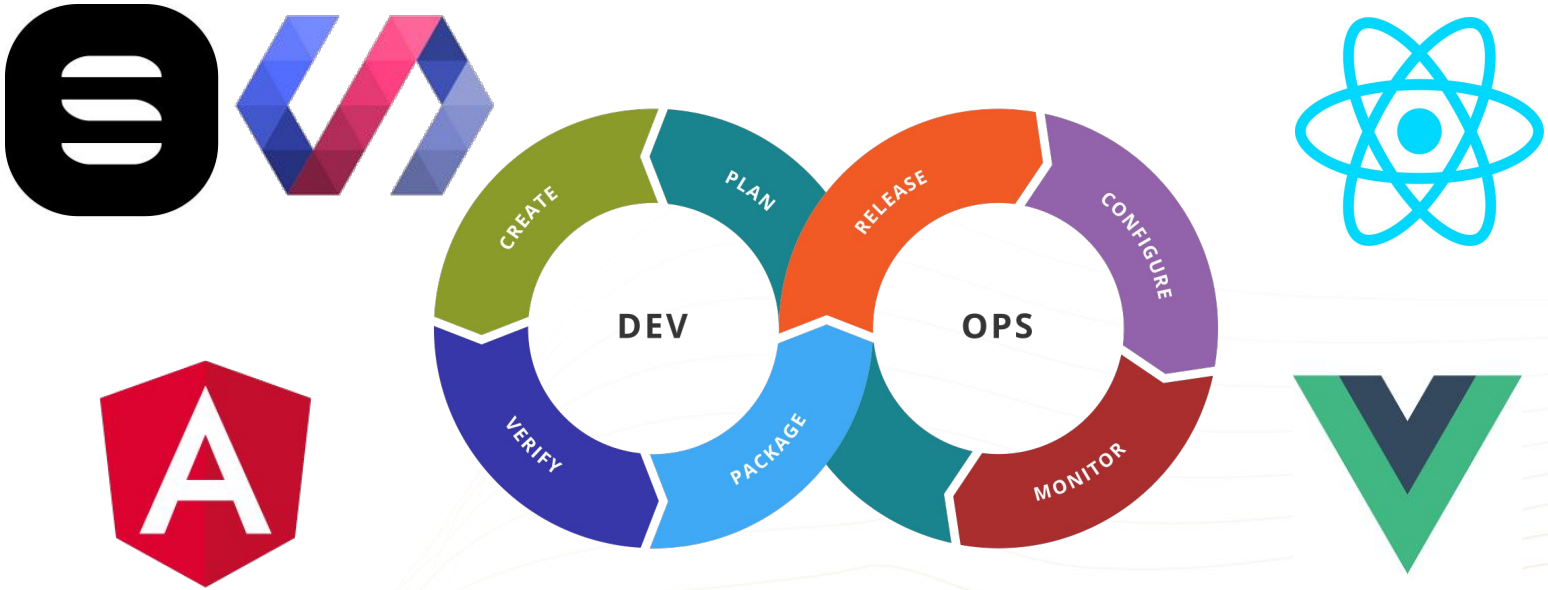
Friendlier than Cordova

Yet extensible



You can use existing Cordova plugins

Not opinionated



Easy to use in any framework
Easy to integrate in any dev toolchain

Thank you!


thank you
danke
謝謝
ngiyabonga
شكراً جزيلاً
рахмат
teşekkür ederim
спасибо
gracias
dank je
tapadh leat
bedankt
dziękuję
obrigado
sukriya
kop khun krap
go raibh maith agat
merci
terima kasih
arigatô
dakujem
grazie
takk
mochchakkeram
hvala
mauruuru
bayarlalaa
faafetai lava
kiitos
dankie
dhanyavad
nanni
nandri
gràcie
kòszönöm
enkosi
vinaka
blagodaram
спасибі
matondo
paldies
grazzi
mahalo
хвала
asante
manana
obrigada
terìkì
murakoze
djiere dieuf
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дякую
mamnun
chnorakaloutioun
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gràcies
akun
dankon
aciu
sulpáy
taiku
sagolun
sobodi
dèkuji
mèsi
didi madloba
najis tuke
kam sah hamnida
তোমাকে ধন্যবাদ
rahmat
tanemirt
rahmet
ありがとう
xièxie
감사합니다
ευχαριστώ
diolch
dhanyavadagalu
shukriya
merce
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