DISTRIBUTED MOBILE DEVELOPMENT AT SCALE

MARCOS BARRETO
Project Leader @ MercadoLibre


A not so long time ago
in a galaxy not so
far far away...

Java
Java
Java
Java
Java

One team to rule them all

Home Team

Desktop

Search Team

Desktop

Android Team

Home
Search
VIP
MyML

VIP Team

Desktop

MyML Team

Desktop

iOS Team

Home
Search
VIP
MyML

Home Team

Desktop
Android
iOS

Search Team

Desktop
Android
iOS

Android Team

Architecture

VIP Team

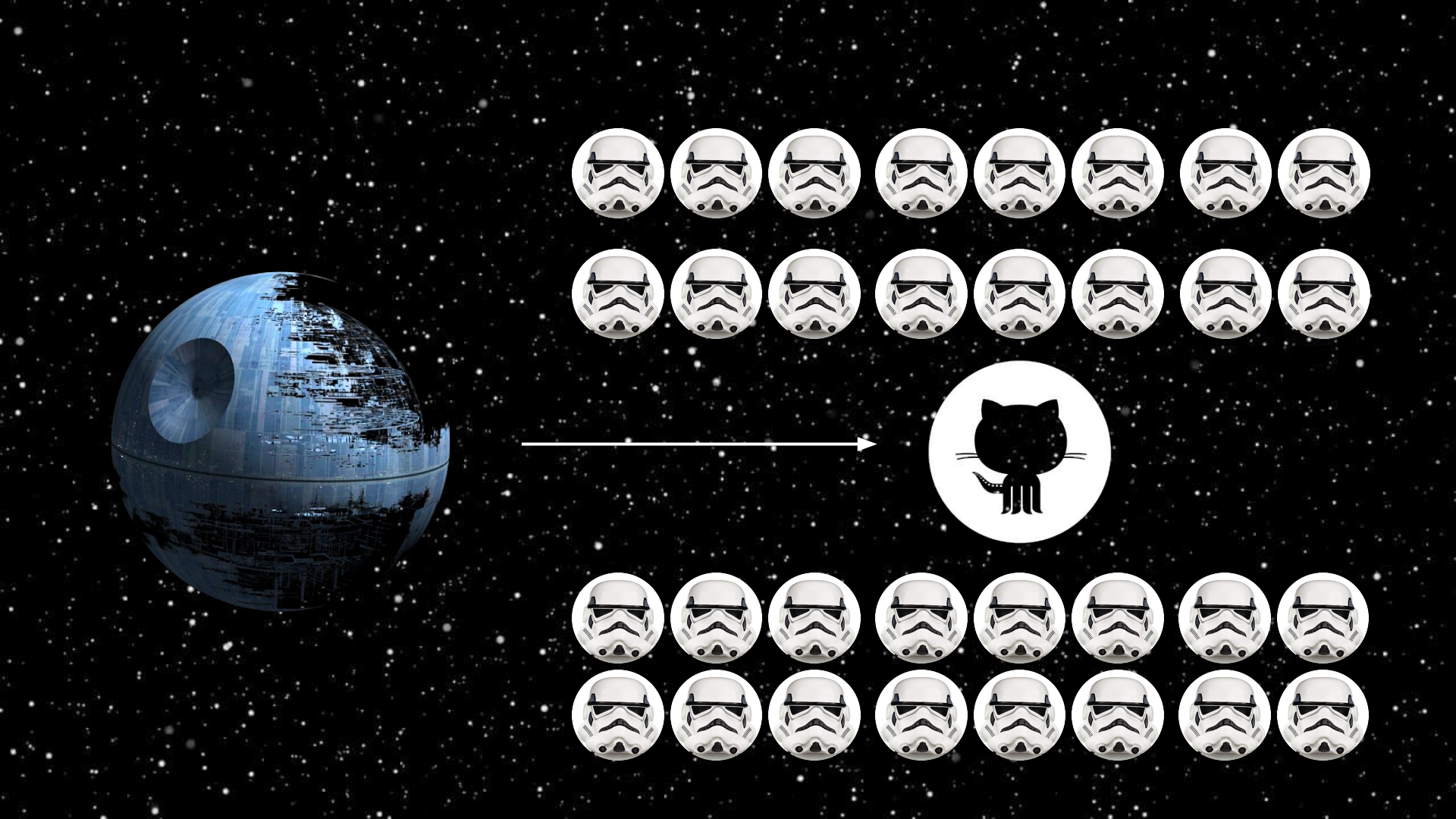
Desktop
Android
iOS

MyML Team

Desktop
Android
iOS

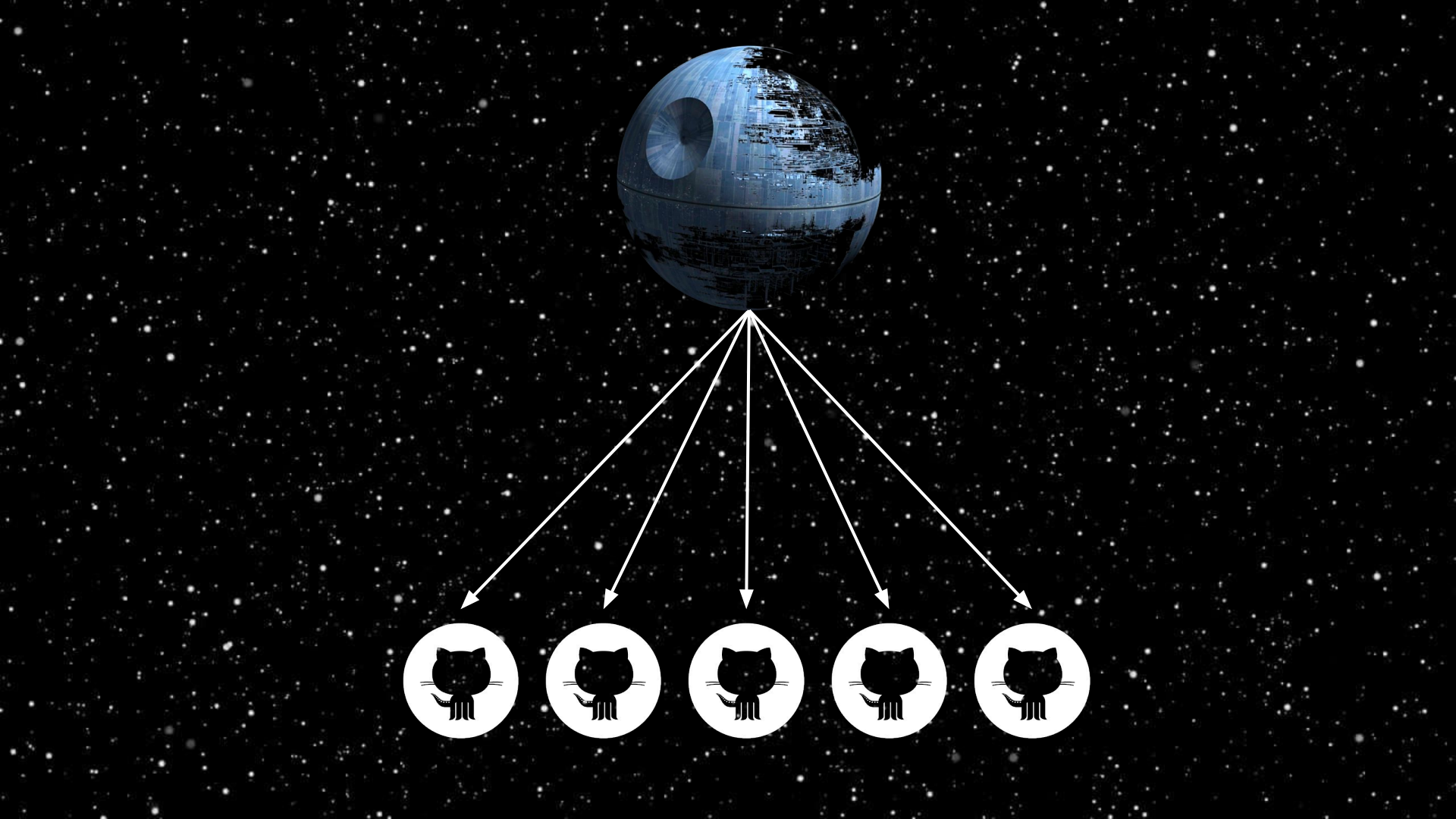
iOS Team

Architecture



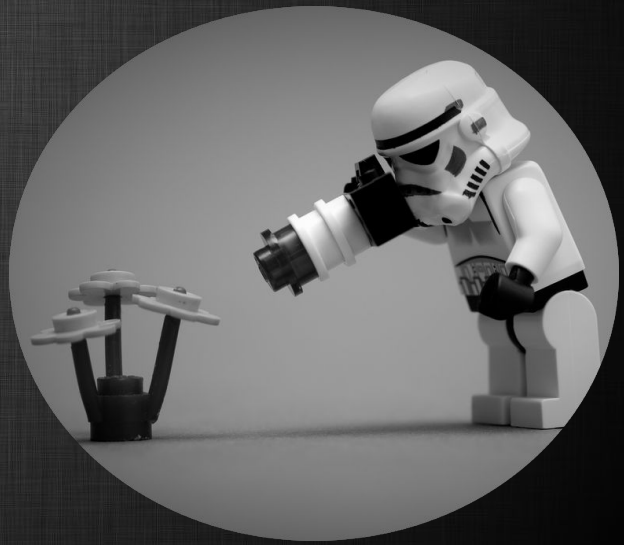

INSTANT
TROOPER

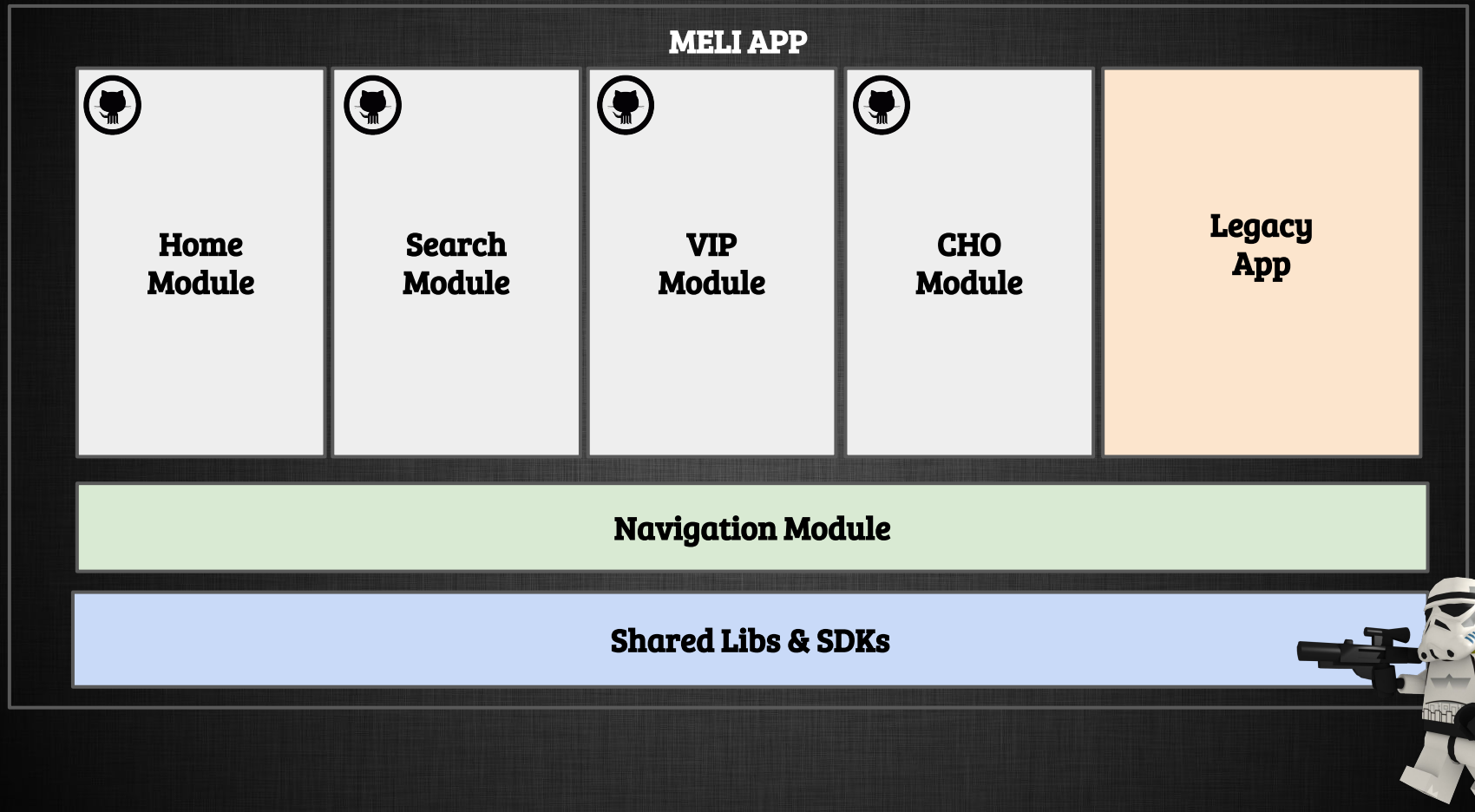
To scale and to be agile, we needed to change



Scaling the mobile code...

- Improve code quality and reduce bugs
- Facilitate mobile development
- Support new teams in app dev.
- More agile development




MELI APP
Home Module
Search Module
VIP Module
CHO Module
Legacy App
Navigation Module
Shared Libs & SDKs

Home | Search | VIP | CHO | SI | ...

MELI SDK

ML APP

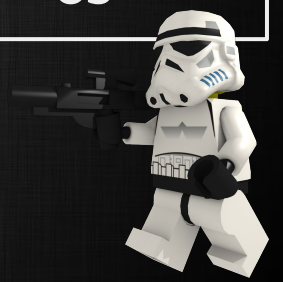
Commons | UI | Rest Client

Authentication | Networking | Notifications | Tracking libraries

Core Libs

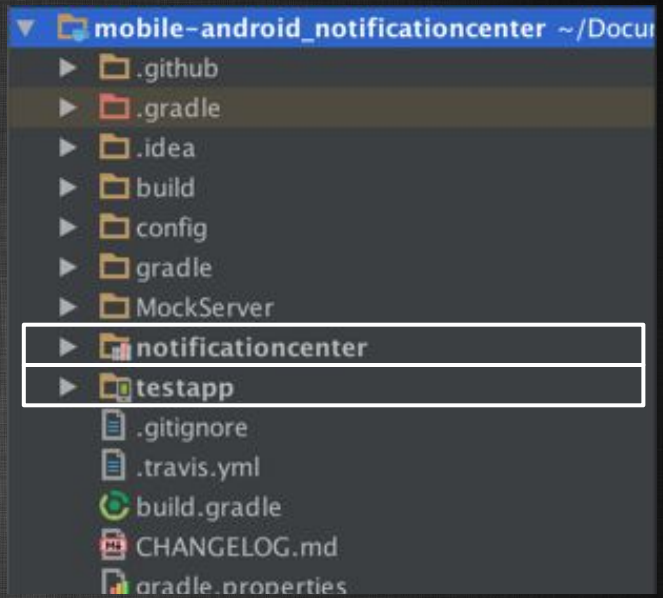
iOS | Android

OS



Basic structure

- Each module has a testapp
- Each module can have one (or more) Android modules.
- Each module just imports:



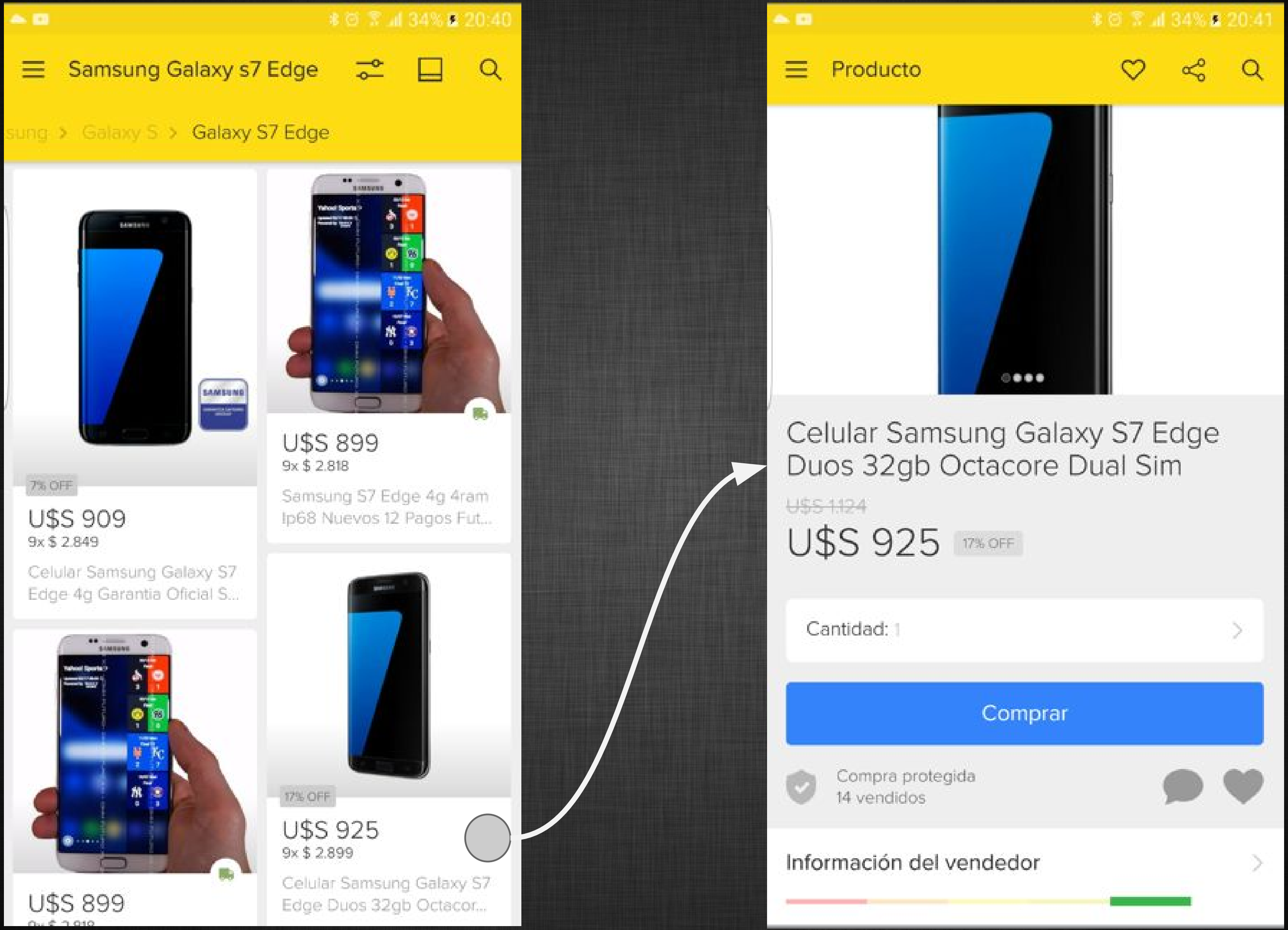

```
...
compile("com.mercadolibre.android.sdk:sdk:$sdkVersion")
compile("com.mercadolibre.android.sdk:mvp:$sdkVersion")
...
```


How do we communicate?

Communication

- Modules don't know each other.
- The navigation is through predefined URLs
- 100% decoupled and “Deep Linking” Ready

```
final Intent intent = new Intent(this);
final Uri uri = Uri.parse("myscheme://myhost/segment1?k=v");
intent.setData(uri);
startActivity(intent);
```


34% 20:40
Samsung Galaxy s7 Edge
sung > Galaxy S > Galaxy S7 Edge
7% OFF
U$S 909
9x $ 2.849
Celular Samsung Galaxy S7 Edge 4g Garantia Oficial S...
U$S 899
9x $ 2.818
Samsung S7 Edge 4g 4ram Ip68 Nuevos 12 Pagos Fut...
17% OFF
U$S 925
9x $ 2.899
Celular Samsung Galaxy S7 Edge Duos 32gb Octacor...
U$S 899
34% 20:41
Producto
Celular Samsung Galaxy S7 Edge Duos 32gb Octacore Dual Sim
U$S 1.124
U$S 925
17% OFF
Cantidad: 1
Comprar
Compra protegida
14 vendidos
Información del vendedor

Navigation

- Pro:
  - Simple and known approach.
  - Based in how Android handles the deeplinks.
- Cons:
  - Uri has to be parsed
  - Cannot do pre-fetching

Navigation

```
<activity
  android:name=".activities.MyActivity"
  android:exported="false">

  <intent-filter>
   <action android:name="android.intent.action.VIEW" />
   <category android:name="android.intent.category.DEFAULT" />
   <category android:name="android.intent.category.BROWSABLE" />

    <data
       android:host="items"
       android:pathPattern="/something"
       android:scheme="ml" />
  </intent-filter>
</activity>
```

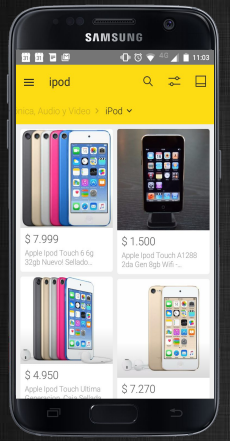
Navigation

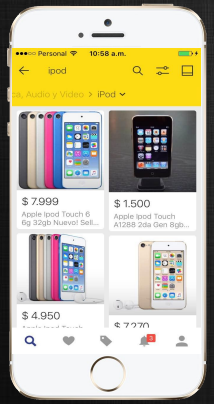
```
public class MyActivity extends AppCompatActivity {


  @Override
  protected void onCreate(Bundle savedInstanceState) {
     super.onCreate(savedInstanceState);
     // ml://items/something?k=v
     if (getIntent().getData() != null) {
        final Uri deeplink = getIntent().getData();
        final List<String> segments = deeplink.getPathSegments();
        final String val1 = deeplink.getQueryParameter("k");
        ...
```

segments.get(0) == "something"

Wrapper 2.0

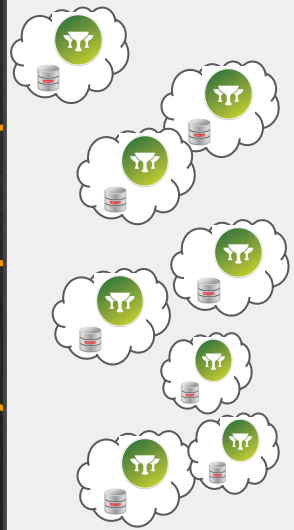
Wrapper 2.0



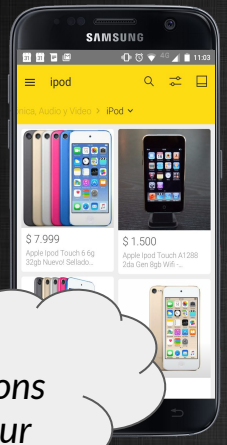


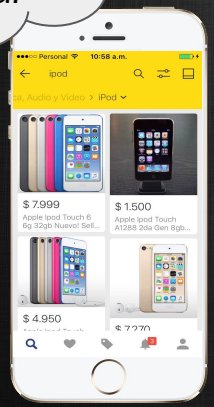
Mobile Middleware (Wrapper)

Meli API



Wrapper 2.0



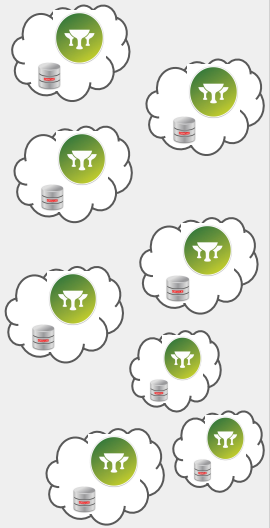


text translations behaviour

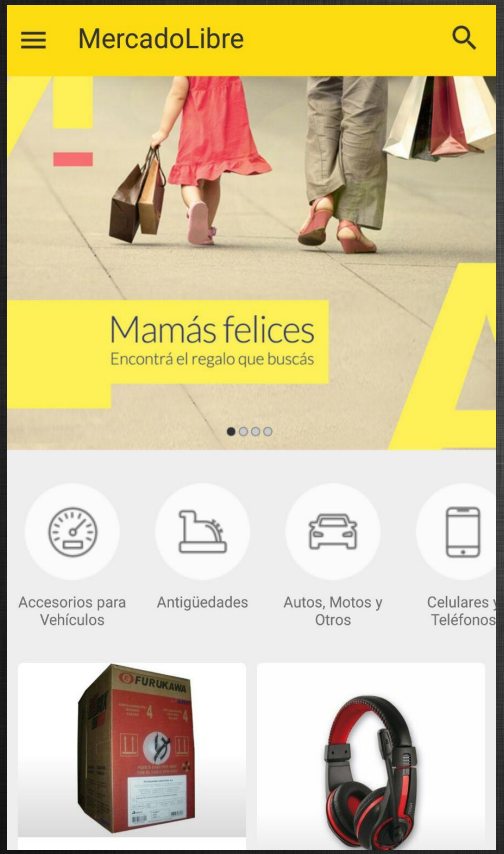
Mobile Middleware (Wrapper)

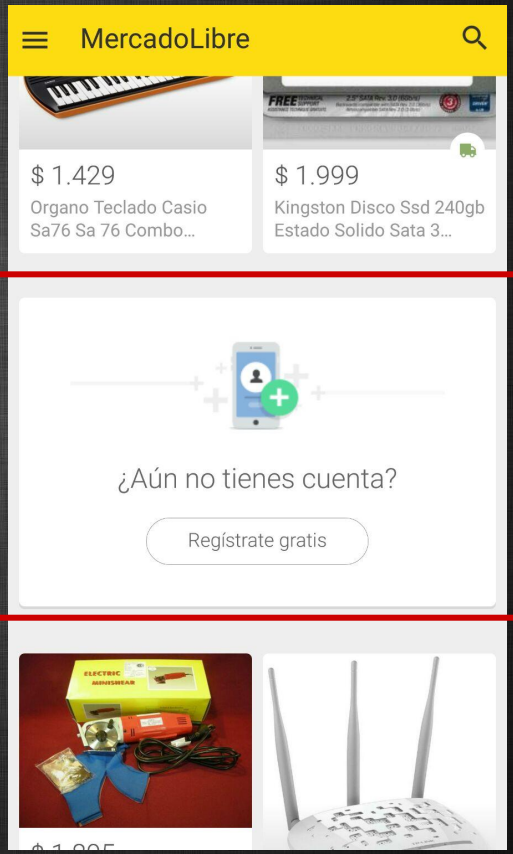
text translations behaviour

Meli API



Wrapper 2.0


MercadoLibre
Mamás felices
Encontrá el regalo que buscás
Accesorios para Vehículos
Antigüedades
Autos, Motos y Otros
Celulares y Teléfonos
FURUKAWA


MercadoLibre
$ 1.429
Organo Teclado Casio Sa76 Sa 76 Combo...
$ 1.999
Kingston Disco Ssd 240gb Estado Solido Sata 3...
¿Aún no tienes cuenta?
Regístrate gratis

Wrapper 2.0

```
{
    id: "sign_up",
    title: "¿Aún no tienes cuenta?",
    button:
    {
        text: "Regístrate gratis",
        text_color: "#666666",
        background_color: "#ffffff"
    },
    action: "myschema://registration",
    image: "http://static.ml.com/2b7c0ecb042a5.png",
    background_color: "#ffffff"
}
```

Wrapper 2.0

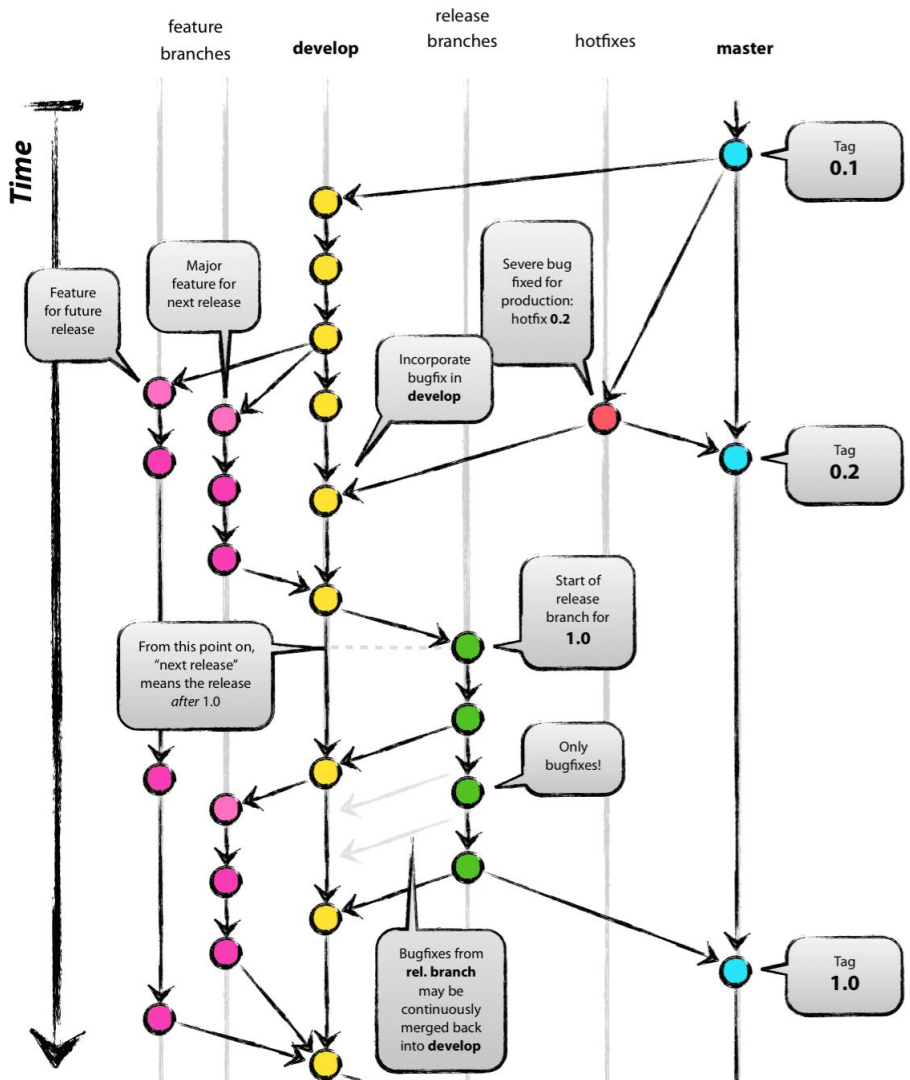
- The response can change based on the App version *(design with that in mind)*.
- The backend is **easily** modified, the apps are **not**.
- Backend must always be **backward compatible**.

Quality Assurance

Branching Model

A successful git branching model

- Three main branches:
  - develop
  - release
  - master

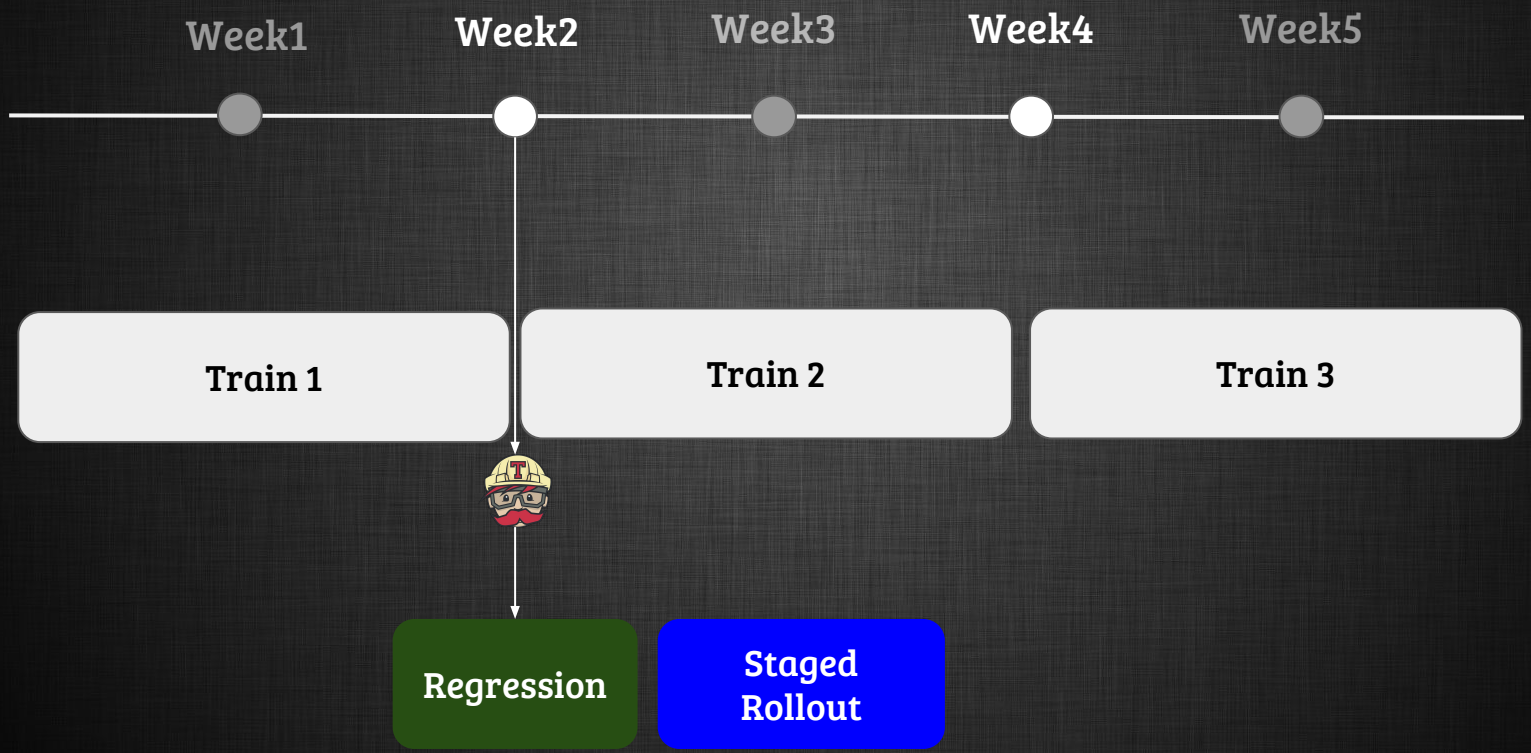


We have a new release process =)

Agile Release Trains

- Every 2 weeks a new version is released.
- Every 2 weeks, the train passes by and takes with it all merged PRs.
- A release train is implemented with a **Milestone** in Github.

Agile Release Trains

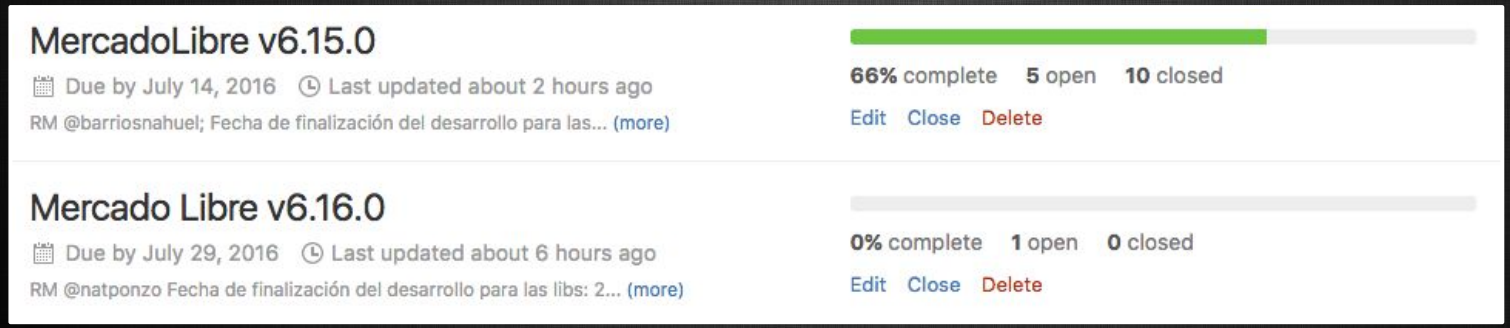


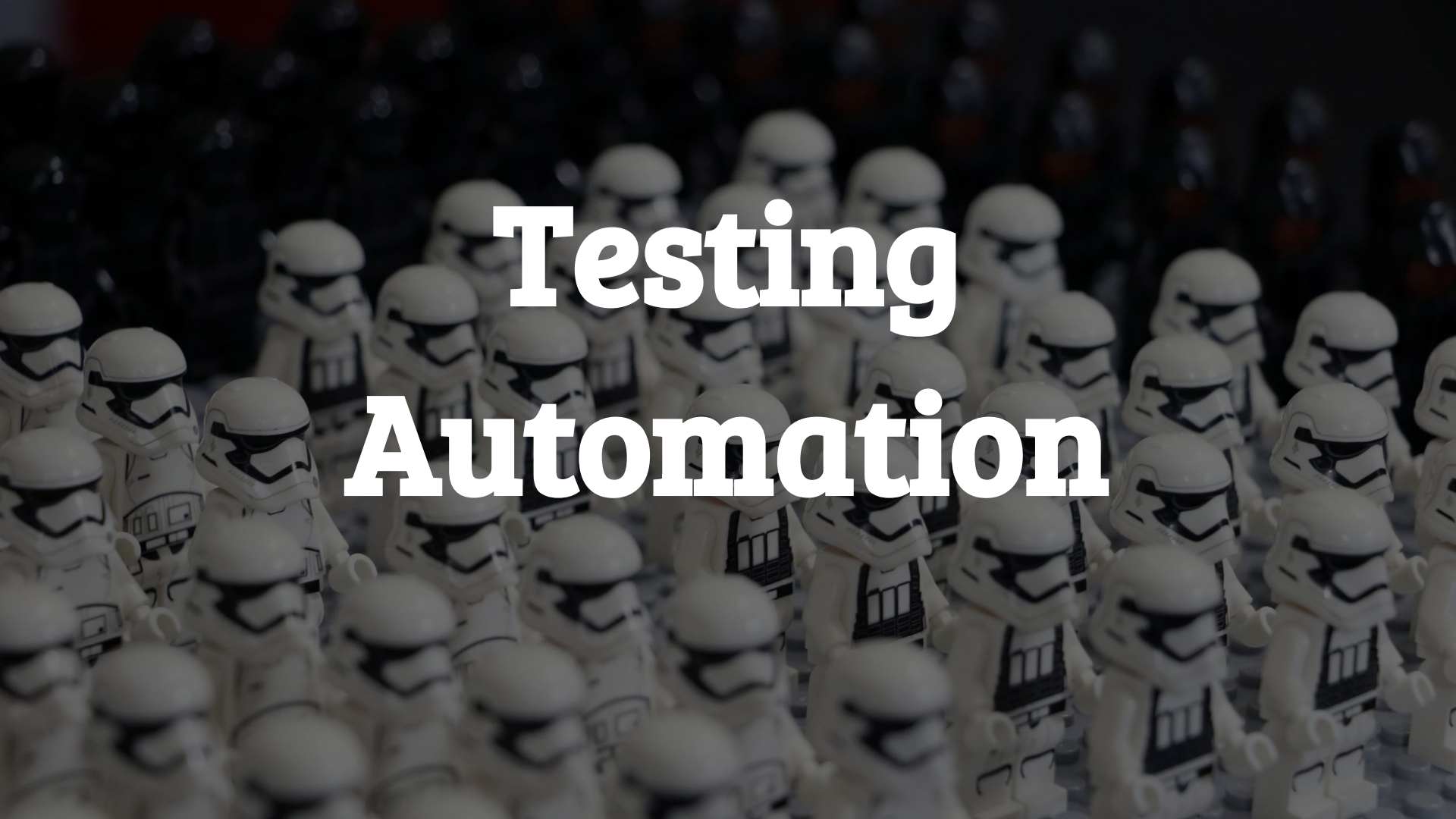
The Release Manager

- Assigning Pull Requests.
- Checking if the new version is ok.
- Creating the "What's New"
- Creating the APK and rolling it out.
- Following issues.

Agile Release Trains

- Better communication with teams
- Teams estimate based on this schedule.
- New versions are better tested and controlled.




Testing
Automation

Android Testing Pyramid

Testing Automation

- MVP
  - Most logic is in the presenter.
  - More testable and readable code.
- Coverage from unit tests
  - Stable and fast.
  - Run the same local and in CI.

Testing Automation *(example)*

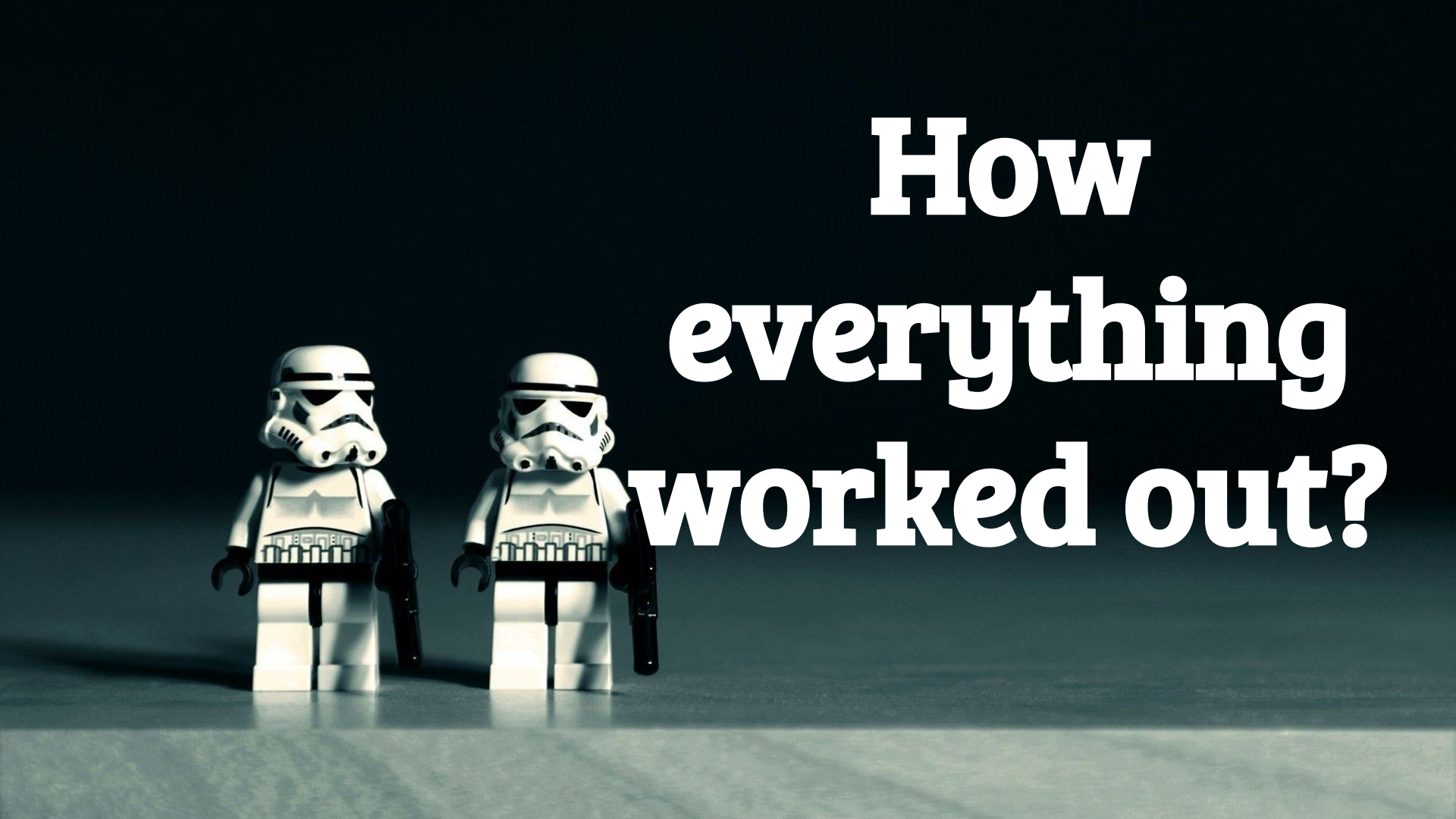
```
@Test
public void testPictureResourceNoDeeplink() throws IOException {
  MySomething mock = mock(MySomething.class);

    // Mock listener and run test method
    presenter.callSomeMethod(mock);

    verify(myMVPView, times(1)).methodExecutedOnlyOnceOnView(view);
    verify(myMVPView, never()).methodMustNotBeExecutedOnView(view);

}
```

CI & CD

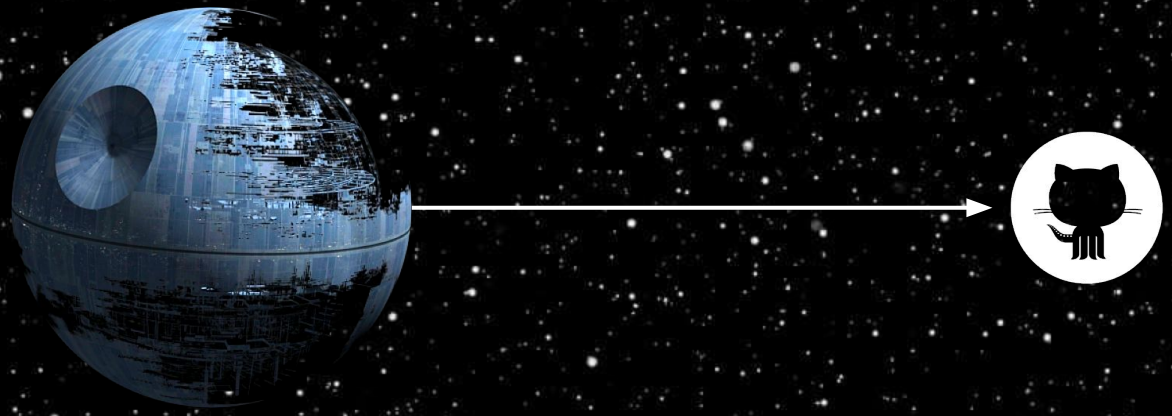
- Continuous Integration
  - Automatically run tests and give feedback to the RM and developer.
- Continuous Deployment
  - The APK is generated in Travis if the last commit to **release**/**master** contains *[ci deploy]*.

Code Review & Static Code Analysis

- Code standards.
- Improve code quality and documentation.
- Share good practices & reduce bugs.
- Accept constructive comments.

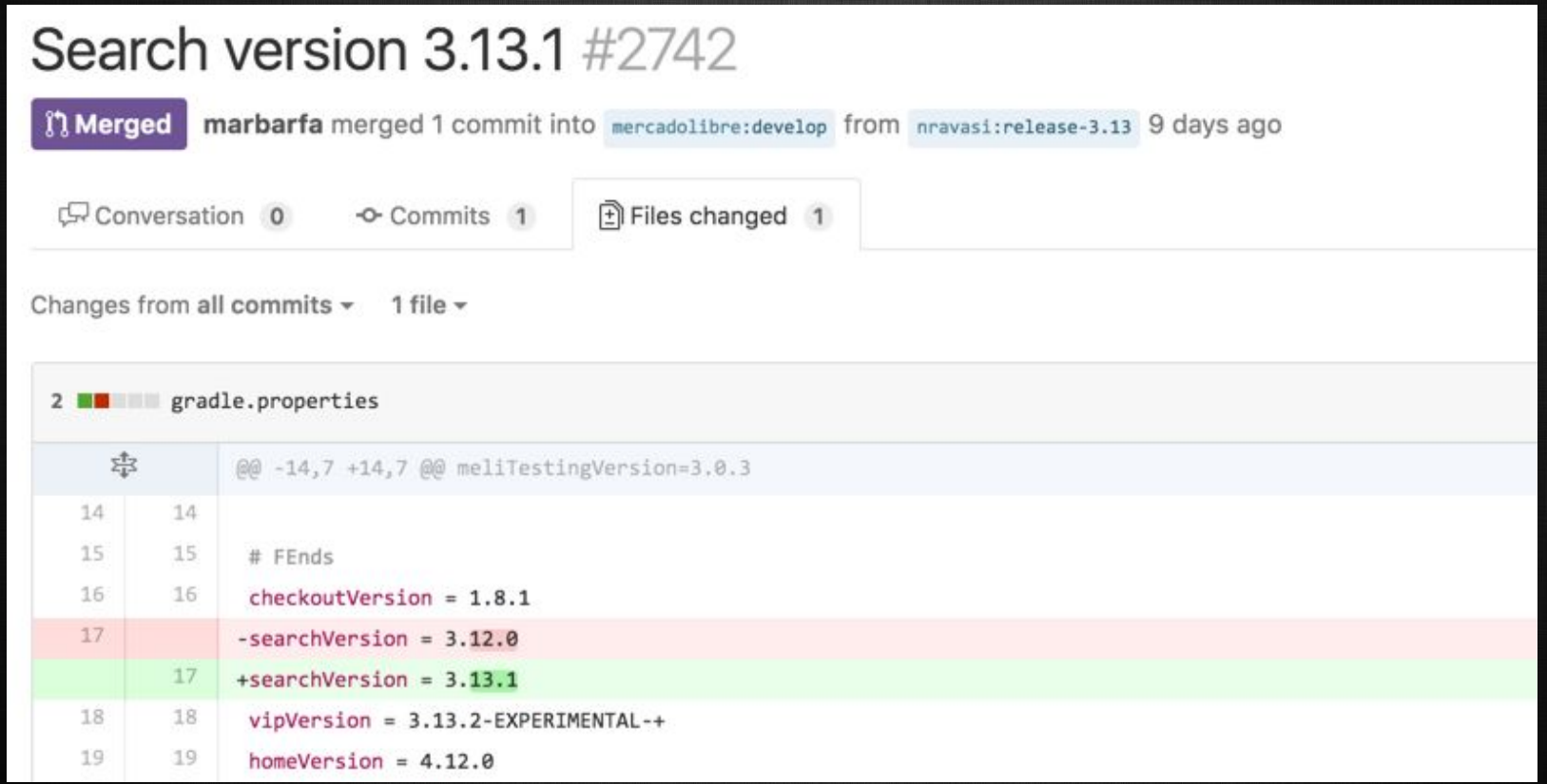

How
everything
worked out?

One big-fat repo



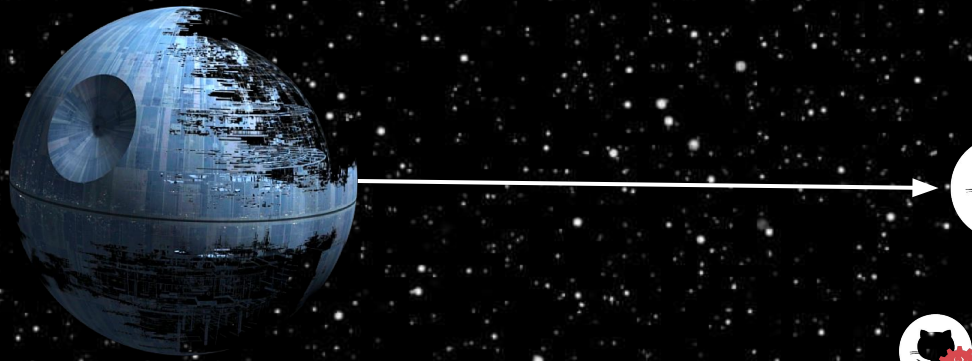
Distributed development

A whole new feature is just a line...



New Challenges

Distributed Bugs



Evangelize Good Practices

THANK YOU!

MARCOS BARRETO
@marbarfa