



# Appbase

## Web Platform for User-Centric Interoperable Applications

David Marquês Francisco ✉ [dfrancisco@ipn.pt](mailto:dfrancisco@ipn.pt)

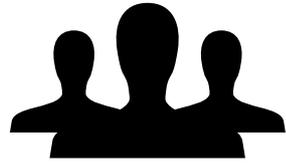


# Platform for delivery of Mobility, Quality of Life & Health related services



TICE.Mobilidade

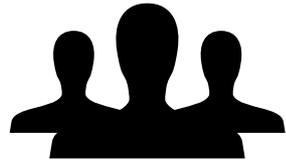
29



4.031 k€

TICE.Healthy

26



5.000 k€



# Motivation

The **web** as we know it **is changing**.

With change, **new opportunities arise**

A **new ecosystem** to collaboratively develop large, innovative projects



# Value Proposition

Platform for 3rd-party application  
aggregation and integration

Inter-application communication and  
context sharing



# To whom

For **companies**, the platform lets them promote and sell their work

For **end-users**, the platform offers them services through a single, unified UI



# State of the Art

## Architecture & Design

### Interface Design

### Engineering Processes

### Work Plan



# State of the Art

Architecture & Design

Interface Design

Engineering Processes

Work Plan



# Web Portals

Presents contents from **diverse sources** with a **consistent look and feel**

Provides mechanisms for **single sign-on**, **personalization** and **customization**

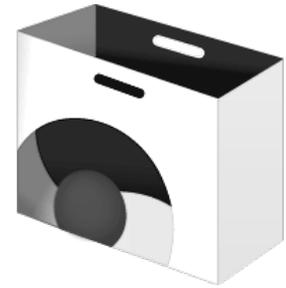


# Web Portals





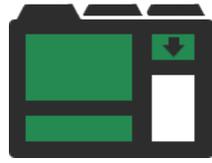
# Web Stores



2010



Application Directory



Application Feature Page



Application



Personalized Application List



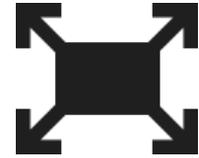
Reduced functionality



Small-space



Full-featured



Big screen

WEB PORTALS vs WEB STORES

WEB WIDGETS

vs

WEB APPS



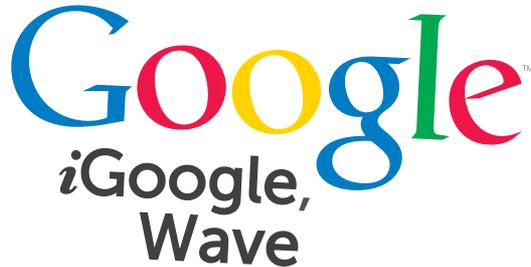
# Embedding third-party apps



Widgets 1.0 Spec



widgets &  
extensions





State of the Art

# Architecture & Design

Interface Design

Engineering Processes

Work Plan



# Architectural Goals & Quality Attributes

## Extensibility and cross-language interoperability

- Service-Oriented Architecture
- RESTful Web API
- Language-agnostic templates



# Architectural Goals & Quality Attributes

## Interchangeability and modularity

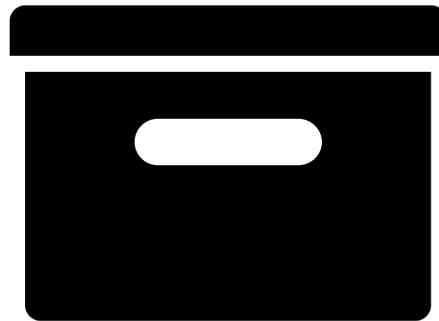
- Django Apps and Python packages
- Model-View-Controller Architecture Pattern
- Façade Design Pattern
- Autonomous and easily replaced JS modules



# Supported Applications



Hosted Apps



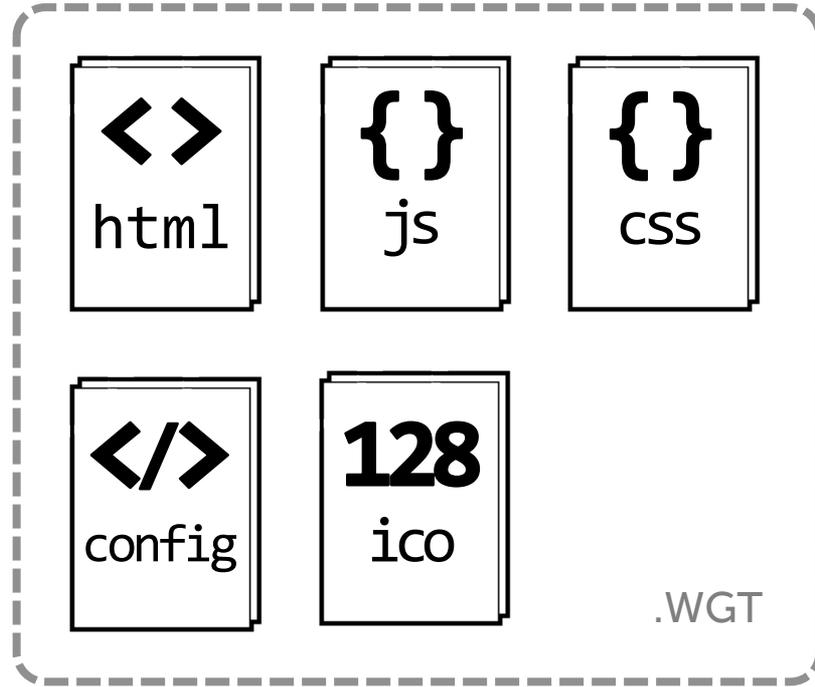
Packaged Apps



# Supported Applications



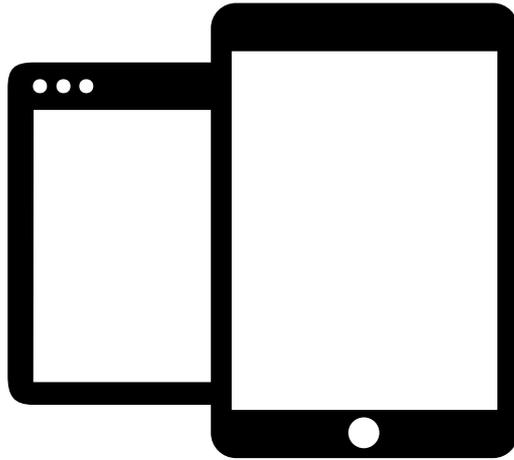
Packaged Apps





# Appbase Applications

from the User Perspective



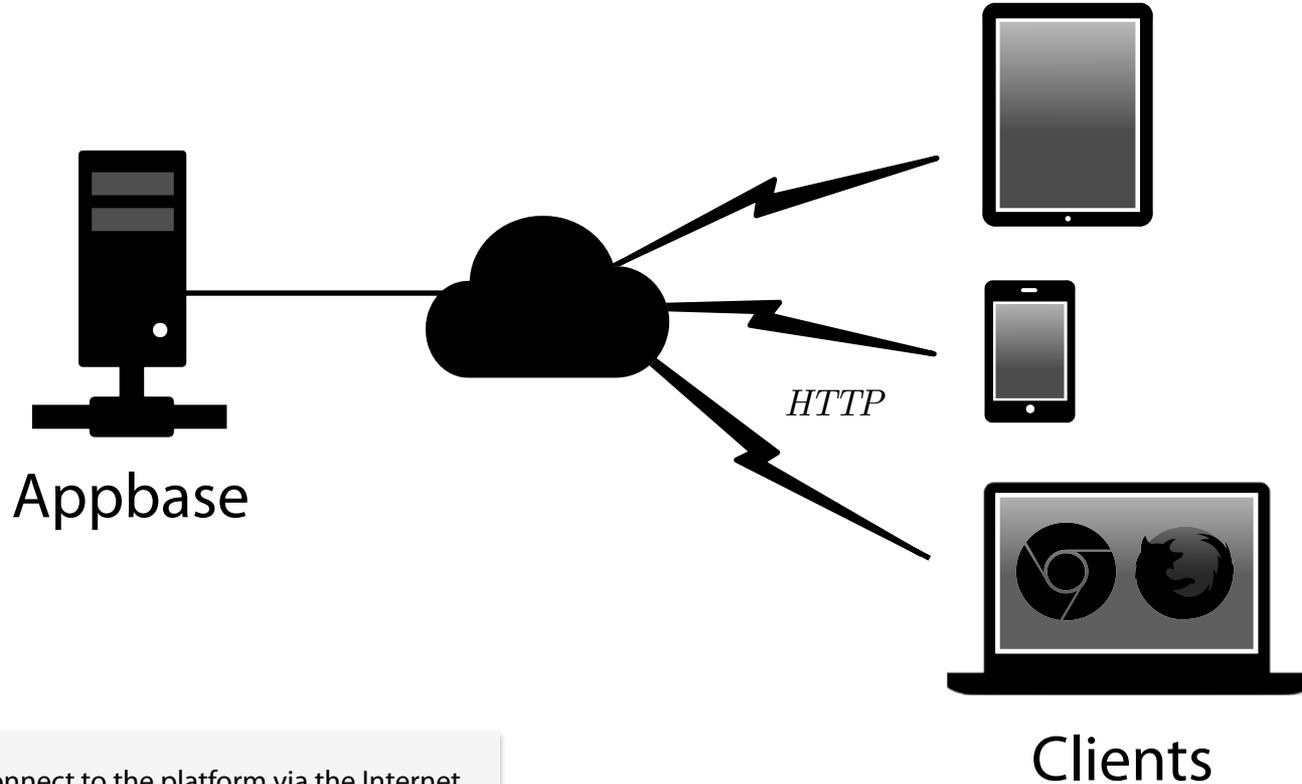
Apps



Web Layers



# Physical Architectural View

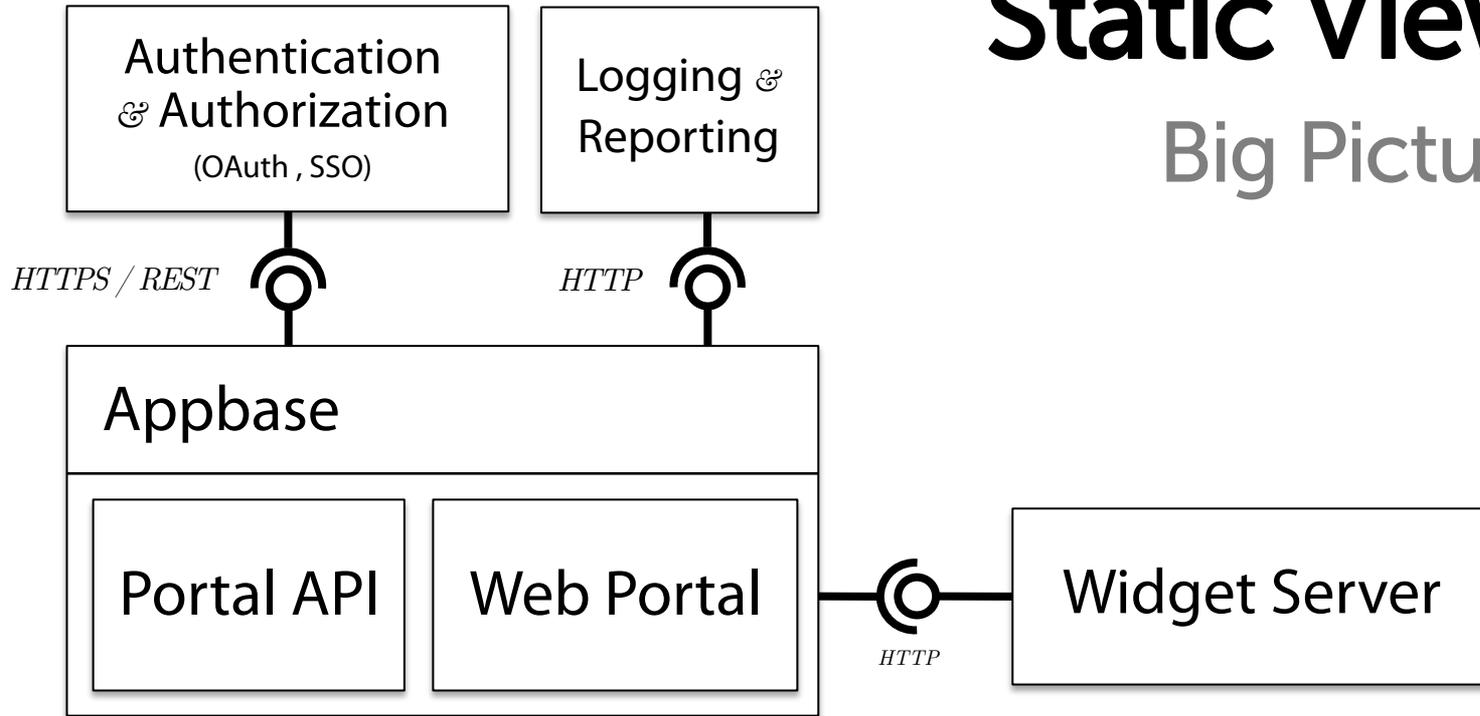


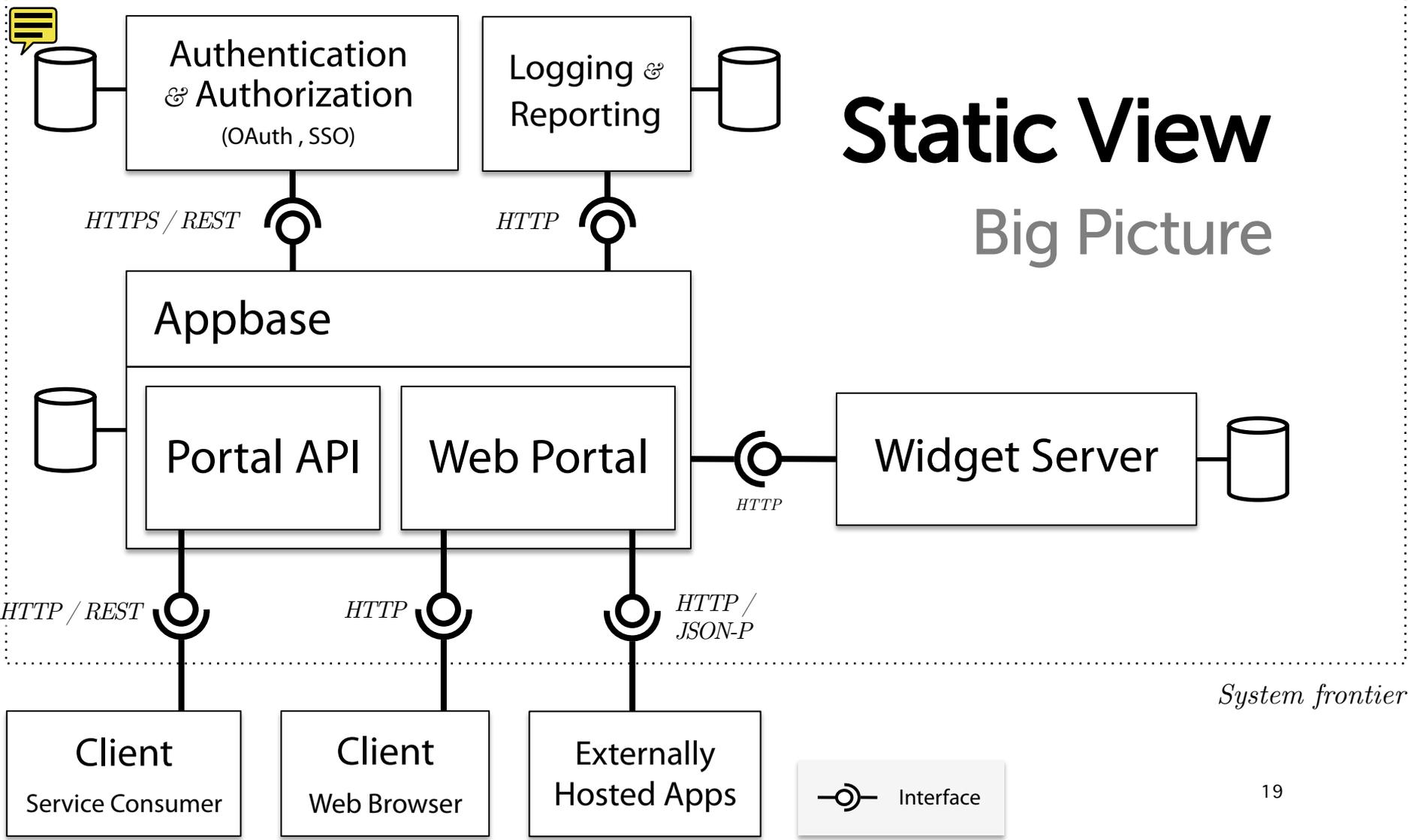
Clients connect to the platform via the Internet



# Static View

## Big Picture





# Static View

## Big Picture

*System frontier*



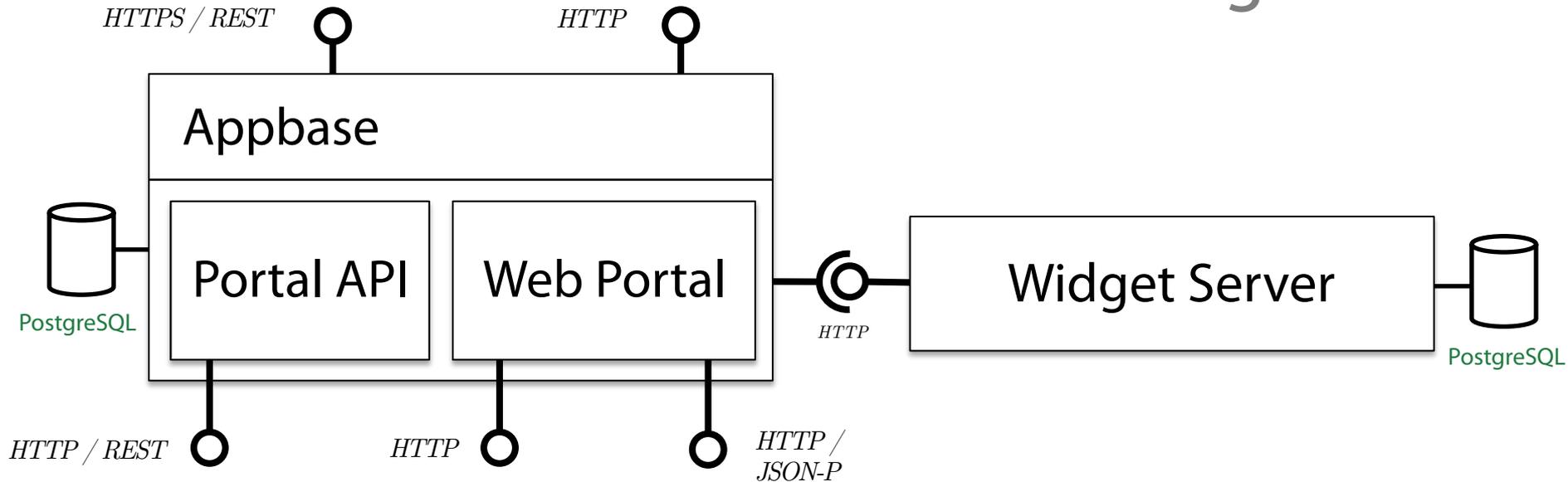
# Development View

**django** +  BACKBONE.JS

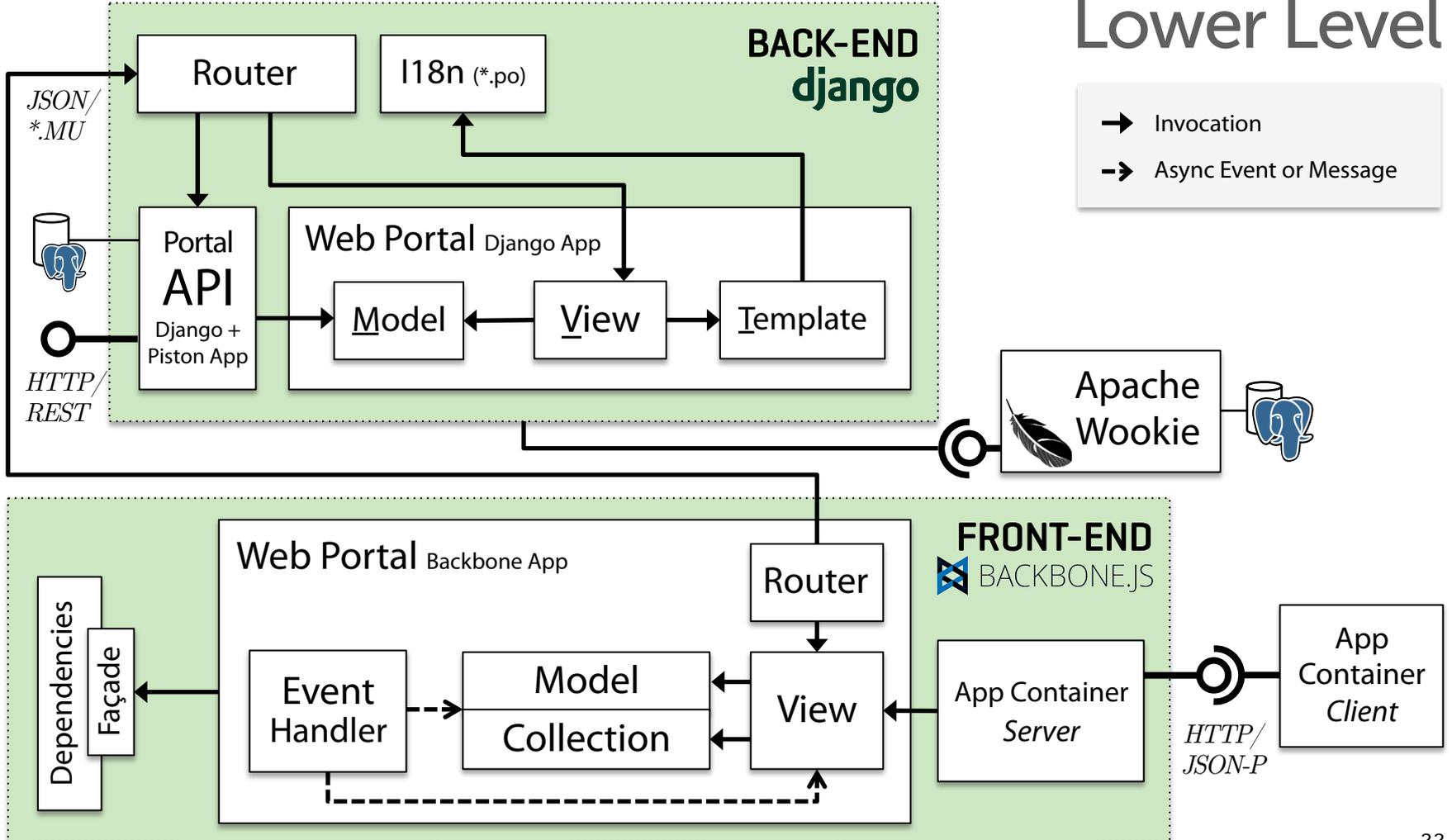


# Development View

## Big Picture



# Lower Level





State of the Art

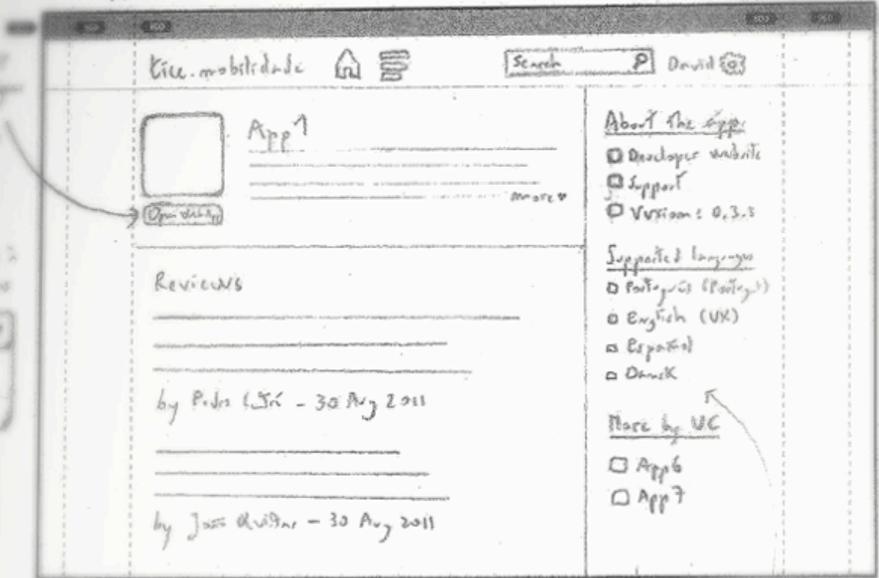
Architecture & Design

**Interface Design**

Engineering Processes

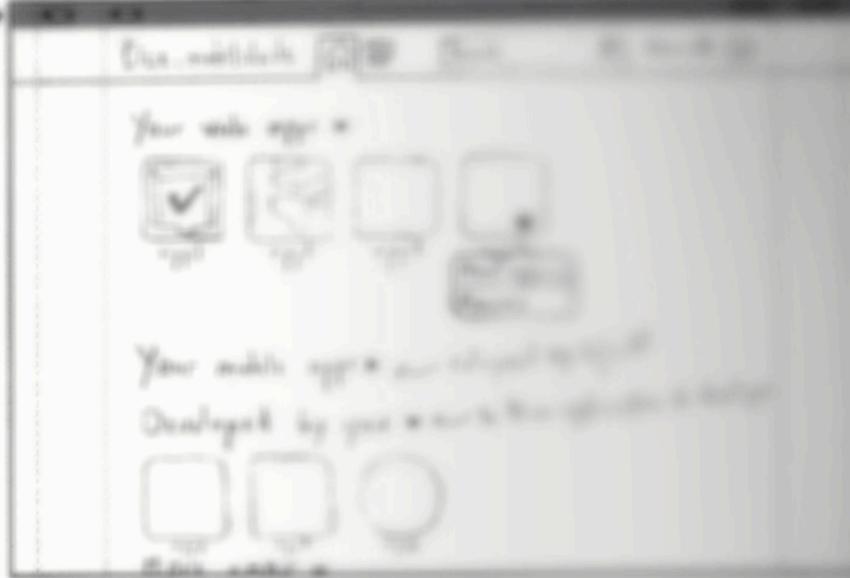
Work Plan

me Application home (copy da imitator)

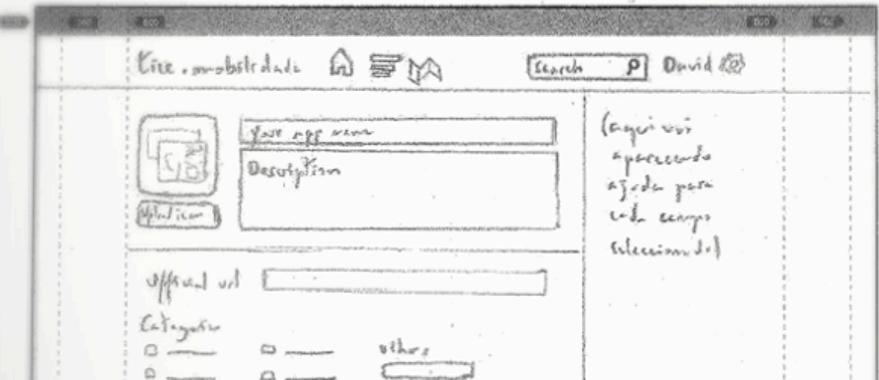


Rated 4+  
364 users

me Home (copy) ✓

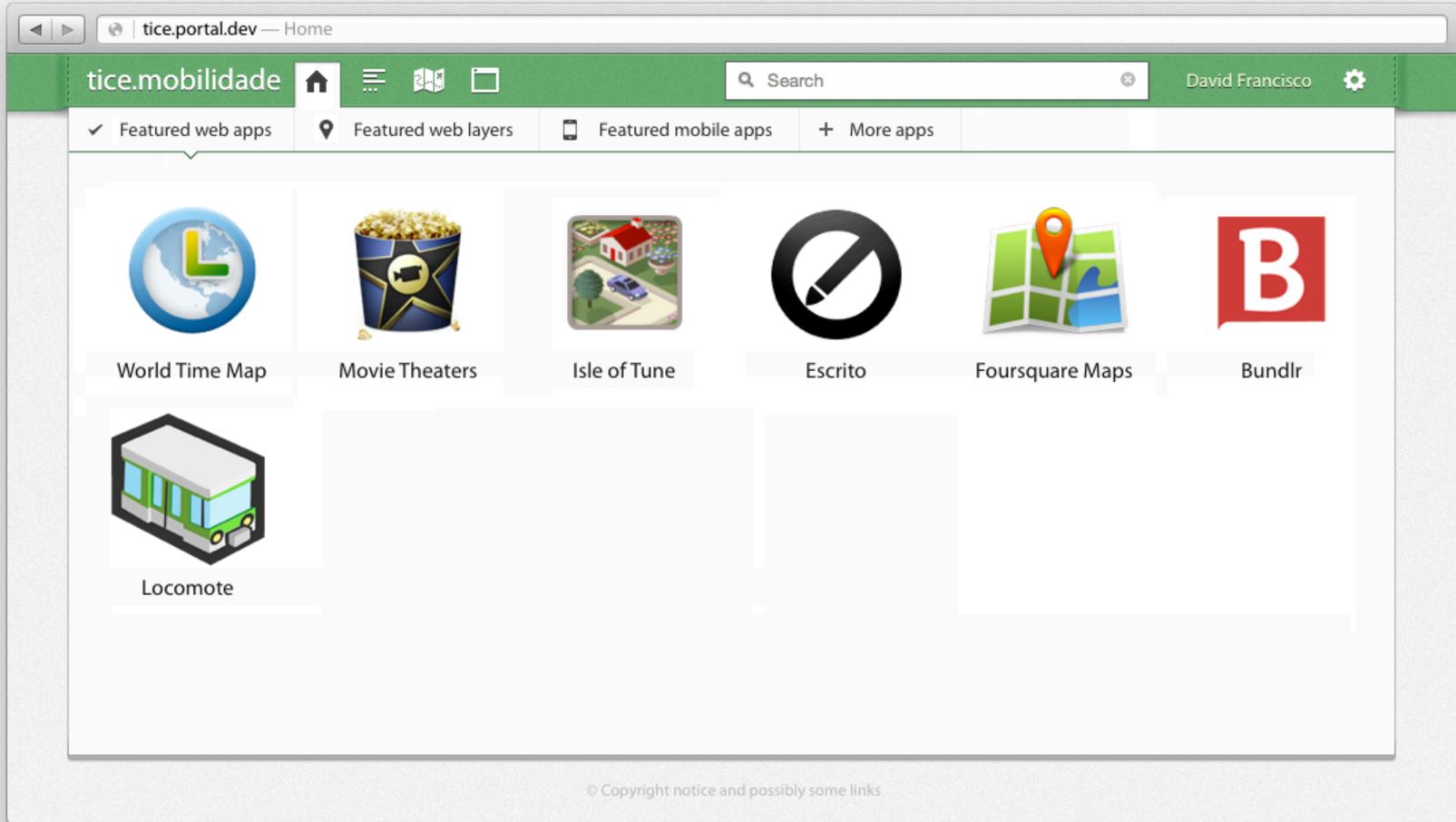


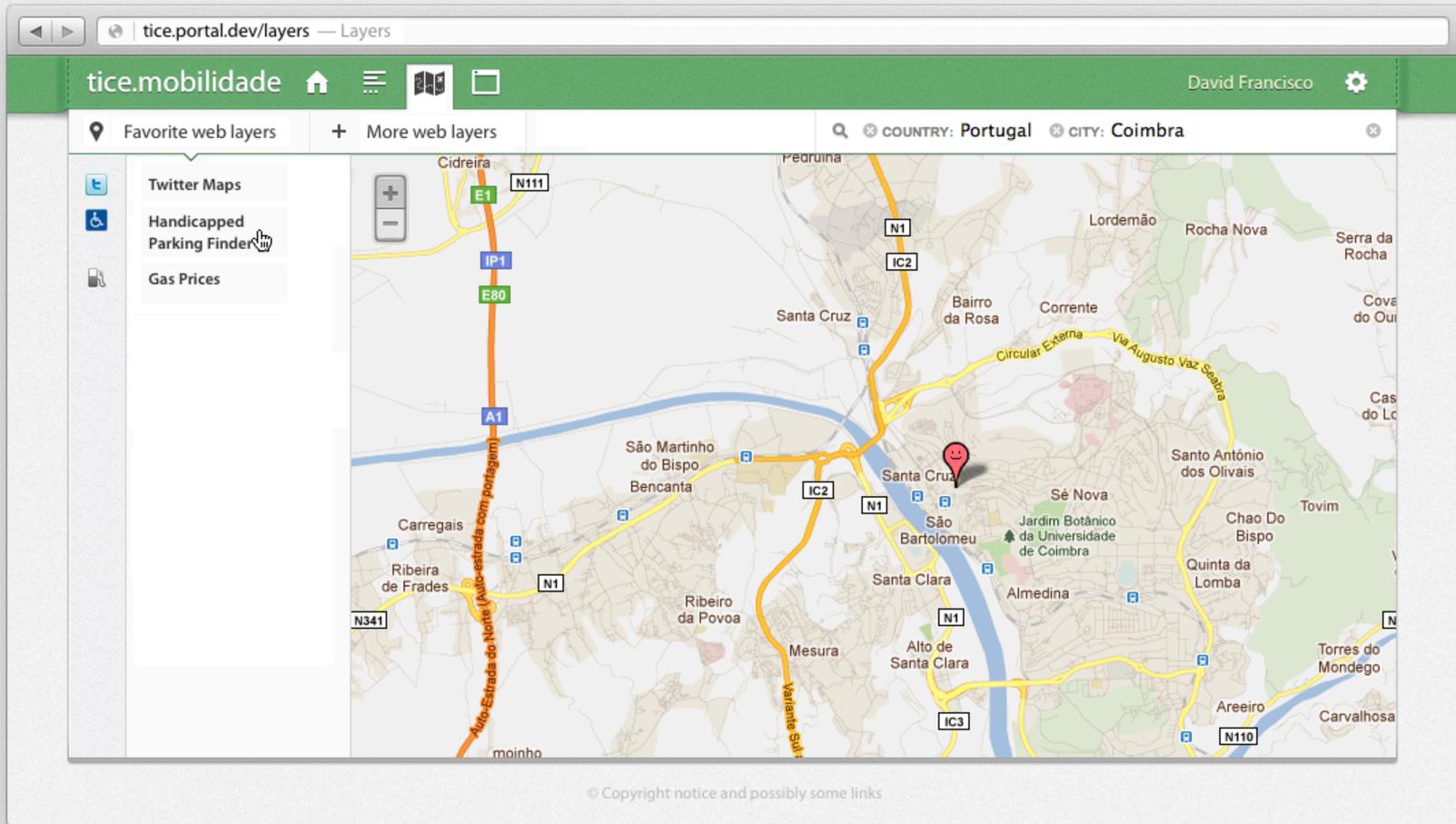
me Edit application / Add application

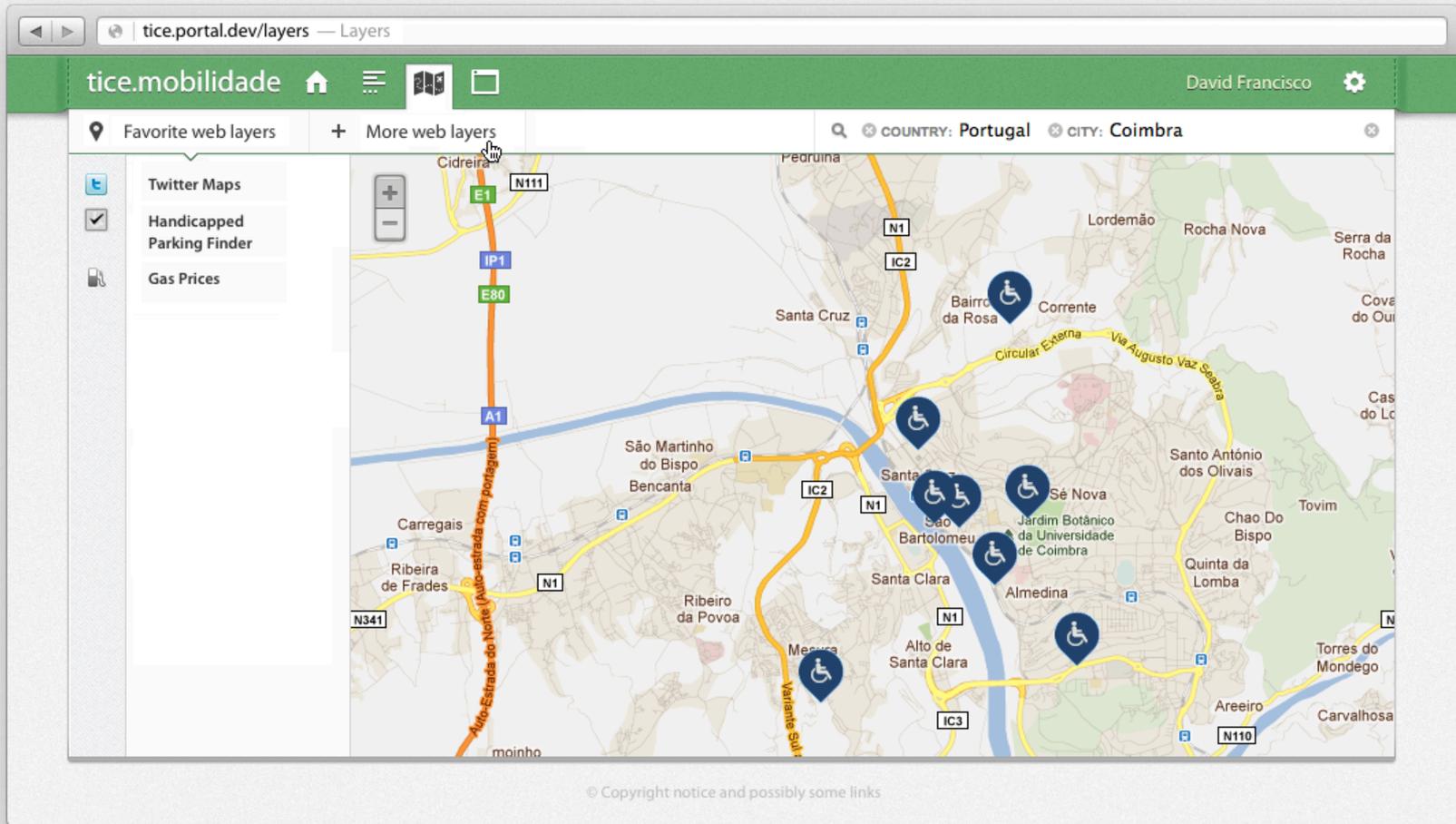


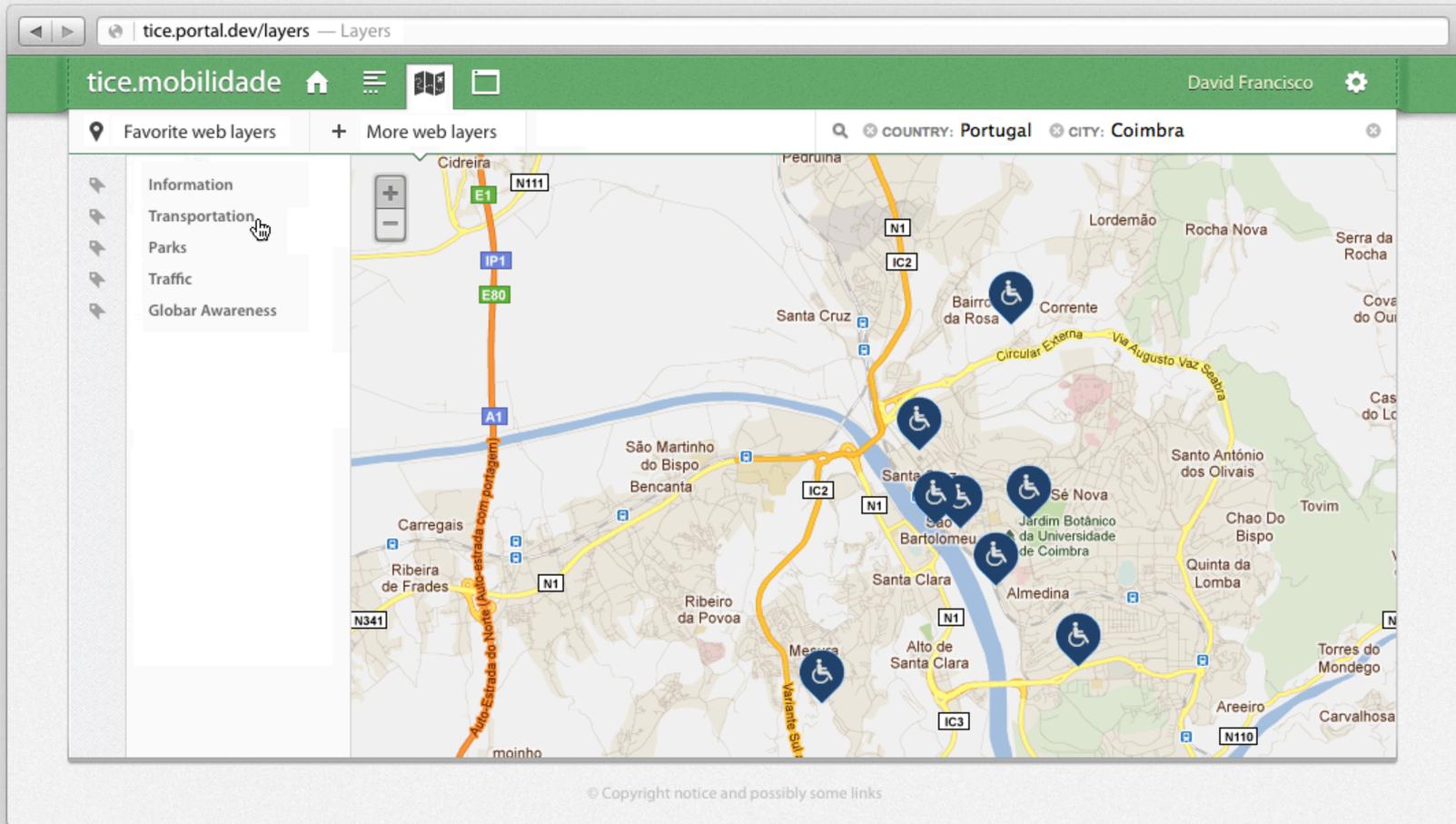
me Home application (copy) ✓

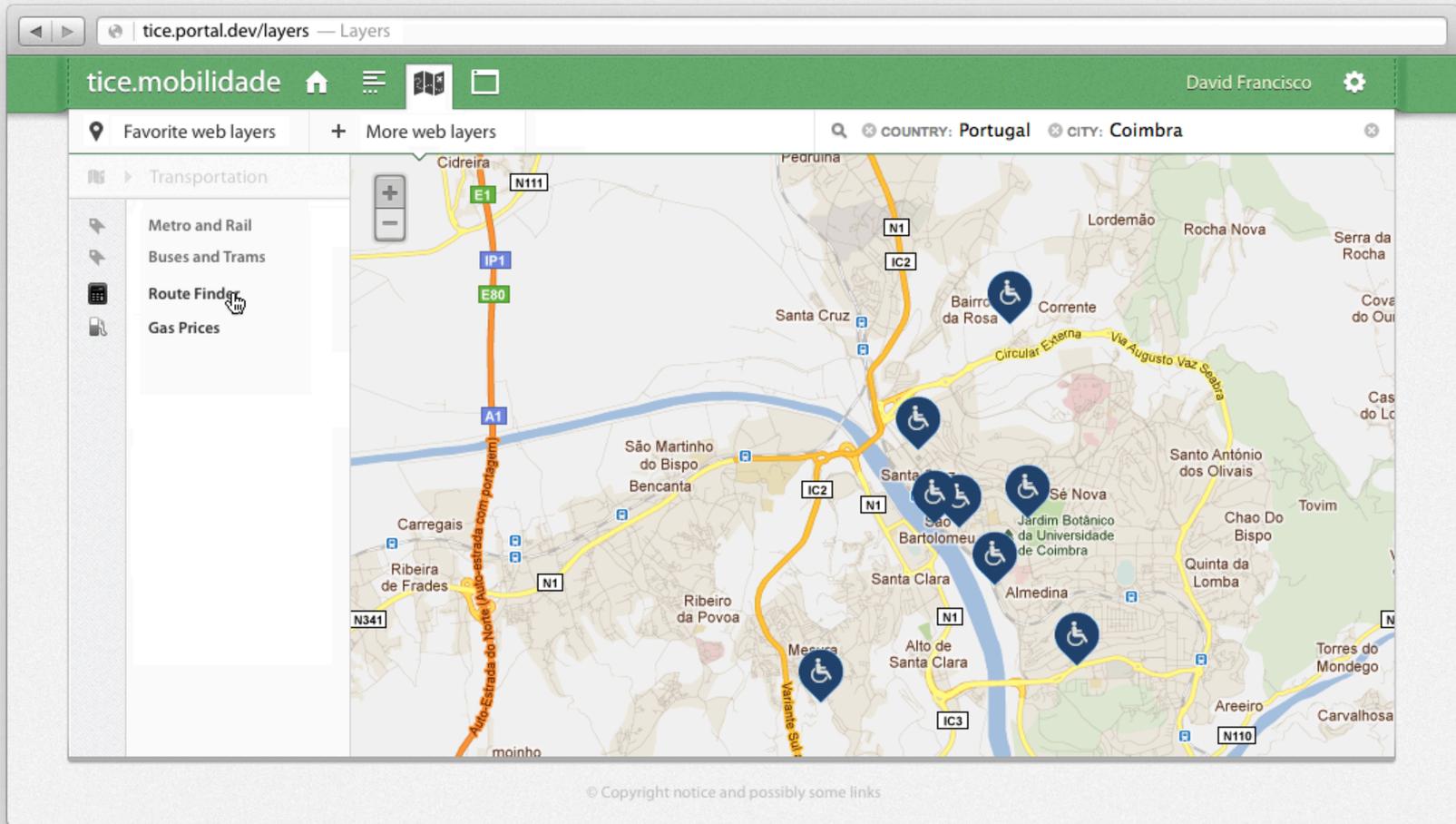












tice.portal.dev/layers — Layers

tice.mobilidade      David Francisco 

Favorite web layers  More web layers SEARCH

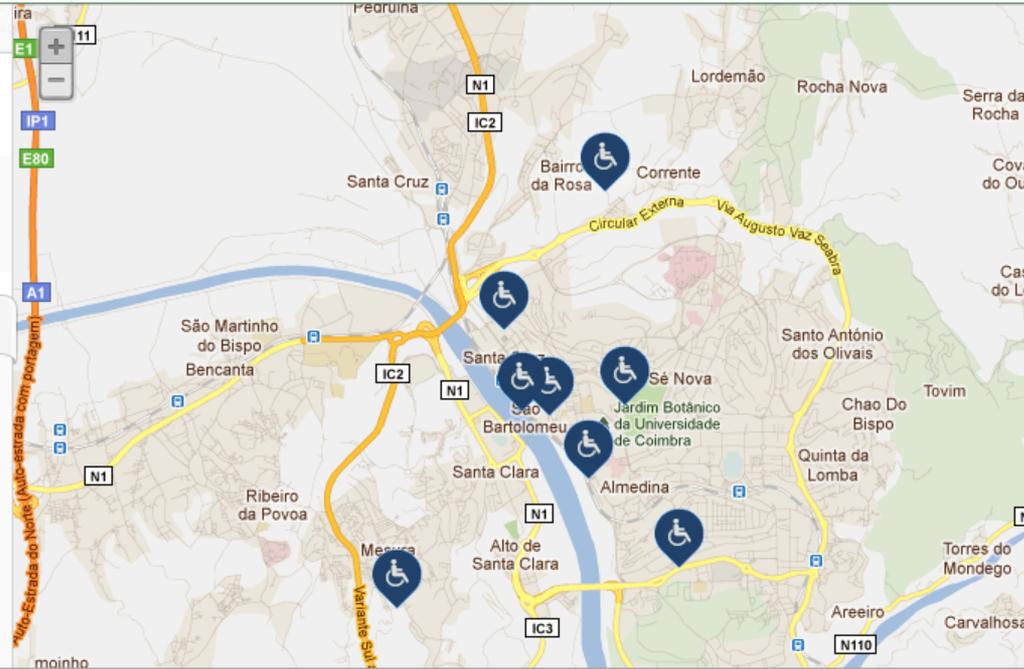
Transportation > Route Finder

### Route Finder

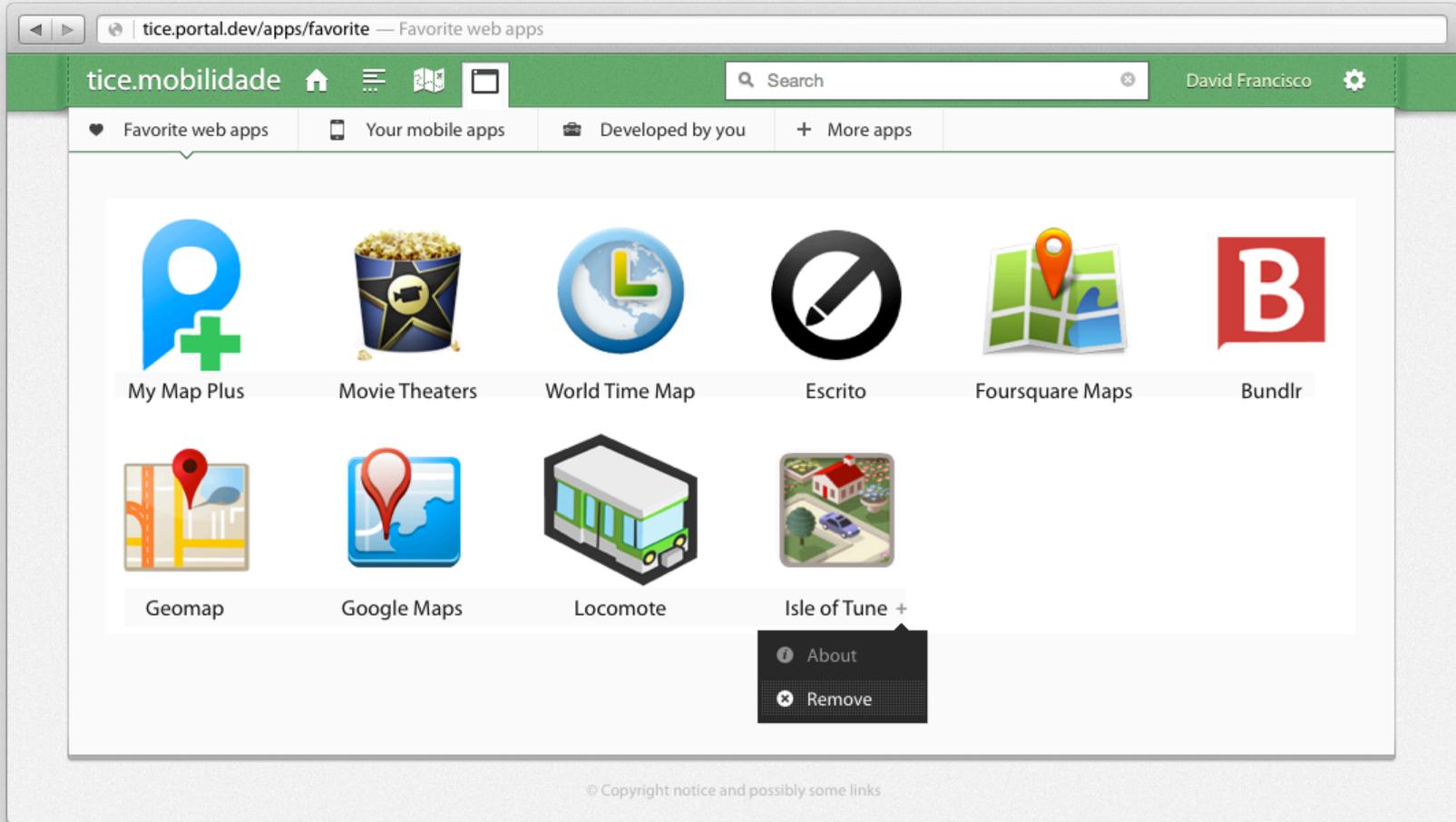
Maecenas faucibus mollis interdum. Fusce dapibus, tellus ac cursus commodo, tortor mauris conditum nibh, ut fermentum massa justo sit amet risus. Donec id elit non mi porta gravida at eget metus. Cum sociis natoque penatibus et magnis dis parturient montes, nascetur ridiculus mus.

Origin

Destination



© Copyright notice and possibly some links



tice.portal.dev/apps/schedules — Schedules

Schedules Mini maps Schedules Explorer Cupcake Polvo David Francisco

**Schedules & Prices**

Duis mollis, est non commodo luctus, nisi erat porttitor ligula, eget lacinia odio sem nec elit. Schedules and prices are subject to change without notice.

Origin

Destination

Buses and Trams

Metro and Rail

Airport

Boats

Carris

Serviço	Partida	Chegada	Duração	Preço
1. R U <a href="#">detalhe</a>	Coimbra-B 3h00	Lisboa - Entrecampos 6h17	3h17	1 <sup>a</sup> /2 <sup>a</sup> <a href="#">ver</a>
2. R IR U <a href="#">detalhe</a>	5h39	8h47	3h08	<a href="#">ver</a>
R	5h39 Coimbra-B	7h14 Entrecampos	1h35	€8,95
IR	7h19 Entrecampos	8h32 Oriente	1h13	€9,25
U	8h38 Oriente	8h47 Lisboa - Entrecampos	0h09	€1,70

TST

Serviço	Partida	Chegada	Duração	Preço
1. R U <a href="#">detalhe</a>	Coimbra-B 3h00	Lisboa - Entrecampos 6h17	3h17	1 <sup>a</sup> /2 <sup>a</sup> <a href="#">ver</a>
2. R IR U <a href="#">detalhe</a>	5h39	8h47	3h08	<a href="#">ver</a>
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U	8h38 Oriente	8h47 Lisboa - Entrecampos	0h09	€1,70
3. AP <a href="#">detalhe</a>	6h46	8h50	2h04	<a href="#">ver</a>
4. AP U <a href="#">detalhe</a>	7h46	9h39	1h53	<a href="#">ver</a>
5. IC U <a href="#">detalhe</a>	8h01	10h09	2h08	<a href="#">ver</a>
6. IN U <a href="#">detalhe</a>	8h21	10h39	2h18	<a href="#">ver</a>
7. AP U <a href="#">detalhe</a>	8h47	11h13	2h26	<a href="#">ver</a>
8. IC U <a href="#">detalhe</a>	9h19	11h39	2h20	<a href="#">ver</a>

tice.portal.dev/apps/schedules — Schedules

Schedules Mini maps Schedules Explorer 8 Cupcake Polvo David Francisco

Schedules & Prices

Duis mollis, est non commodo luctus, nisi erat porttitor ligula, eget lacinia odio sem nec elit. Schedules and prices are subject to change without notice.

Origin

Destination

Buses and Trams Metro and Rail Boats

This user Faved Many apps   
 + View more

Carris

	Serviço	Partida	Chegada	Duração	Preço
		Coimbra-B	Lisboa - Entrecampos		1ª/2ª
▼ 1.	R U <a href="#">detalhe</a>	3h00	6h17	3h17	<a href="#">ver</a>
▼ 2.	R IR U <a href="#">detalhe</a>	5h39	8h47	3h08	<a href="#">ver</a>
	R	5h39 Coimbra-B	7h14 Entroncamento	1h35	€8,95
	IR	7h19 Entroncamento	8h32 Oriente	1h13	€9,25
	U	8h38 Oriente	8h47 Lisboa - Entrecampos	0h09	€1,70

TST

	Serviço	Partida	Chegada	Duração	Preço
		Coimbra-B	Lisboa - Entrecampos		1ª/2ª
▼ 1.	R U <a href="#">detalhe</a>	3h00	6h17	3h17	<a href="#">ver</a>
▼ 2.	R IR U <a href="#">detalhe</a>	5h39	8h47	3h08	<a href="#">ver</a>
	R	5h39 Coimbra-B	7h14 Entroncamento	1h35	€8,95
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▼ 4.	AP U <a href="#">detalhe</a>	7h46	9h39	1h53	<a href="#">ver</a>
▼ 5.	IC U <a href="#">detalhe</a>	8h01	10h09	2h08	<a href="#">ver</a>
▼ 6.	IN U <a href="#">detalhe</a>	8h21	10h39	2h18	<a href="#">ver</a>
▼ 7.	AP U <a href="#">detalhe</a>	8h47	11h13	2h26	<a href="#">ver</a>
▼ 8.	IC U <a href="#">detalhe</a>	9h19	11h39	2h20	<a href="#">ver</a>

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Schedules Mini maps Schedules Explorer Cupcake Polvo David Francisco

Schedules & Prices

More web apps

 World Time Map
 Goplan
 Simplenote
 My Map Plus
 Chrome Web Store
 Bundlr
 Foursquare Maps
 Offline Google Mail
 escrito
 Geomap x
 

	U	8h38 Oriente	8h47 Lisboa-Entrecampos	0h09	€1,70		
3.	AP	<a href="#">detalhe</a>	6h46	8h50		2h04	<a href="#">ver</a>
4.	APJU	<a href="#">detalhe</a>	7h46	9h39		1h53	<a href="#">ver</a>
5.	ICJU	<a href="#">detalhe</a>	8h01	10h09		2h08	<a href="#">ver</a>
6.	INJU	<a href="#">detalhe</a>	8h21	10h39		2h18	<a href="#">ver</a>
7.	APJU	<a href="#">detalhe</a>	8h47	11h13		2h26	<a href="#">ver</a>
8.	ICJU	<a href="#">detalhe</a>	9h19	11h39		2h20	<a href="#">ver</a>

tice.portal.dev/apps/geomap/home — Geomap

tice.mobilidade     Search David Francisco 



**OPEN WEB APP** ▼

## Geomap

Tagline sed diam eget risus varius blandit sit amet non magna.

Detailed description interdum. Donec ullamcorper nulla non metus auctor fringilla. Etiam porta sem malesuada magna mollis euismod. Duis mollis, est non commodo luctus, nisi erat porttitor ligula, eget lacinia odio sem nec elit. Lorem ipsum dolor sit amet, consectetur adipiscing elit. Donec sed odio dui. Maecenas faucibus mollis interdum. Morbi leo risus, porta ac consectetur ac, vestibulum at eros. Donec sed odio dui.

### Reviews

Lorem ipsum dolore interdum. Donec ullamcorper nulla non metus auctor fringilla. Etiam porta sem malesuada magna mollis euismod. Duis mollis, est non commodo luctus, nisi erat porttitor ligula, eget lacinia odio sem nec elit. Lorem ipsum dolor sit amet, consectetur adipiscing elit. Donec sed odio dui.

by Miguel Machado — 30 Aug 2011

Vivamus sagittis lacus vel augue laoreet rutrum faucibus dolor auctor. Etiam porta sem malesuada euismod.

by Pedro Gaspar — 28 Aug 2011

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About the app ▼

-  [Developer website](#) 
-  [Support](#) 
- Version: 0.3.3

Supported languages ▼

-  [Português \(Portugal\)](#)
-  [English \(UK\)](#) 
-  [Español](#)
-  [Dansk](#)

Rated 3+  
34 users

More by Barracuda ▼

Software

-  [Polvo](#)

State of the Art

Architecture & Design

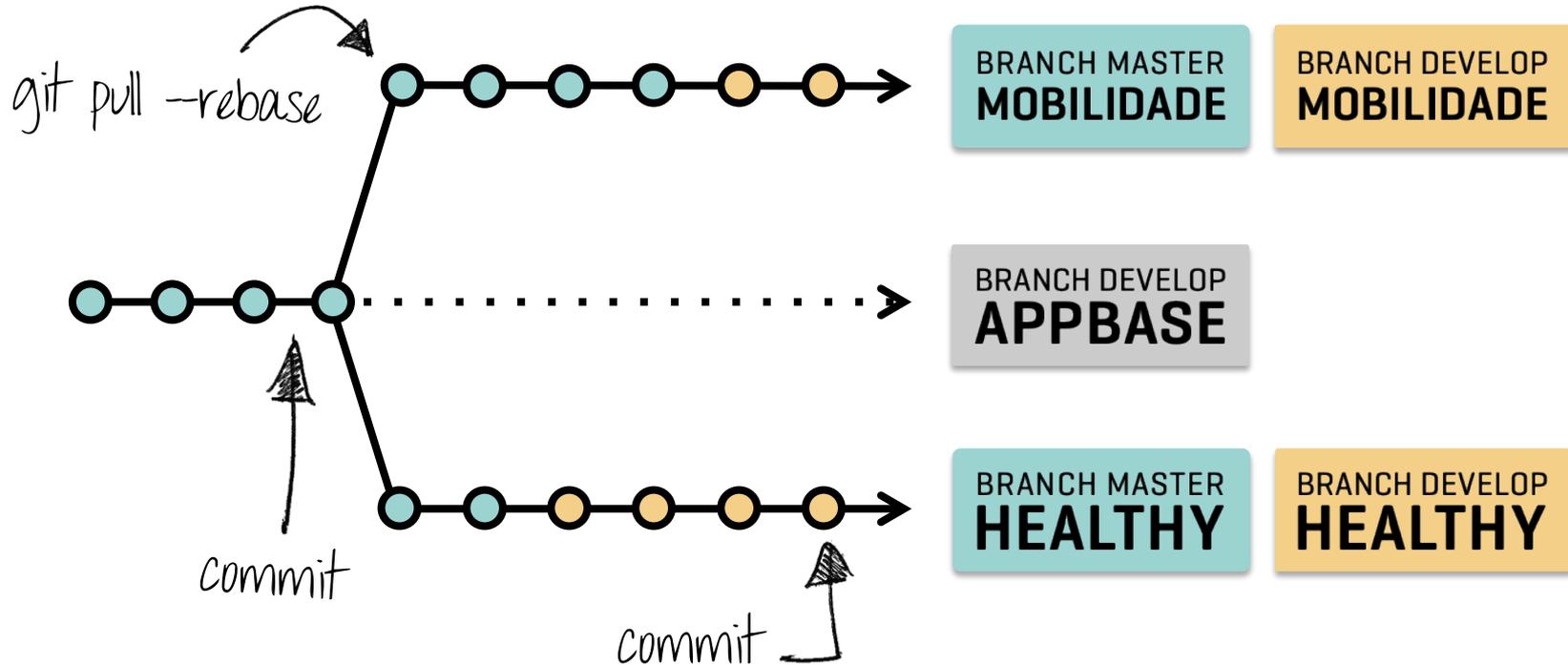
Interface Design

**Engineering Processes**

Work Plan



# Repositories Structure





# Other Engineering Practices

Coding Standards & Conventions

Git flow & Semantic Versioning

Interface Style Guide

Behavior Driven Development



State of the Art

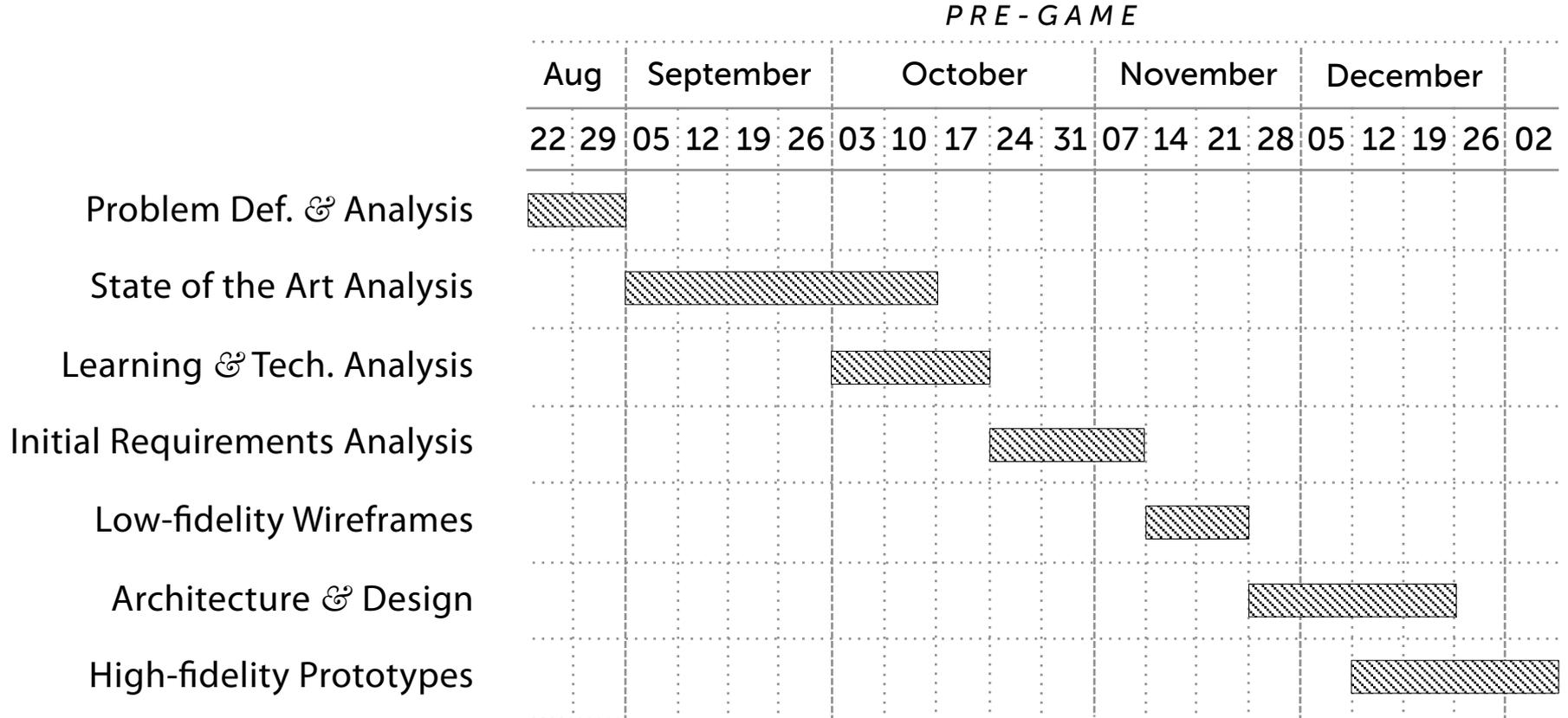
Architecture & Design

Interface Design

Engineering Processes

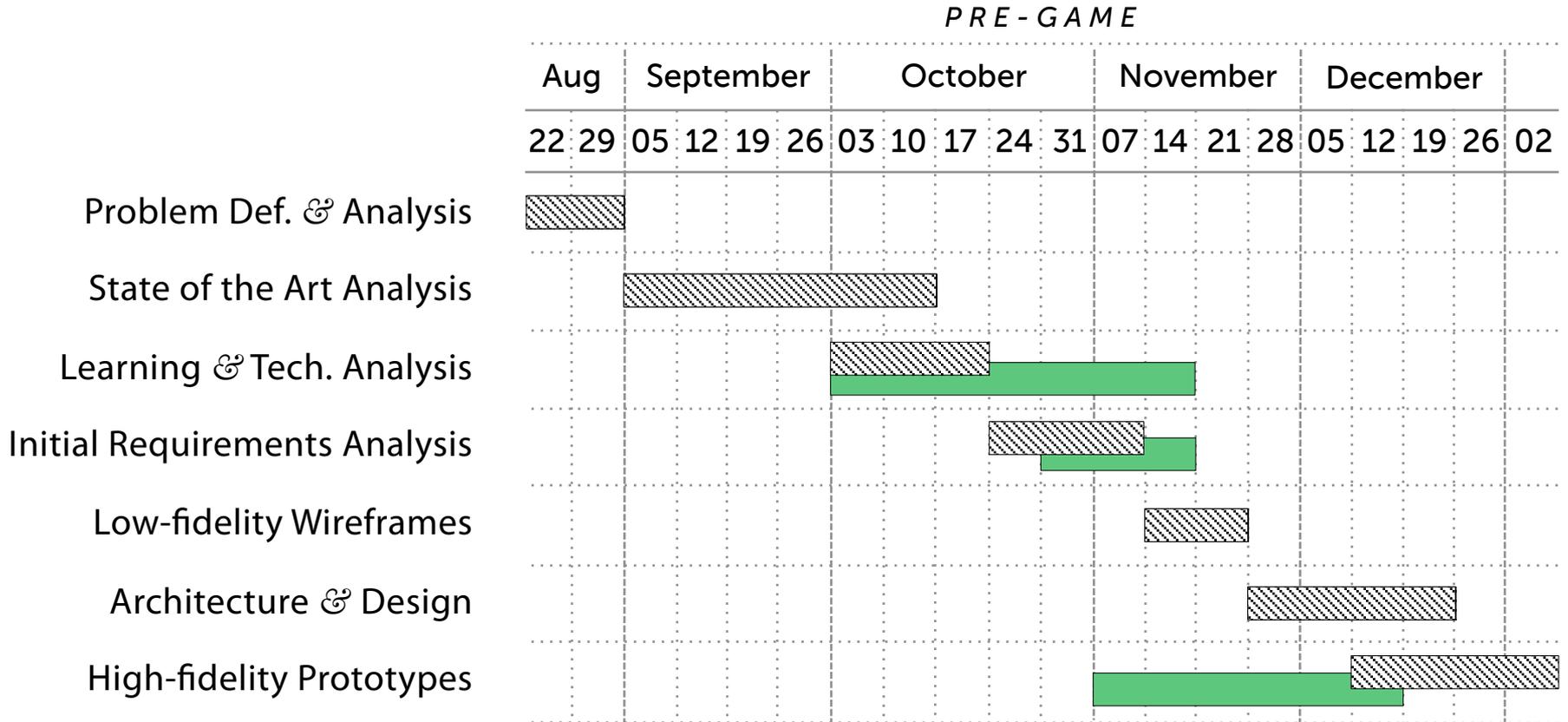
**Work Plan**

# Work Plan First Semester

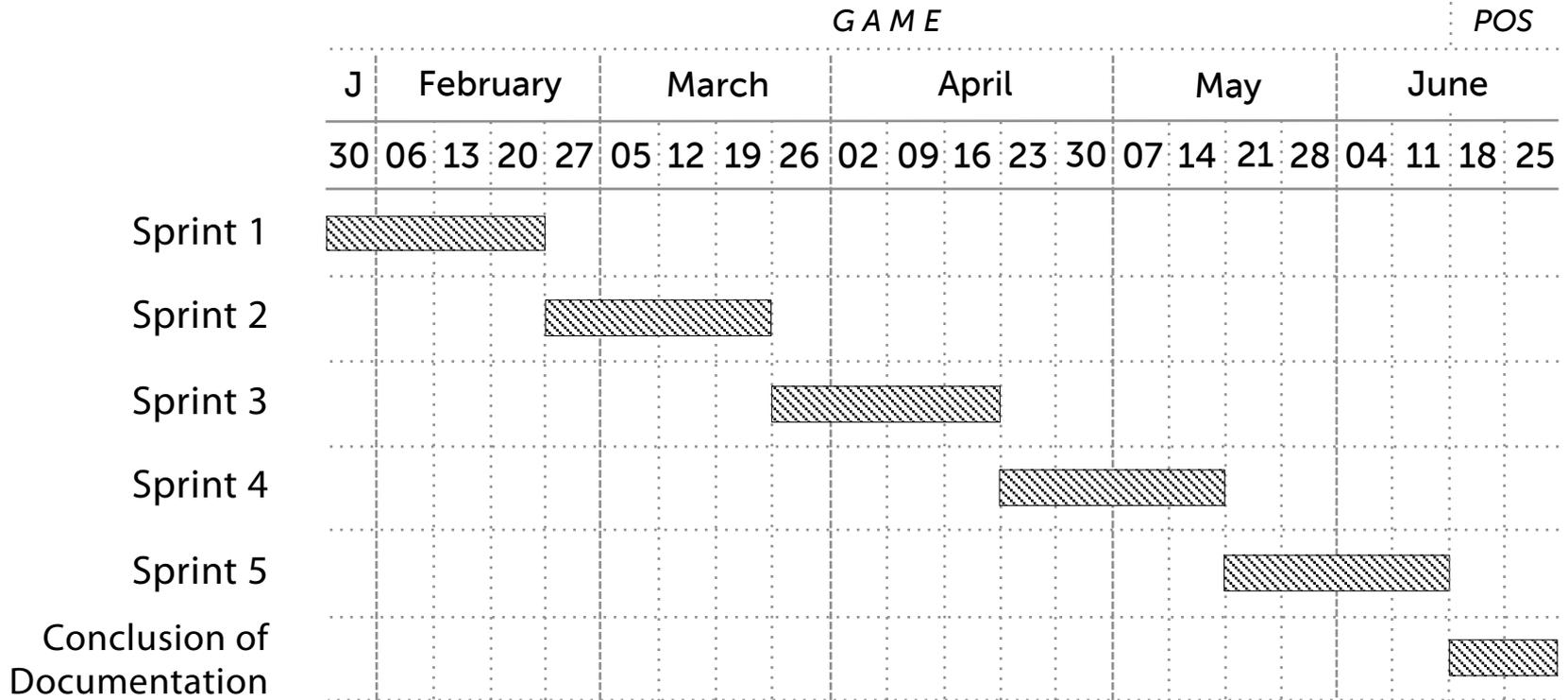


# Work Plan

## First Semester (observed)



# Work Plan Second Semester



# Appbase

## Web Platform for User-Centric Interoperable Applications

Download this presentation at: <http://appbase.dmfranc.com>

David Marquês Francisco ✉ [dfrancisco@ipn.pt](mailto:dfrancisco@ipn.pt)



A partir deste slide estão presentes slides escondidos para auxílio em possíveis questões feitas pelo júri



**Motivation & Community**

**State of the Art**

**Requirements Analysis**

**Risk Analysis**

**Architecture & Design**

**Interface Design**

**Methodology & Work Plan**

**Retrospective**



# Elevator Pitch

For companies  
who want to build new software  
the appbase  
is a platform  
that allows them to sell and deliver their work.  
Unlike other marketplaces  
ours doesn't charge them and is targeted to  
Portuguese citizens and this domain.



# Elevator Pitch

For clients  
who want to solve daily problems with their  
smartphone, tablet or computer  
the appbase  
is a platform  
that allows them to download apps made by  
Portuguese developers for Portuguese citizens.  
Unlike other marketplaces  
ours is targeted to a specific domain and operates  
in a common context.



# Product Name

*Slogan*

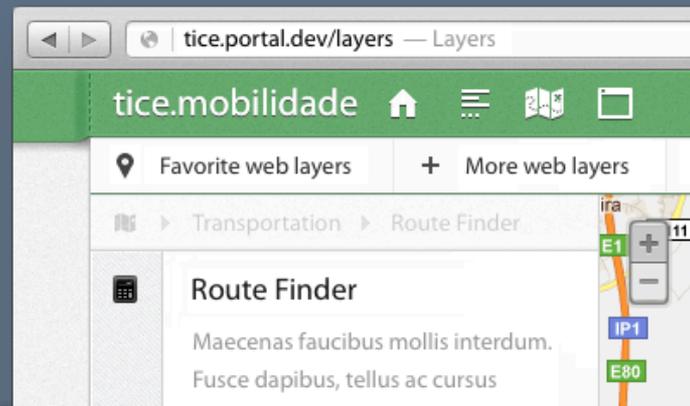
Picture

- Benefit #1
- Benefit #2
- Benefit #3



# Appbase Mob

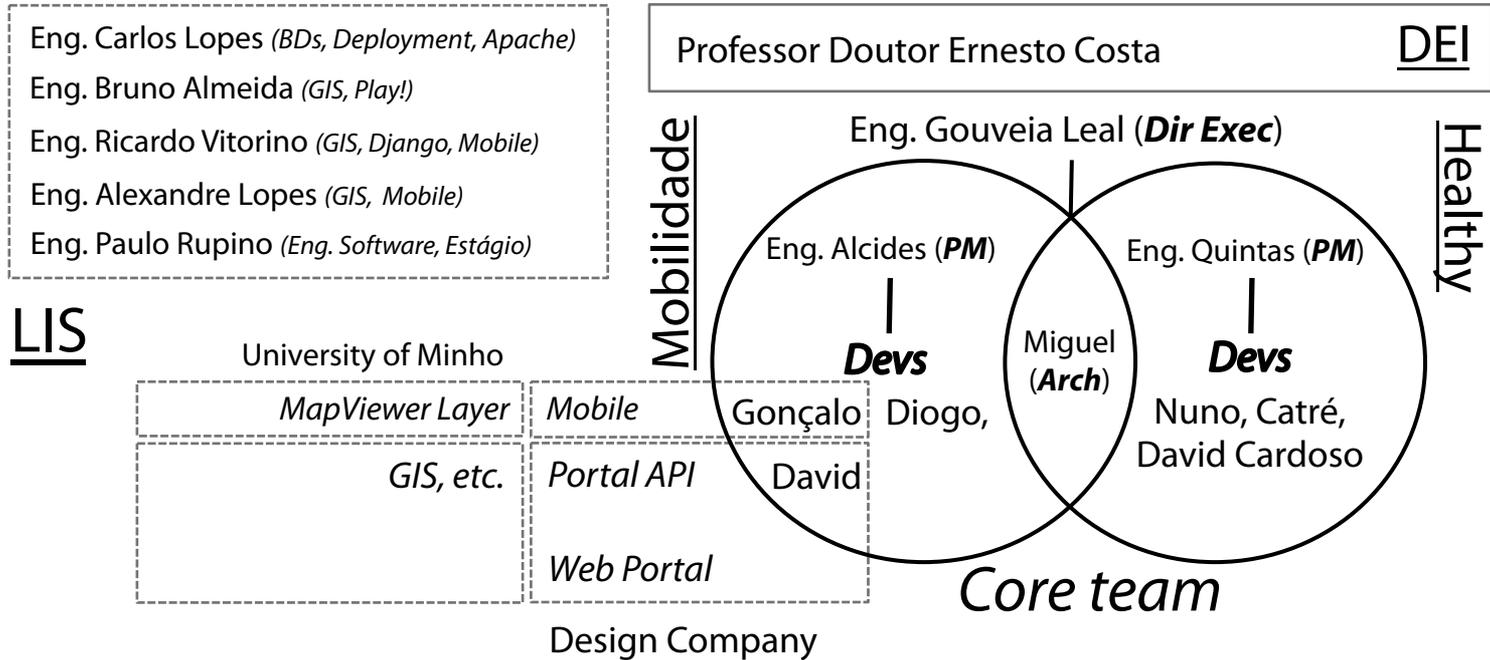
*Solving daily problems,  
one app at a time*

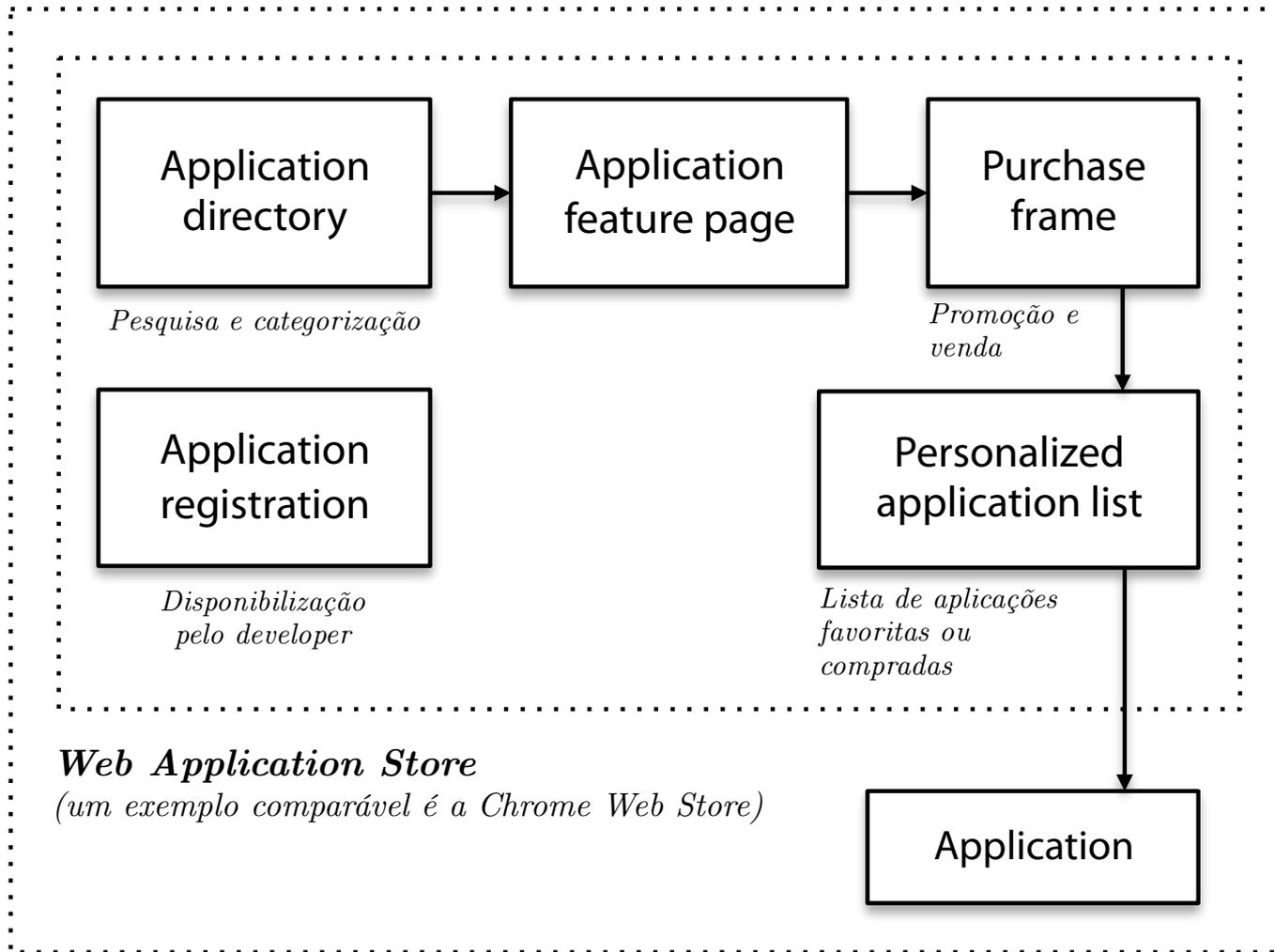


- Instant access to apps made by organizations nearby
- Discover what's happening in your city
- Make your own apps & add POI's about your business or local community



# My project community





**Web Application Portal** *(um exemplo comparável é o iGoogle ou Netvibes)*



# Embedding third-party apps

Must avoid **blocking** the host page

Must **not affect CSS or JavaScript** on the host page

Must **not be affected** by the host page



# Embedding third-party apps

## Inline JS `<script src="">`

Easy for publishers to add

*Blocks page in all browsers*

## Iframe `<iframe src="">`

Load HTML file in an iframe

*History & SEO issues*

## XMLHttpRequests

Asynchronous, non-blocking

*Same-domain in some browsers*

## Script tag

Append a script tag using JS

*Behavior varies across browsers*



# Embedding third-party apps

W3C Widgets Specification *Opera*

Google *iGoogle, OpenSocial, Wave*

Netvibes Universal Widget API

*iGoogle, Windows Vista, Mac OS X, iPhone, ...*

Java Portlet Specification v2.0, WebParts



Security

*W3C Widget  
Access Request  
Policy*

*W3C Digital  
Signatures for  
Widgets*

Lifecycle

*W3C Widget  
Updates*

*WAC Widget  
Lifecycle*

Preferences  
& basic APIs

*W3C The Widget Interface*

*Opera Extensions  
API*

*OpenSocial  
Gadget UserPrefs,  
IO (2007) Na versão 2.0*

Metadata

*W3C Widget Packaging and Configuration  
(2006) Em 2011 chega ao estado "Proposed  
Recommendation"*

*OpenSocial  
Core Gadget  
(2007) Na versão 2.0*

*Chrome Extensions  
Manifest File (2011)  
Em produção*

*Open Web Apps  
Manifest (2011)  
Em desenvolvimento*

Packaging

*CRX Package  
Format (2011)  
Em produção*

Web Tech-  
nologies

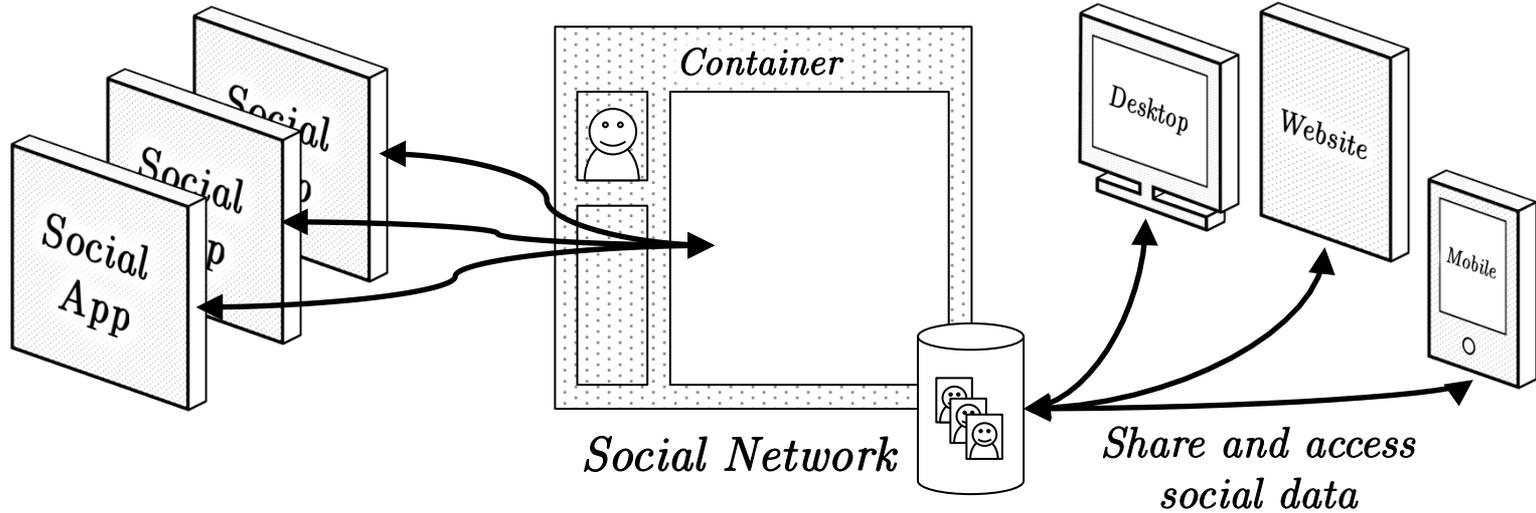
*HTML, JavaScript, CSS*

**Legenda**

-  Desenvolvido pelo W3C (World Wide Web Consortium).
-  Desenvolvido pelo WAC (Wholesale Applications Community).
-  Desenvolvido pela Opera Software.
-  Desenvolvido por várias entidades.
-  Desenvolvido pela Google Inc..
-  Desenvolvido pela Mozilla Corp..



# Apache Shindig *for* OpenSocial





# Apache Shindig *for* OpenSocial

OAuth *Authentication & Authorization*

Activity Streams

User Profiles



# Apache Wookie

REST Web Service

CRUD for widgets



# Comparison of related Platforms

Tabela 3.1

	Portal ( <i>apps</i> embebidas)	<i>Single sign-on</i>	Aplicações com perm. granulares	UI consistente	<i>Cross-browser</i>	Suporta web <i>apps</i>	Suporta <i>apps</i> móveis nativas	Suporta <i>apps</i> para <i>desktop</i>	Suporta pagamentos
iGoogle	✓	✓	✗	✗	✓	✓	✗	✗	✗
Facebook Apps	✓	✓	✓	✓	✓	✓	✓	✗	✗
LinkedIn Apps	✓	✓	✓	✓	✓	✓	✗	✗	✗
Twitter Apps	✗	✓	✓	✗	✓	✓	✓	✓	✗
Chrome Web Store	✗	✗	✗	✗	✗	✓	✗	✗	✓
Podio App Store	✓	✓	✗	✓	✓	✓	✓	✗	✓
Palette e Mywiwall	✓	✓	✗	✗	✓	✓	✗	✓	✗
Appbase (a)	✓	✓	✓	✓	✓	✓	✓	✗	(b)

(a) Appbase é a plataforma a desenvolver no âmbito do estágio. Quando concluída, se forem cumpridos todos os requisitos com prioridade MUST e SHOULD, esta terá as características indicadas na tabela.

(b) Corresponde a um requisito de carácter obrigatório para o projecto, mas de prioridade OPTIONAL para o estágio.



# Principles for Web Application Design

**Tight focus** *does only one thing, one thing well*

**Big screen** *utilizes the entire browser window, with no extraneous or unrelated content*

**Rich experience** *engaging experience, similar to native apps*

**Responsive** *both in user perception and actual behavior*



# High-level Requirements

Integrate 3rd-party Applications

One location, single sign-on, shared data & API

Customizable

Shared Context

**Shared Data** between apps & web portal

Drag-and-drop and/or messaging



# Trade-off sliders

ON ← —|—●—|— → OFF    Feature completeness (**scope**)

ON ← ●—|—|—|— → OFF    Deliver project on **time**

ON ← ●—|—|— → OFF    High **quality**, low defects



# Risk Analysis

Working on **two very divergent branches**

**Problems using OAuth** for secure user authentication in packaged applications

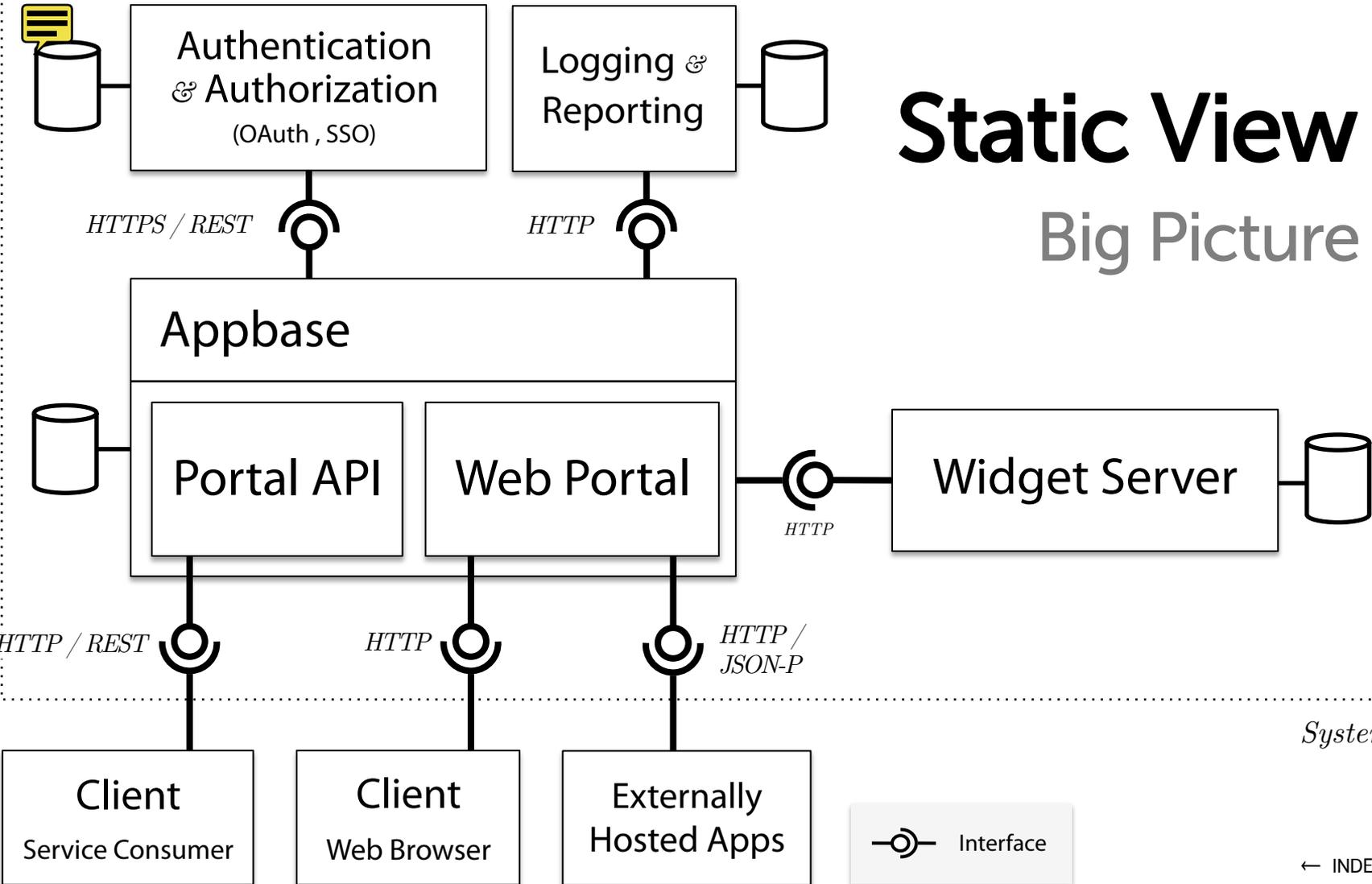
**Difficulties integrating the OST web stack**

Overhead communicating about the UI

**Unexpected limitations** of the map rendering engine

# Static View

## Big Picture





Authentication & Authorization  
(OAuth, SSO)

Logging & Reporting

Static View  
Big Picture

what I designed & will implement

HTTPS / REST

HTTP

Appbase

Portal API      Web Portal

Widget Server

HTTP

HTTP / REST

HTTP

HTTP / JSON-P

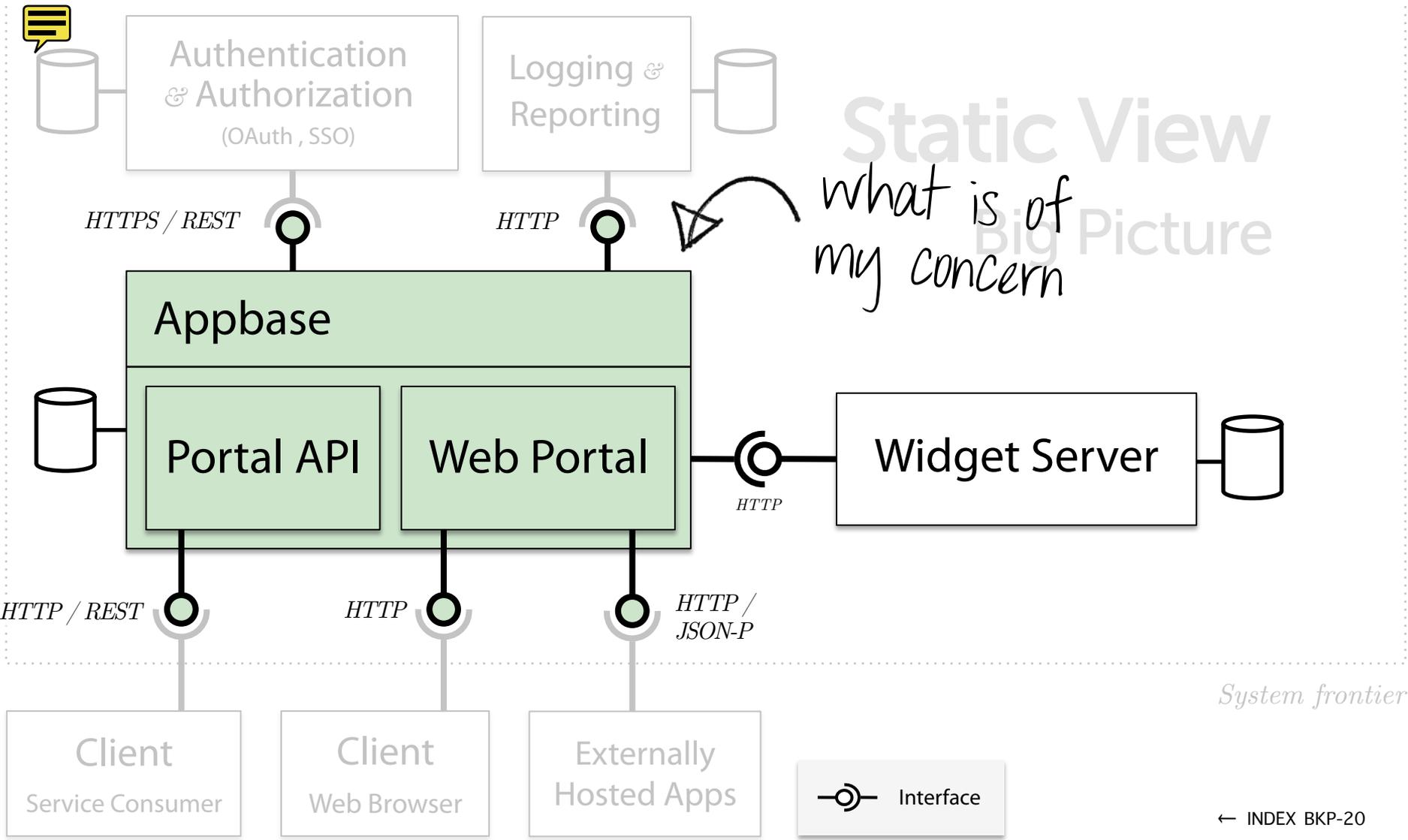
System frontier

Client  
Service Consumer

Client  
Web Browser

Externally  
Hosted Apps



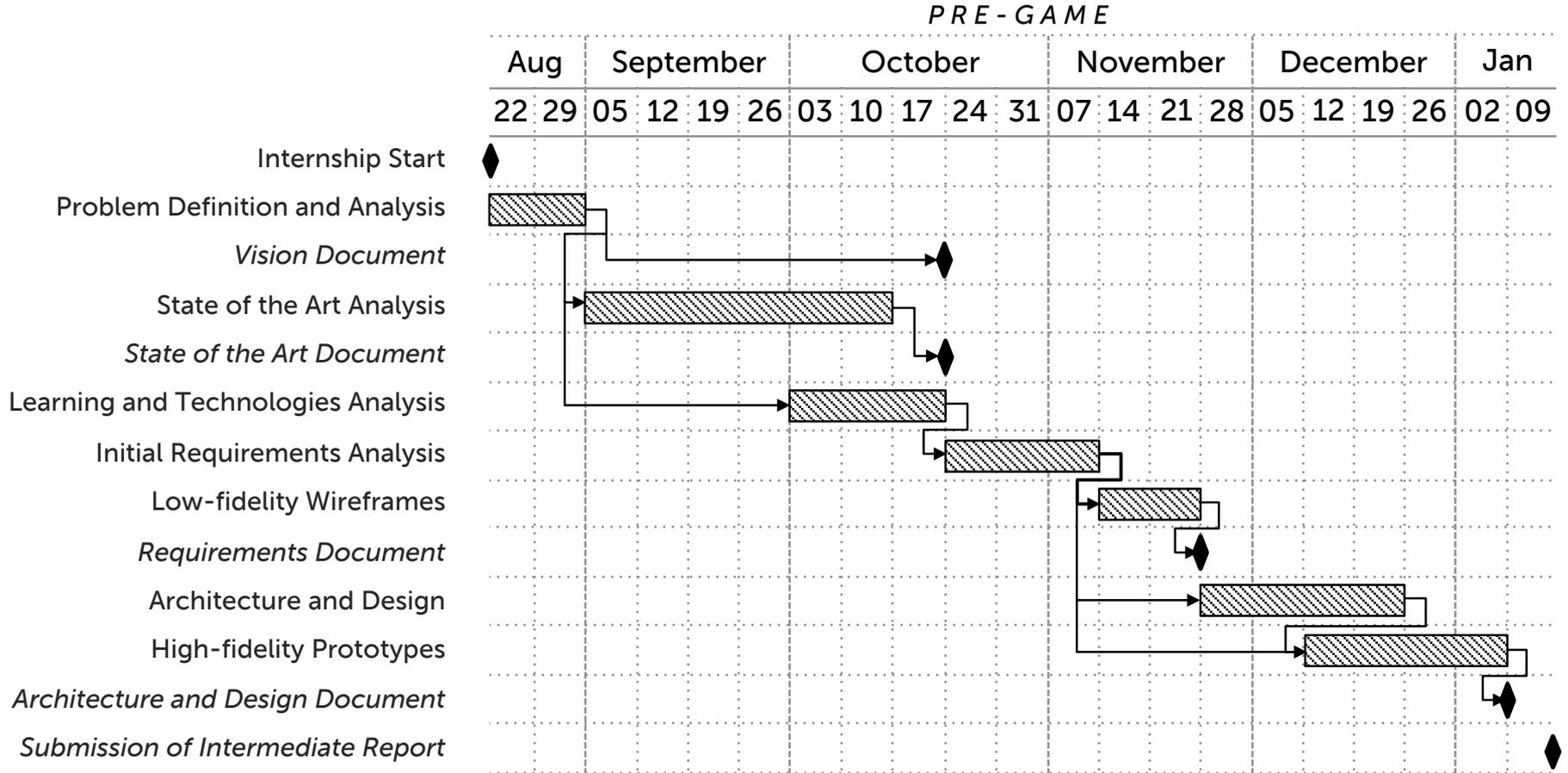


*System frontier*



# Work Plan

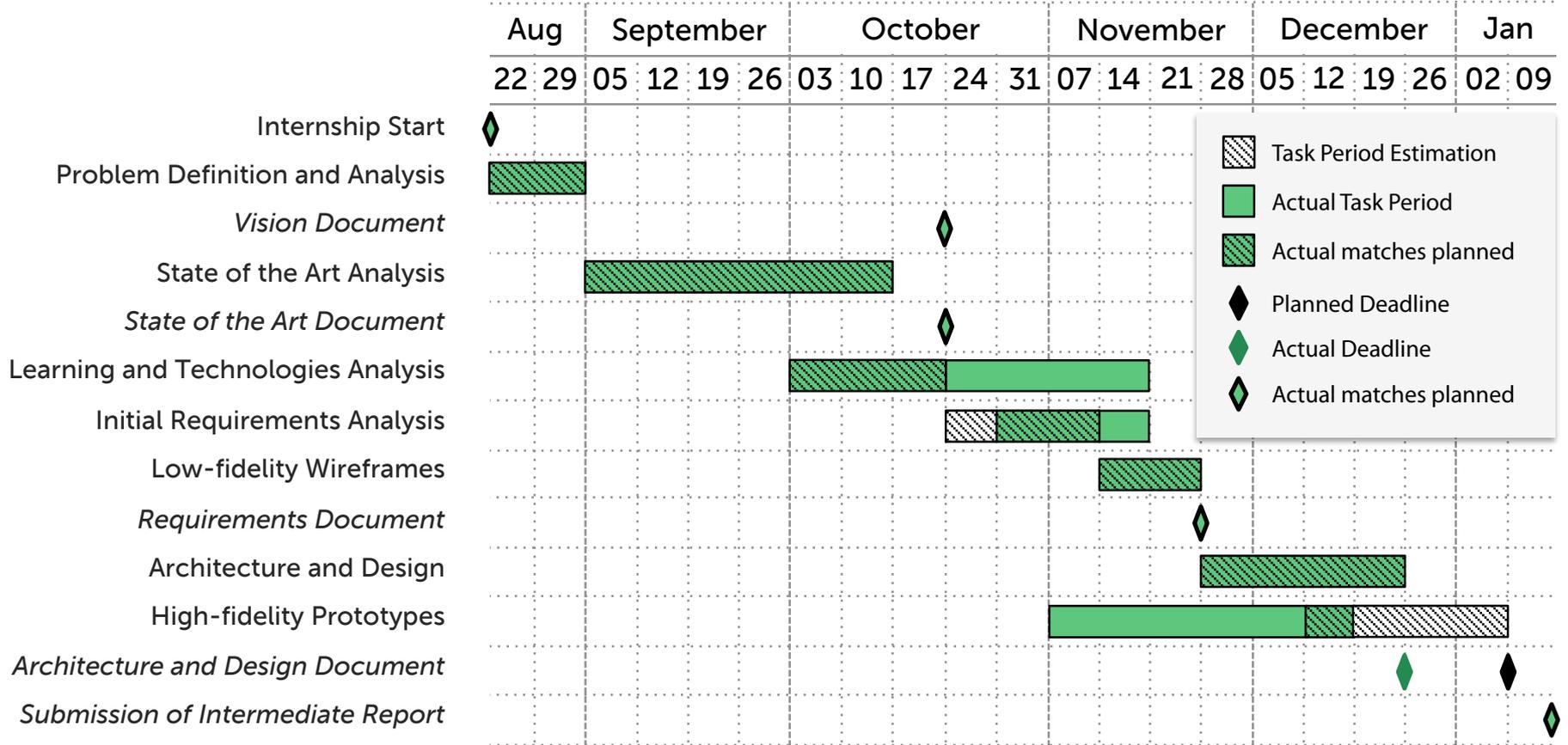
## First Semester





# Work Plan First Semester

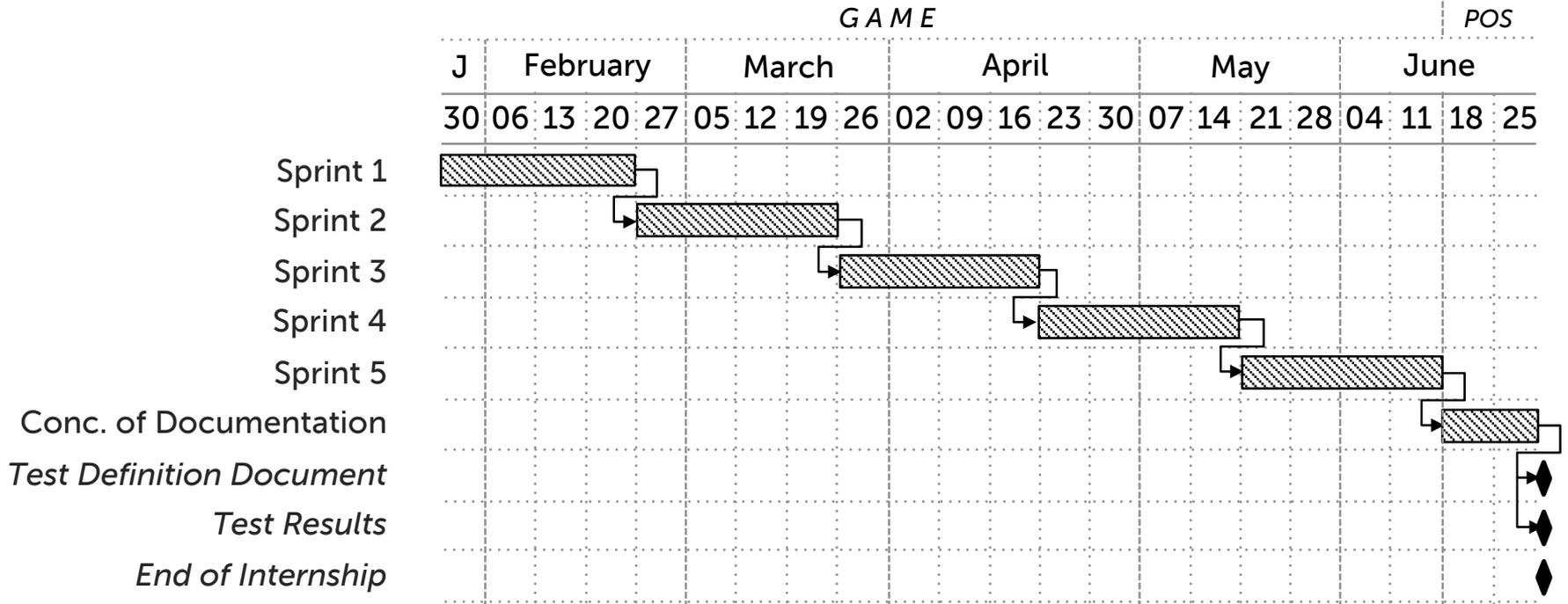
PRE-GAME





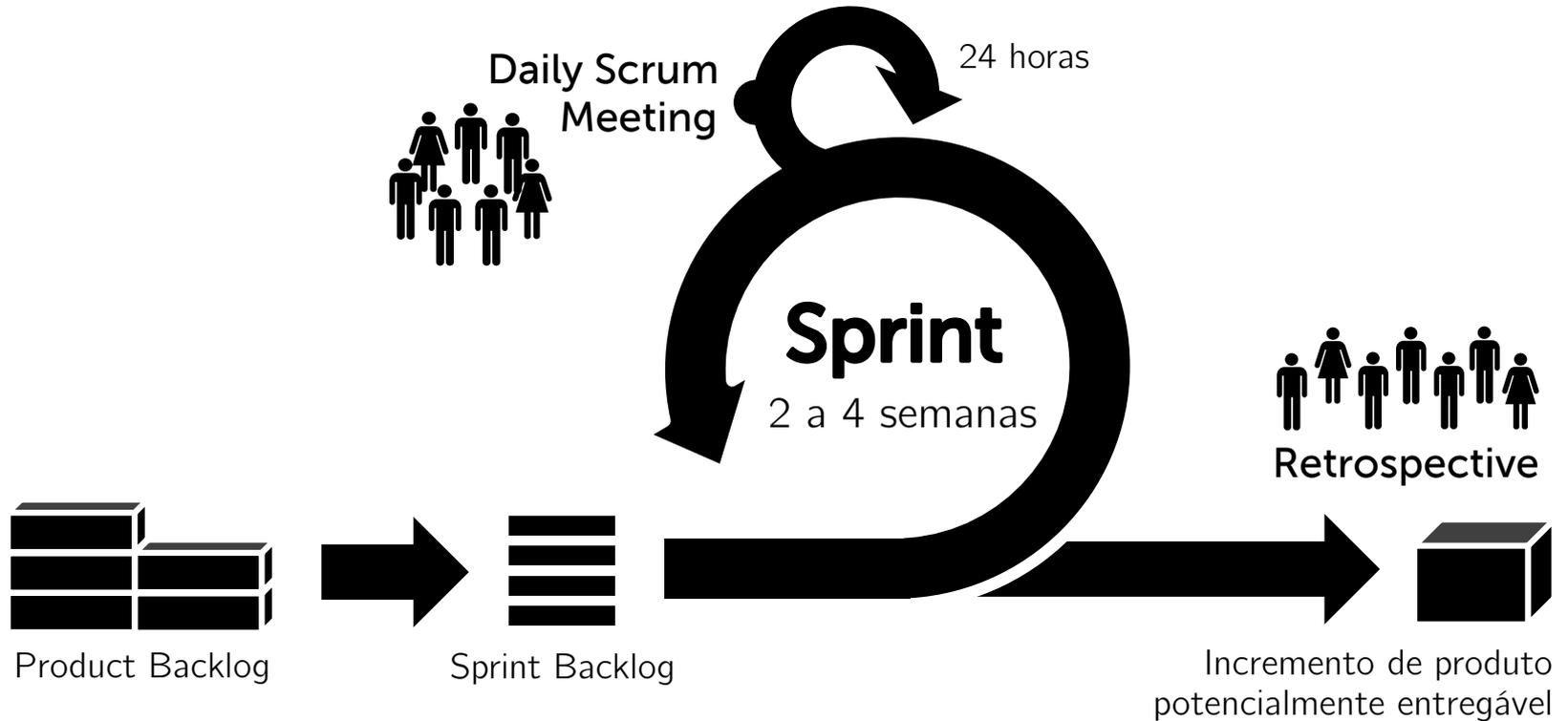
# Work Plan

# Second Semester





# Methodologies – Scrum





# Methodologies – BDD

1. Describe behaviour in natural language
2. Write step definition in Python
3. Run and watch it fail
4. Write code to make the step pass
5. Run again and see the step pass
6. Repeat from 2 to 5 until **green**



# Main Obstacles

Initial period of uncertainty of the scope of work

Anticipation of the prototype development phase



# Contribution

Application of software engineering concepts in a **real context**

Opportunity to work with **new technologies and paradigms**

# Appbase

## Web Platform for User-Centric Interoperable Applications

Download this presentation at: <http://appbase.dmfranc.com>

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