ubiwhere

Suiting the future of smart mobility

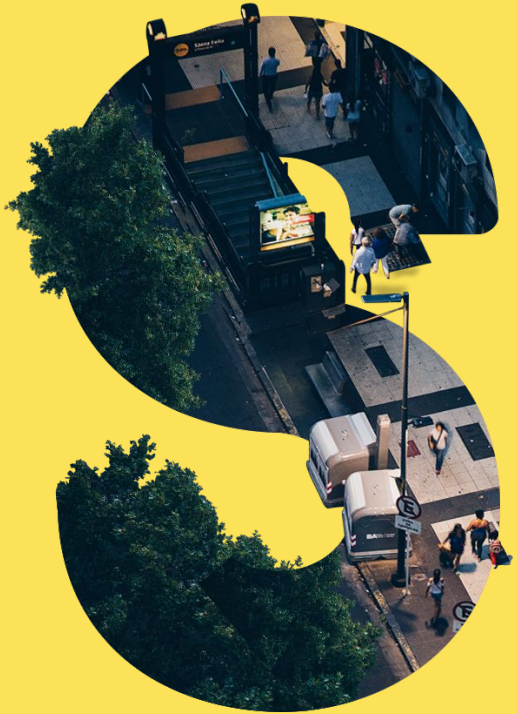
hello@ubiwhere.com

From Portugal to the world **with love.**

Founded in 2007, Ubiwhere is focused on Research, Development and Innovation of software-based solutions in the areas of Smart Cities, Telecom and Future Internet, and New Technologies.
We have the innate desire of changing the World. That's why we create, design and develop solutions that improve people's life. Day by day, our multi-skilled team works to bridge the existing gaps in the market.

We are here for the long run!
Let’s start?

ubiwhere



SMART CITIES

We believe in a sustainable world where people feel happy.

That's why we work every day to be leaders in Smart Cities and everything they involve: Environment, Mobility, Tourism, Energy and more.

TELCO & FUTURE INTERNET

The Internet is not everywhere yet, but that's what we work for.

Today, everything happens at an amazing pace and, therefore, better infrastructure and networks are needed to keep up with developments.
Research and development of intelligent solutions for the Internet of the Future is one of our priorities.

NEW TECH_ NOLOGIES

Every day there are new technological advances in the most diverse areas.

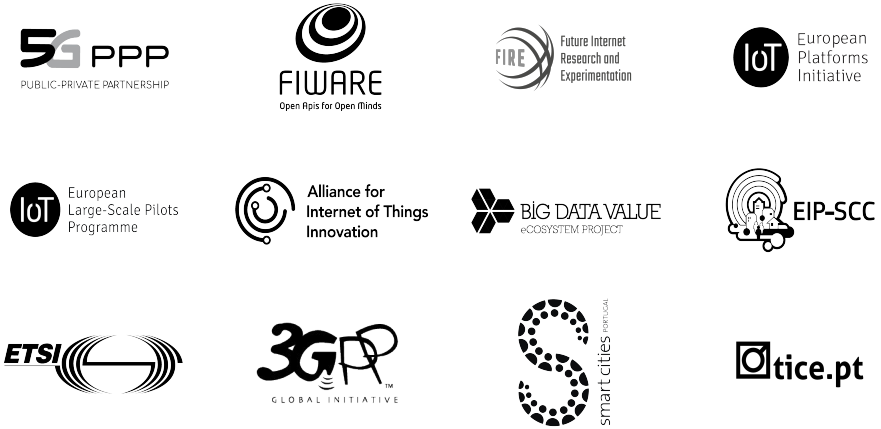
As an experienced technology company, we have the mission of being at the forefront of innovation and supporting companies and communities in creating new ideas that help make the World a better place.

We believe that great partners empower great ideas and build the best business.

Meet some of them.

We have been cooperating in strategic alliances to benefit from each other's experience and gain a competitive advantage in the market.

Here are a few of them.



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Let’s go for it?

Ricardo Vitorino

Smart Cities R&I Manager

rvitorino@ubiwhere.com

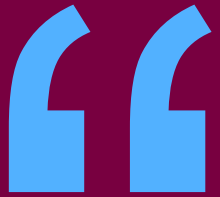
SYNCHRONICITY

IoT Large-Scale Pilot for Smart Cities & Communities

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No732240

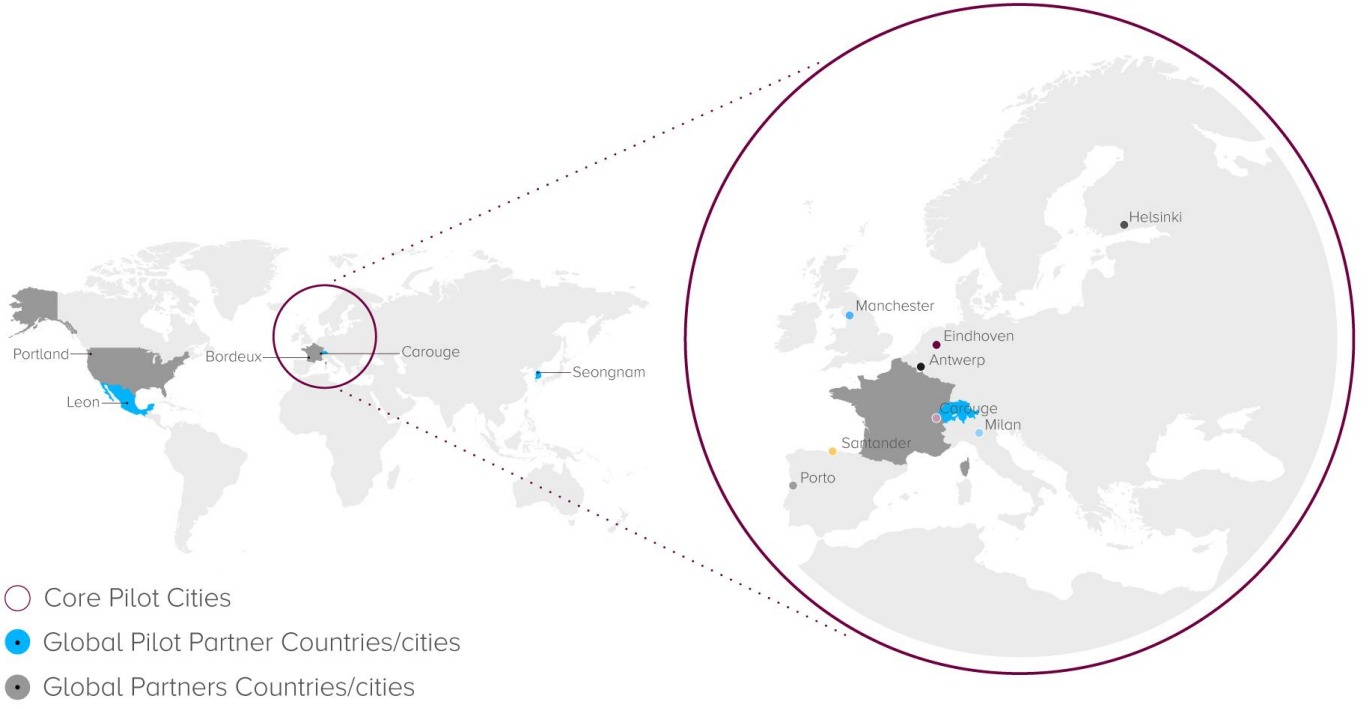
Co-funded by

Switzerland South Korea Mexico



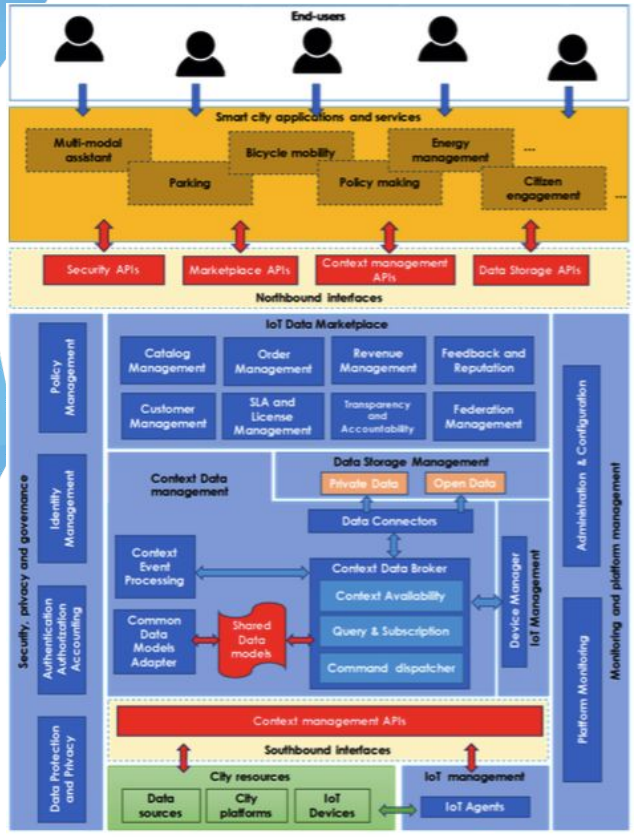
Deliver a market for IoT-enabled urban services for Europe and beyond

Our Pilot Cities (Reference Zones)



“A robust model for standards-based innovation and procurement of IoT-enabled services across domains

SynchroniCity Reference Architecture

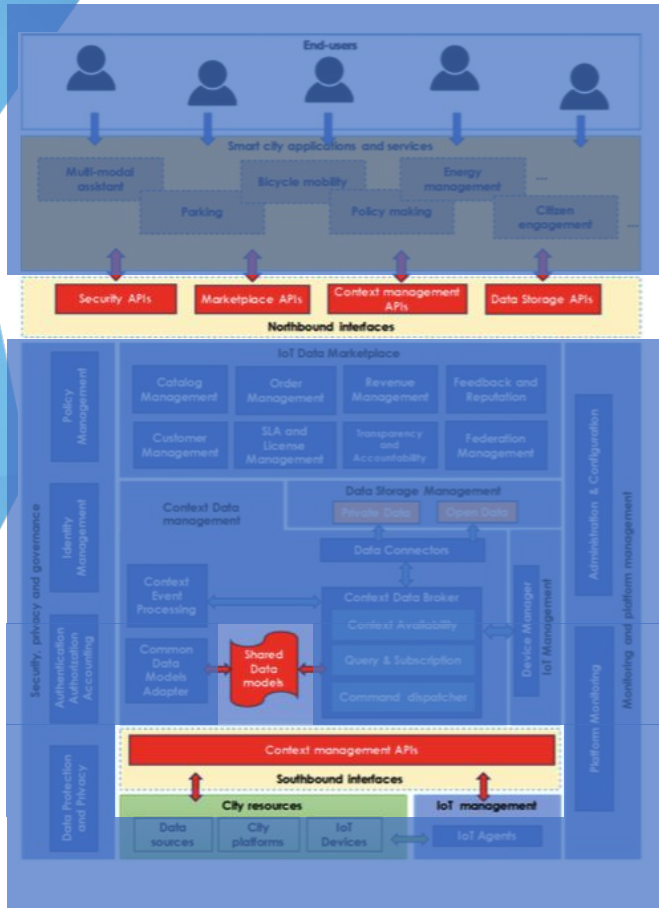


Defines a set of logical components and functionalities that enable different cities to be actively part of IoT Smart City digital single market, the outcome of different inputs:

- **Architecture guidelines and use case analysis**
- **Reference zones compliance**: SynchroniCity reference architecture recalled the proposed layered approach followed in RZ technical baseline
- **Reuse of existing approaches**: the outcome of high-level analysis of the most relevant European initiatives regarding IoT and Smart City platforms showed some commonalities, among the heterogeneous projects, in terms of technologies and functionalities
- **OASC principles**: another relevant approach that has driven the design of logical architecture to achieve the vision of the SynchroniCity project about realization of a common digital single market for IoT-enabled urban services

https://synchronicity-iot.eu/wp-content/uploads/2018/09/SynchroniCity_D2.10.pd

Interoperability Points



- **Interoperability Points** represent the main interfaces that allow a city (or any Reference Zone, RZ) and applications to interact with SynchroniCity platform
- Interoperability points are independent from the specific software components that realize them and can be implemented by cities in different steps to reach different levels of compliance
- The architecture has been designed following the OASC principles and the definitions of **Minimal Interoperability Mechanisms** (MIMs). MIMs are the actual specifications of the interfaces at the Interoperability Points: they are standard API and guidelines that have to be implemented by a city in order to be compliant with the SynchroniCity framework

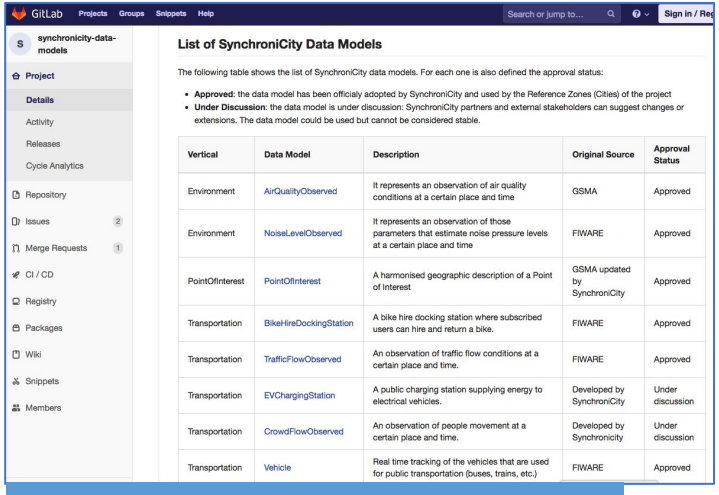
Interoperability Mechanisms

	Description	Specification document (synchronicity-iot.eu/docs/)	Related Standards [and Baselines]
Context Management API	This API allows real-time access to context information from the different cities.	Reference Architecture for IoT Enabled Smart Cities (D2.10)	FIWARE NGSIv2, ETSI NGSI-LD API, ITU-T SG20* / FG-DPM*
Shared data models	Guidelines and catalogue of common data models in different verticals to enable interoperability for applications and systems among different cities	Guidelines for the definition of OASC Shared Data Models (D2.2) Catalogue of OASC Shared Data Models for Smart City domains (D2.3)	[FIWARE, GSMA, schema.org, Saref , SynchroniCity RZ + partner data models]
Ecosystem Transaction Management (“Marketplace”)	It exposes functionalities such as catalogue management, ordering management, revenue management, SLA, license management etc. Complemented by marketplace for hardware and services.	Basic Data Marketplace Enablers (D2.4) Guidelines for the integration of IoT devices in OASC compliant platforms (D2.6)	[TM Forum API]
Security API	API to register and authenticate users and applications in order to access the SynchroniCity-enabled services.	Reference Architecture for IoT Enabled Smart Cities (D2.10)	OAuth2
Data Storage API	This API allows to access to historical data and open data of the reference zones.	Reference Architecture for IoT Enabled Smart Cities (D2.10)	ETSI NGSI-LD, DCAT-AP [CKAN]

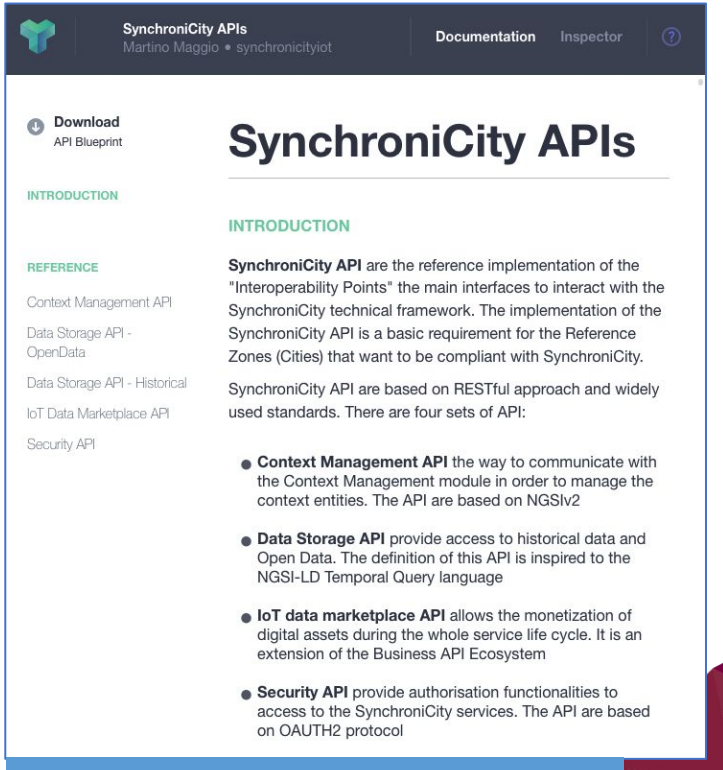
Resources: common data models & API

Common data models and SynchroniCity API represent the concrete implementation of the Interoperability Points:

- SynchroniCity defines a set of **common data models** derived from existing initiatives (e.g. FIWARE, GSMA, SAREF) or new ones defined by project members.
- **SynchroniCity API** are the interfaces to interact with the technical framework. You can test the API using the **sandbox,** a cloud test instance.



https://gitlab.com/synchronicity-iot



https://synchronicityiot.docs.apiary.io

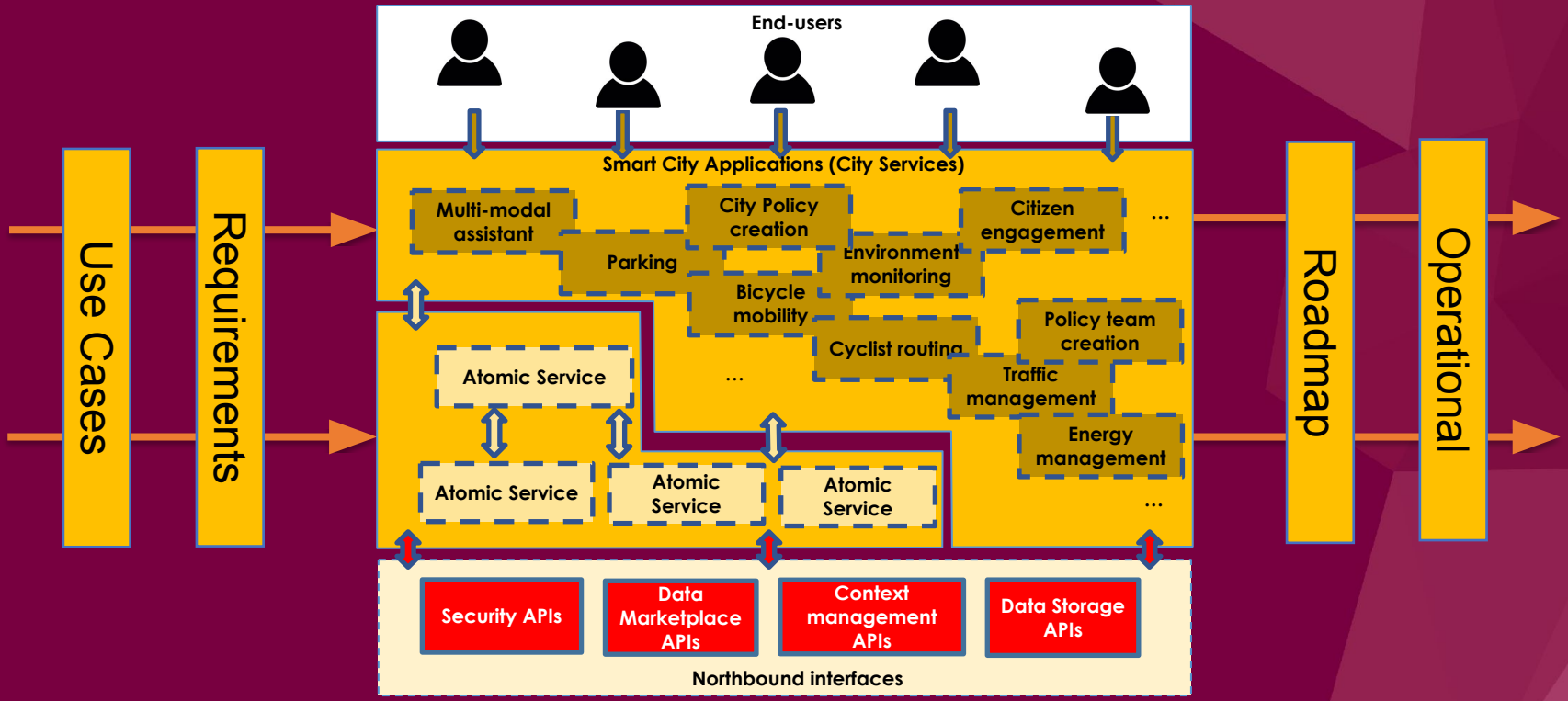
Internal Use Cases

Human centric traffic management

Multimodal Transportation

Community Policy Suite

Atomic and Application Services

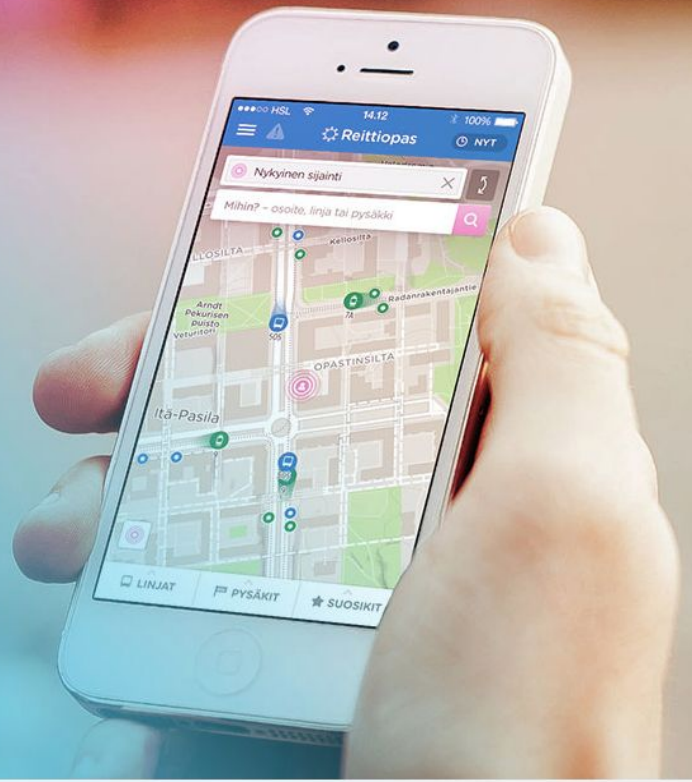


The Atomic Service is a good opportunity to test the SynchroniCity framework and OASC principles. It could be easily replicated, accelerating new developments, in many cities which provides and implement these principles.


Porto.

digitransit

The next generation journey planner in the making. Contribute and leave your mark!

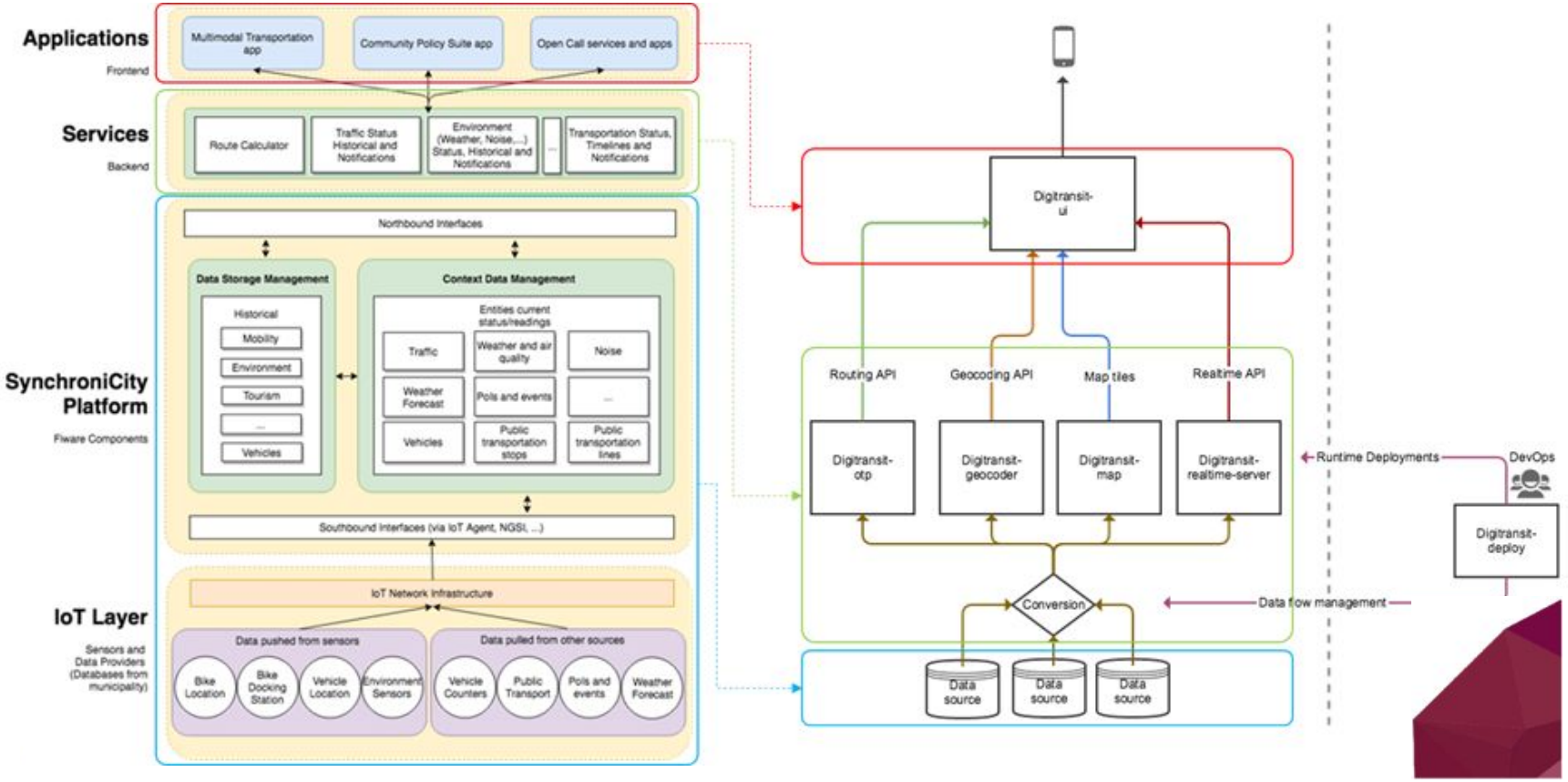


HSL HRT

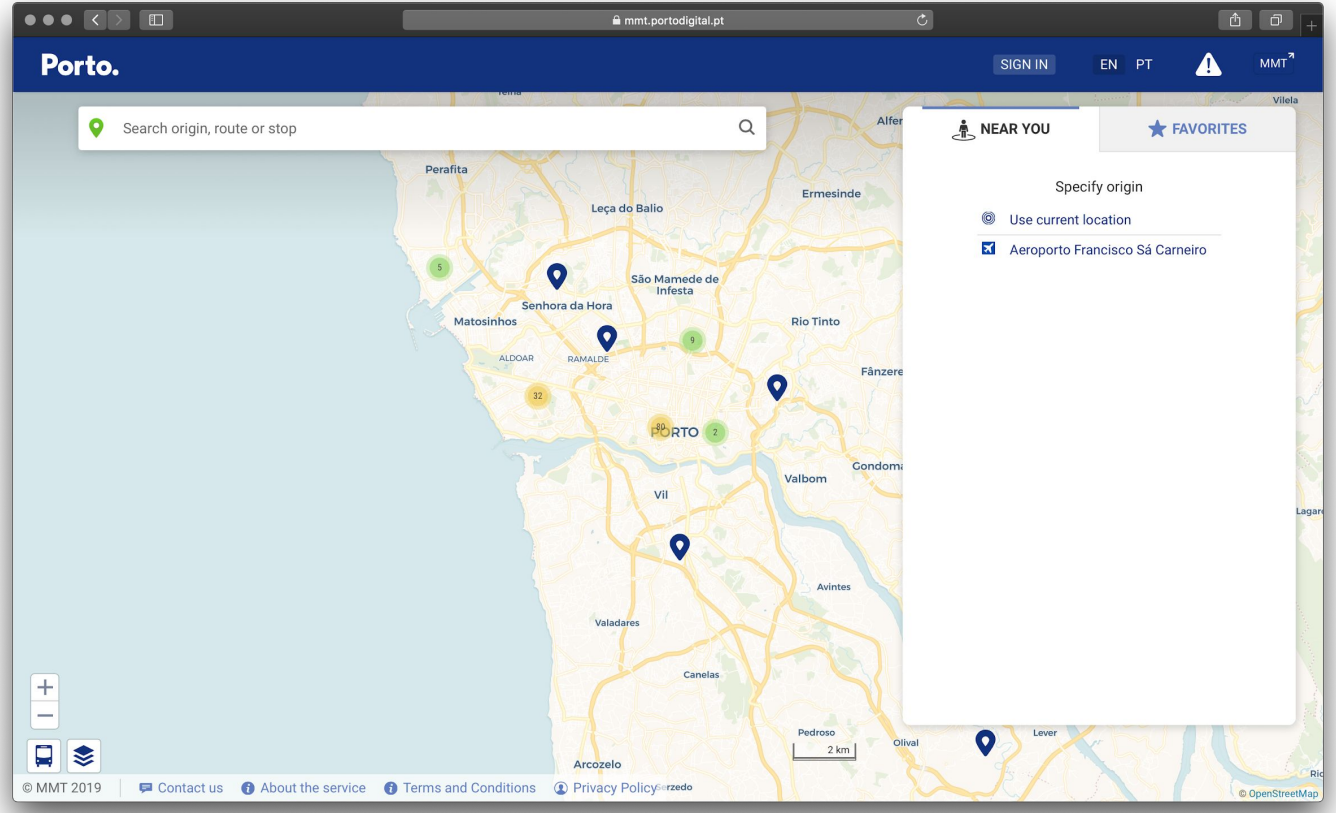
Multimodal service at Porto

- Development of a comprehensive **journey planner**
- Data sources (static and dynamic):
  - **Transportation network** (schedules, stops and stations, routes and lines, ticketing and pricing, etc.)
  - **Vehicle-sharing systems** (docking and parking locations and status, vehicle availability)
  - **POIs and events**;
  - **Environmental** conditions (noise, air quality and meteorological parameters), weather forecasts and alerts;
  - **Traffic** flow and constraints;
  - **Geographical** data (highway, city roads and streets, bicycle path, sidewalks, etc.)

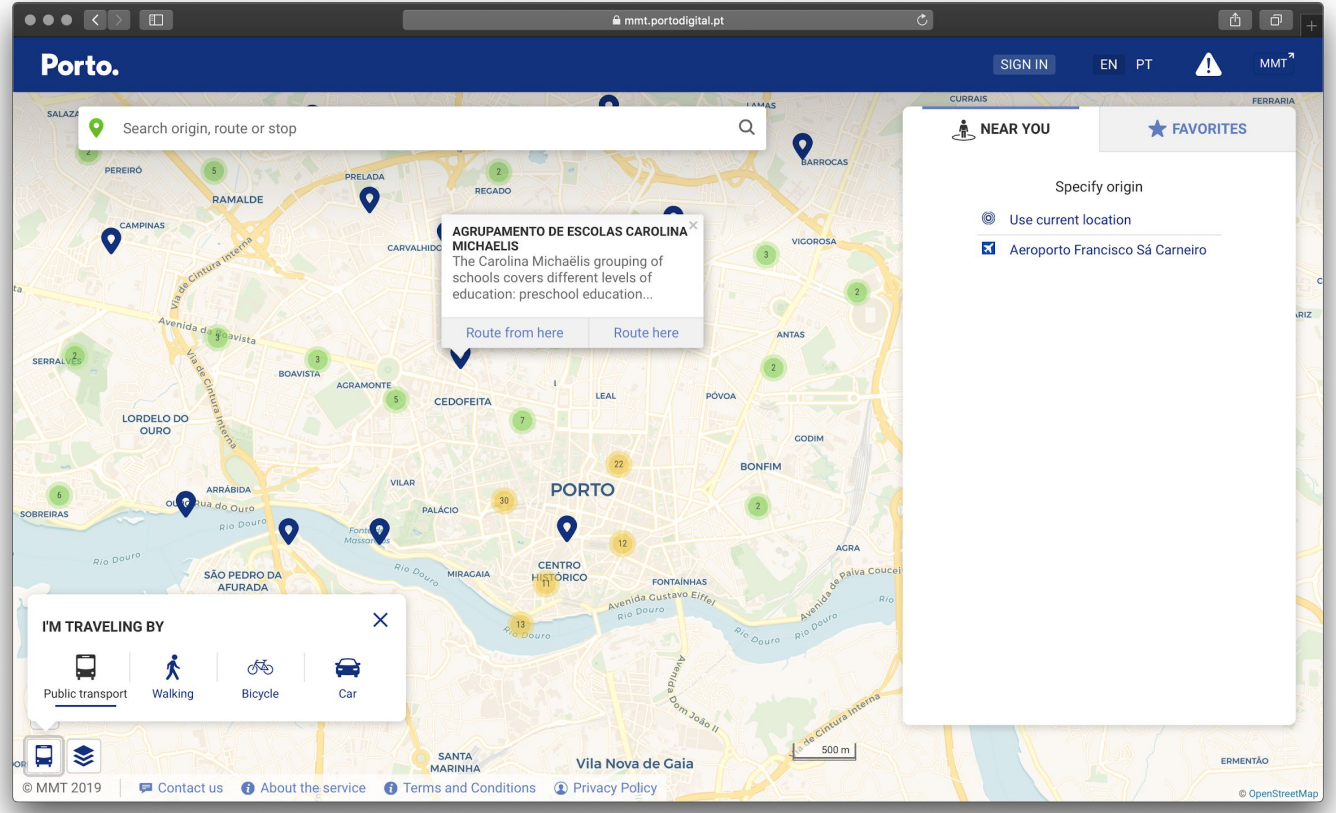
Architecture



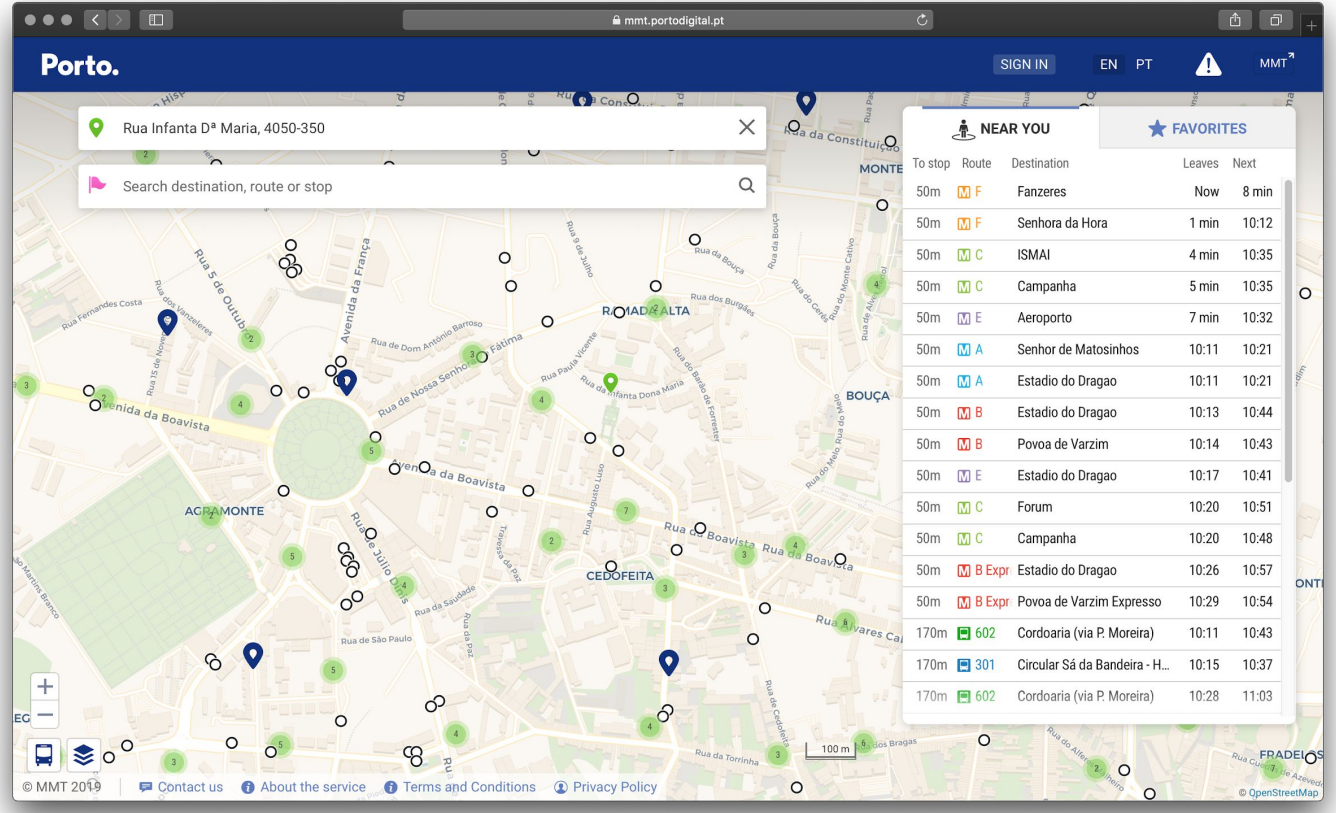
Multimodal service at Porto



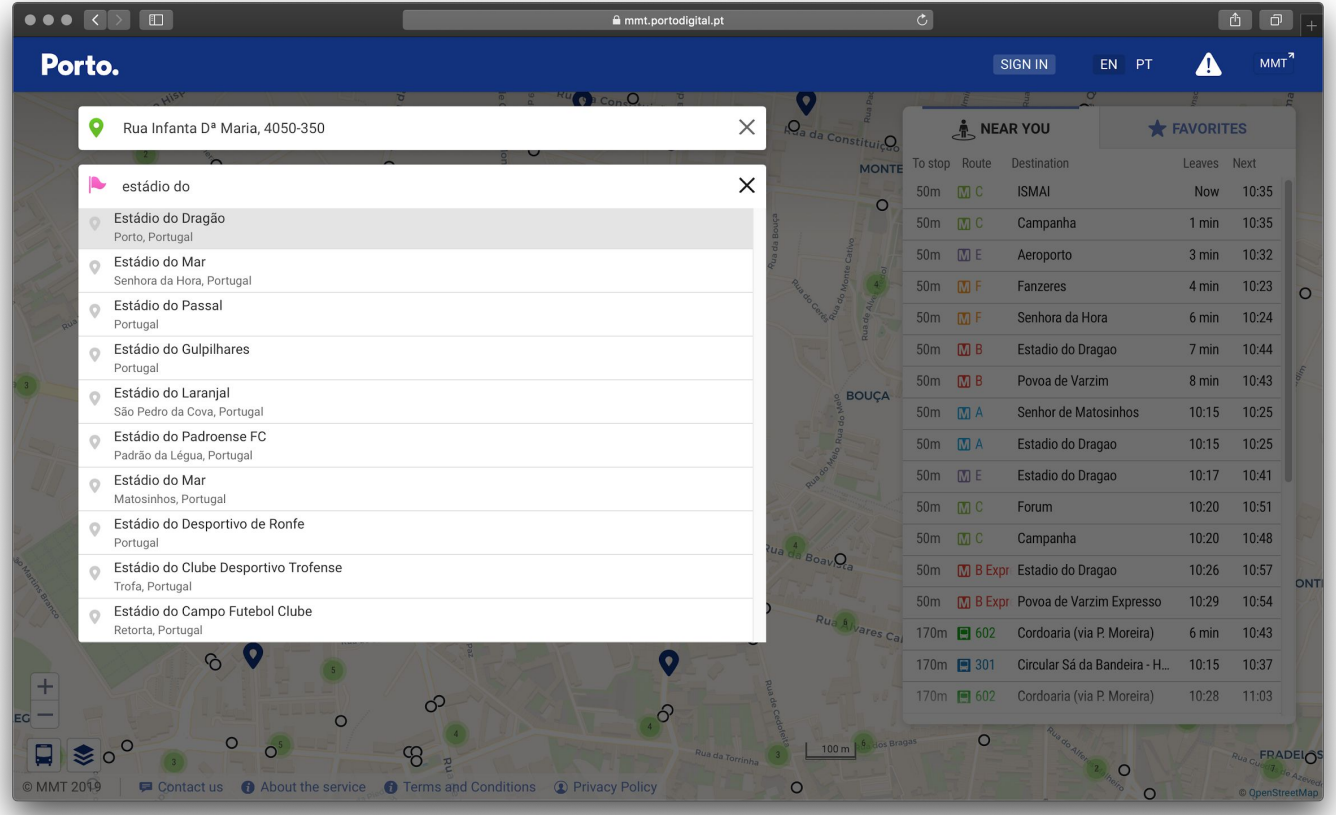
Multimodal service at Porto



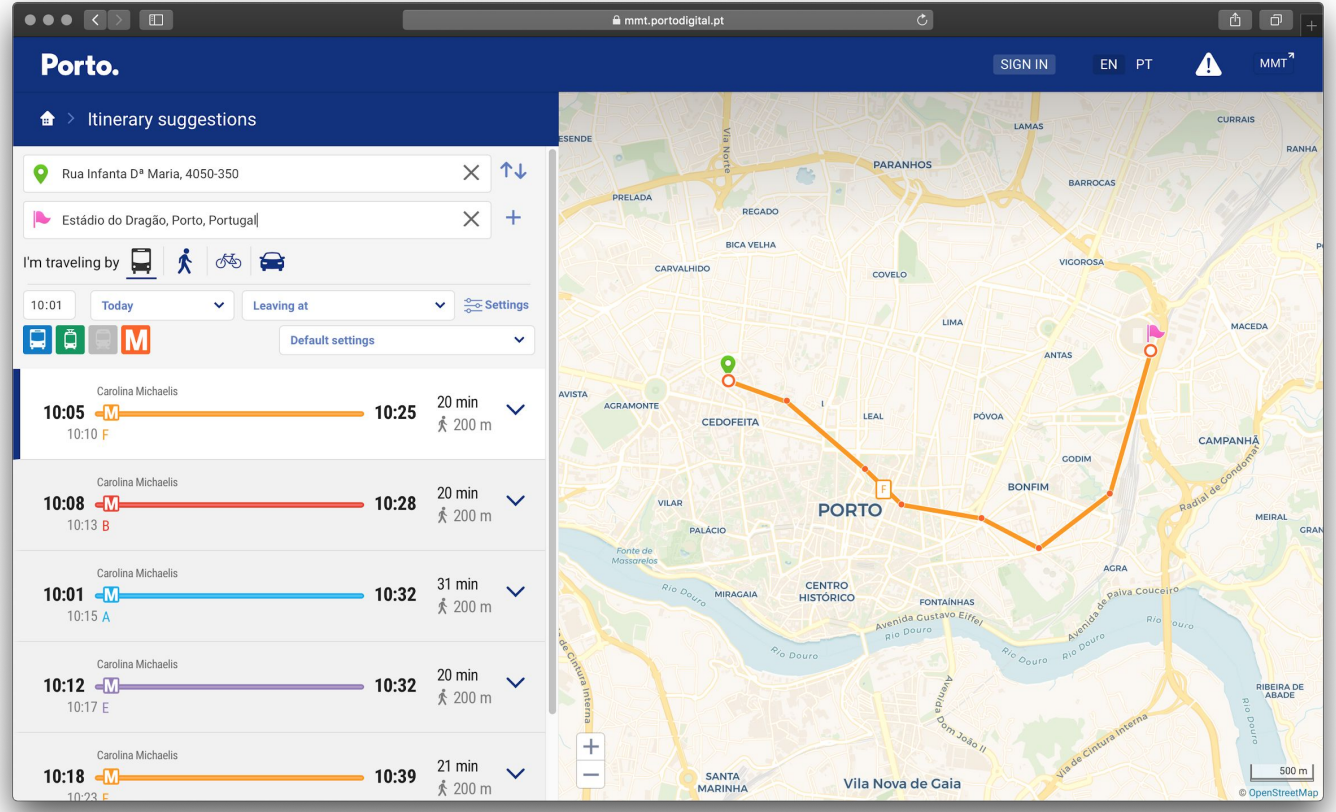
Multimodal service at Porto



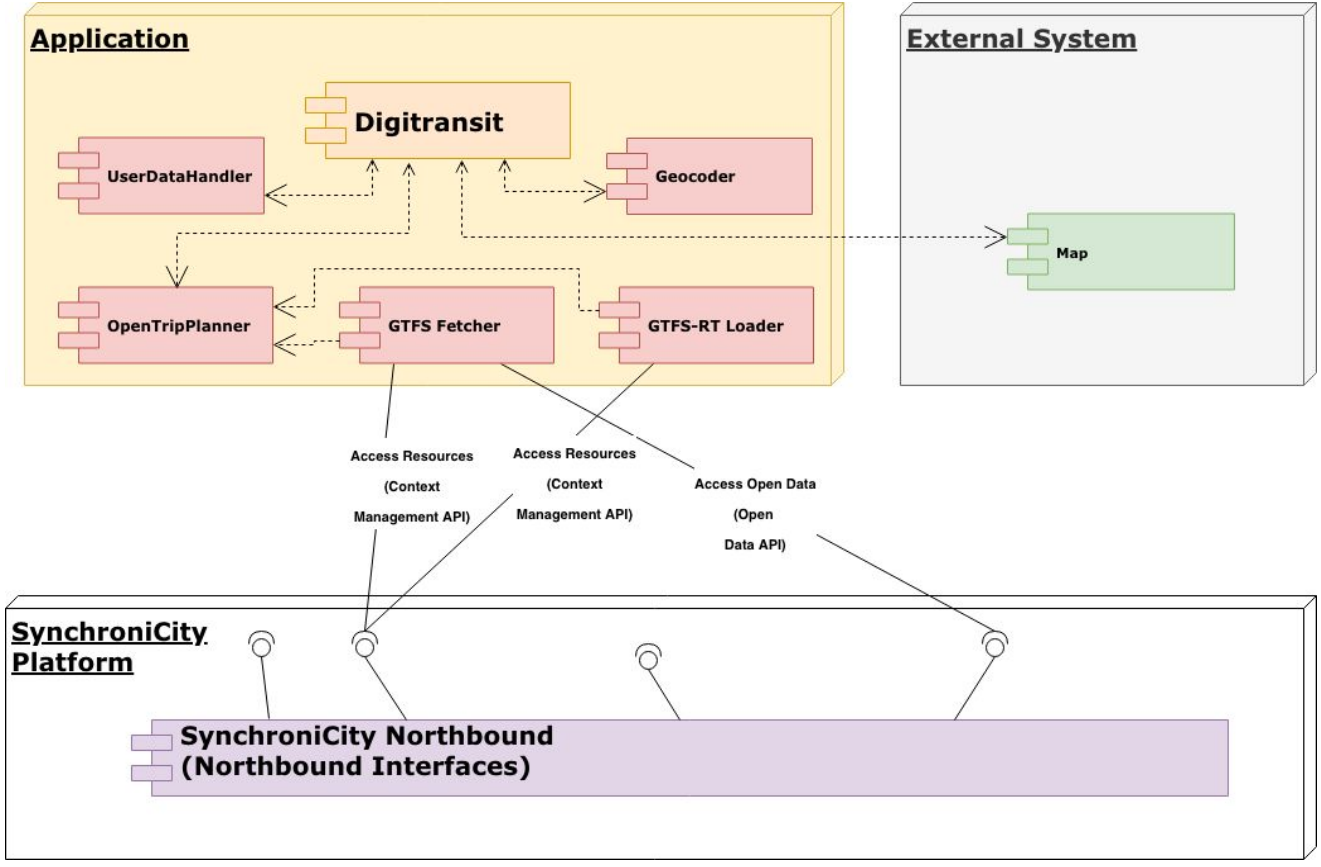
Multimodal service at Porto



Multimodal service at Porto



Architecture



Atomic Services

Atomic Service	Description
Routing Service	Based on OpenTripPlanner it finds suitable routes combining taxi stops, buses info and bicycle routes (among other available possibilities) between two points and according to user's preferences.
GTFS Fetcher	Extracts data from GTFSTransitFeedFile entities and imports GTFS uploaded files (static timetables and related info) into the OpenTripPlanner platform, making this available for routing calculation (within the Routing Service).
GTFS-RT loader from NGSI	This service consumes Real Time Urban Transport entities (so far, ArrivalEstimation) and generates GTFS-RT feeds from it. These feeds will be later consumed by the Routing Service to calculate/update the requested routes.

Useful links

- https://synchronicity-iot.eu/tech/
- https://synchronicity-iot.eu/media/
- https://gitlab.com/synchronicity-iot
- https://synchronicityiot.docs.apiary.io
- https://hub.docker.com/u/synchronicityiot

- https://digitransit.fi/en/
- https://mmt.portodigital.pt/
- https://www.ubiwhere.com/

ubiwhere

Routing Service

Route Calculation:
Routing service that allows citizens to execute queries to find routes, bus /taxi stops, city bikes, bicycle routes. On top of it, it also displays (triggers) disruption info and perform itinerary planning.

External sources (e.g. weather forecast)

City mobility data: Bike stops, Bus stops, etc.

Other Atomic Service (e.g. Traffic Estimator)

Security APIs | Data Marketplace APIs | Context management APIs | Data Storage APIs

SynchroniCity Northbound interfaces

Adopting RZs:
Helsinki, Milan, Porto, Santander

Developing Team:
FVH, TST

Status:
Release 1 ready, under customization
Published on:
- DockerHub

Traffic Estimator Service

Traffic Flow Estimator:
By means of the information retrieved from the different traffic intensity context entities, this service will generate an estimation of the traffic intensity flow in the short term (namely, in the next 15, 30, 45 or 60 minutes).

City mobility data:
Traffic intensity

External sources (e.g. weather forecast)

Adopting RZs:
Porto, Santander, Eindhoven (under consideration)

Developing Team:
ATOS, POR, ENG, UC

Status:
Release 1 accomplished
Published on:
- SynchroniCity DockerHub
- SynchroniCity GitLab

Security APIs | Data Marketplace APIs | Context management APIs | Data Storage APIs

SynchroniCity Northbound interfaces

Incubated Atomic Services

Siri2gtfsrt

- OpenTripPlanner accepts only one dynamic updater per feed, so a specific converter *siri2gtfsrt* inputs multiple data sources, such as service alerts and vehicle positions, and integrates them into GTFS-RT

RZs:
Helsinki, Porto

Developing Team:
FVH

Ngsi2gtfsrt

- Adapter from NGSI to GTFS-RT for OpenTripPlanner

RZs:
Porto, Santander

Developing Team:
FVH, UC, TST, POR

Pelias (Geocoding and Reverse Geocoding Service)

- Mapping addresses into geographic coordinates such as latitude and longitude in a given coordinate system.
- *Reverse Geocoding* maps given coordinates into human readable addresses.

RZs:
Helsinki, Porto

Developing Team:
FVH

Incubated Atomic Services

Mobility Visualization

- Mobility information from the Routing Service visualized on map
- Maps are also annotated by various data points such as bus stops and park and ride locations.

RZs:
Helsinki, Porto

Developing Team:
FVH

Route Visualization

- Route drawn on a Map

RZs:
Antwerp

Developing Team:
Rombit

Date/Time filter function

- Filtering and aggregating NGSI data according to time window and preferences given as input

RZs:
Antwerp

Developing Team:
Rombit