

EU PROJECT – BIG IOT

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Overview

- ▶ Consortium
- ▶ Challenges and Objectives
- ▶ Approach and Architecture
- ▶ Open Source Strategy
- ▶ Live Demo

INTRODUCTION

BIG IoT

Bridging the Interoperability Gap of the Internet of Things

EU Horizon 2020 – ICT-30 (IoT):

Among 7 top-ranked projects (among 129 proposals)



3 Year Project

January 2016 – December 2018



CHALLENGES AND TARGETS

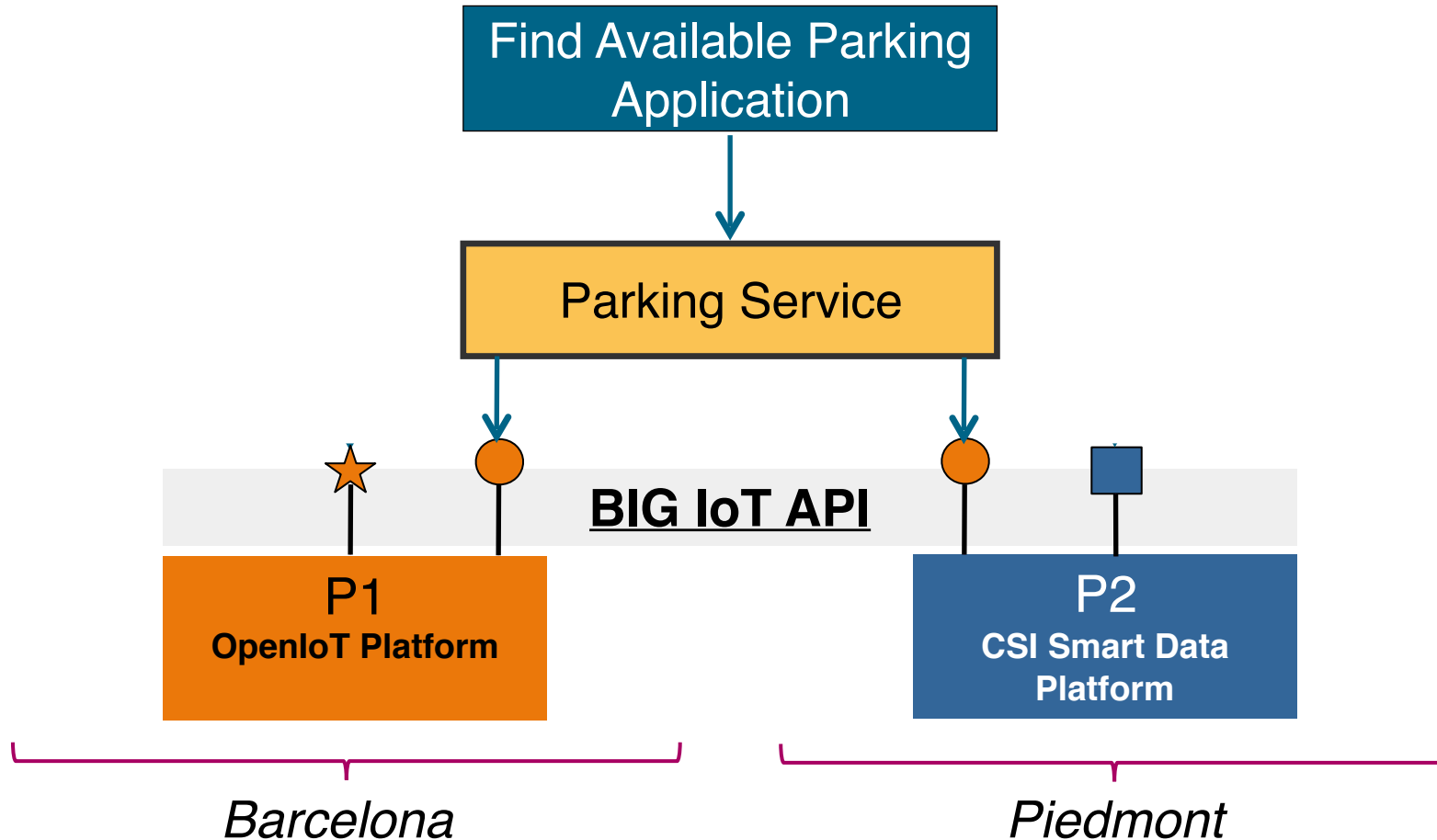


Challenges in the IoT?

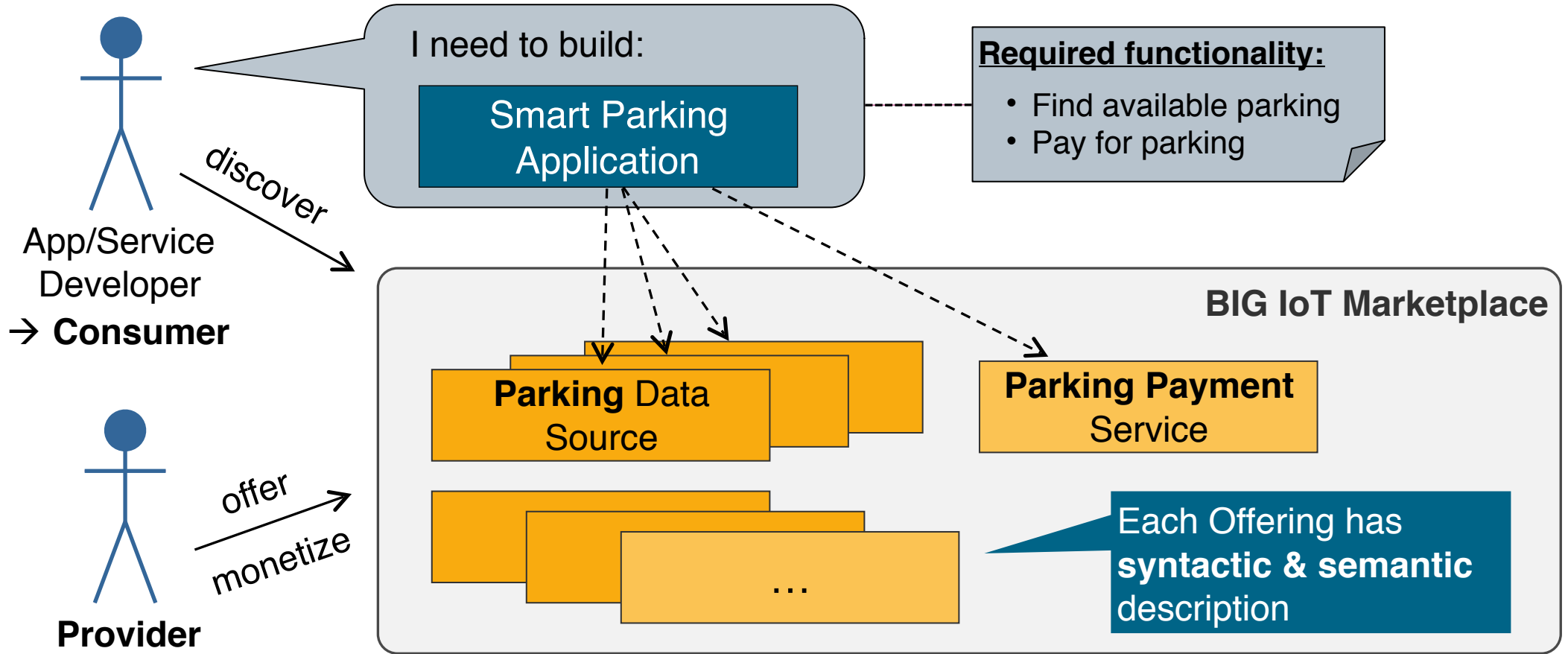
The development of cross-platform and cross-domain services and applications is hampered by the plethora of available IoT platforms, frameworks, protocols, and data formats. Thus, developers require significant efforts to integrate their heterogeneous systems, which leads naturally to isolated vertical solutions (“silos”). Consequently, data and services available in one solution cannot be leveraged by others. It is estimated that around 40% of the potential economic value of the IoT is bound by the lack of interoperability¹.

BIG-IoT

Objective I: Enable Interoperability



Objective II: Foster and Incentivize Collaboration



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Marketplace for whom?

End User looking for apps



Developers, Creatives, IoT Providers ...

@ Smart City

@ Mobility Company

... who **need IoT resources** for their applications

... who **want to monetize IoT resources**

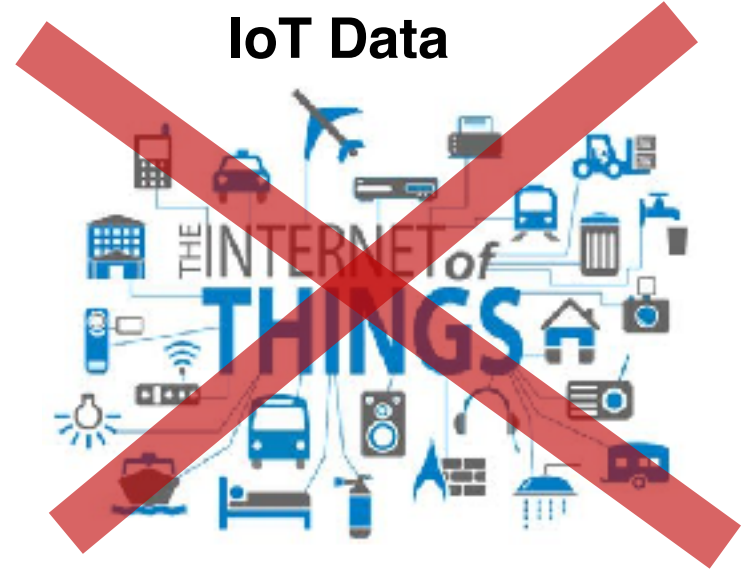
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What is traded on the Marketplace?

**Services & Applications
for Download**



IoT Data



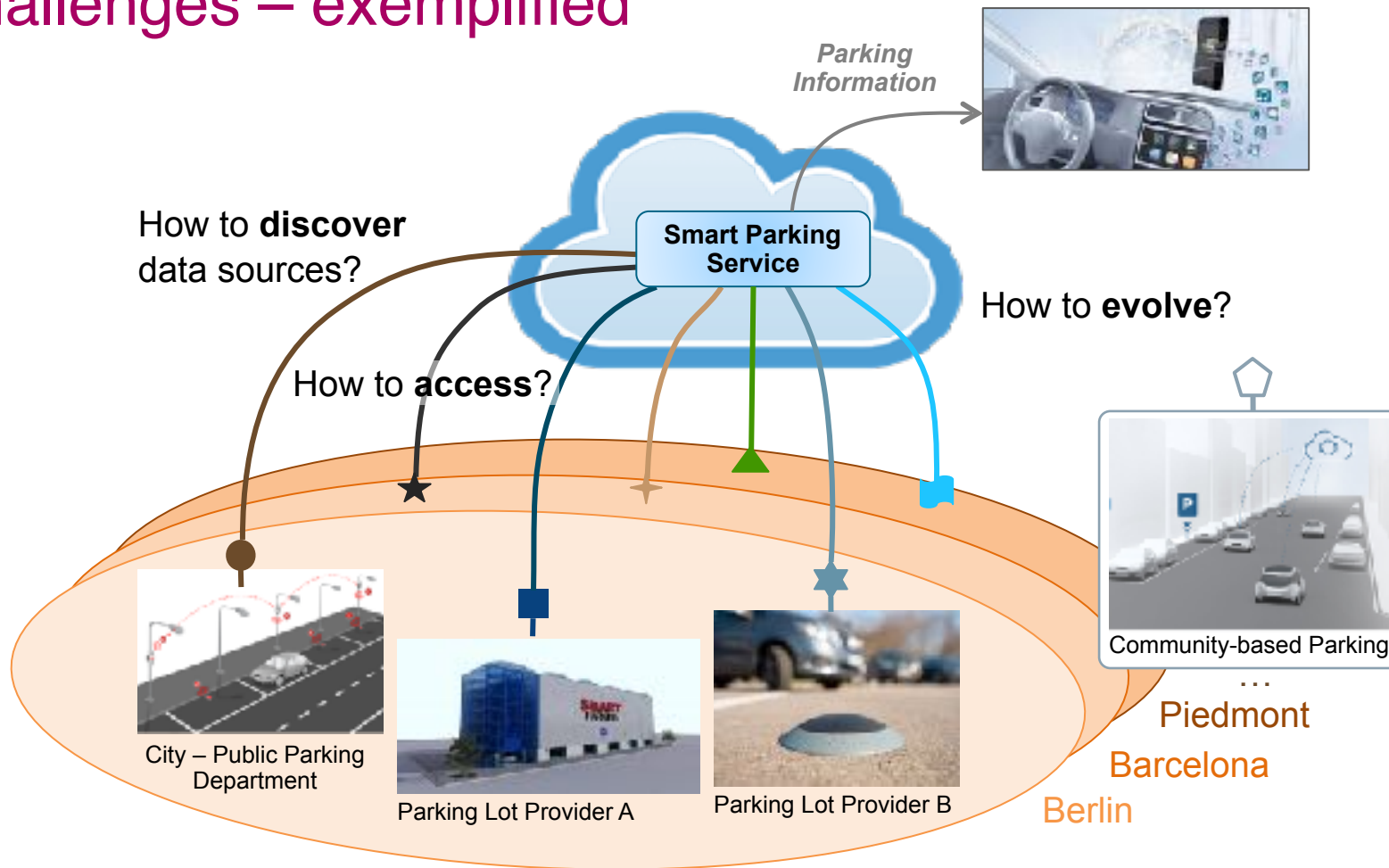
IoT Resource Offerings + Access

APPROACH AND SOLUTION

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Main Challenges – exemplified

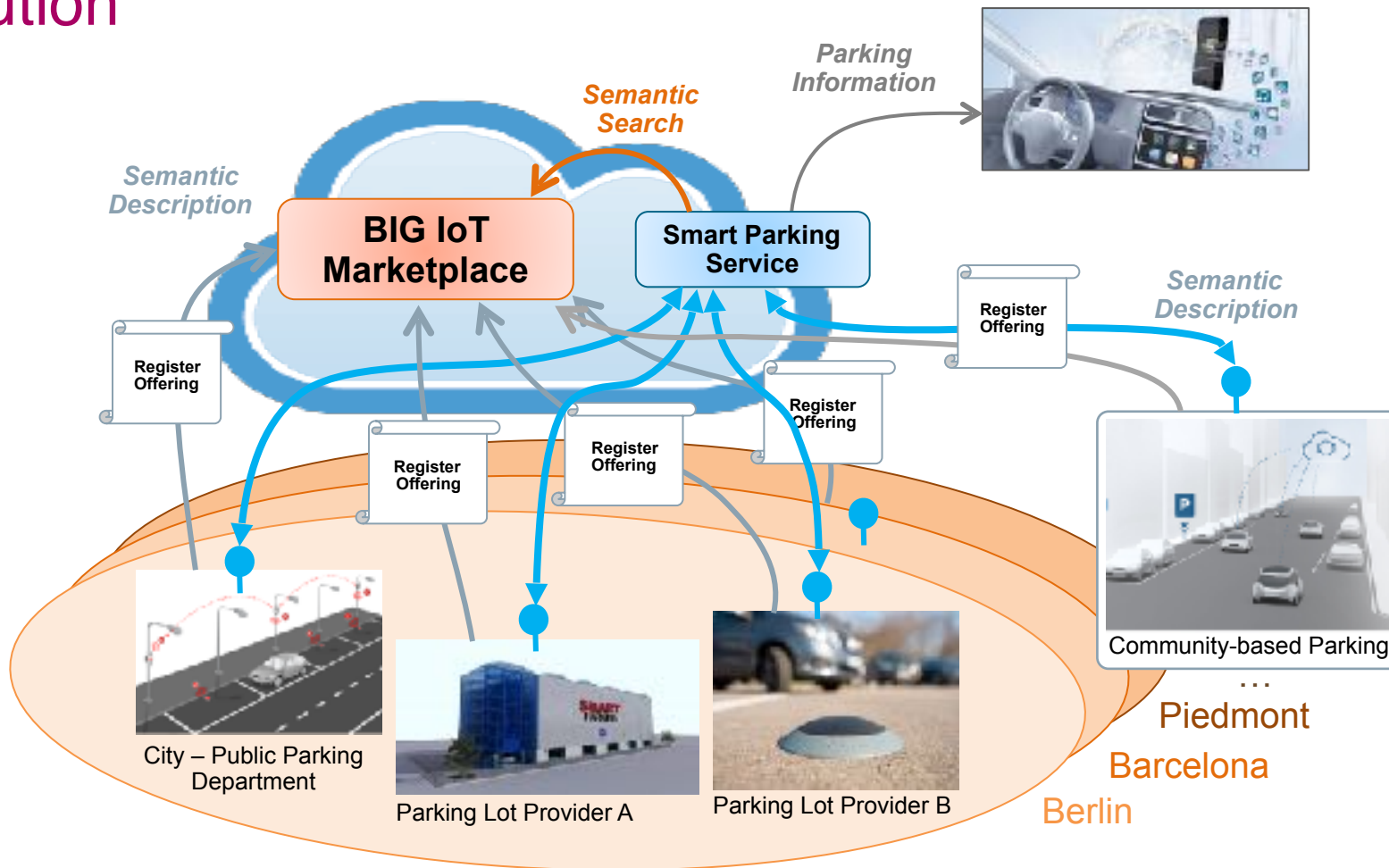
animated



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Our Solution

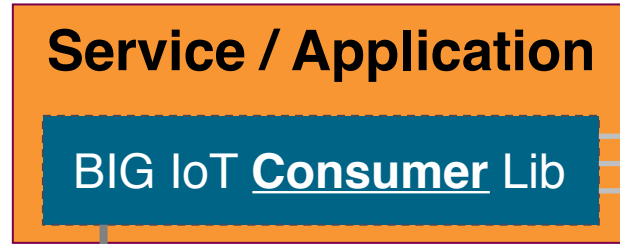
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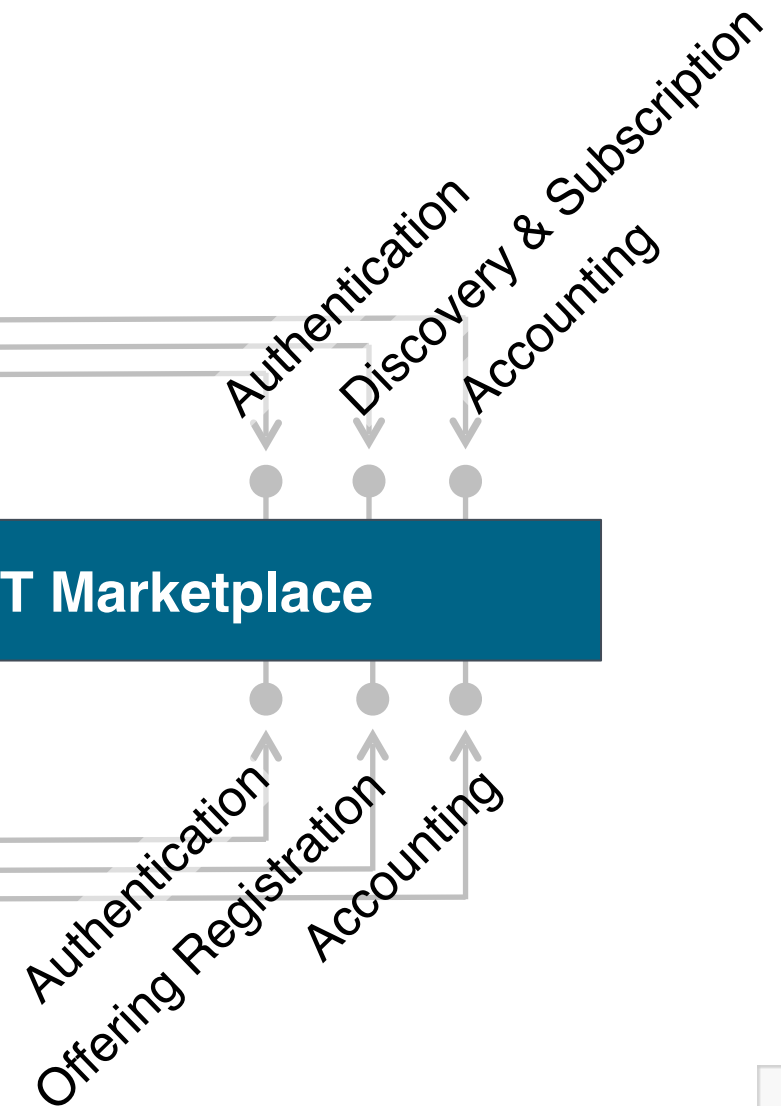
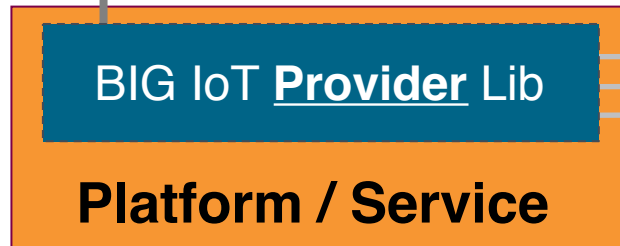
High-level Architecture – simplified

Consumer



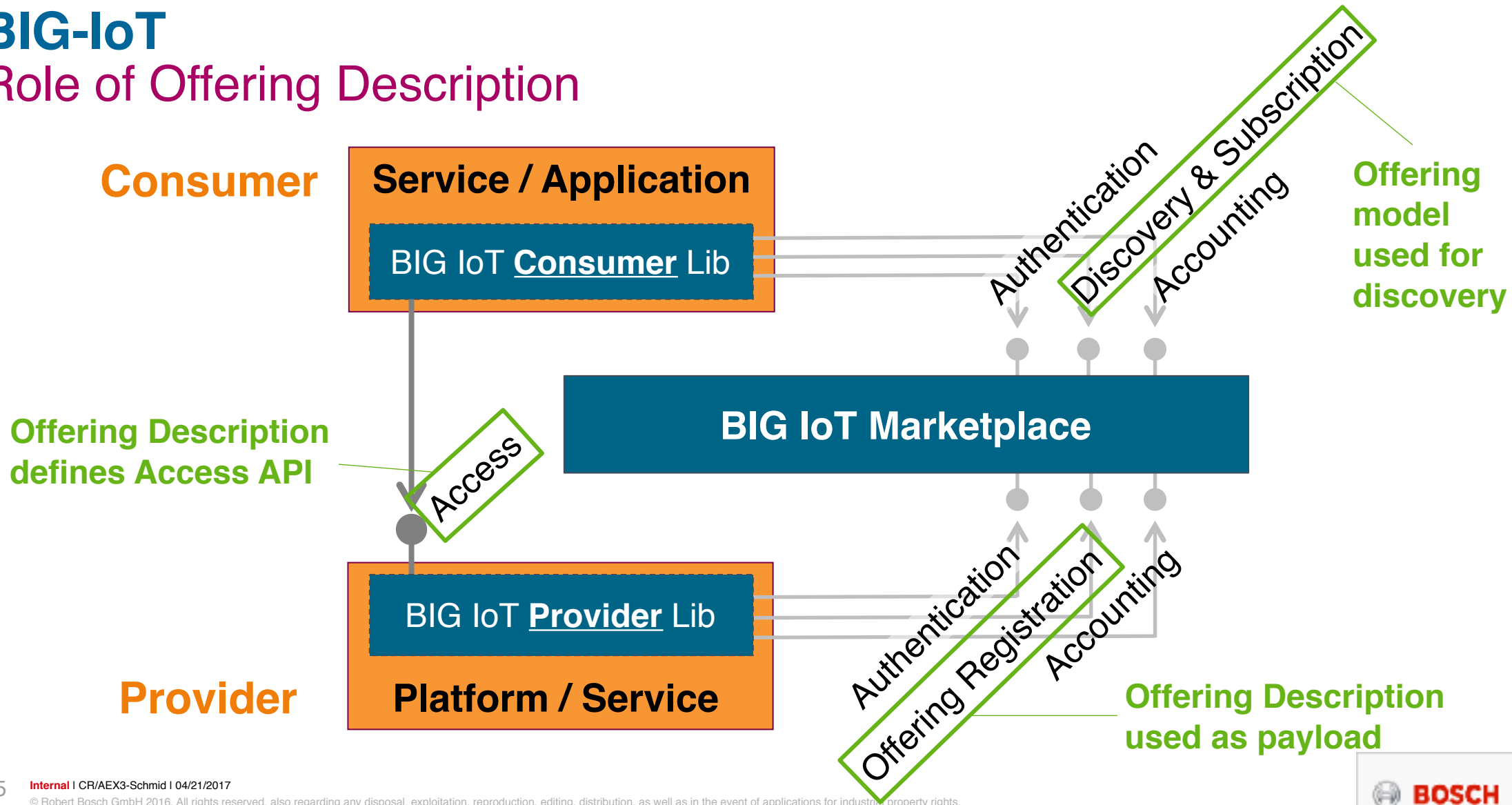
Access

Provider



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Role of Offering Description




BIG-IoT – Use of Semantic in Offering Descriptions (Ex.)

```
{
  context: "http://w3c.github.io/wot/w3c-wot-td-context.jsonld"
  providerId: "Barcelona_City-provider"
  name: "Sensor-level ParkingSpace Information"
  rdfCategory: "bigiot:parking"

  inputData: [
    { name: "longitude", rdfType: "schema:longitude" }
    { name: "latitude", rdfType: "schema:latitude" }
    { name: "radius", rdfType: "schema:geoRadius" }
  ]
  outputData: [
    { name: "long", rdfType: "schema:longitude" }
    { name: "lat", rdfType: "schema:latitude" }
    { name: "status", rdfType: "datex:parkingSpaceStatus" }
  ]
  endpoints: { uri: "http://bigiot/access/parkinginfo", type: "HTTP_GET" }

  licenseType: "OPEN_DATA_LICENSE"

  price: { money: { amount: 0.002000, currency: "EUR" }, accountingModel:
  ...
}
```

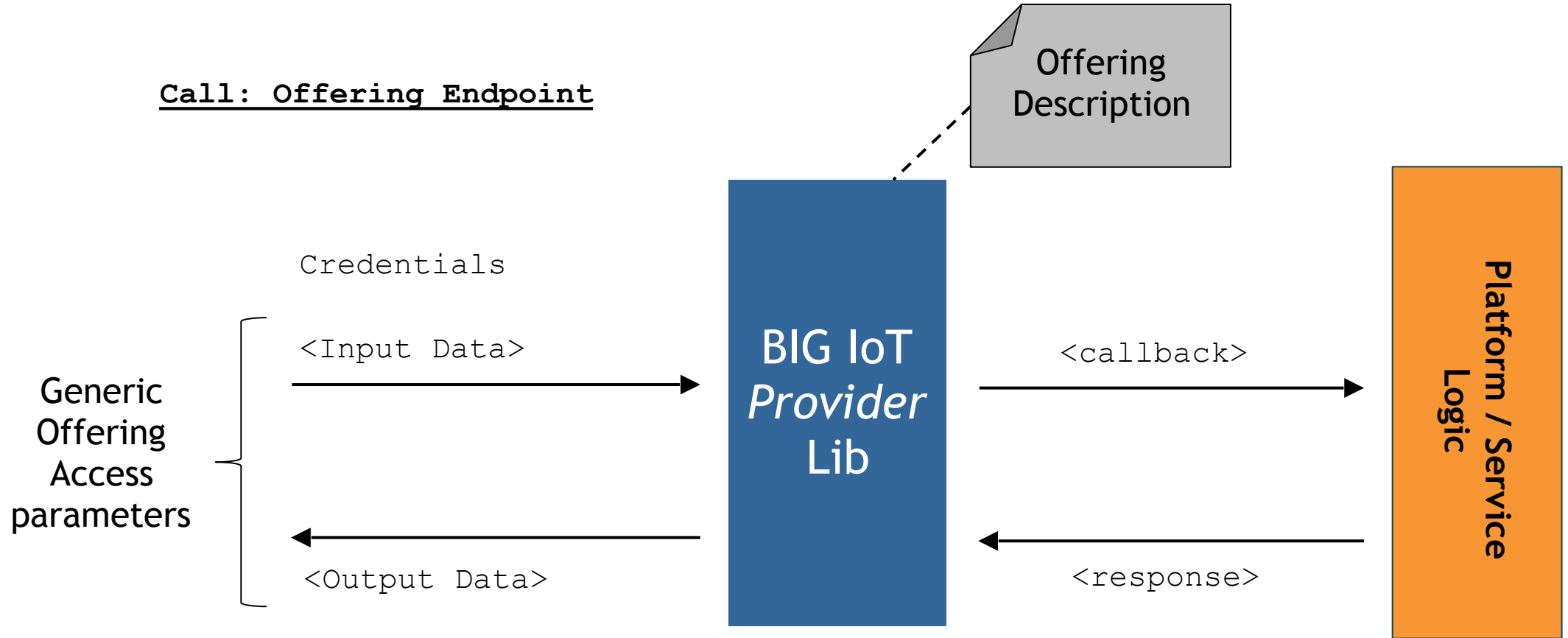
Based on  **Web of Things‘
Thing
Description**

Semantic annotations

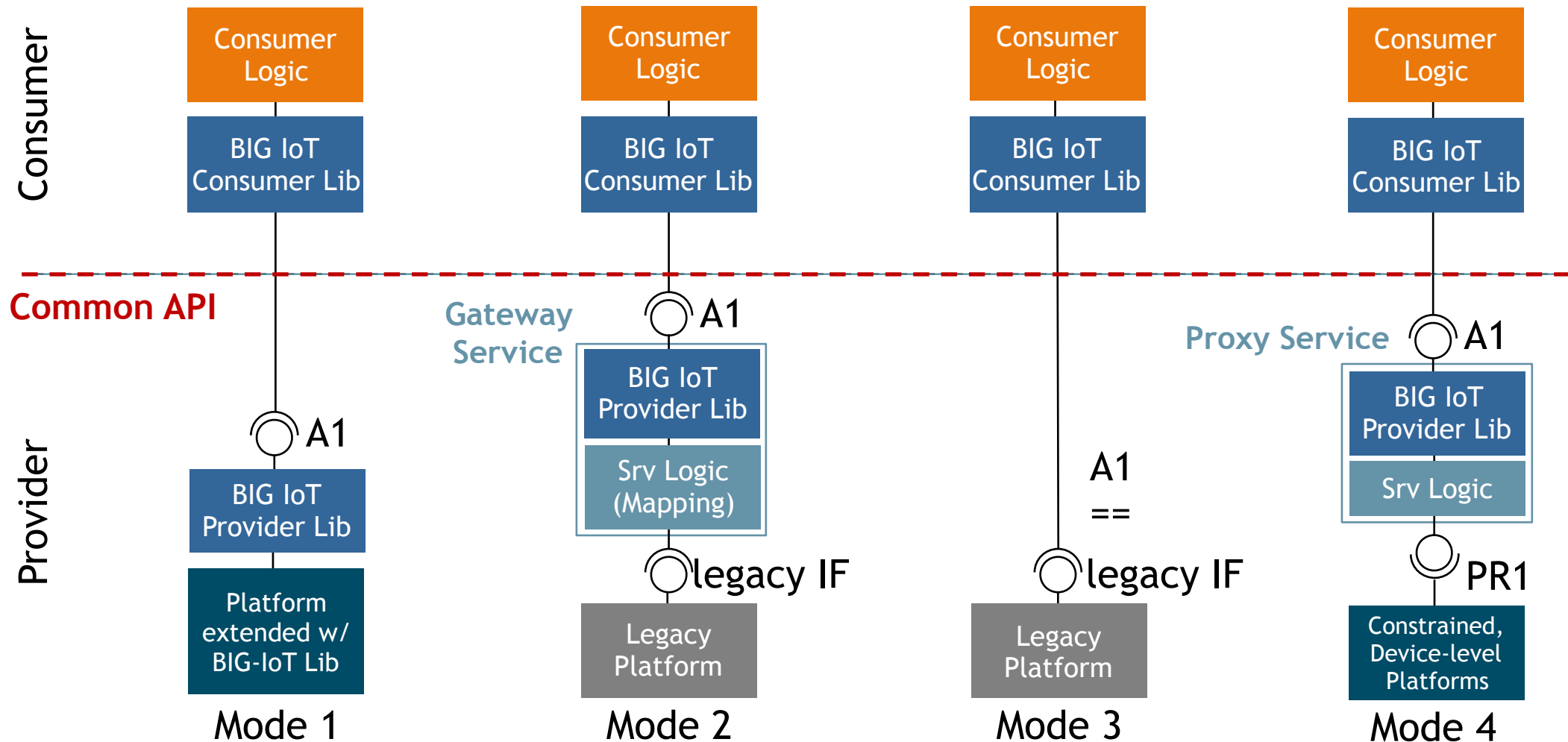
URI of the Offering

BIG-IoT – Offering Access API

Call: Offering Endpoint

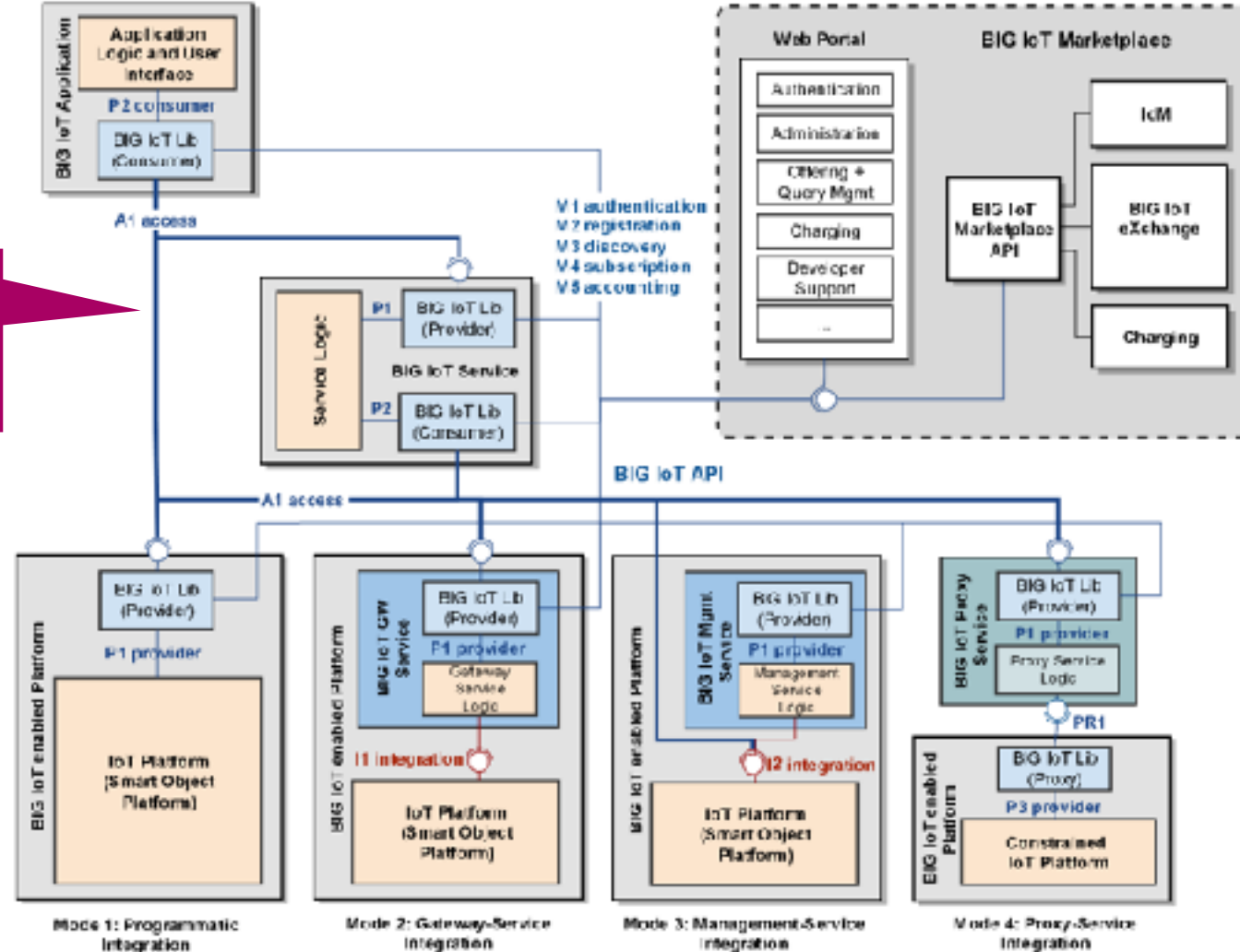


Integration of Heterogeneous Platforms



BIG-IoT – BIG IoT Architecture – Release 1

BIG-IoT Architecture –
Release 1 ready
(Deliverable D2.4.a)



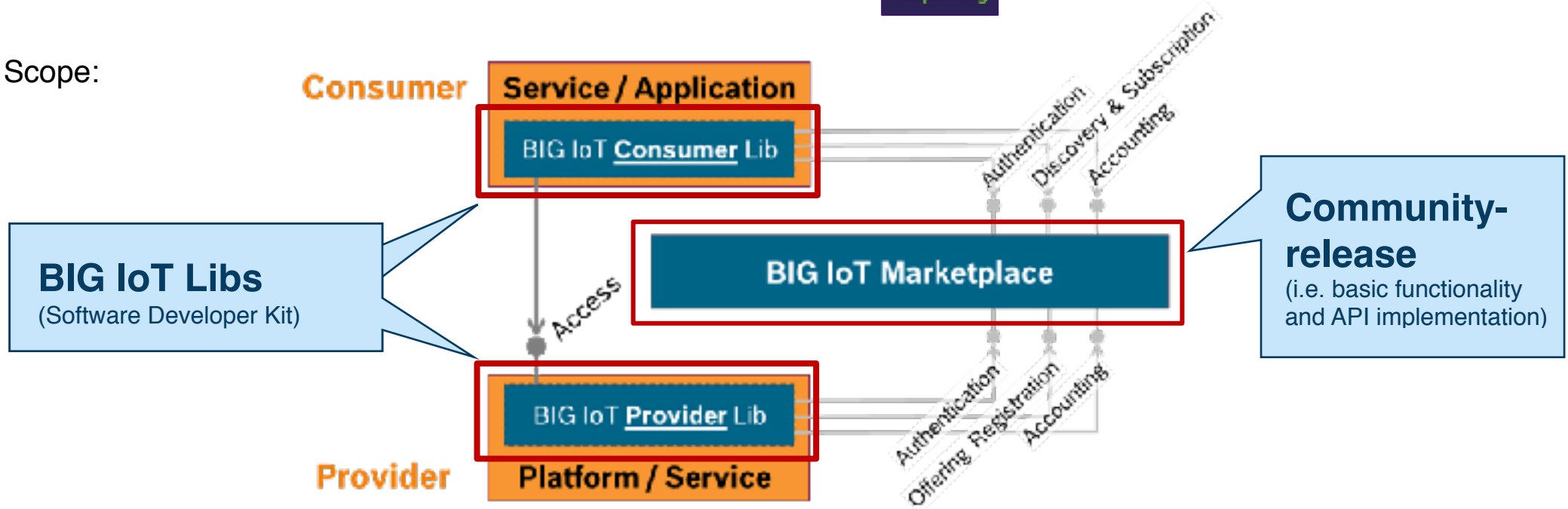
OPEN SOURCE STRATEGY

BIG-IoT – Open Source Strategy

- Establish an Open Source Project @



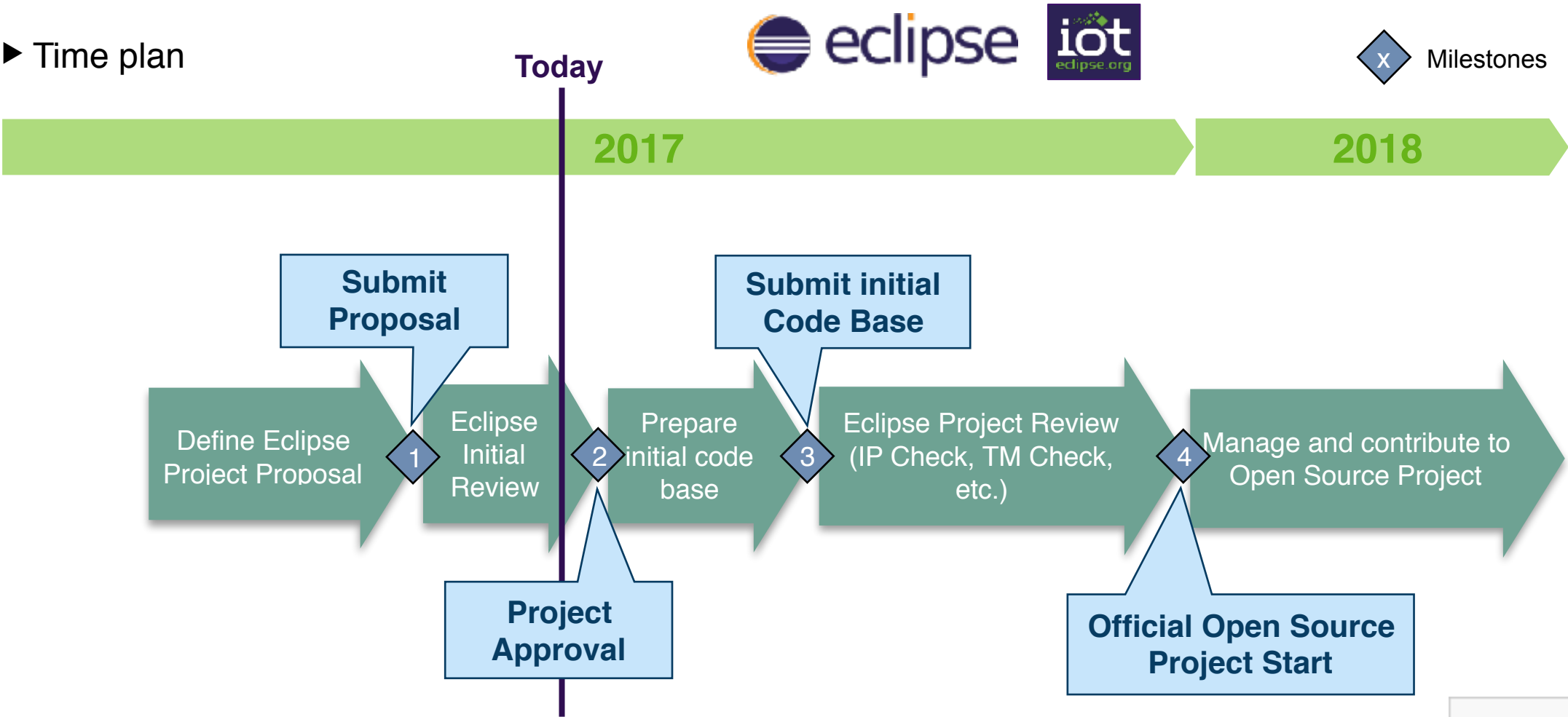
- Scope:



- Semantic Models are planned to be contributed to **schema.org** (see iot.schema.org)

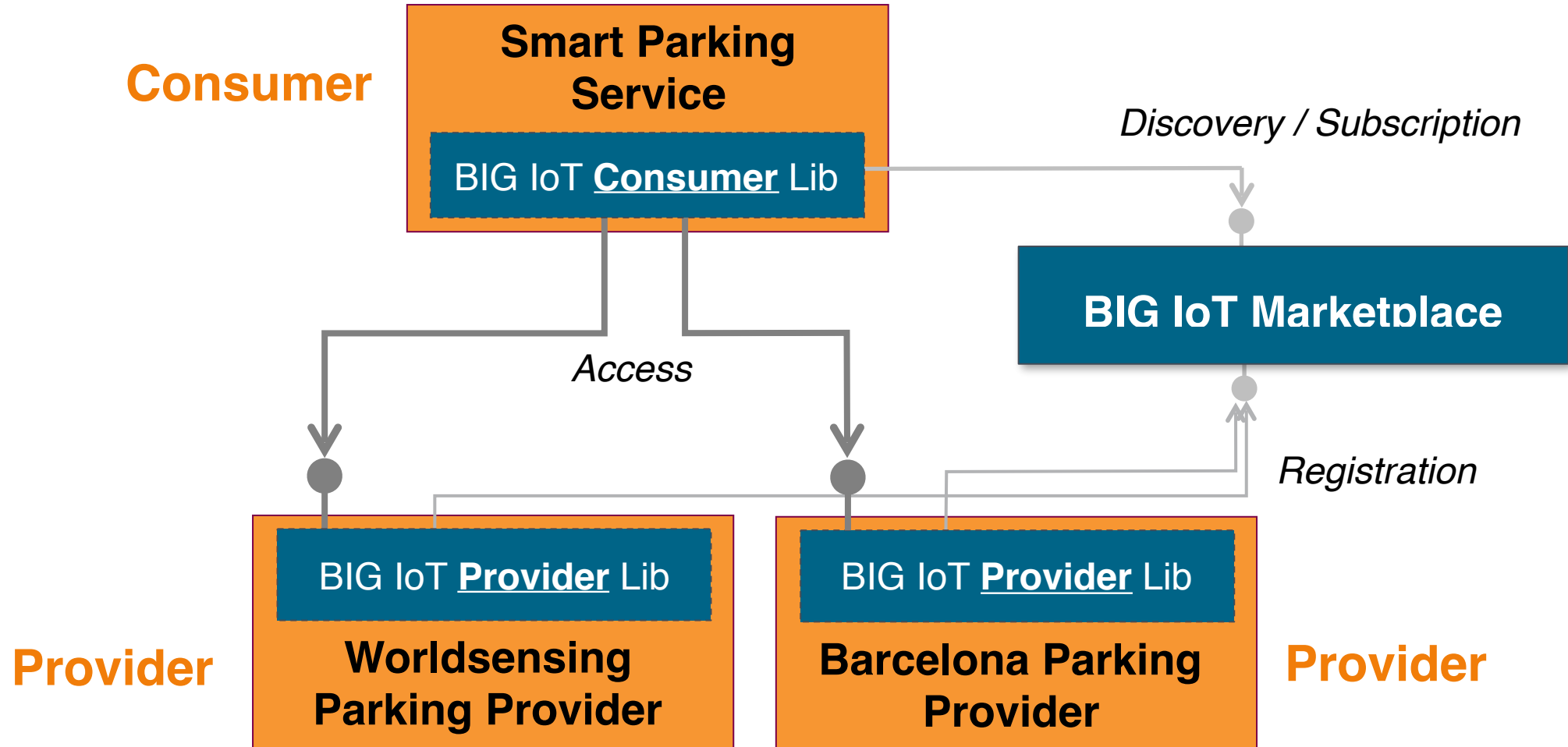
BIG-IoT – Open Source Time Plan

► Time plan



DEMO

BIG-IoT – Demo Scenario



ONLINE INFORMATION

BIG IoT – Bridging the Interoperability Gap of the Internet of Things

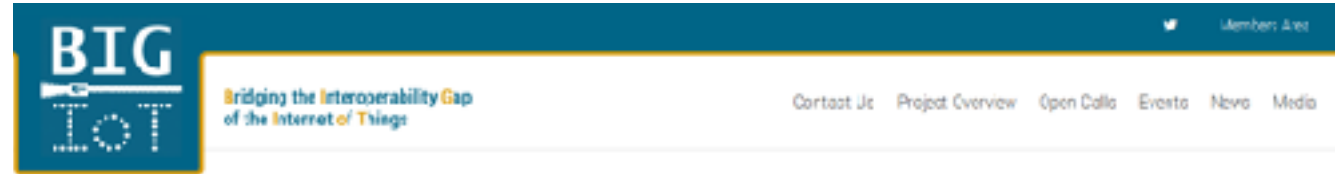
► Web Page: www.big-iot.eu

► Twitter: [@BIG_IoT](https://twitter.com/BIG_IoT)

► Key Publications:

- [IEEE Software](#): Enabling Internet-of-Things Ecosystems through Platform Interoperability
- [Springer LCNS](#): An Architecture for Interoperable IoT Ecosystems

► Project Video: <https://youtu.be/kyTxC0bjNTM>



BIG-IoT
Ecosystem



BIG-IoT
Architecture



BIG IoT Hackathon at building IoT 2017

A BIG IoT Hackathon event is going to be held in conjunction with the building IoT 2017 conference. Here is the Hackathon's Website. In this hackathon, the participants are challenged to build an ...

