ThingPark Wireless

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Making Things Smart

Making Things Smart

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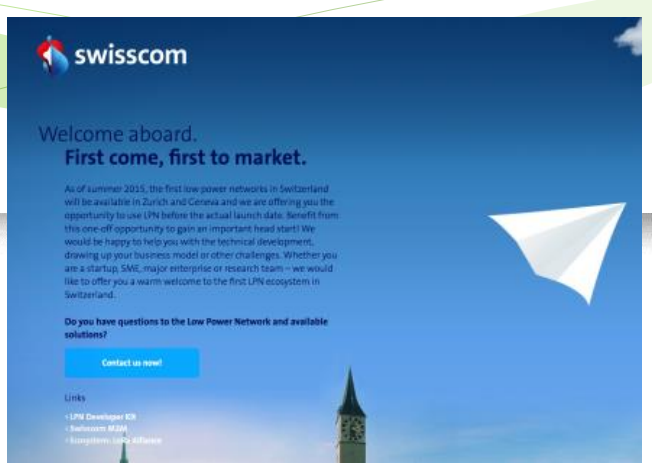
Application challenges

On-going projects



proximus

Switzerland
MNO
Roll-out

Belgium
MNO
Roll-out

swisscom http://lpn.swisscom.com/E/

USA
Trial

Holland
MNO
Roll-Out

France
MNO
Trial

Sth Africa
Trial

Brazil
MNO
Trial

India
MNO
Trial

Singapore
Utility
Trial

Australia
Trial

St Korea
MNO
Trial

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Building automation

Building / Home automation gets connected

Today
100 €

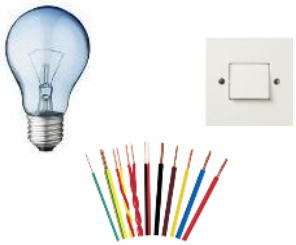
Tomorrow
0 € + 2 € / month

- Load shifting
- Demand response
- Predictive regulation…

Today

Tomorrow

Today



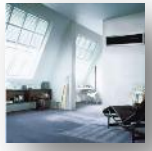
- On / Off

Tomorrow

- Energy savings
- Presence simulation
- Auto lighting for elderly safety
- Centralized Off…

Today

Tomorrow



- Energy savings
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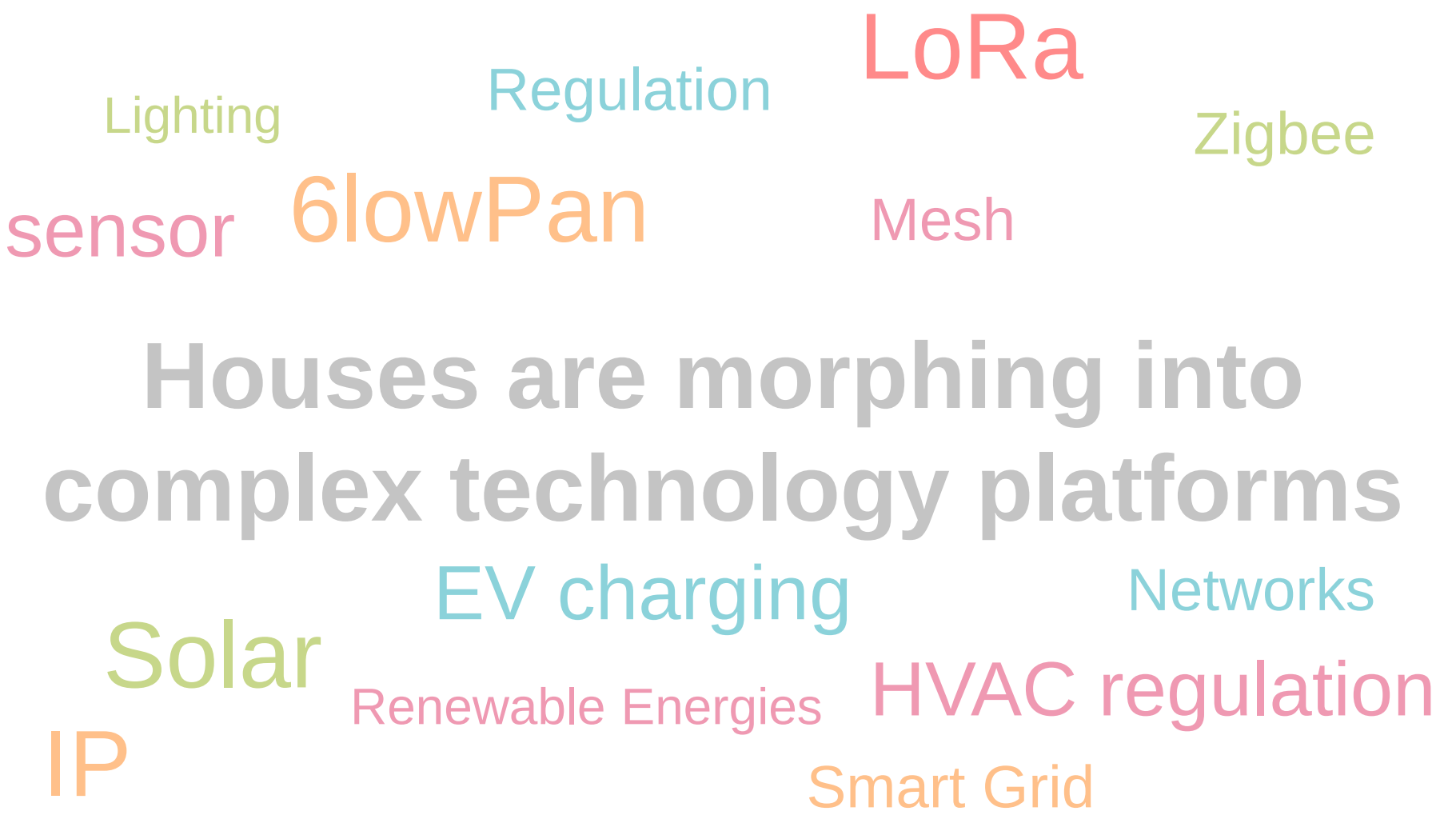
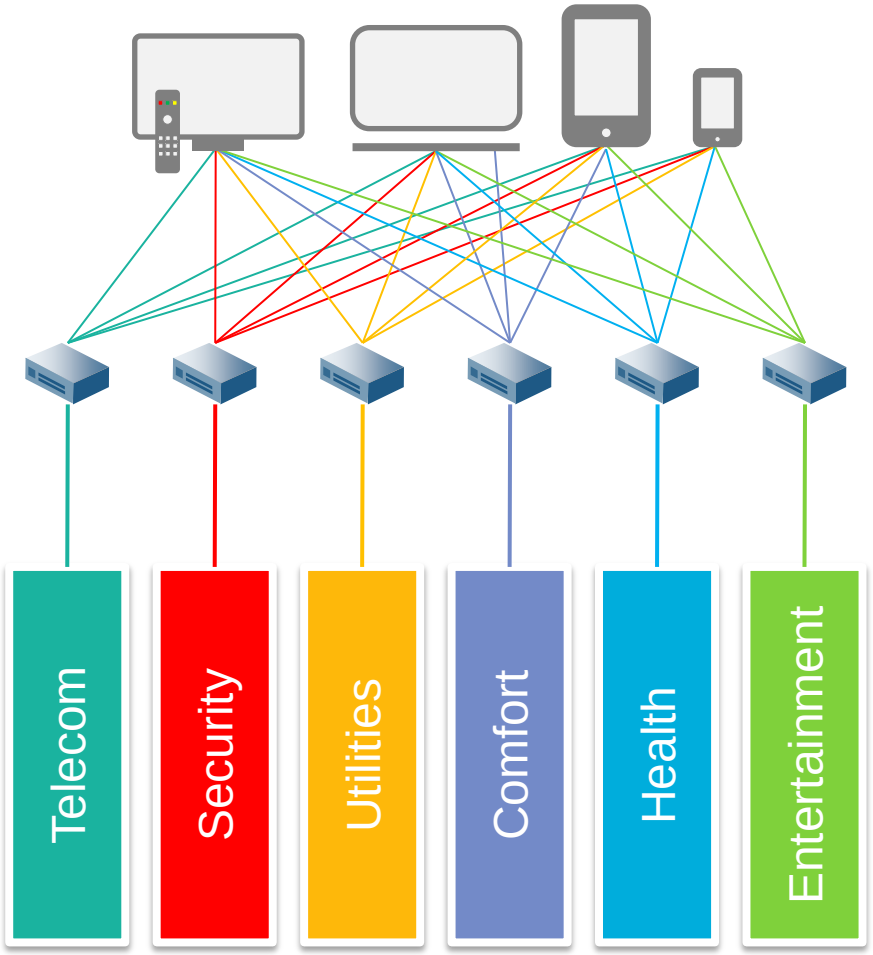
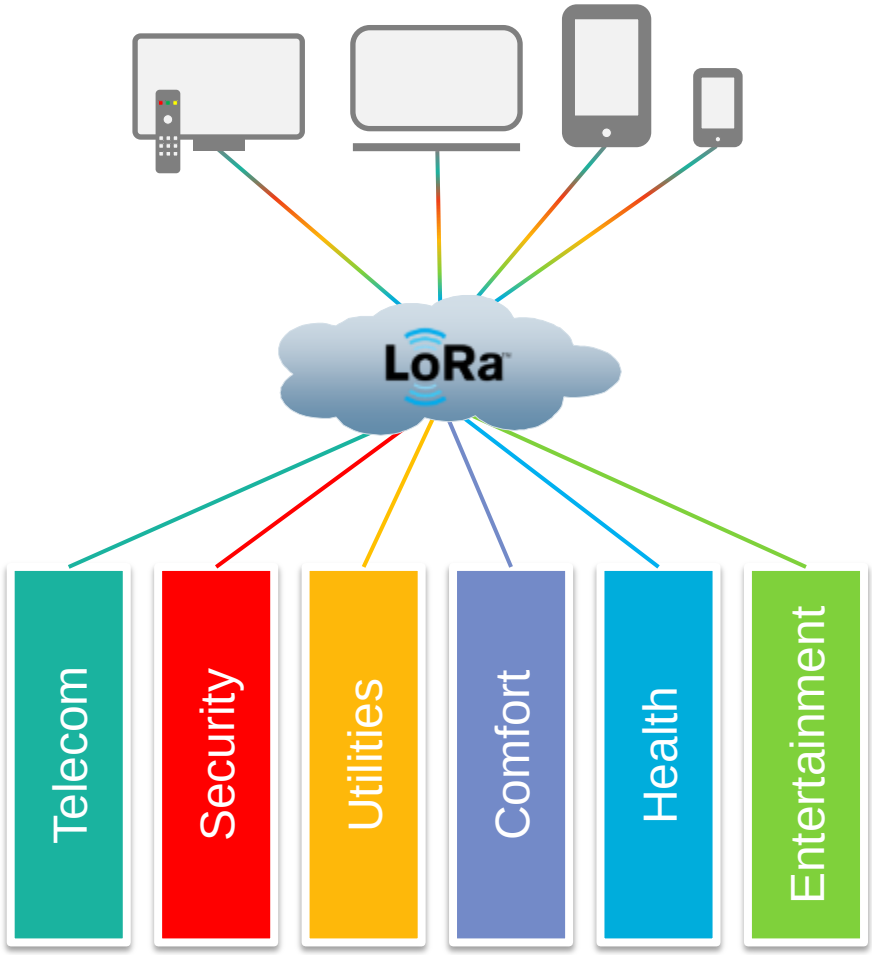


Vision and trends

Silo approach

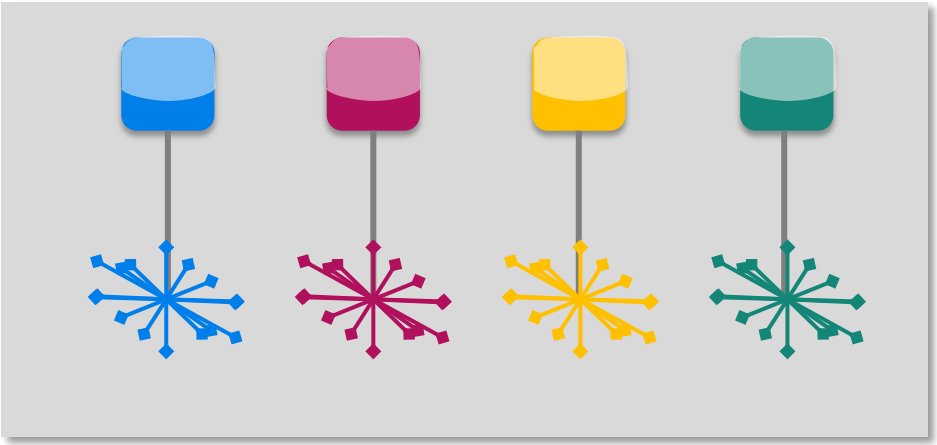


Shared approach



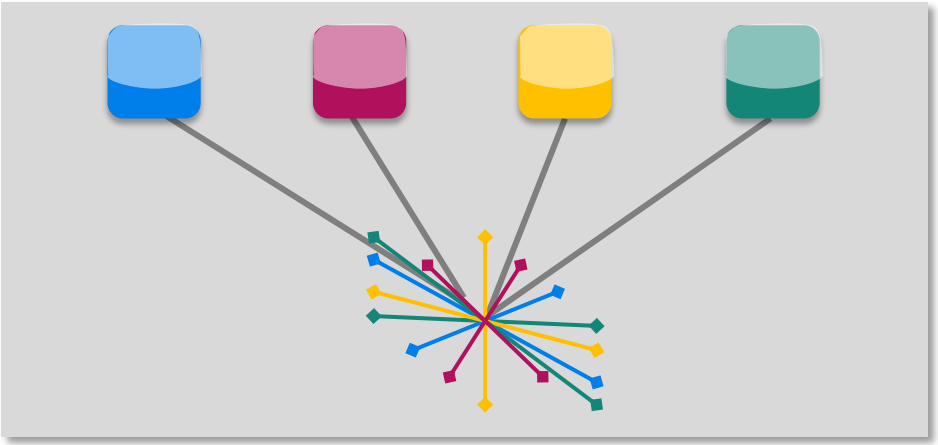
Vision and trends

Silo approach

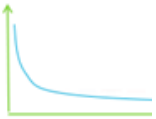


- 1 App ←→ 1 Sensor
- No shared infrastructure
- Limited ROI

Shared approach

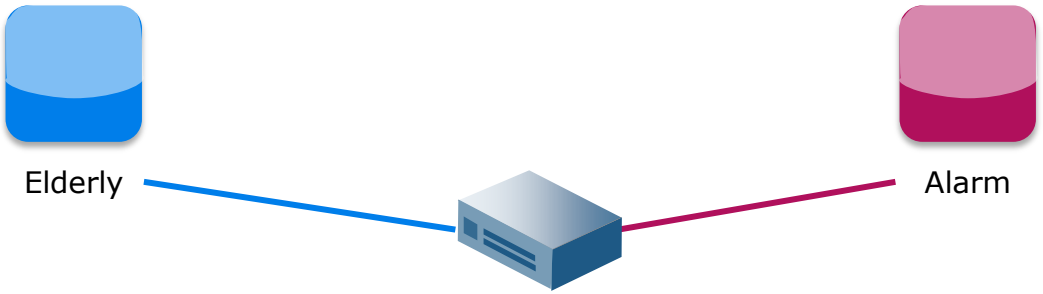


- Independency between Apps and Sensors
- Full multi vendor automation interoperability
- Revenues from “long tail” third parties applications
  - Successful % Apps store model



Shared infrastructure
Home automation

- The same motion sensor can be used by different Apps

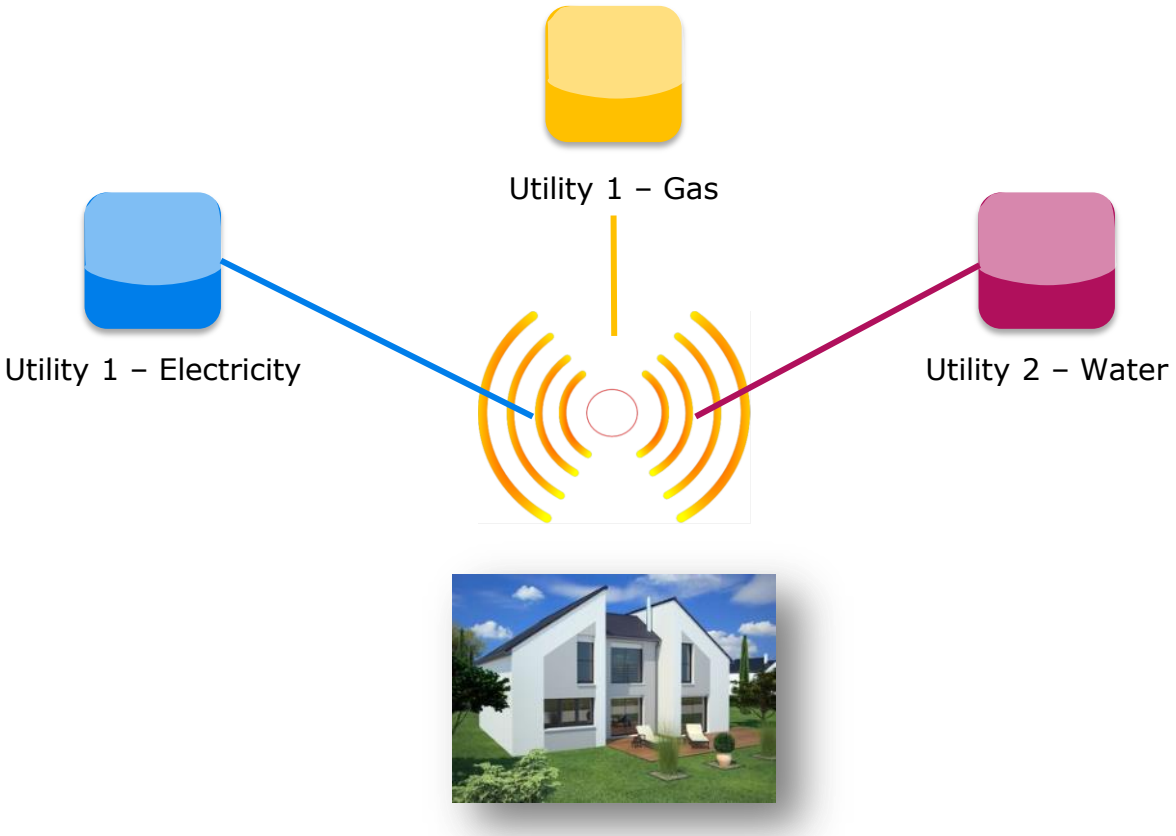


Auto lighting for elderly safety when I'm home

Alarm system when I'm out

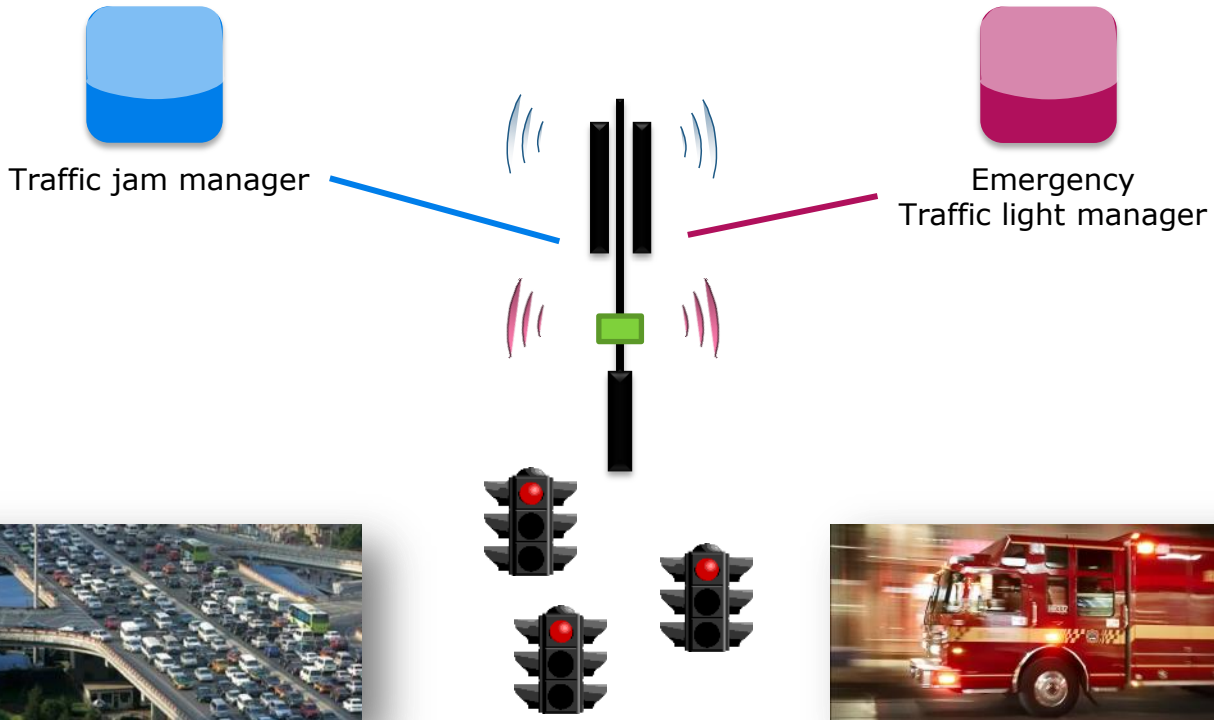
Shared infrastructure
Smart metering

- Multi-B2B2C



Shared infrastructure
Smart City

- The same motion sensor can be used by different Apps

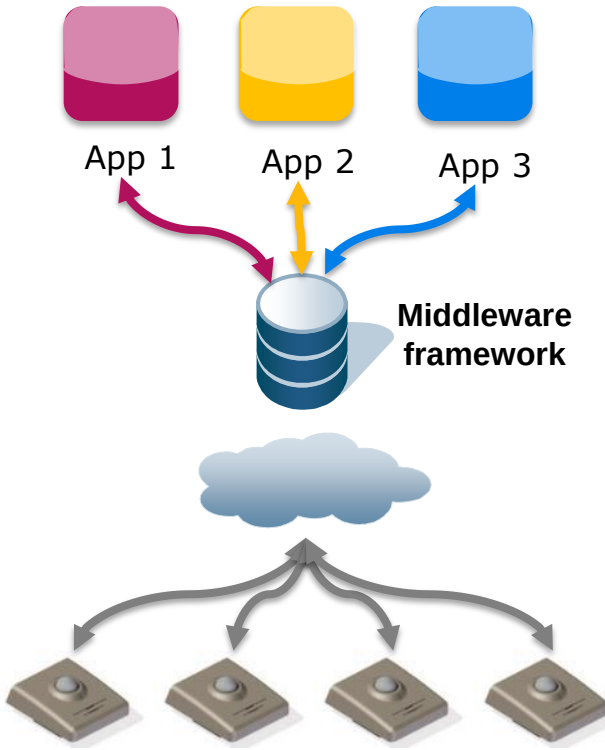


Peak hour traffic management

Emergency vehicle path

Market positioning

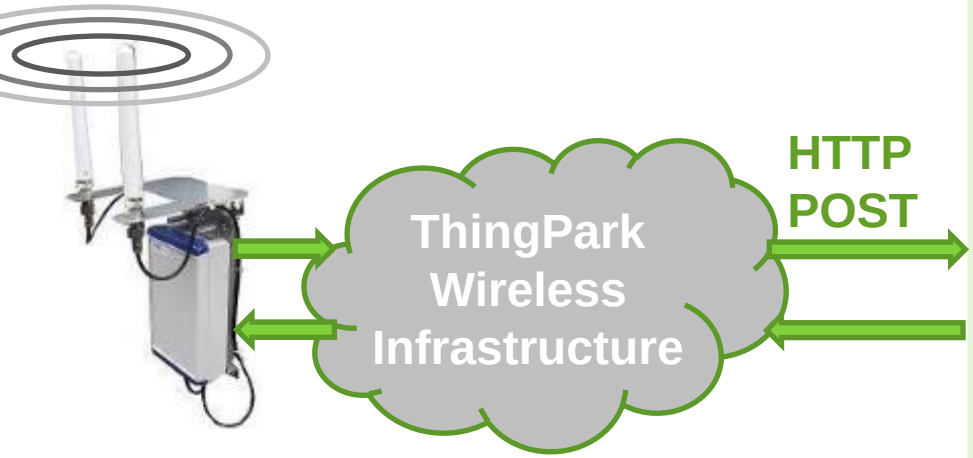
- Proprietary routing APIs
  - Industrial consortium
- Standard MAC Layer
- Standard Application layer
  - ZCL, KNX, BacNet…
- Big Data middleware
  - Azure, SAP Hana, IBM…
  - AmazonS3, Google, Facebook…
- IoT Development frameworks
  - Thingworx, Cumulocity, DeviceWise Telit; Plat.one, Devra Networks IBM, Bluemix…
- Standard Framework
  - ETSI M2M → OneM2M
- Service Provider IoT Frameworks
  - Orange DataVenue, Proximus M2MFactory



LoRa Alliance

kerlink
CISCO
actility
Making Things Smart
SEMTECH
IBM
imst
MultiTech Systems
MICROCHIP
éolane
Sagemcom
Bouygues Telecom
swisscom
proximus
kpn
SingTel
FastNet

« Tunnel mode » application server interface




```
User-Agent: ACTILITY-LRCLRN-DEVICE-AGENT/1.0
Host: 192.168.1.11:8888
Accept: */*
Content-Length: 448
Content-Type: application/x-www-form-urlencoded
LrnDevEui: 000000FFFF009000
LrnFPort: 1
LrnInfos: UPLINK_LABLYON_TO_APP -3-133
<?xml version="1.0" encoding="UTF-8"?>
<DevEUI_uplink xmlns="http://uri.actility.com/lora">
        <DevEUI>000000FFFF009000</DevEUI>
        <FPort>1</FPort>
        <FCntUp>25</FCntUp>
        <payload_hex encrypted=true>4142434445464748494a</payload_hex>
        <mic_hex>abd615aa</mic_hex>
        ← Added LRR metadata to uplink message if option set →
        <Lrrid>102</Lrrid>
        <time src=GPS (or NTP)> xxxxxxxxx</time>
        <LrrRSSI>53.000000</LrrRSSI>
        <LrrSNR>10.000000</LrrSNR>
        <LrrLAT>45.785019</LrrLAT>
        <LrrLON>4.794383</LrrLON>
        ← Added device metadata to uplink message if option set →
        <DevLrrCnt>3</DevLrrCnt>
        <DevLoc src=RSSI (ou FlightTime)>
                <LAT>45.817394</LAT>
                <LON>4.774556</LON>
                <radius>50</radius>
        <DevLoc>

</DevEUI_uplink>
```


Challenges

- Players need an architecture that is:
  - Standardized
  - Independent
  - Adapted to any automation application
  - Unified management/supervision interface

We need a standard system architecture

→ **The answer is being prepared at ETSI within the « M2M Technical Committee »**

→ **ETSI M2M has joined the Global M2M partnership project**

→ ETSI (Europe), JapanTTC (Japan), ATIS (US), TIA (US), CCSA (China), TTA (Korea).

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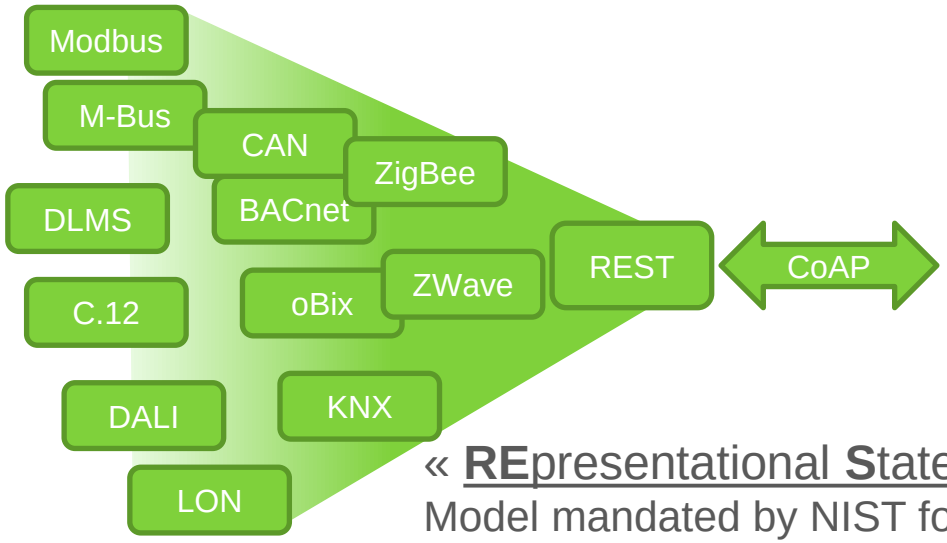
Key features of ETSI M2M / OneM2M

First level of syntax standardization:

- REST : do everything with 4 verbs and ‘documents’
- Documents use XML and MIME types

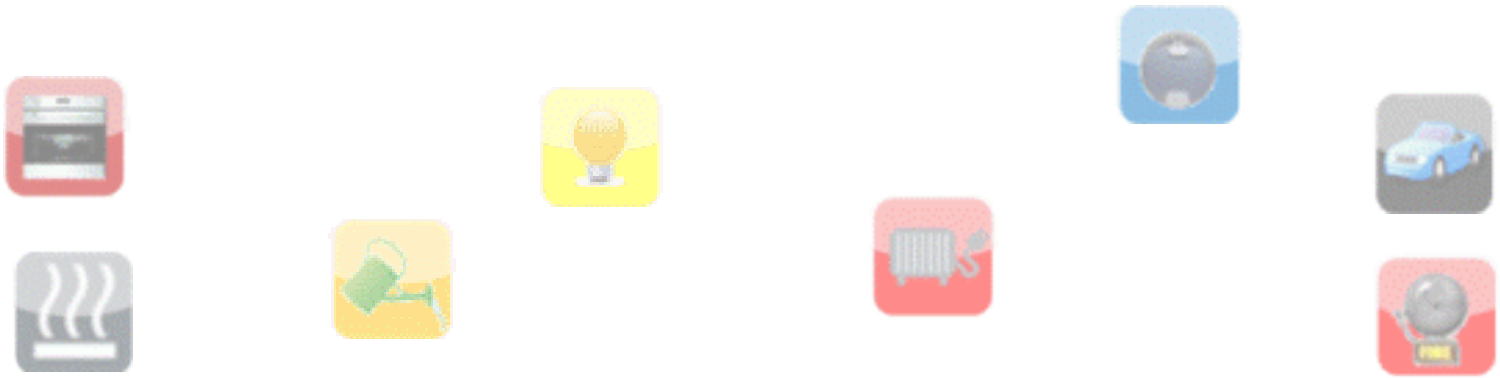



```
<GET http
Application>
climatisation
<POST http…>
<PUT http…>
<DELETE http…>
…
```

« **RE**presentational **S**tate **T**ransfer »
Model mandated by NIST for future standard ‘Smartgrid’ applications and ZigBee 2 ‘Smart Energy’. REST may be carried by CoAP defined in IETF

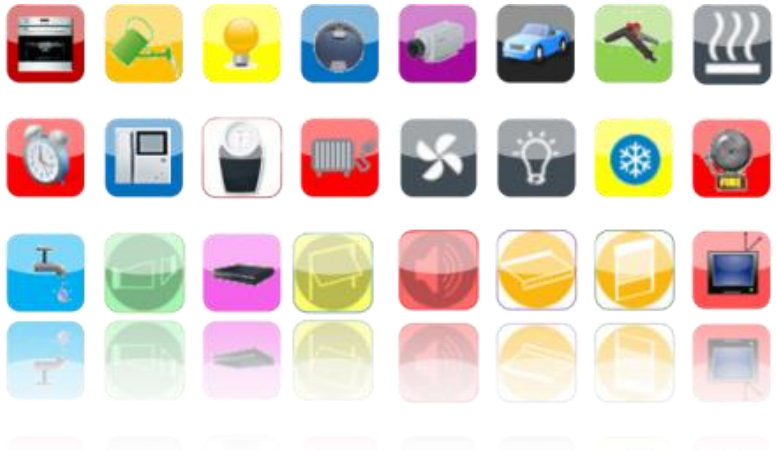
Semantic level
Generic concepts

	ZigBee	BACnet	KNX	Zwave	DLMS/COSEM
Network	yes	yes	yes	yes	yes
Object	ZB node	BACnet device	KNX device	Zwave node	Cosem server
Object App.	endpoint	Not native use Structured view	No (just 1)	Device class	Logical device
Interface	cluster	Structured View	Functional block	Command class	Interface object
Basic elements (incl. Point)	Simple types	Objects	Datapoints	Types attributes	Attributes



… waiting for an app store

LPWA Market Place



contact@actility.com

THANK YOU

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