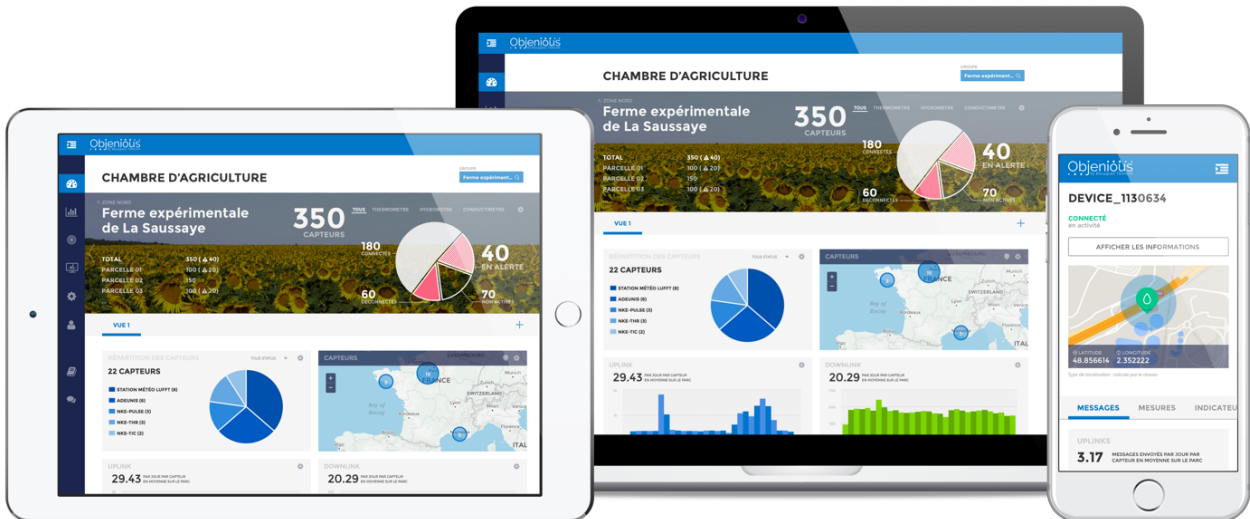# PROVIDING GENIOUS TO YOURS OBJECTS!

Thanks to the platform Smart Portal Of Things ® by Objenious, you can visualize, analyse your uploaded data from your sensor and monitored your activity.

20.8
BILLIONS OF OBJECTS WILL BE CONNECTED IN 2020

74
BILLIONS OF EUROS WOULD BE CREATED IN FRANCE IN 2020

6 EUROS OF ECONOMY FOR 1 EURO INVESTED

SPOT'S KEY POINTS

COST AND COMPLEXITY REDUCTION HAS BEEN REDUCED FROM ALL PARTS OF THE VALUE CHAIN.

HIGH BUSINESS FLEXIBILITY DUE TO OUR PLATFORM OF MULTIPLE NETWORK.

INTUITIVE AND CUSTOMIZABLE INTERFACES WITH A RICH LIBRARY OF WIDGETS.

PROJECT MANAGEMENT IN FULL AUTONOMY INTEGRATED SENSORS, API LIBRARY.

DURABLE AND SECURE IMPLEMENTATION FROM END TO END

A new revolution has begun

Data is the new fuel of this new century, data from connected objects will impact heavily industries and the journey of billions of people and your own business model.
Many objects will be connected to internet thanks to cellphone network, by Bluetooth or by wifi, and this number of objects are increasing in the coming year. But all of these technologies are costly and needs an electric supply or are dependents from a local relay such as a smartphone or an internet box.
Tested in real condition for 2 years by Bouygues Telecom's team, LoRa technology is the perfect alternative to these new uses and is a true complementary technology.

Objenious, a Bouygues Telecom's subsidiary, helps companies that are facing to this new challenge. From the choice of your sensor, secure network, platform treatment, data visualization until application, you can exploit the full potentiality of your data in order to create value for your business model and for your clients.

A transversal and modular IoT platform.

Objenious's SPOT platform (Smart Portal Of Things) is a platform for internet of things well known for managing hundreds of millions of mixed objects and exploit your data in an efficient way.

Based on a cloud computing software, SPOT is a highly available solution hosted in Europe. It allows a transversal use, multiple sectors and « multi tenants », and offer a total independence towards sensors manufacturers and network protocol.

Data and most of our platform's functionalities are reachable through type REST open APIs.

Principals functions of SPOT platform:

- **Connect** and manage all type of object which come from all type of network.

- **Analyse,** visualize and oversee all type of objects thanks to a wide range of visualisation tool, data analyse and to customisable dashboard depending of yours uses.

- **Innovate,** create and valorise high valuable services thanks to advanced functionalities of event management, scenario management and to the integration of API.

1. Manage your pool of objects in full autonomy.

Simplified management of your fleet

The functionality of pool management allows to pilot the cycle of your sensors from end to end, by giving the same sturdiness for a small pool of sensors or for millions of connected objects.

- The unit treatment and the mass management of your pool of objects (provisioning, modification, deactivation, group change, downlink,.) can be easily done from the portals or through files import that has to be send to Objenious's Support Team.
- API REST: every functionality of pool management are available through APIs. It allows an easiest integration with your own IS, in order to automatize your repetitive actions.
- Pools of KPIs are given for following technical status of sensors, life cycle and battery level.
- The monitoring of buyers are easily done and in full transparency.

Multi-network connectivity

Sensors can be designed and deployed in many technologies. These facts create great stakes in terms of communication and security.

SPOT is an agnostic platform with a connectivity that allows you to integrate various sensors from different networks:

- LoRa: native sensor
- WiFi: HTTP connector allows secured interconnexion (data encryption and authentication) and direct dialogue with communicating object through the WiFi.
- LW M2M: visualisation of mix pool LoRa-M2M will be possible directly from SPOT platform during the year 2017.
- LP-WAN: the http connector allows interconnexion with others IoT network such as Sigfox or others private LoRaWaN network.
- Other types of connexions would be integrated on demand through connectors such as MQTT, CoAP, etc.

Geolocalization of sensors.

Objenious provides its own platform "SPOT" and its own mechanism of geolocation for its sensors.
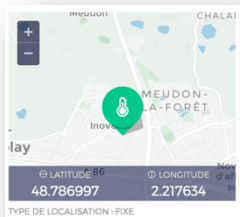
The geolocation of sensors can be done in different ways:
- Macro geolocation of LoRa network, available natively.
- TDOA geolocation with a greater precision than radio macro geolocation.
- GPS geolocation (for sensors equipped with GPS)
- Fix geolocation (you need to enter input in terms of fix coordinates or to import them on SPOT).

In the case of macro geolocation, the position of objects map is calculated by a network triangulation mechanism. It works in outdoor and in indoor. Unlike the GPS, the radio geolocation in LoRa® doesn't need a lot of energy, because all of this process is done by the network server.

In addition to the macro geolocation, Objenious has implemented the TDOA function (Time Difference Of Arrival) which allows an accurate precision without requiring a GPS antenna. For that, Objenious has been associated with a highly specialized partner in 3D modulization and algorithms development for designing a solver of mathematical optimization. This accuracy has been accomplished by a synchronization between the network, in nanosecond, and with a sufficient density of antenna.

Management of entity and groups.

SPOT's features allow the hierarchical management of many groups of sensors and the mechanism of login management that authorize to monitor the access of the platform. It will help the emergence of many models of services adapted to B2B, B2B2B or to B2B2C.

A big company can do the same thing to its organization. Like this each subsidiary will have its own organization, its own dashboards and customized KPIs.
Objenious guarantees the isolation of your data and its rights.

Exposition of data

Collected data can be send and in real time to an external platform, thanks to a HTTP PUSH rooting mechanism or from our API REST in pull mode.

Every documentation about the API is available online.

Supervision and network monitoring

Objenious provides, on SPOT, a tool of troubleshooting. This one is designed for the diagnosis and the detection of problems. It can identify if the problem comes from an equipment or from the network of your operator.

Alerts of network supervision can be easily done for monitoring your sensors that encountered problems of connexion, periods of abnormal inactivity, overconsumption and batteries levels.

To conclude this short description, it provides a full access to statistics and network information also it can produce reports of activity.

2. Analyse and visualize data through powerful tools with a simple use.

In a context of digital transformation with new sources of data that has been captured by your fleet of connected objects, visual and interactive visualization of this data is a precious component to analyse them.

It allows the simple detection of phenomena or trends in and to exploit it for giving precious insights.

Decoding and visualization of data

SPOT platform collects and store data according to a model of data standardization. A complete catalog of sensors ready for use is already integrated in SPOT.
The integration of new sensors can be rapidly deployed thanks to a tool for decoding easily data. You have the possibility to integrate external CODECs (such as "coding-decoding" data).

A specific index of data visualization allows to find at any moment the status of our pool of sensors in a specific shape.

Check and data treatment

The module of acquisition and verification your of data allows you to detect automatically incorrect or missing data, like this it provides a better visualization of all of yours measures.

To insure the completeness of the data and provide a good quality of service (QoS), Objenious has developed a solution of "Data Recovery". This one provides the generation of a downlink of a software application and can rebroadcast your data that had been lost (according to legal legibility) and complete the historic of yours measures.

Secured storage & dedicated data.

SPOT platform has an optimized technology of storage adapted and customize for each use. Immediate access to your data is included with a historic of your data for 6 months, but it can be customized depending on your operational needs. The KPI and a differ access mode to your data are included during all the duration of your contract.

Fast configuration of your KPI

KPI are easily customisable, it can be done in batch mode and in a real time workflow, thanks to specialized tools in conversion and data aggregation in a distribute environment (eg. Spark).

### A powerful tool of data visualization with a simple use.

The portal of data visualization provided by SPOT is designed for making your user experience easier, with an easy access to your information that has been collected. Our portal of data visualization has a great capacity of adaption, thanks to dashboard and to a large choice of widget easily configurable.

Our dashboarding is composed of a configurable banner which displays KPIs of your pools of sensors and allows a navigation by group, and by configurable widgets customized to your needs.

Thanks to all of these functions, data and KPI displayed by our widgets are updated depending of the selected group in the header. That allows a great analyze of your KPI which can be customized to your organization.

Dashboards are easily customized by groups. Each entity of a big group can take its place with its own visualization.

A rich library of widgets.
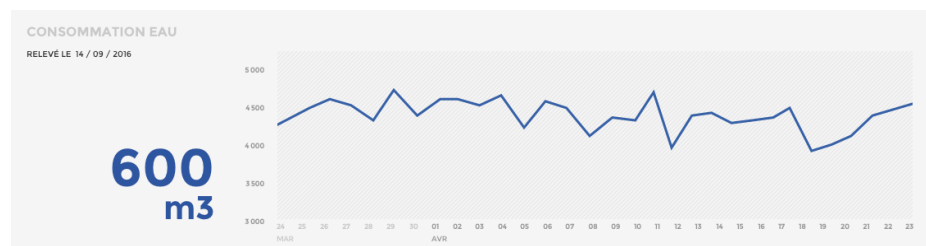
A large library of widgets is purposed with different categories:
· Widgets of pool management: that allows to follow a detailed cartography of your pool.
· The position of your sensors and the visualization of your alerts, statistics of the evolution of your pool of sensors, the consumption of messages received or send in global by the fleet or for a specific sensor, or for the distribution of your fleet based on a type of sensors.
· Widgets, like historical measure, SPOT has many graphics designed according to their field with a visual presentation of data uploaded. You can customise to a color code configurable, the follow of consumption by periods, key KPIs per sensor or with a synthesis by group with customised KPI.
· Widget of alerting which can follow alerts in real time for all your fleet of sensors or for a specific part of your pool.
· Widget of geofencing and monitoring according to your implemented functionalities.

Possibilities for configuring your widgets are important and allow a better customisation for your screen.
The offer of widget is constantly optimized and upgraded, widgets and external application will arrive in order to complete Objenious offer.

Mobile uses

SPOT portal is entirely "responsive" and adapted for mobile uses. It allows the monitoring, the management of status and the visualisation of different information uploaded directly on the field.

Portal customisation

The portal is customizable (color + logo) to the image of your company. This practise allows also a commercialisation in turn key white labels of services provided by this portal to your customers.

Oconnect

The purpose of this application is to analyse the quality of the radio signal received by your sensors during the installation. Thanks to this feature, you can visualize in real condition. And to check if your sensor will be able to upload correctly its data and avoid to lost them or if you need to change the position of your sensors or if you need to add a CoD (Coverage On Demand).

## 3. INNOVATE and provide different business model.

In order to give the right answer to specific needs, SPOT platform provides a wide range of tools and complementary functionalities: geotracking, monitoring, fleet management, KPIs, etc.

Alerts & notifications

It's a key factor for performing an IoT plateform, this tool is well adapted for configuring alerts and for any technical monitoring.
Objenious's SPOT platform has been designed on a technology which allows to deploy rapidly and for creating automatic scenario which depends of different events. In a few clics, you can create a powerful scenario for monitoring your fleet or events, such as the direction of workflow for your message, the monitoring of overconsumption, network problem and alerts.

Like this, you will be able to quickly set up SMS notification, mail and/or HTTP for a workflow in real time of your equipment.
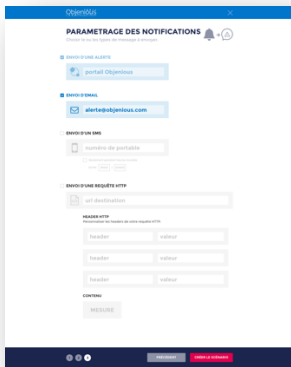
Monitoring & remote control

Thanks to Objenious and its solution, we have created a bridge between your company and your objects. You will be able to understand different part of your business model and to pilot your fleet of sensors remotely and automatized some tasks that has been manual and unpleasant before.

A tool for creating scenario is also available on SPOT. Thanks to this feature, you can trigger actions remotely and in real time, you will be able to take action based on your data and act in a predict or prevent way (If off course, you have couple them to a mechanism of machine learning).

Geotracking

Objenious solution combine ergonomics, simplicity and speed for increasing operational efficiency of your company and decrease operational cost.

Thanks to an easily configurable geofencing solution, the customer will have access in few clicks to its stock inventory and its operational KPI by area of interest.

Entry alerts and leaving area are easily customisable, with the possibility to upload notification or to activate a mechanism of track&trace. What's the benefit of this feature? For Example, if somebody has stolen something, you will be able to monitor your activity and setting action in real time.

The geotracking tool is agnostic to the type of technology used, this one can be used natively for geolocation function on LoRa network and is more precise than a GPS type or geolocation mechanism in indoor.

### Integration of external application

SPOT portal provides a complete framework for developing widgets which contains APIs, a "SANDBOX" type test environment, specific access and an access to a complete documentation.
The customer will be able to create its own application for the development of a framework and integrates its data and/or its external application in SPOT portal.
In order to emphasize the development of innovative application in the field of the IoT, Objenious provides an incubator for sensors development and for application.

BI Tools & analytics

Business intelligence (BI) and advanced data analyzed allows to identify risks and take opportunities and to get a deep understanding of your business, thanks to a dash board, a data visualization tools and any relevant analyze report.
Objenious uses storage technology like NoSQL and provides every sensor that setting up specialized analytical tools, preventive or predictive depending analytics on the tools that has been chosen by you.
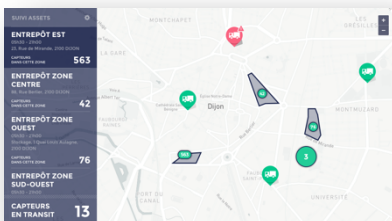
A durable solution and an adapted architecture

A performant and evolutive solution

SPOT platform provides a scalable architecture in a distribute environment, allowing the management of millions of sensors and massive amount of peta of octets thanks its architecture based on NoSQL technology and cloud technology.

SPOT is totally redundant and secured, it provides you the treatment and the disposal of your IS of all received messages from the LoRa network server.

Objenious's solution is robust, modular, and allows you to choose uniquely module that fit to your needs.

Security reinforced from end-to-end

Security is a major stake of all companies wishing to transform their business model thanks to IoT.

Objenious has implemented a political security from end to end, from the sensors until the access rules for applicative level.

- Network security: confidentiality and integrity of your data are insured by the integration of a KMS (Key Management Server) which allows to implement the security in our three levels (sensors, radio and API).
- Multi-tenant platform: Objenious has implemented a data isolation for its clients.
- The platform has implemented RBAC mechanism (Role Based Access Control) that allows to ensure that only users/authorized API can have access to certain type of data or level of organization.
- Every client connection (APIs, HTTPS routing) are secured
- Every sensible information is encrypted and store in data base.

High value IoT application

Objenious has created integration with connectors with the leading solution of the market (Thingworx, IBM Bluemix, etc.).

Thanks to Objenious, you'll benefit from a panel of expert and professional that will make your IoT project alive.

- Partners by field: in order to answer to the expectation of our clients, Objenious has been associated with highly specialized software editor in order to design a common offer based on a partnership in different sector of activity.
- Technological partnership: in order to enrich the IoT platform, Objenious use the know-how and the competence of its partners capable to provide specific service.