Sigfox overview

IOT MEETUP GRENOBLE

SIGFOX

In a nutshell

About Sigfox

Sigfox is **not selling chips**

Sigfox is **not building connected solutions**

Sigfox operates a **global network** for IoT communications

Plenty of already existing solutions

SIGFOX

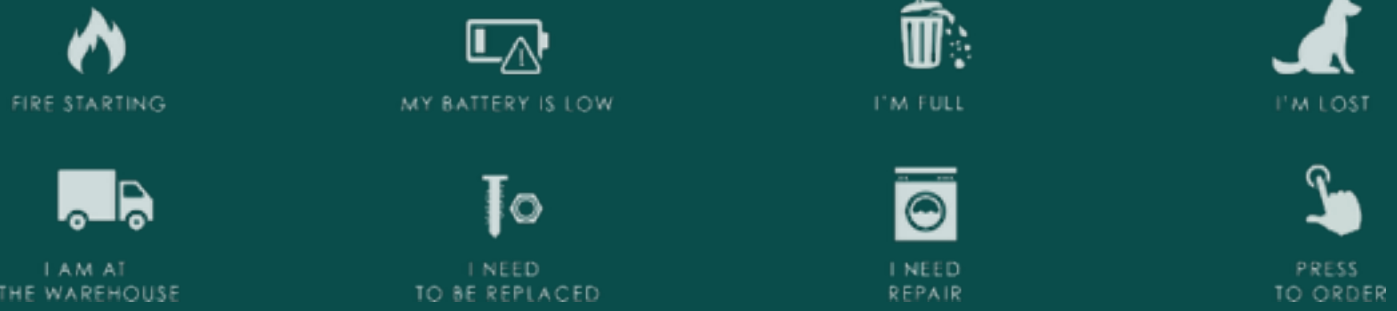
Wi Fi

Lte

ZigBee

Suited for the IoT ?

SIGFOX



SIGFOX

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GLOBAL REACH

FIRE STARTING

I AM AT
THE WAREHOUSE

COST EFFECTIVENESS

MY BATTERY IS LOW

I NEED
TO BE REPLACED

SIMPLICITY

I'M FULL

I NEED
REPAIR

ENERGY EFFICIENCY

I'M LOST

PRESS
TO ORDER

Why Sigfox ?

Need for a solution dedicated to the IoT, not an existing one tweaked for it.

We only serve the IoT, that's why we're doing it efficiently

Business model

Sigfox business model

Selling access to the service

Price from <$1/year to ~$10/year (volume / traffic)

No revenue from the chipsets (royalty-free)

More details

Energy efficiency

The Sigfox protocol has been designed to maximise energy efficiency

Low consumption while transmitting

Extremely low consumption between emissions

No maintenance

OUT OF THE BOX
NO PAIRING
NO CONFIGURATION
NO SIGNALING

Very Long Range

Best case scenario

+100km between transmitter & receiver (base station)

Real life

A few kms (city) to tens of kms (countryside), **depending on the topography + environnement**

SIGFOX

In reply to Ludovic LE MOAN

HidnSeek (smart GPS) @xtorrest · Aug 22

@kernelKing @AaronOlphert1 @thinxtra @sigfox @Kordia_NZ What about 981k with HidnSeek btw device (T) & @sigfox (R).

4 20

Outdoor & Indoor

SIGFOX

Good indoor propagation properties

Of course, you need to consider signal attenuation (~20dB)

Two-way communication

Devices can receive updates sent from your application server

Each communication is instigated by the device

Small messages

Useful payload: up to **12 bytes**

Up to **140 times each day**

100 bits/s

Regulations

Regulations

Sigfox is operating on unlicensed Sub-GHz frequency bands all over the world

We just have to pick the right central frequency

Easy, right ?

Low cost of communication

Small subscription fees

Short SW development cycle

Low cost HW components

Security

Radio

Each message is **signed with a key unique** to the device

Messages can be **encrypted or scrambled**

No keys exchanged over the network, no handshake

Message signature

With each message, a hash is calculated & sent; using:

- Device ID
- Secret key, unique to the device. Never transmitted OTA
- Payload
- Internal increment

Radio properties

Great tolerance to interferors

Jamming resistant

Cloud

Servers operated by Sigfox

Data-center #1 #2 are located in France

Ultra Narrow Band

Sigfox use

The network currently monitors a 200KHz part of the spectrum

Each message is ~100Hz wide

UNB Analogy

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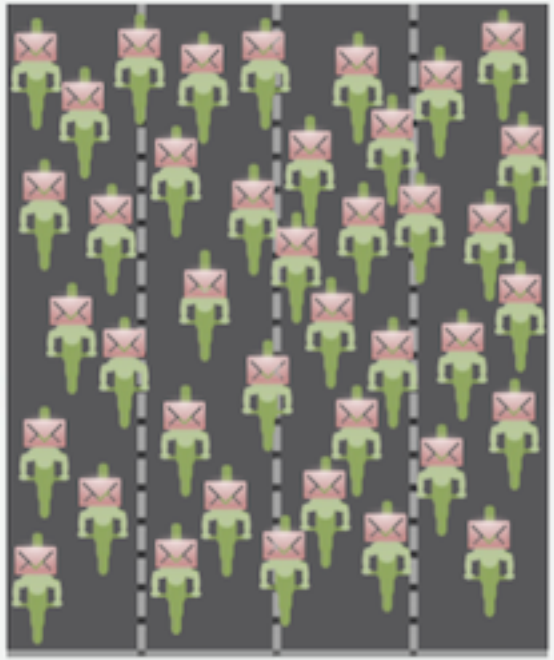
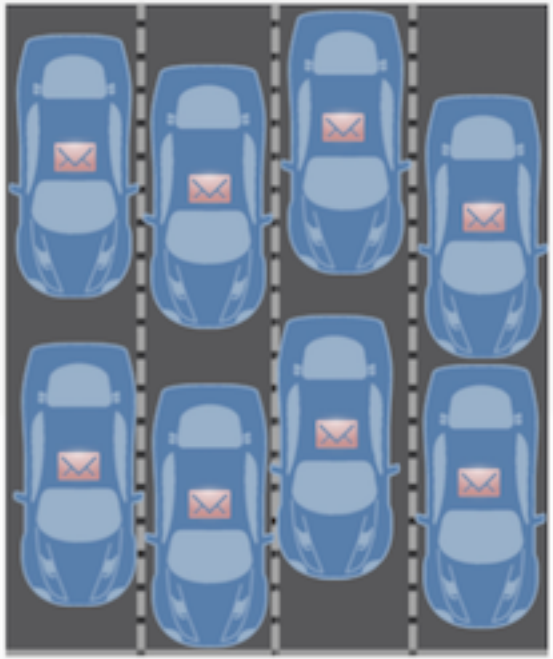




Coverage

Global network

Sigfox is offering a global network, not a solution to build private networks

Roaming is included is the standard service

Devices will work the same all over the network

Current coverage

SIGFOX

24 countries

1.4 million km²

358 million people

Current coverage

SIGFOX

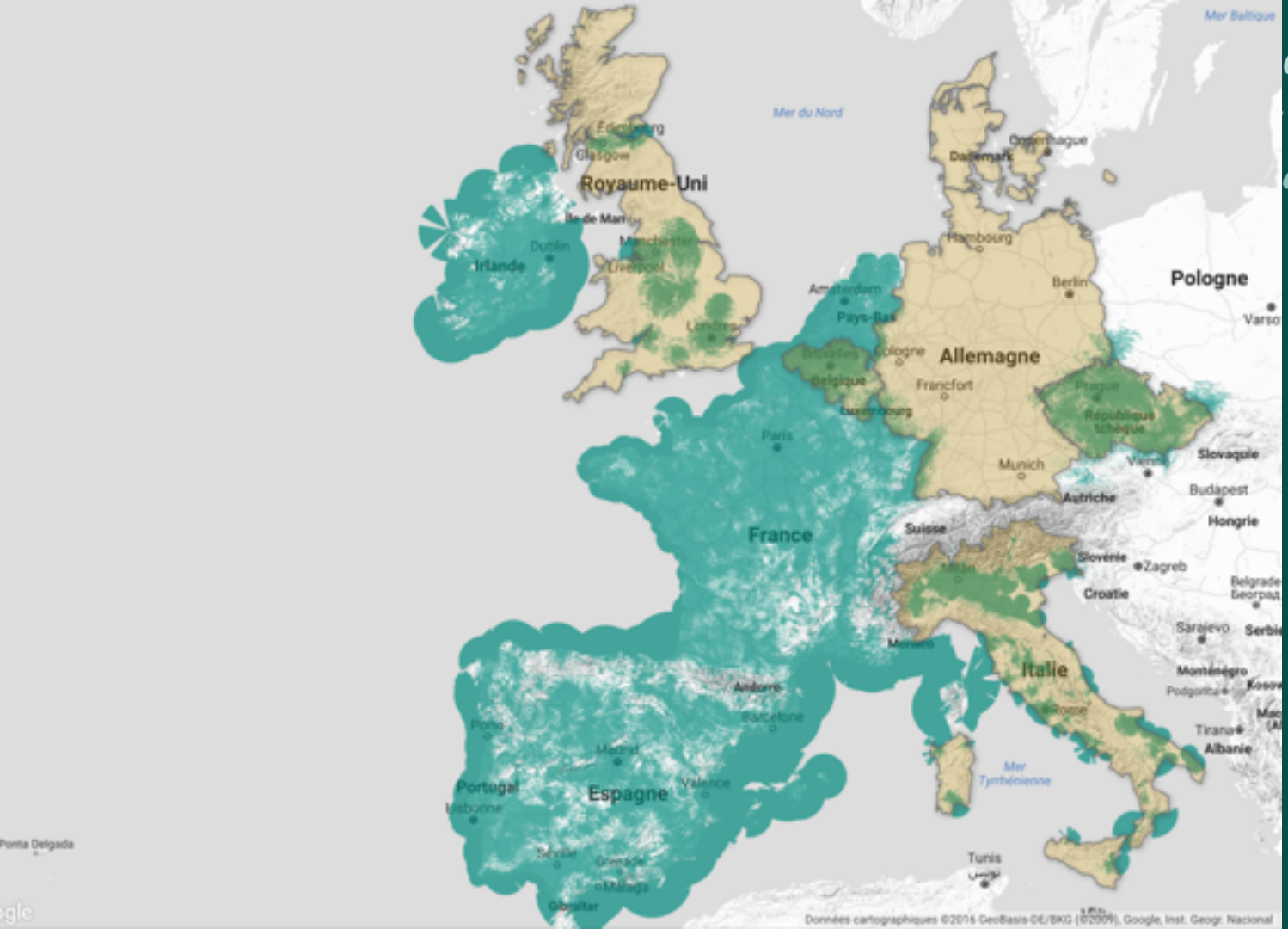
Nationwide coverage

- 🇫🇷 France
- 🇨🇿 Czech Republic
- 🇮🇪 Ireland
- 🇱🇺 Luxembourg
- 🇳🇱 Netherlands
- 🇵🇹 Portugal
- 🇪🇸 Spain

Countries under rollout

SIGFOX

- Belgium
- Denmark
- Finland
- Germany
- Italy
- United Kingdom
- Brazil
- Colombia
- Mexico
- United States
- Australia
- New Zealand
- Oman
- Singapore
- Taiwan


Mer Baltique
Mer du Nord
Royaume-Uni
Irlande
Dublin
Manchester
Liverpool
Londres
Amsterdam
Pays-Bas
Bruxelles
Belgique
Allemagne
Francfort
Luxembourg
Paris
France
Hambourg
Berlin
Pologne
Varsovie
Prague
République tchèque
Munich
Vienne
Slovaquie
Budapest
Hongrie
Autriche
Suisse
Slovénie
Zagreb
Croatie
Sarajevo
Monténégro
Podgorica
Albanie
Tirana
Italie
Andorre
Barcelone
Madrid
Portugal
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Espagne
Valence
Mer Tyrrhénienne
Tunis
Ponta Delgada
Gibraltar
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Démo ?

I FEEL LUCK TODAY

Products

EXAMPLES OF SOLUTIONS ALREADY IN PRODUCTION

Perfect Sigfox use cases

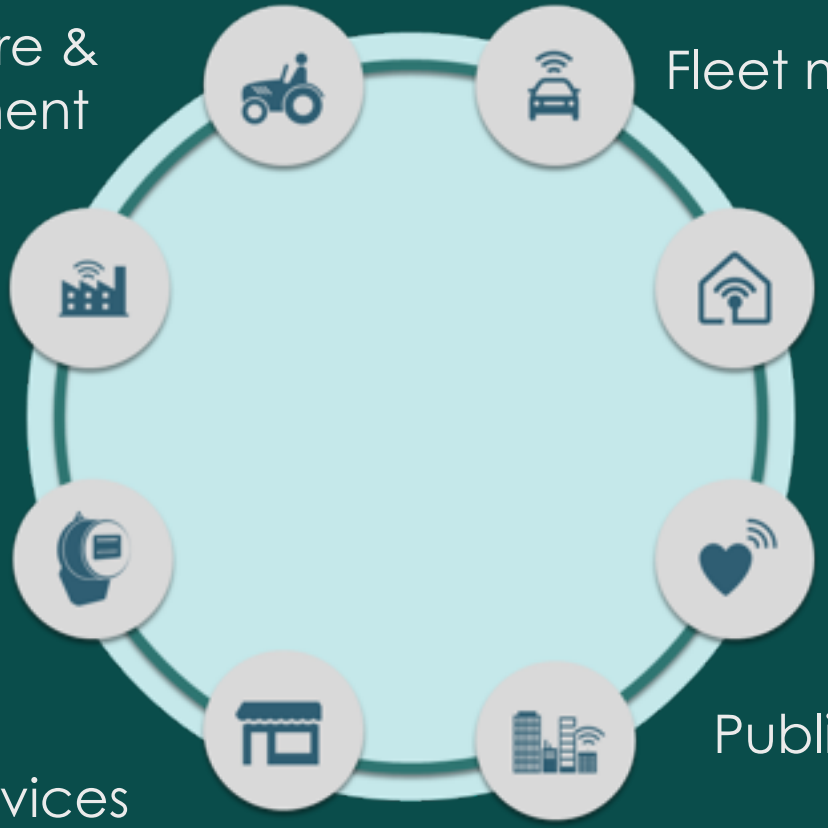
Independent solutions

- no user, no power socket, no local network

Shy devices

- Doesn’t speak much, but only useful data

SIGFOX



Agriculture & environment

Fleet management

Industry

Home & lifestyle

Utilities

Health & Assisted living

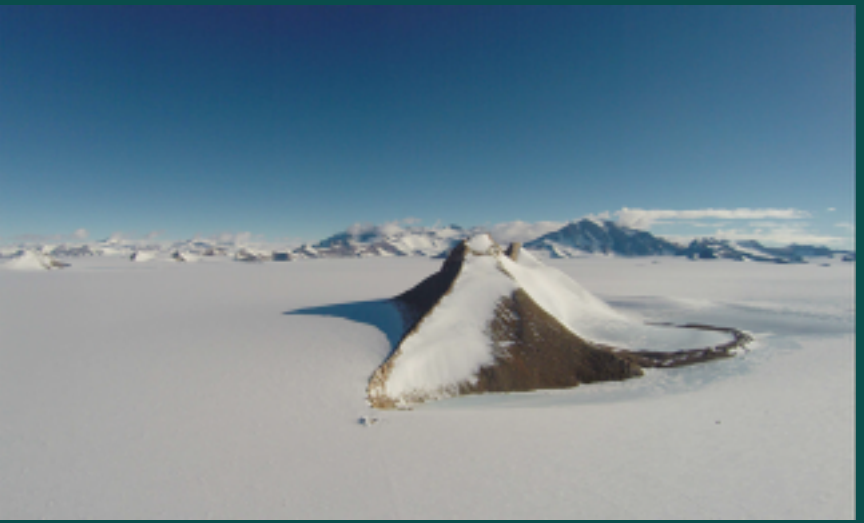
Retails & other services

Public sector

Sigfox foundation

FREE CONNECTIVITY FOR NON PROFIT PROJECTS

Antarctica



- Tracking scientists & assets
- Long reach
- Ease of use
- Robust trackers

Wildlife

Rhinos tracking & monitoring

Anti poaching operation

Implant & play

Long reach

Industry

Predictive maintenance

Optimize & anticipate maintenance

Alerts when customer needs support

Lower operation costs

Increased safety and/or customer satisfaction

Connected boilers

Remote monitoring of boilers

Improve maintenance cycles

Remote sites monitoring

Intrusion detection

Fault detection

Works in remote areas

Plug & play

Low cost

SIGFOX

Health & Assisted living

Assisted Living Box

Elderly people benefiting from home services

Monitor carers come & go

NFC badge reader

ROI : 6 months

Increased service quality

Defibrillators

Guarantee that the equipment is in working order

Reduced costs (easy installation)

Notifications

Central supervision

Public sector

Smart parking

- Parking spots monitoring
- Real time guidance for users
- Traffic optimization
- Local enforcement optimization

Waste management

Optimize costs of collection

Plug & play

Years of battery life

Connected dumpster

- Improve collecting of recycled textiles
- Filling level monitoring
- Route optimisation
- New usage data

Fire hydrants

Detect faulty hydrants

Fraud detection

Increased security

Long battery life

Easy integration

Air quality

Closer monitoring of air quality

Local precision

Better monitoring

Data produced for pollution prediction

Street lighting

Save Energy & Costs

Improved maintenance

Light intensity management

Water level monitoring

Numerous applications

Ease of use

Low cost

Utilities

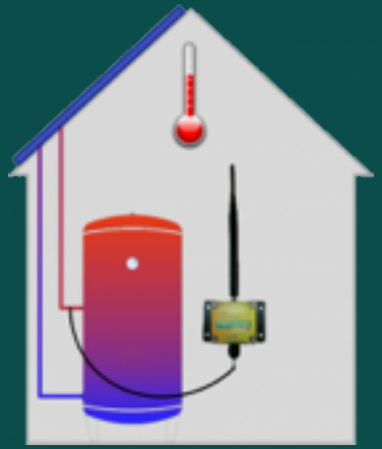
Metering

Different solutions

Smart or add-on to existing meters

Low cost of installation & operation

Solar panels monitoring



Remotely monitor solar panel output

Fault detection

Easy to install

Simple, robust

Home & lifestyle

Sound detector

« Shazam » of home security

Out of the box connectivity

Low TCO

Easy pan-european deployment

Home Alarm System

- Backup connectivity for GSM solution
- Jamming resistant
- Continuity of service
- Self deployment
- High capacity network

Smoke detector

Get alerted even when out

Easy install

Fault detection

Water quality monitoring

Swimming pool water quality monitor

Long reach (> WiFi)

No install

GPS Trackers

SIGFOX

HIDn SEEK

ticatag

Low cost, high precision trackers

No setup

No companion device required

Long reach

Cross borders

Agriculture

Crop management

Smart irrigation

Environnement sensors

Ease of use

Yield optimisation

24/7 data

Connected Beehives

- Automate & optimize honey production
- Scales
- Remote monitoring
- Long battery life

Weather monitoring

Accurate & personal weather data

Affordable

Easy installation

Long battery life

Retail & other services

Button

Simplest interface possible

Press a button ; trigger a service

No installation

Cloud-based service

Customer Satisfaction

Effortless customer feedback

No wiring

No pairing

Long battery life

Fleet management

Stolen car recovery

- Locate & recover stolen assets
- Small form factor
- Long battery life
- Combined with UHF

Chipsets

HTTP://PARTNERS.SIGFOX.COM

Open Ecosystem

SIGFOX is not a hardware vendor

Wide ecosystem of partners :

Atmel, NXP, ON, SiLabs, Texas Instruments

Atim, Telecom Design, Telit, Radiocrafts

More **soon** ;)

Sigfox software stack is provided royalty free

Various solutions

Radio transceivers, to build a custom chipset (high volume)

Reference designs, for low cost & ready to use solution

Modules : all included, pre certified. Solder & play

Prototyping

Several solutions available for Arduino & Raspberry Pi

Free subscription included for each development kit

Easy onboarding with access to the full service in 3 mins

Check out http://partners.sigfox.com for the full details

Cloud

Get your data

View messages : Sigfox web platform

Get messages : REST API (pull)

Receive new messages : HTTP Callbacks (push)

3rd party platforms

Built in connectors with Microsoft Azure & Amazon WebServices

Easy integration with 3rd party platforms (partners or proprietary)

Callbacks

Each message received from your devices will be forwarded to your application server through HTTPS requests

Customisable headers & body

You can set more than one callback

Downlink messages

A downlink message can be

- Semi automatic : sent directly by the network
- Customised : sent by your own application server