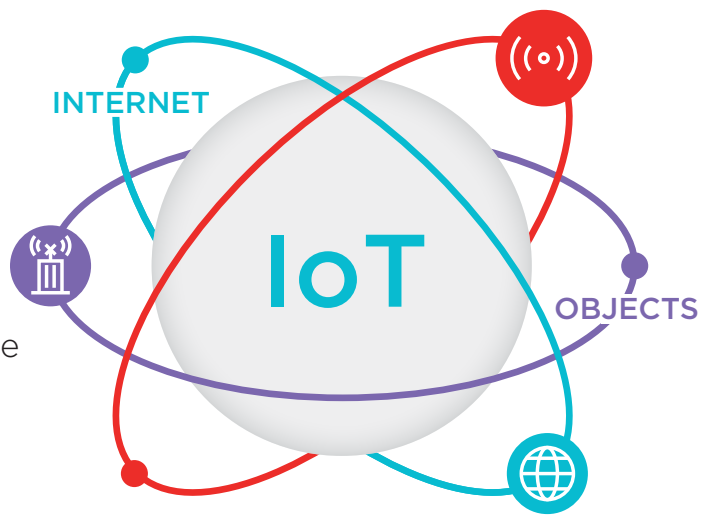


How to choose your IoT network ?

What is a network protocol for IoT ?

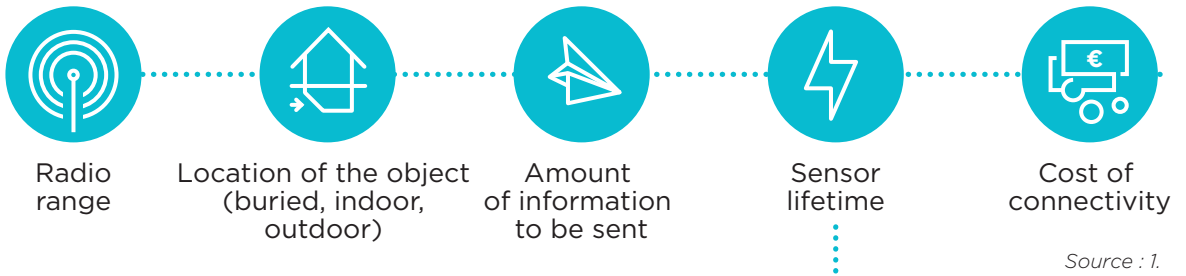
A network protocol is a communication language used to transmit information (e.g. environmental data). It defines the structure, format and size of messages to be sent. For the IoT, there are network protocols specifically adapted to transmit small amounts of information via the Internet.



CONNECTIVITY

What are the right criteria for choosing an IoT network ?

Depending on the typology of the object and the information to be transmitted, the choice of the appropriate network is crucial. Several criteria must be taken into account to choose the right network.



Source : 1.

50% of the connected objects are isolated and/or mobile. They need a high energy autonomy and to operate at low power.

In 2020, the majority of IoT applications are already done through new connectivity networks, other than GSM (2G, 3G, 4G).

Source : 1.

LPWAN'S positioning* : recap

% of IoTs concerned by the choice of networks

	Short range	Bluetooth Wifi	Suitable	Established Standards	Unsuitable	
LAN			+ Mobiles terminals + Foyer + Short range		+ Long battery life + Long range	35%
LPWAN	Long range with battery	LoRaWAN Sigfox LTE-M NB-IoT	+ Long range + Long battery life + Low cost + Localisation		+ High-speed**	55%
CELLULAR	Long range with power	GSM 3G+ / H+ 4G	+ Long range + High-speed + Coverage		+ Long battery life + Low cost	10%

*LPWAN = Low Power Wide Area Network.
**Ability to transmit a larger or smaller volume of data.

Source : 2.



Source : 3.

IoT Connectivity

Many industrial applications are concerned by IoT connectivity



Offices, companies, warehouses

Maintenance/remote control, optimization of operations, personnel management



Homes, schools, old people's homes

Monitoring of children, elderly, smart metering (electricity, gas, water)



Natural disasters

(landslide, flood warning, earthquake)



Public Infrastructure

Infrastructure/public lighting, predictive maintenance



Transportation

Freight/pallet management, logistics management and optimization, smart parking



Agriculture

Water quality/temperature and humidity, livestock trucking

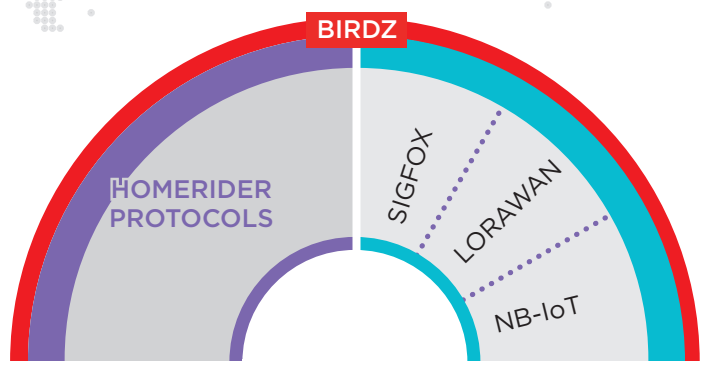
LPWAN Worldwide Operator Mapping

More than 165 public/private LPWAN operators in over 100 countries



Source : 4.

Birdz: uses, networks

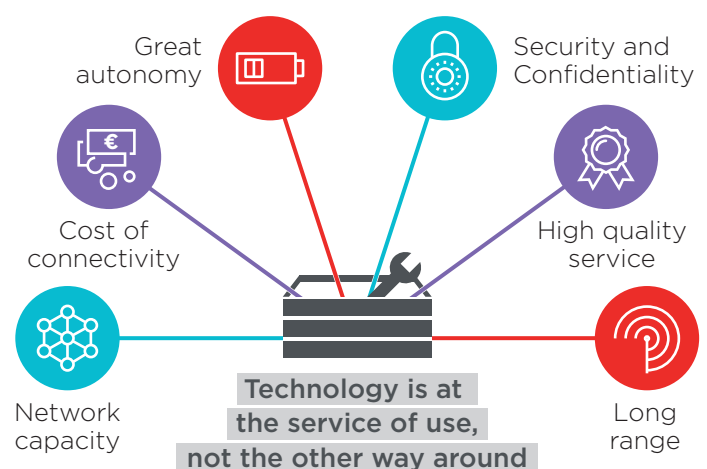


Historical owner/private protocol adapted to municipal and industrial uses.

New standardized network protocols, adapted for the uses of the smart city.

The Birdz Toolbox

Beyond a trend, it is necessary to choose the right technology, the one able to achieve the best compromise between :



Sources :

(1) Bouygues Telecom presentation at the Conference-Debate on June 10, 2015, organized by the Networks and Services Group of Telecom ParisTech Alumni: "Which networks for the Internet of Things"
(2) Research and Markets (Jan 24, 2020): <https://www.globenewswire.com/news-release/2020/01/24/1974823/0/en/Industrial-IoT-Market-Forecasts-to-2024-High-Demand-for-Industrial-IoT-Applications-in-Smart-Industries.html>
(3) Miscellaneous: LoRa Alliance, 3GPP, SIGFOX...
(4) Birdz / Veolia study.