



Internet & Things
Nirvana is Far. And Close.

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Internet & Things.

Nirvana is Far. And Close.

Short Intro
Where we are?
Technology?
Newton's cry
IQRF.zones

Nirvana



Internet
Nirvana



Things
And Close.

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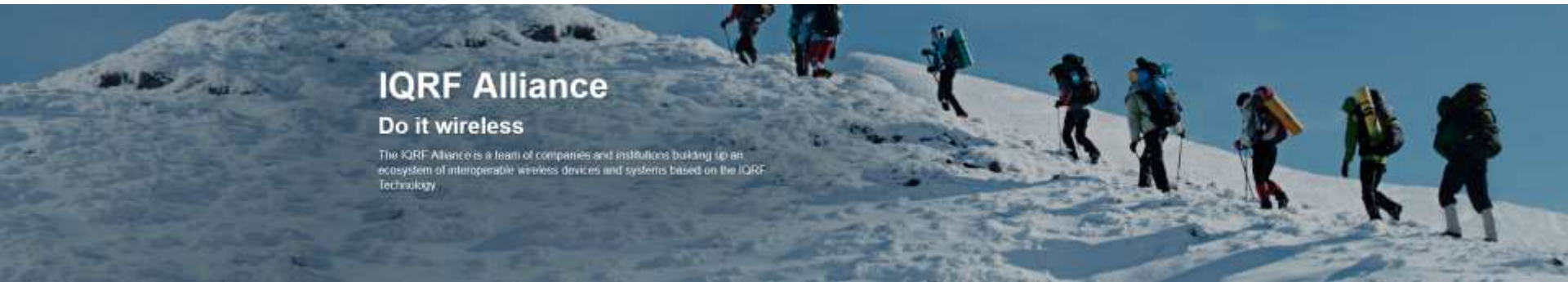
Nirvana



Internet
Nirvana



Things
And Close.



IQRF Alliance

Do it wireless

The IQRF Alliance is a team of companies and institutions building up an ecosystem of interoperable wireless devices and systems based on the IQRF Technology.

Interoperability



Community



Promotion





MICRORISC

CZECH

TECHNOLOGICAL

WITH CLEAR VISIONS

ORIENTED TO MANUFACTURES

INNOVATIVE

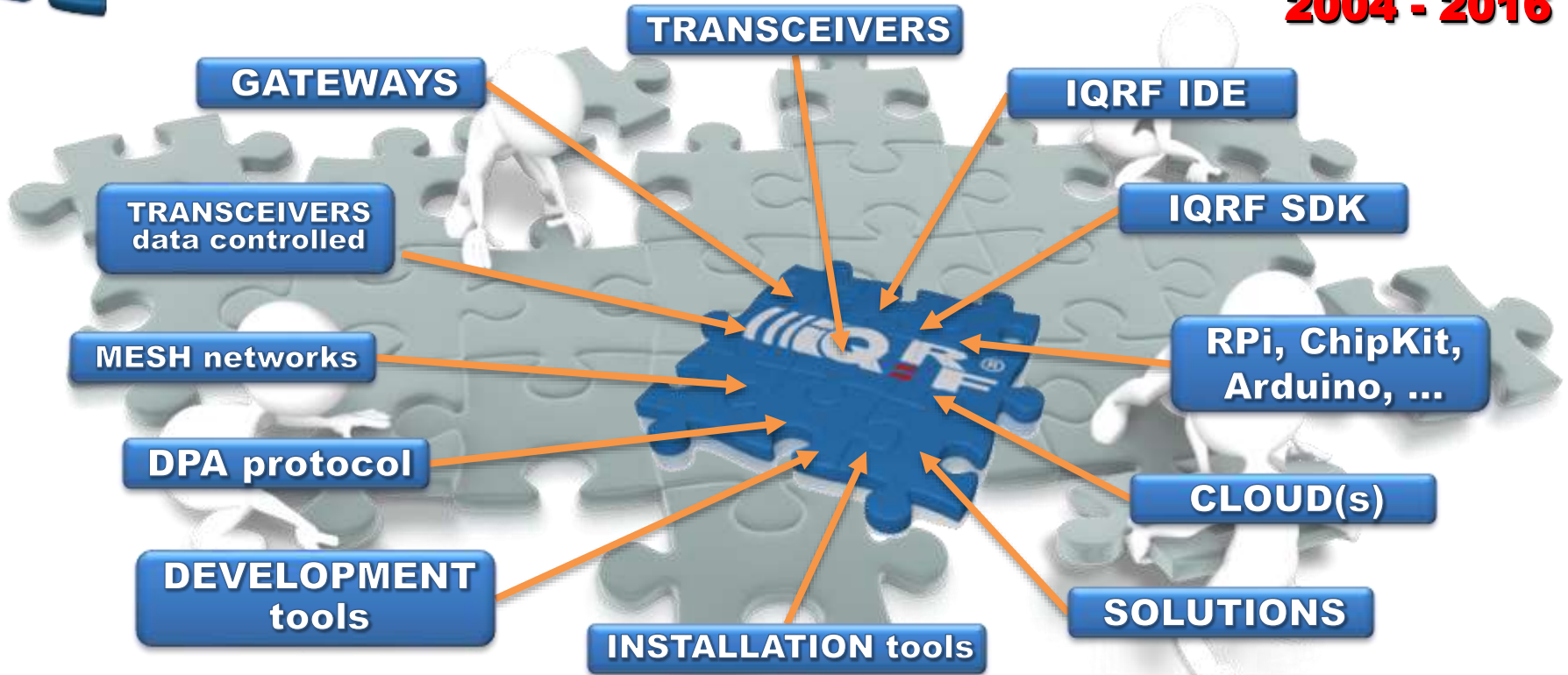
GLOBAL

... ENABLING FUTURE INNOVATION®



IQRF – technology for wireless communication

2004 - 2016



HUGE ECOSYSTEM FOR BUILDING IoT

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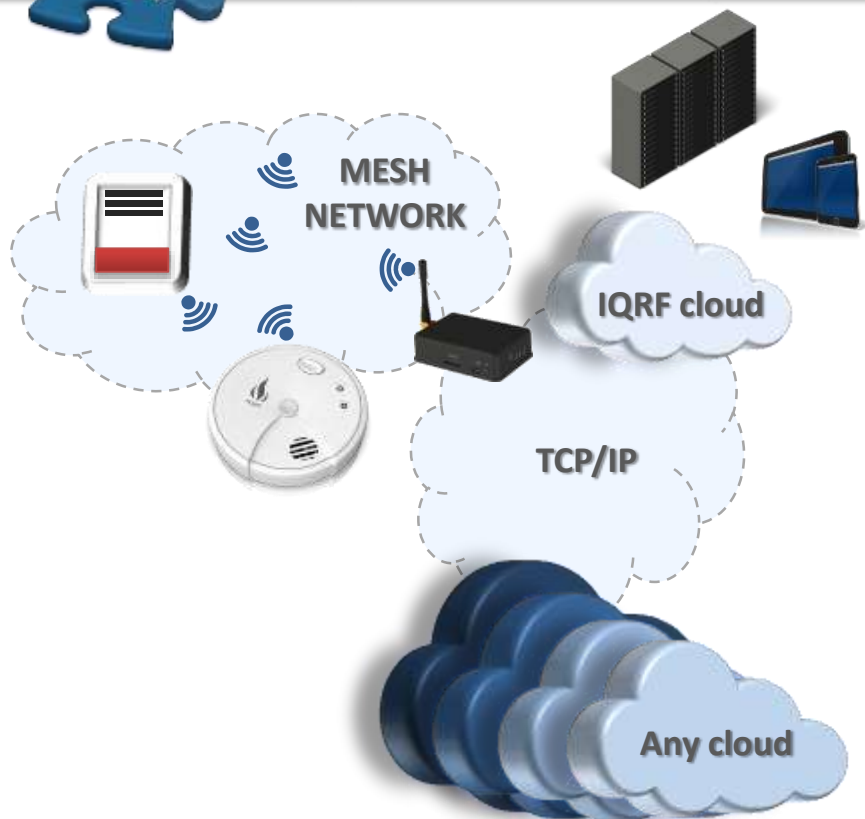


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Where we are now – components view



TR module enabled devices to talk. Easily. Together and reliably.

TR module with OS **IQMESH**
FREE **FREE**

DEVELOPMENT tools enabled easier application development.

... sets, kits, shields

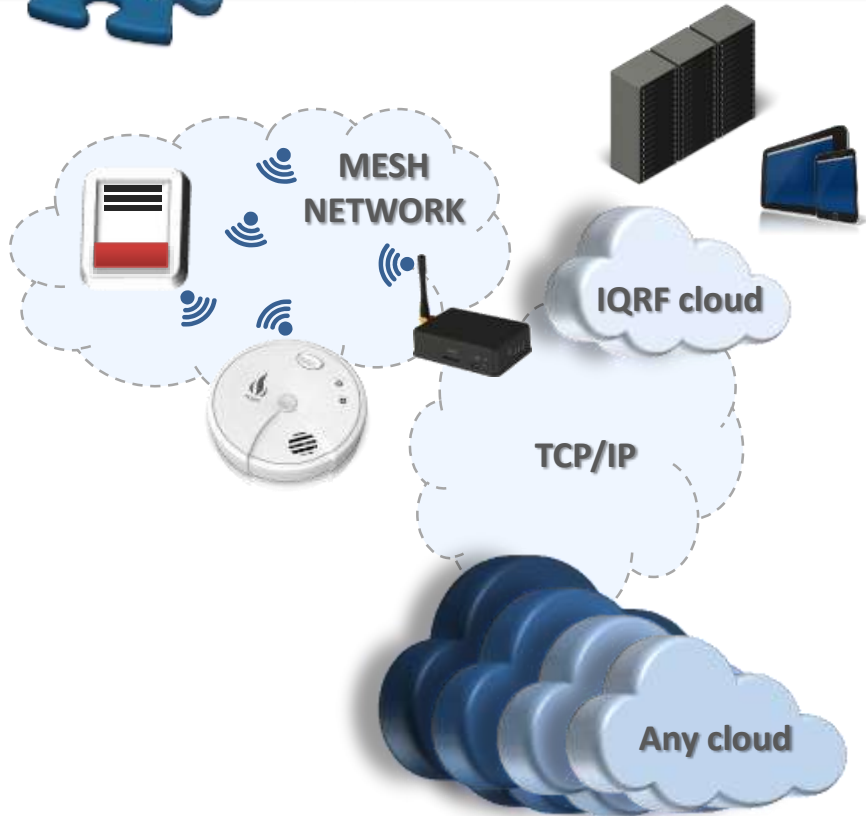
IQRF IDE enabled programming, debugging, simulations, later on also management of TRs and gateways, networks visualisations, cloning, backing up, restoring, OTA

DCTR module running HW profile based on DPA protocol enabled direct access to device's peripherals. It **further accelerated development** and provided **interoperability**.

IQRF SDK with SW libraries enabled faster development of apps and together with shields provided excellent toolset for devices and platforms – RPi, Chipkit, Arduino, ...

IQRF GWs provided immediate access to IQRF cloud. New concept of open gateways provides easy access to any cloud.

Where we are now – features



IQRF enabled things talk together, understand to each other and cooperate.

IQRF partners deploy those things talking by the same language and make great products, making our lives better.

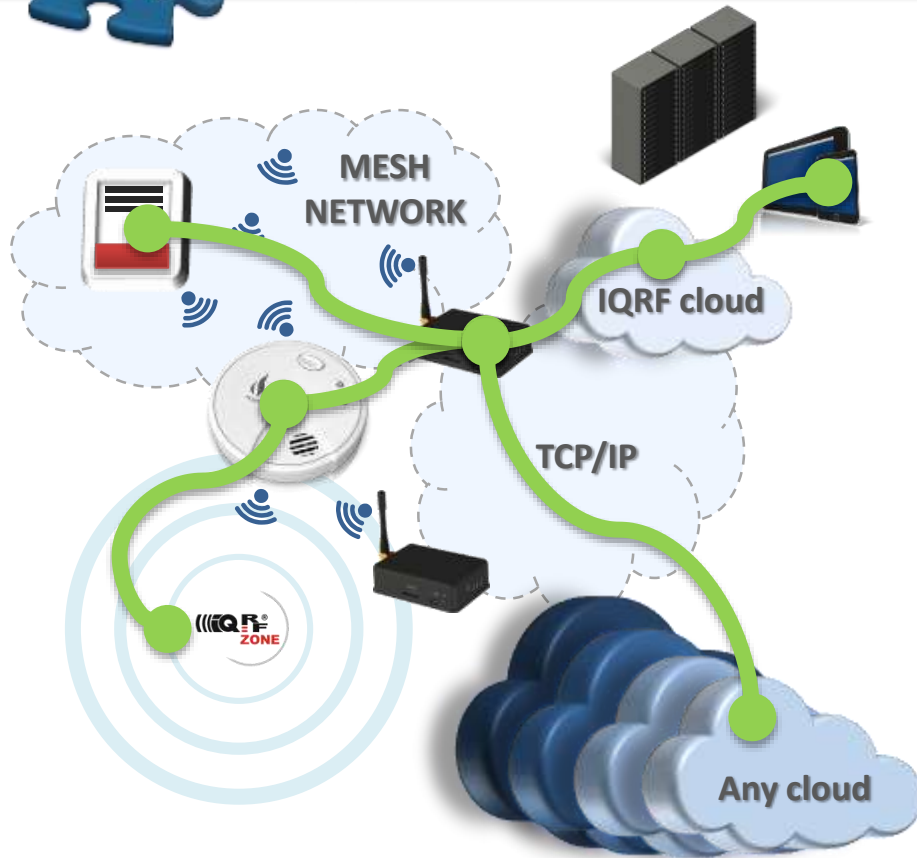
12 years on the market gave us great opportunity to prove and continuously improve the concept.

Extra low consumption enables realization of **real** battery operated applications working for years. **TX: 500 MB/AA cell**

Reliability and robustness together with **~20 kb/s bit rate** enables realization of RT control applications.

Security based on AES encryption together with dynamic keys exchange and packets consistency protection qualify IQRF for usage in data sensitive and control applications.

Where are we going to?



IQRF.zones combine robustness and reliability of IQMESH network with fast responses in star based networks. 1+ km2

IQRF DPA more interoperability easier, more functionalities, support for IQRF.zones, automatic network

IQRF IDE to support multiplatformed development even of the lowest layers

IQRF SDK extend support, provide complete services to manage IQRF mesh networks and IQRF.zones

... all that to enable **OPEN GATEWAYS** and achieve **freedom** to chose services and cloud provider.

INDUSTRY 4.0 in IQRF production from July 2016

DCTR chip to get IQRF modules from different vendors

IQRF Alliance will be IQRF Alliance, independent on MICRORISC

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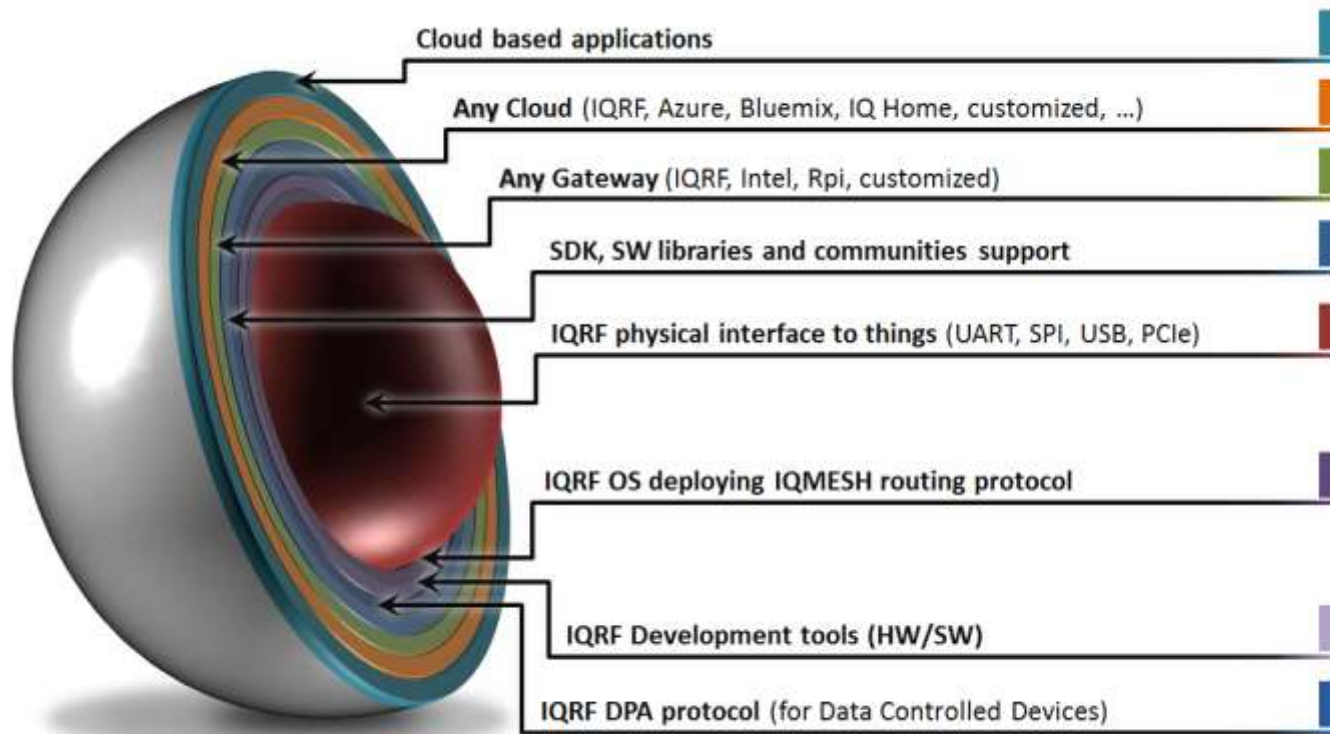
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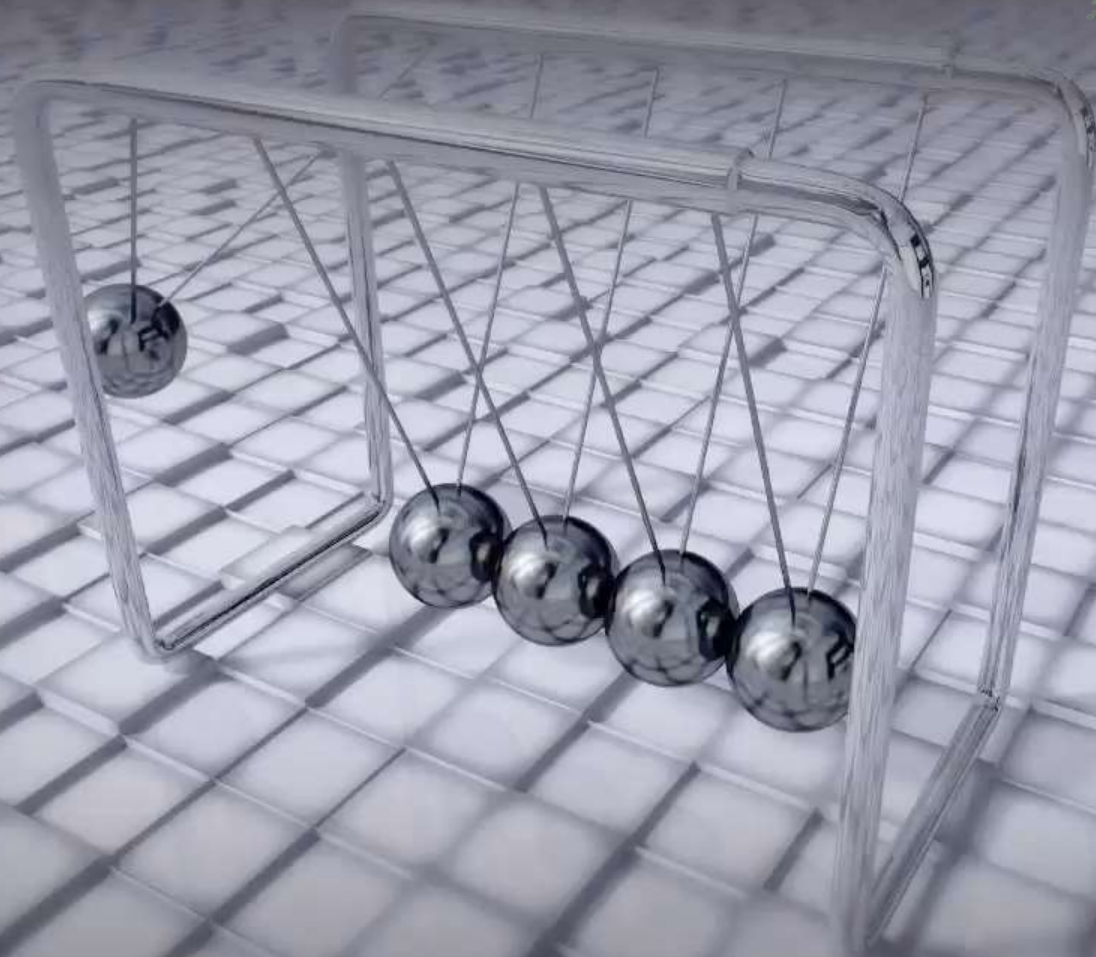
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Magic world of IoT starts from promotions ...



Magic world of IoT – it seems it is already here









**Based on marketing's Smart & Highly Impacting Terminology & Sentences
it would look that both IoT and Nirvana are already here.**



**So, let's visit that Magic world to discover
few miracles, dreams and technical curiosities.**

Mystic world of IoT ... Dream #1: universal technology





Try imagine variability of different applications and their requirements:
Monitoring. Control. Streaming. Data acquisitions. Automation.



Salesman: Our technology is the best fit. Buy it!

Engineer: Each application needs (best) fitting technology.

Vlada: Some technology can be the best (the most convenient)
... for some specific application only.

We need and will always need a freedom to choose the right technology for OUR problems.

Mystic world of IoT ... Dream #1: universal technology

Many wireless technologies can bring us solutions for any specific need.



LTE



LoRa



Bluetooth







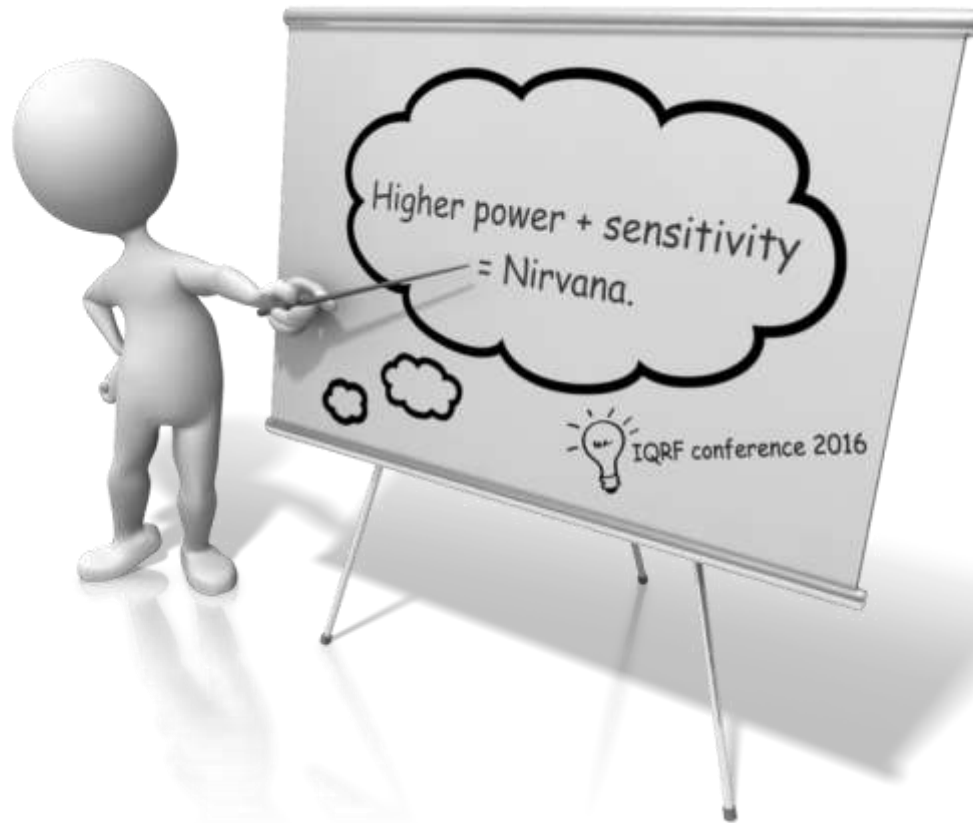
1. Not fixed terminology

Extra low, Ultra low, Extremely low, ...

2. Not relevant comparisons

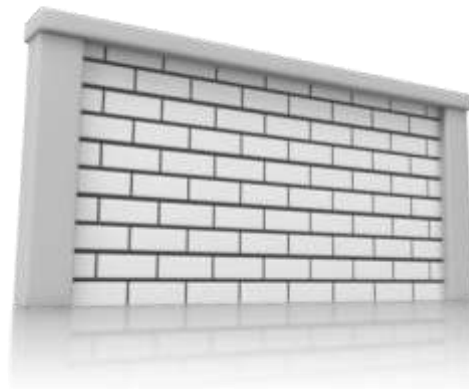
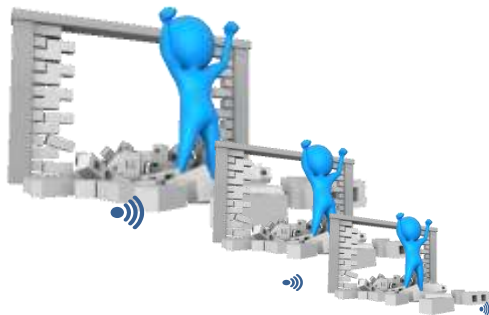
3. Can operate years on battery







**Problems: signal attenuation
power budget**

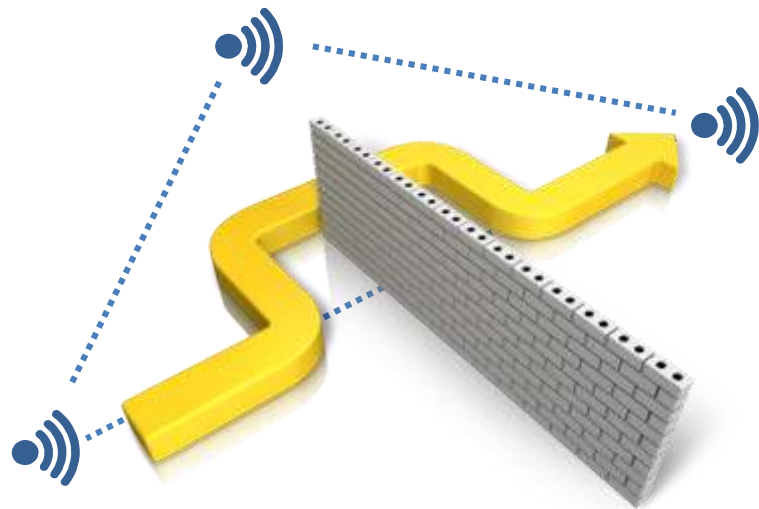
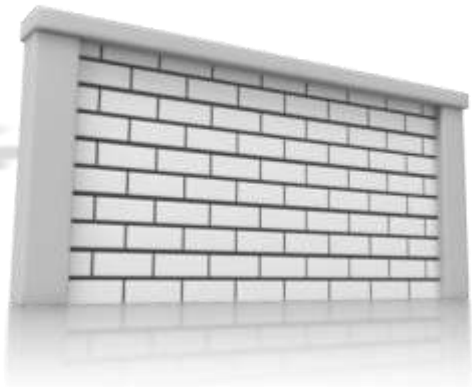


Mystic world of IoT ... Dream #2: Power + sensitivity



Problem: signal attenuation in real environments

Mystic world of IoT ... Dream #2: Power + sensitivity



Yes, there is solution ...

(IQ)MESH based network

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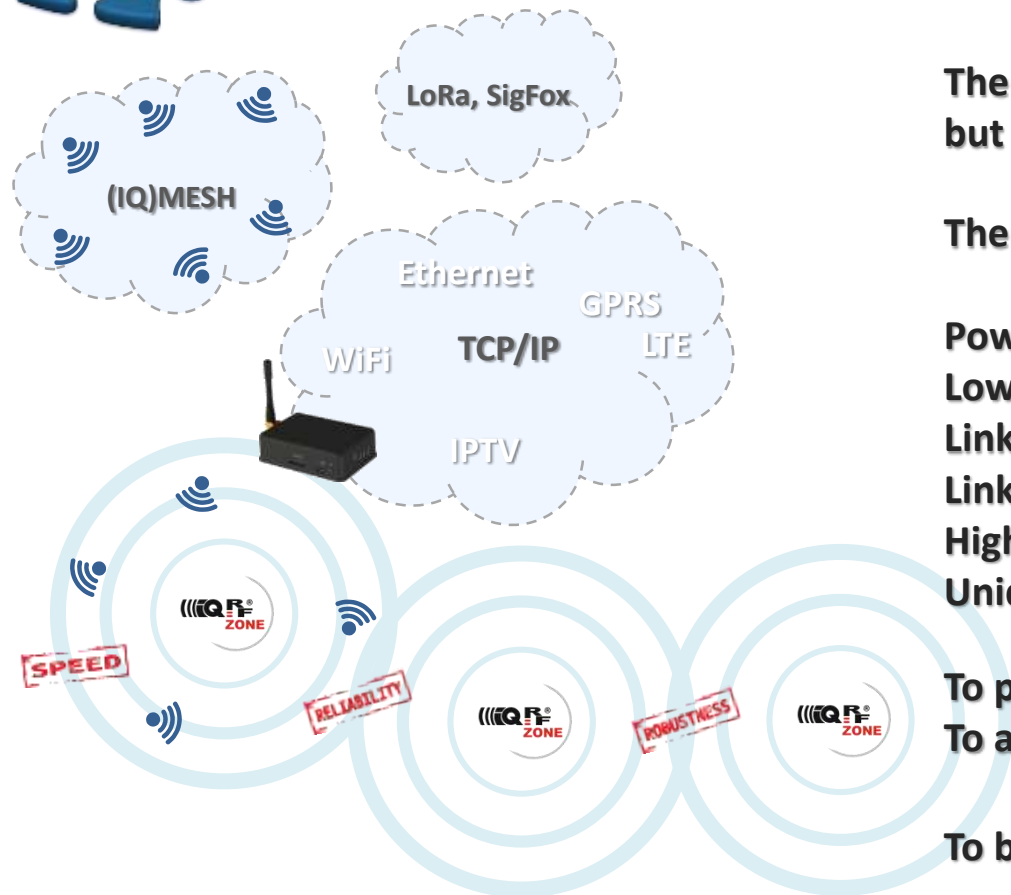
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There are existing communication infrastructures, but not always convenient for specific applications.

There are some functional limitations:

Power consumption vs. battery operated device

Low bit rate vs. Data volumes

Link reliability vs. Control application

Link creation vs. power budget

Higher latency response vs. Fast Control

Unidirectional communication vs. Control

To provide alternative to IQMESH, where it can fit

To address applications requiring faster control

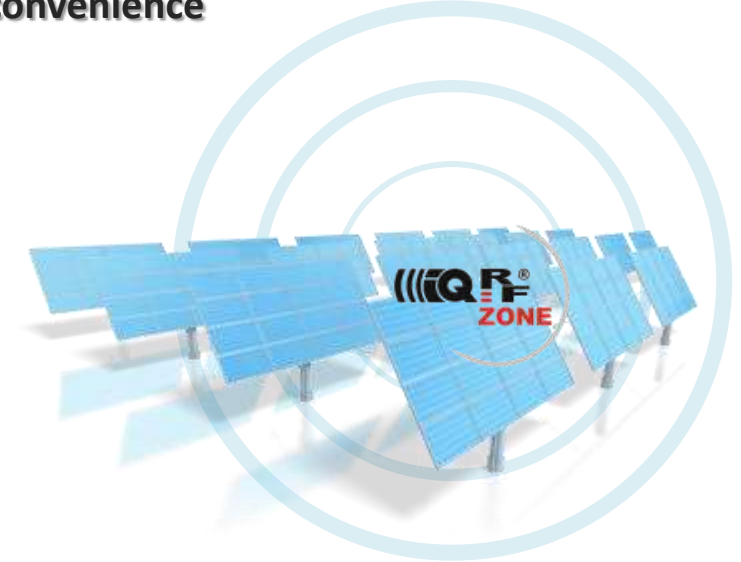
To be even more ... **Low power**



... what kind of applications does it fit?



... based on the fit and convenience



Street lighting (IQMESH) SMART CITIES
Parking systems Waste management
Public environment monitoring

AUTOMATION & CONTROL
Solar plants Manufacturing automation
Data centers INDUSTRY 4.0



... based on the fit and convenience



SMART HOME

To automate daily lives
Comfort & Control & Savings



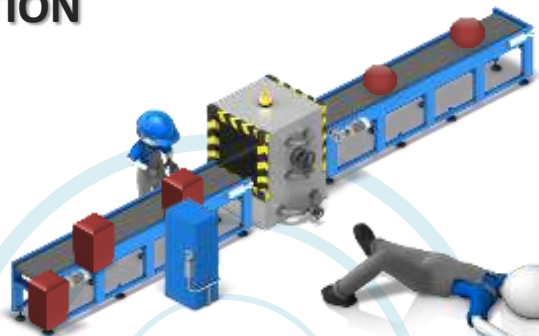
RURAL AREAS

Automation
Measurement & Monitoring



... based on the fit and convenience

AUTOMATION

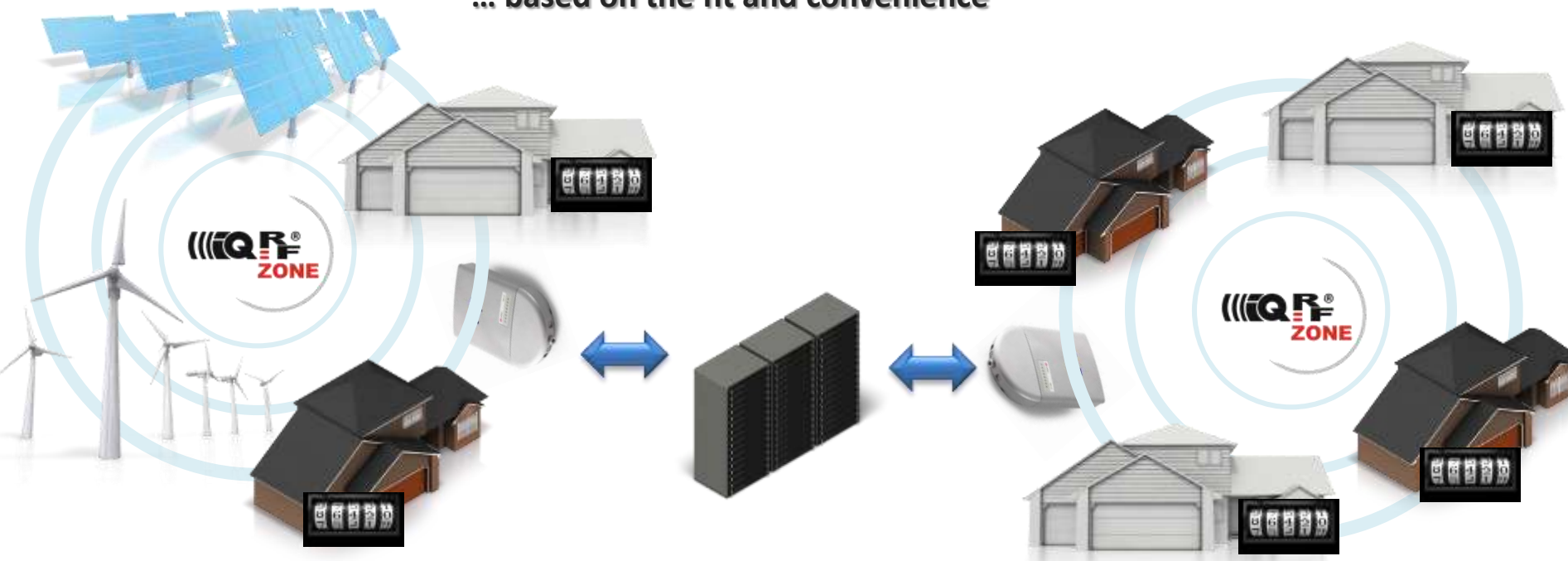


SMART HOME

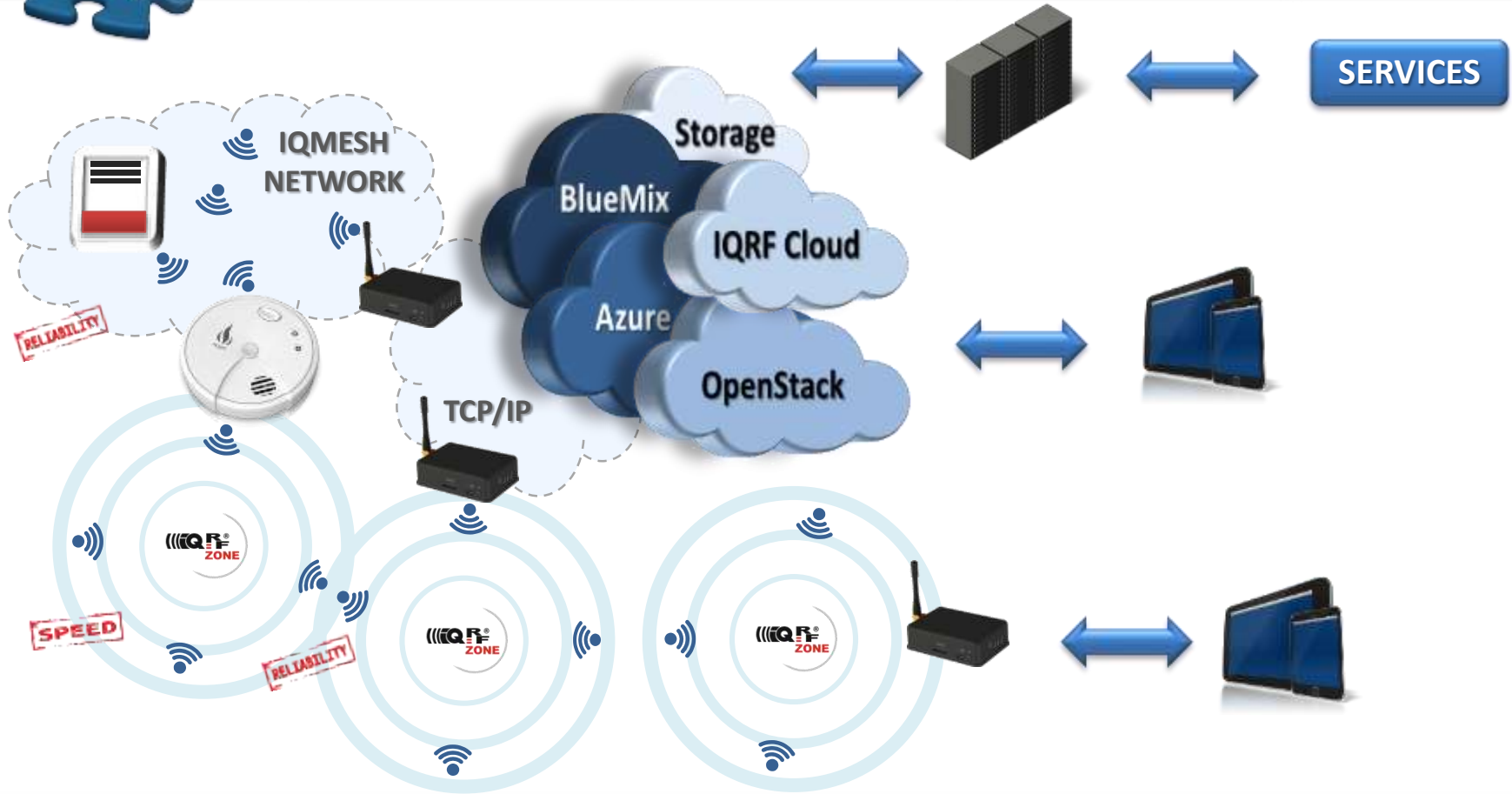
Security & Alerts & Control

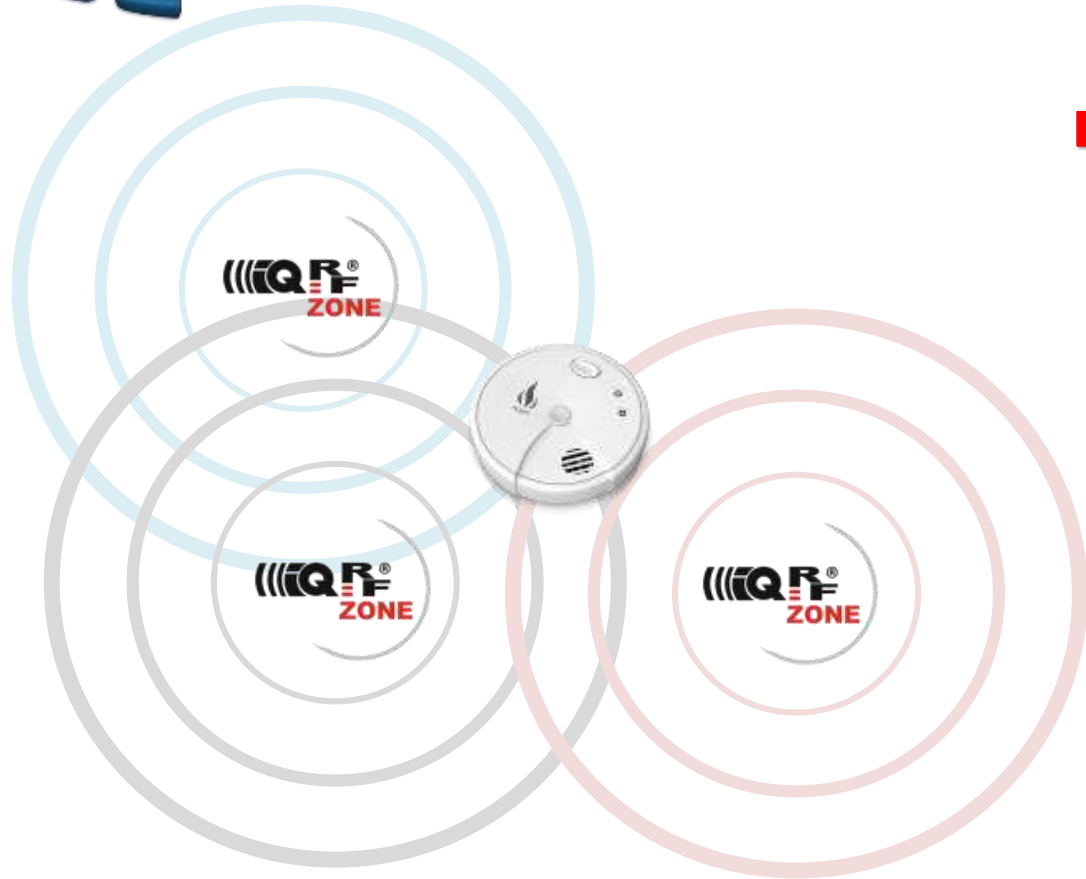


... based on the fit and convenience

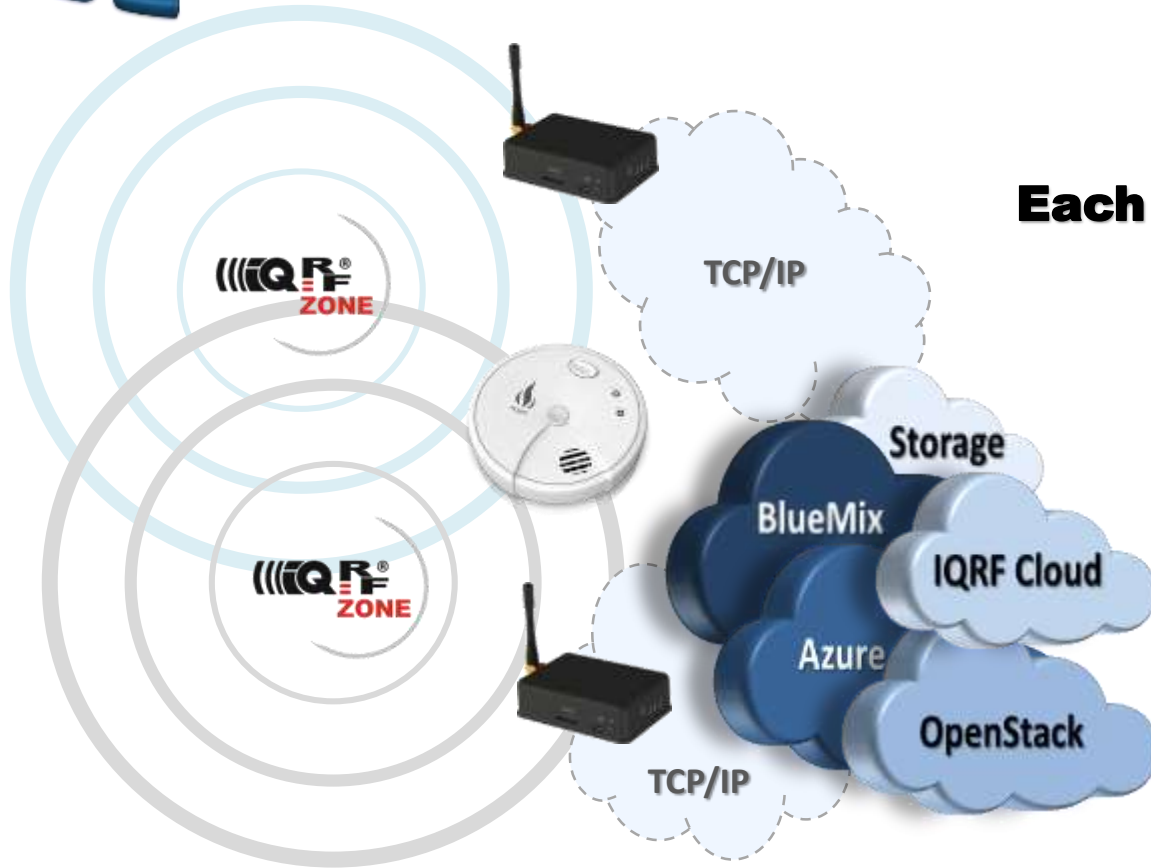


SMART GRIDS

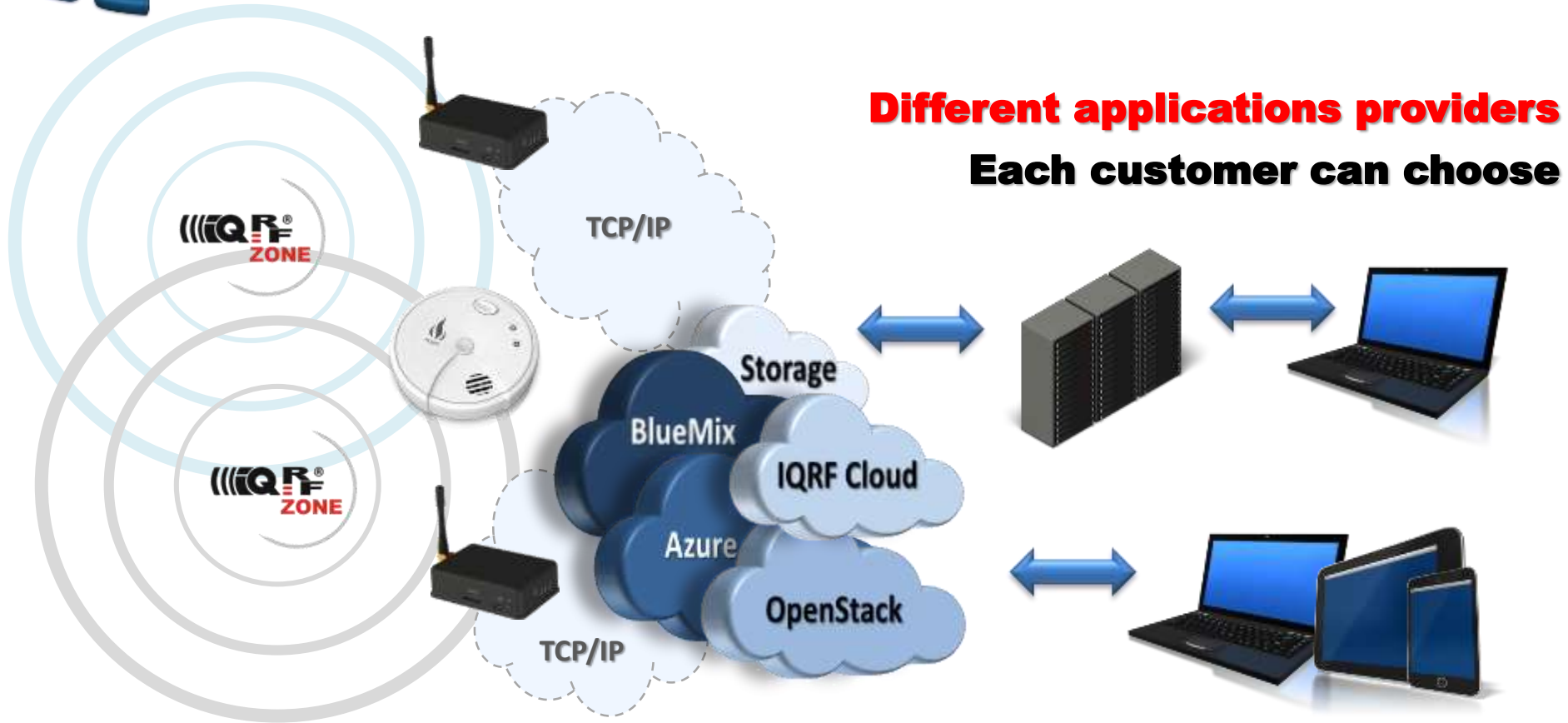




Different connection providers
Each device can choose



Different service providers
Each zone controller can choose





You can prepare new device in three simple steps!



STEP 1: prepare tools, only basic tools

STEP 2: read the manual (available also in PDF)

STEP 3: screw terminals and check their polarity



<http://IQRF.zone/support>



You really need just three simple steps!

STEP 1: Go to <http://app.IQRF.zone>

STEP 2: Register or Log to your account

STEP 3: Add your device(s)

... and you can use immediately your new device

STEP 4: Geek's options available



IQRF.zone: It will be even easier!

We believe in and love what we do.



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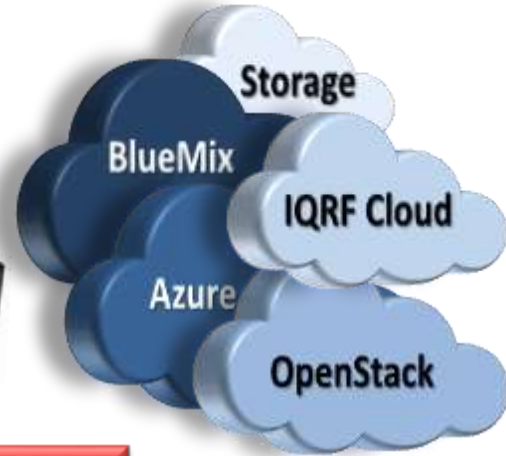
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