



Resilient IoT connectivity

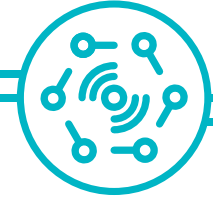
Vodafone Narrowband-IoT

Removing the barriers
to IoT adoption

The future is exciting.

Ready?





New connectivity technology

Today, approximately 6.5 billion devices are connected to the internet. Surprisingly, this is only 1% of all the things that could be connected. Some areas might be too remote or inaccessible, such as underground car parks or basements, or there might be too many things to connect, making it economically infeasible. These challenges have now been addressed with low power wide area network technology.

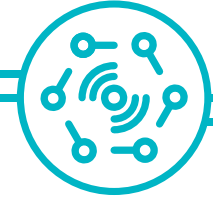
Previously inaccessible devices can now be connected with Narrowband-IoT (NB-IoT), the new connectivity technology designed specifically for IoT applications, an open standard based on LTE.

Narrowband-IoT uses a Low Power Wide Area network (LPWA) for devices with low bandwidth and long battery life requirements. Devices that could never be connected before will now be part of an LTE-based network with excellent coverage, running on a licensed spectrum.

What's in it for you?

- Long battery life (up to 10+ years)
- Low hardware costs
- Broad indoor and outdoor use cases, extended signal
- Industry standard and licensed technology increases security and reliability





Features and benefits

Features

Reliable network

Radio coverage and support for NB-IoT on the global IoT network with long-term reliability due to licenced spectrum

Global SIM availability

NB-IoT subscriptions on Global SIMs

Packet Data Service

IP data connectivity over NB-IoT

Messaging Service

Bi-directional communication messaging to devices

Vodafone Managed IoT Connectivity platform

Manage all your services in one place

Narrowband IoT Metrics

Developer tools, software and documentation

End-to-end security

Benefits

- Direct connection to hard-to-reach devices
- Broad indoor and outdoor usage
- Dedicated IoT network
- Fully licenced spectrum

- Fully secure
- Utilises existing SIM catalogue
- Standalone or mixed NB-IoT 2/3/4G

- Works with existing solution
- No need to integrate new systems

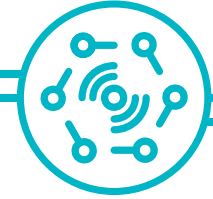
- API based
- Device terminated messages held until device actively online

- Able to manage packet data service over NB-IoT using familiar features of the Vodafone Managed IoT Connectivity platform
- Continuous support, standard SLAs

- Understand your device
- View key NB-IoT Device Metrics such as signal strength and battery life

- Vodafone Solution Architects will help you integrate NB-IoT into your solution

- Robust data security and privacy
- Multiple layers of protection
- Private IP address, unique APNs (Access Point Names) to protect data
- End-to-end data encryption, fully compliant with Vodafone Security Governance, ISO 27001 and the EU Privacy Directive



How can Vodafone Narrowband-IoT help companies?

Global Omnium

Optimising water consumption with Narrowband-IoT

Global Omnium manages the complete water cycle in 11 Spanish regions and numerous Latin-American, Asian and African countries. They use automated meter reading in order to provide a more agile service to customers. Global Omnium manages 1,100,000 meters, more than 600,000 being automated and read 24 times a day. They teamed with Vodafone to trial Narrowband-IoT, as they were looking to find a partner for IoT services. They identified locations where a signal was harder to reach, for example, in basement meter rooms with poor coverage. The trial deployment has been very promising, as there were no issues with the tested locations. Global Omnium will be able to roll out and implement large scale water supply deployments both nationally and internationally.

Why choose Vodafone?

- We are market leaders in offering IoT services, as determined by industry analysts.
- We have over 62 million IoT connections*.
- We provide enhanced device management functionality with full integration with the Vodafone IoT connectivity service.
- Our highly resilient IoT connectivity is wholly managed by Vodafone, providing clear visibility and control of your IoT devices, SIMs and services with end-to-end security built in from the ground up.
- Our dedicated team of IoT experts serving millions of customers over a global telecommunications network ensure the best connectivity service worldwide.

* As of 30th Sept 2017

Narrowband-IoT is underpinned by the Vodafone Managed IoT Connectivity platform

The Vodafone Narrowband-IoT service is delivered through the Vodafone Managed IoT Connectivity platform which offers powerful and highly secure self-service delivery and management tools. The platform is wholly owned and developed by Vodafone, it provides you with clear visibility and control of your entire business process. Scalable, flexible and with security built in from the ground up, you can realise the full potential of your applications and drive transformation in your business from the IoT landscape.

Next steps

If you would like to receive more details on Vodafone Narrowband-IoT, please contact your Vodafone Account Manager.

Find out more here:

<http://www.vodafone.com/business/iot/nb-iot>