

# What is Narrowband IoT (NB-IoT)?

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The growth forecast for the Internet of Things (IoT) boom is very different, depending on how experts define IoT. However, all comments are on the line for astonishing growth in the coming years.

The latest estimate from IHS predicts that more than 75 billion smart devices will be used by 2025, an increase of 400% compared to about 15 billion currently in operation. This prediction has raised IDC's previous estimate of 31 billion devices by 2020. At any rate, the reality is that the market is transforming from its growth potential to billions of new connections. Besides, mobile network operators are investing heavily in technologies that can support billions of new customers.

Until recently, less than 10% of IoT connections were supported by mobile networks. This is partly because most of today's IoT connections are industrial IoT solutions (IIoT), which are best served with low bandwidth, high-efficiency connectivity, and extended battery life. The power of traditional 4G wireless networks exceeds the requirements of these use cases.

In addition, IIoT applications require seamless coverage in a remote environment where connection can consume battery and shorten device life. However, the ratio between cellular and non-cellular (mobile and non-cellular) connections is set to change significantly, with the advent of 5G and NB-IoT, which are simply described as cellular technologies. The development is fast, provides low power connection, high efficiency and cost savings, using only a small part of 4G LTE band.



## Learn about Narrowband IoT technology (NB-IoT)

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## **What is Narrowband IoT (NB-IoT)?**

Narrowband IoT (NB-IoT) is a new, rapidly developing wireless mobile technology standard, introduced in Release 13 to meet IoT LPWA requirements. Narrowband IoT (NB-IoT) was classified as 5G technology, standardized by 3GPP in 2016. It quickly gained buzz as the leading LPWAN technology provided for a range of new IIoT devices, including Smart parking, utilities, wearables, and industry solutions.

Narrowband IoT (NB-IoT) has excellent indoor coverage, supports a large number of connections, saves money, consumes less power, and optimizes network architecture. This may be due to the ability to effectively connect large groups of devices, while minimizing power consumption and increasing coverage in locations that conventional mobile technologies cannot reach.

## **How is NB-IoT better than IIoT solutions?**



NB-IoT significantly improves network efficiency, increases the ability to support a large number of new connections, using only part of the available spectrum. This efficiency reduces energy consumption, allowing battery life to last more than 10 years. In addition, NB-IoT has the ability to penetrate deep into the ground and into enclosed spaces, providing 20+ dB indoor coverage.

## **Is NB-IoT secure?**

This basic technology is less complex than traditional mobile modules, helping to simplify the design, development and deployment of OEMs. At the same time, it provides the same security and privacy features as LTE mobile networks, including support for user identity security, entity authentication, data integrity and identity protection. mobile device.

## When will the NB-IoT connection modules be available?

Gemalto and Huawei are leading the effort to accelerate NB-IoT, as well as expand the market, through combining core strengths in strategic cooperation to develop connectivity modules.

By leveraging Gemalto's expertise in mobile connectivity and digital security with Huawei's high-performance NB-IoT chipset, a new type of high-performance LPWA IoT module is helping manufacturers of IoT devices reduce cost, size and increase device efficiency.

This comes at the right time to meet the increased demand for NB-IoT modules. NB-IoT's first commercial launches were completed in 2017, along with global introductions throughout 2018.

## How is NB-IoT different from LPWAN technologies like LTE-M?



LTE-M, short for 'Long-Term Evolution (LTE) machine-type communications (MTC)', is an LPWA technology standard introduced by 3GPP in Release 13. As described by GSMA, this is 5G technology. Supports large connection density, low power consumption, small latency and provides extended coverage. The deployment of LTE-M can be done in the frequency band of a normal LTE provider, or independently in a dedicated spectrum. NB-IoT leverages LTE spread spectrum, serving a range of use cases, providing an attractive option for device manufacturers who want to deploy on existing mobile networks.

Narrowband IoT (NB-IoT) takes advantage of DSSS modulation technology and LTE spread spectrum technology for connection. NB-IoT is very flexible and can operate in 2G, 3G and 4G bands, eliminating the need for ports, saving costs in the long run. NB-IoT has an improved indoor coverage, supports a large number of low-throughput devices, has low sensitivity, low power consumption, optimized network architecture and extremely cost-saving. .

Like LTE-M, NB-IoT can be deployed in the band of conventional LTE service providers, or independently in the dedicated spectrum. In addition, NB-IoT can also be deployed in the safe band of LTE network operators. Dual mode modules that support both NB-IoT and LTE-M will be available in the future.

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