What is LoRaWAN ?

And Is It Right for Your Next IoT Product?

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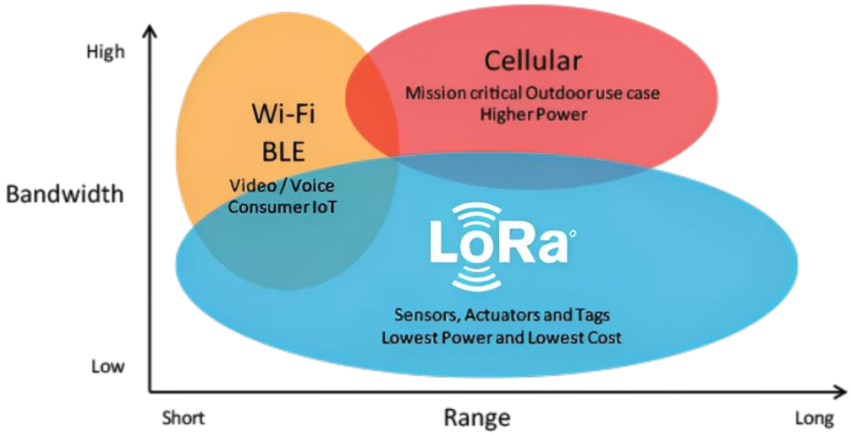

Photo Credit : thethingsnetwork.org

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What is LoRaWAN?

- A **wireless network protocol** built on top of LoRa radio
- Designed for **low-power, long-range communication**
- Works in **unlicensed spectrum** (no SIM or telco needed)
- Devices send **small, infrequent data** to gateways, which relay to the cloud
- Designed for battery-powered IoT devices that need to work for years in the field

LoRa™

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When LoRaWAN Makes Sense

Use LoRaWAN when:

- Devices transmit **occasionally** (e.g., once every few minutes or hours)
- Long battery life (5+ years) is essential
- Devices are **outdoors**, **mobile**, or **spread over large areas**
- You want to **avoid SIM fees** and control your own infrastructure

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When LoRaWAN Doesn't Fit

Avoid LoRaWAN if:

- You need **frequent updates** or **large payloads**
- Your devices are always near **WiFi or cellular**
- The environment is **RF-dense** (indoors, metal structures)
- You need **real-time control** or full OTA firmware updates

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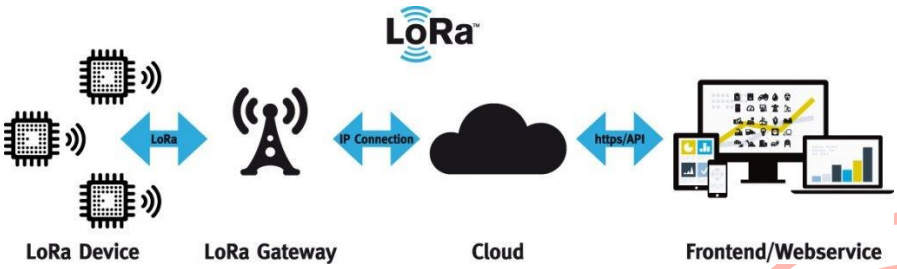
LoRaWAN vs Other Technologies

Feature	LoRaWAN	NB-IoT	BLE	WiFi
Range	Long	Long	Very Short	Short–Medium
Power	Very Low	Low–Medium	Low	High
Infra Needed	Gateways or public LoRaWAN	Cellular network (SIM)	Phones /gateways	Routers
Data Rate	Very Low	Low	Medium	High
Best For	Remote sensors, asset tracking	Smart metering, city IoT	Wearables, mobile accessories	High-data use (video, WiFi devices)

Cost and Deployment Control

- LoRaWAN operates in **license-free spectrum**—no telco dependency
- Use **public**, **private**, or **community networks**
- Full control over **infrastructure**, **data routing**, and **cost model**

NB-IoT requires **SIMs**, carrier support, and recurring fees



Pic Credit : everythingrf.com

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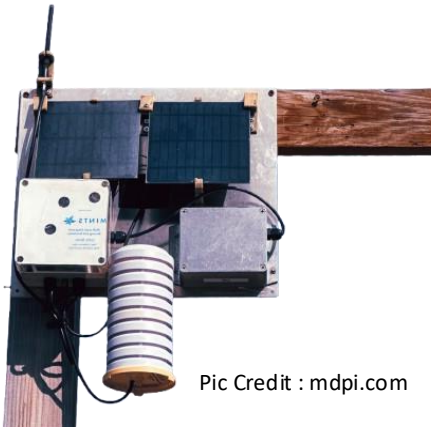
Deployment Constraints

- **Coverage isn't guaranteed**—you may need to deploy your own gateways
- **Antenna design and placement** are critical
- **Duty cycle limits** constrain message frequency (e.g., 1 percent in EU)
- **Downlink capacity is limited**—LoRaWAN is uplink-optimized



Pic Credit : mdpi.com

TLDR for Decision Makers

Use LoRaWAN for:

- **Low-data, long-life, remote** devices
- **Cost-sensitive** deployments needing infra control

Avoid LoRaWAN if:

- You need **high throughput, real-time**, or **urban indoor reliability**

Tradeoff: Ownership and control vs limited bandwidth and complexity

Image Credit : www.dfrobot.com

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