LoRaWAN apps on balenaHub

balenaHub Meetup #2 - 24th of May 2022

Introductions

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Product Owner at RAK Wireless

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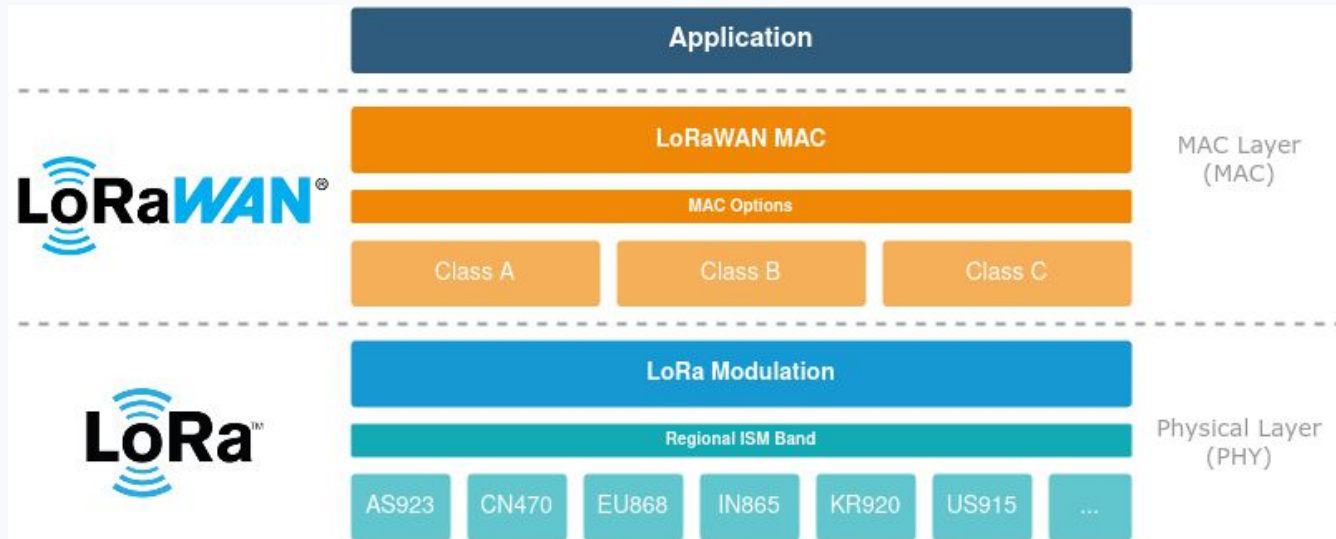## Marc Pous
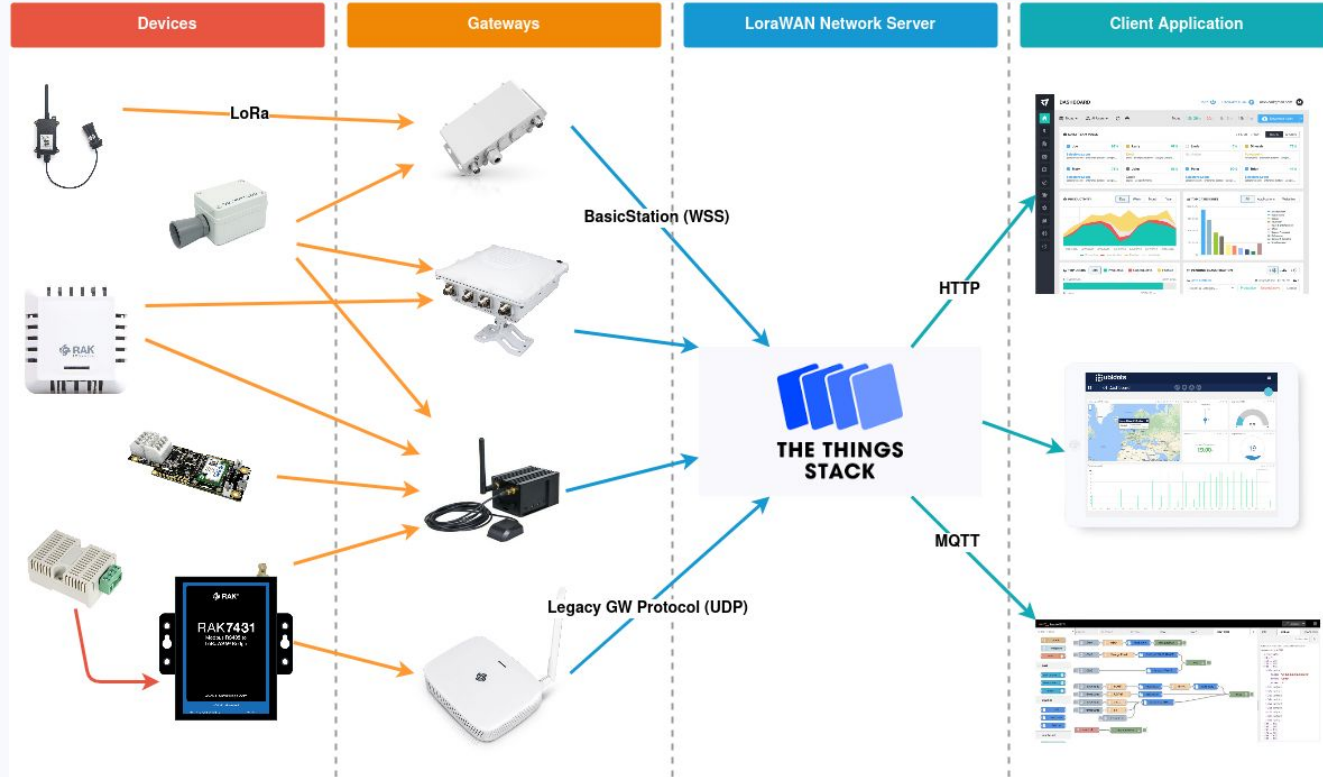
Developer Advocate at balena.io
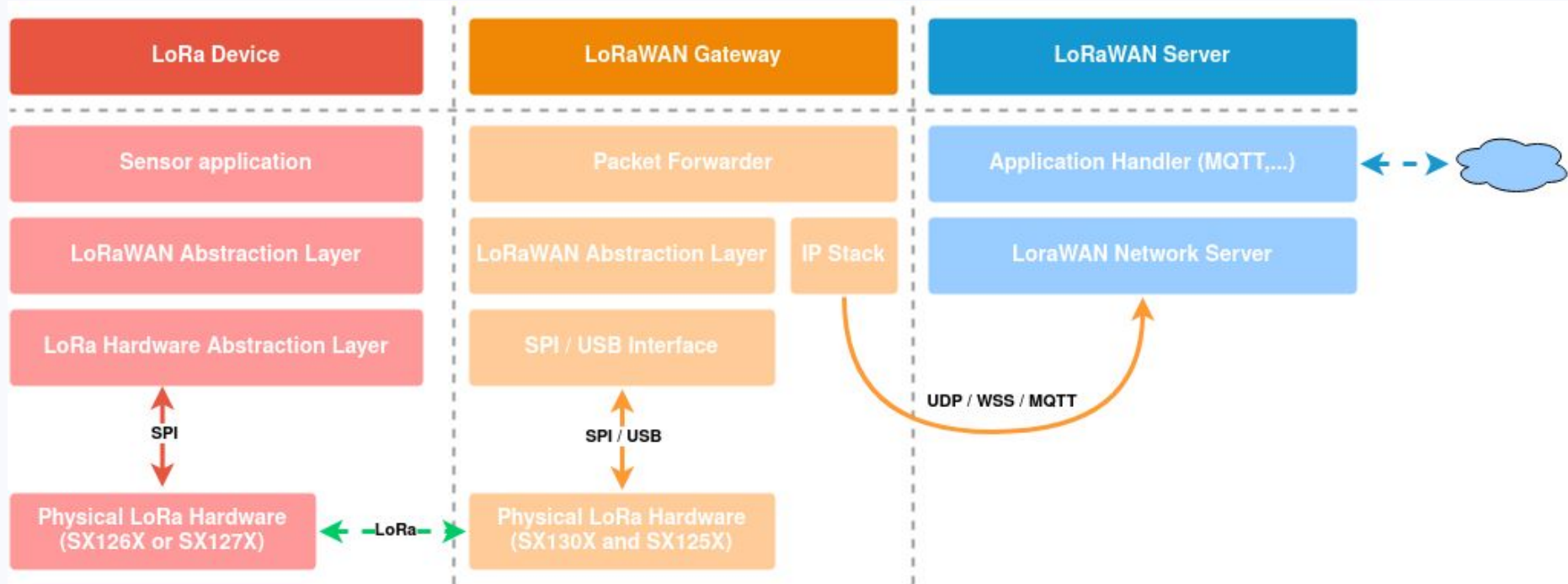
What is LoRa and LoRaWAN?

- **LoRa** is a radio modulation meant for Long Range communication using very little power.
- **LoRaWAN** is a Media Access Layer (MAC) protocol. A software layer that defines how devices use LoRa to transmit and receive messages on a network.
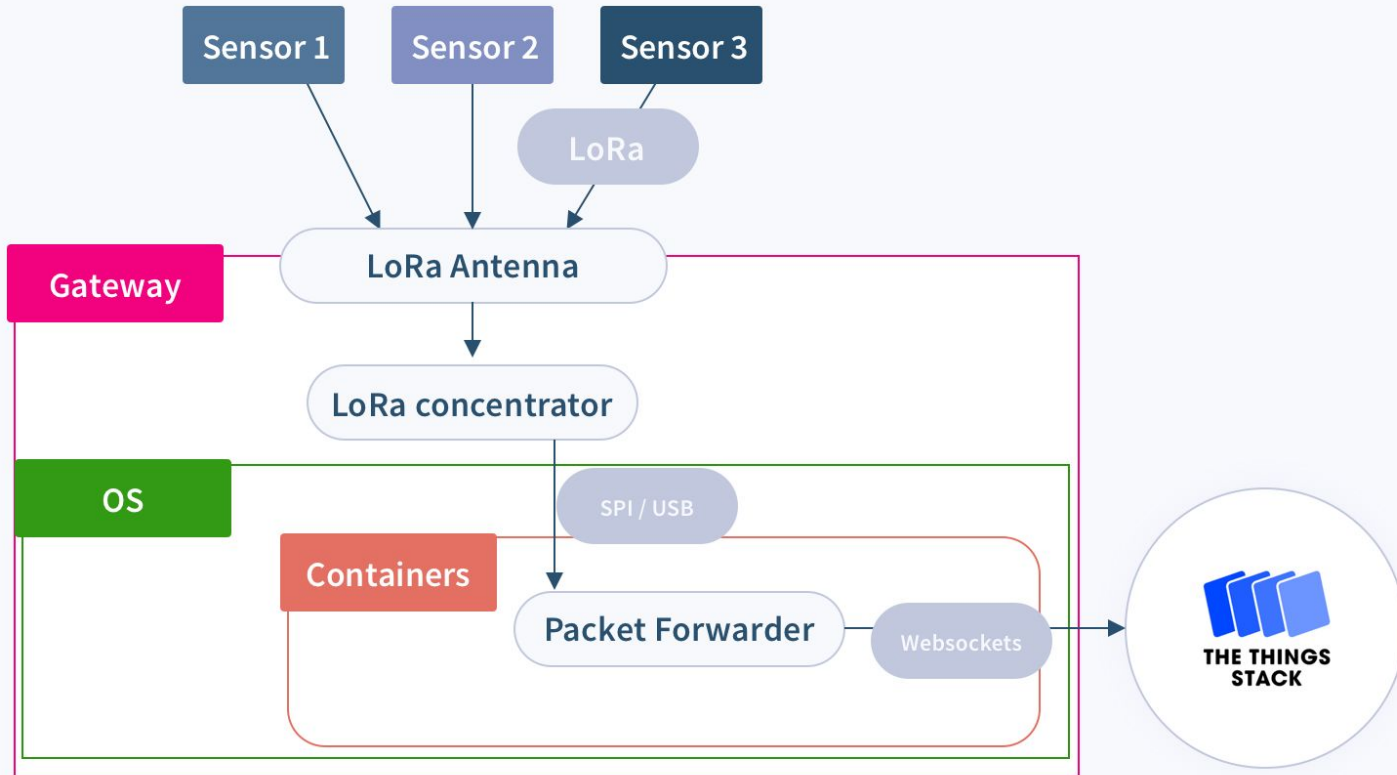
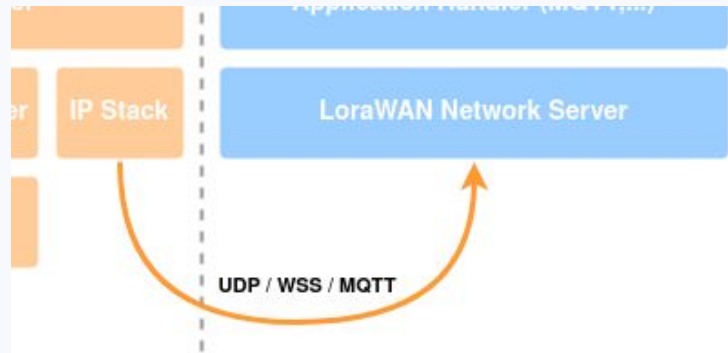# LoRaWAN Network Architecture

What is a LoRaWAN gateway?

LoRaWAN gateway running on containers

What is a LoRa Packet Forwarder?

A **LoRa packet forwarder** is a service (software) running on the host of a LoRa-based gateway (with or without GPS). It forwards RF packets received by the concentrator (uplinks) to a *LoRaWAN Network Server* (LNS) through an IP link. It also transmits RF packets sent by the LNS (downlinks) through the same link to one or multiple devices.

Additionally, it may transmit beacon signals used for time coordinating devices within the network. These beacons may be transmitted GPS-synchronously across the entire network.

What is the best LoRaWAN gateway?

These are the critical key factors for your gateway:

- Convenience (already available parts, form factor, price, backhaul options...)
- Software maintenance and remote management
- Concentrator hardware (same chips, same base design)
- Antenna (frequency adaptation, reflection, frequency bandwidth, gain, short or no cables)
- Location (good view, no obstacles, certain high, ground connection)

What is a LoRaWAN Network Server?

A **LoRaWAN Network Server (LNS)** is the service (software) at the core of every LoRaWAN Network that enables connectivity, management, and monitoring of devices, gateways and end-user applications. It is responsible for the security, scalability and reliability of data routing throughout the network.
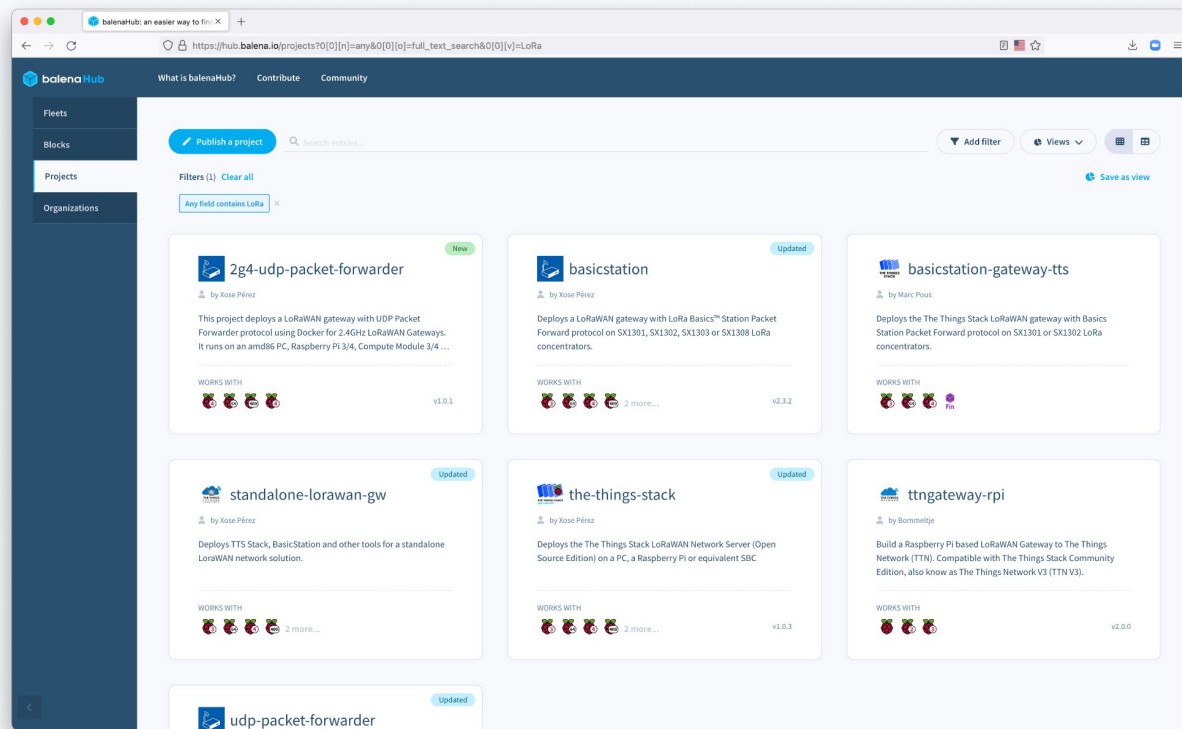
There are several LNS available as SaaS from different providers and also a few Open Source solutions. The Things Stack and ChirpStack are two of the most advanced OS LNS solutions.
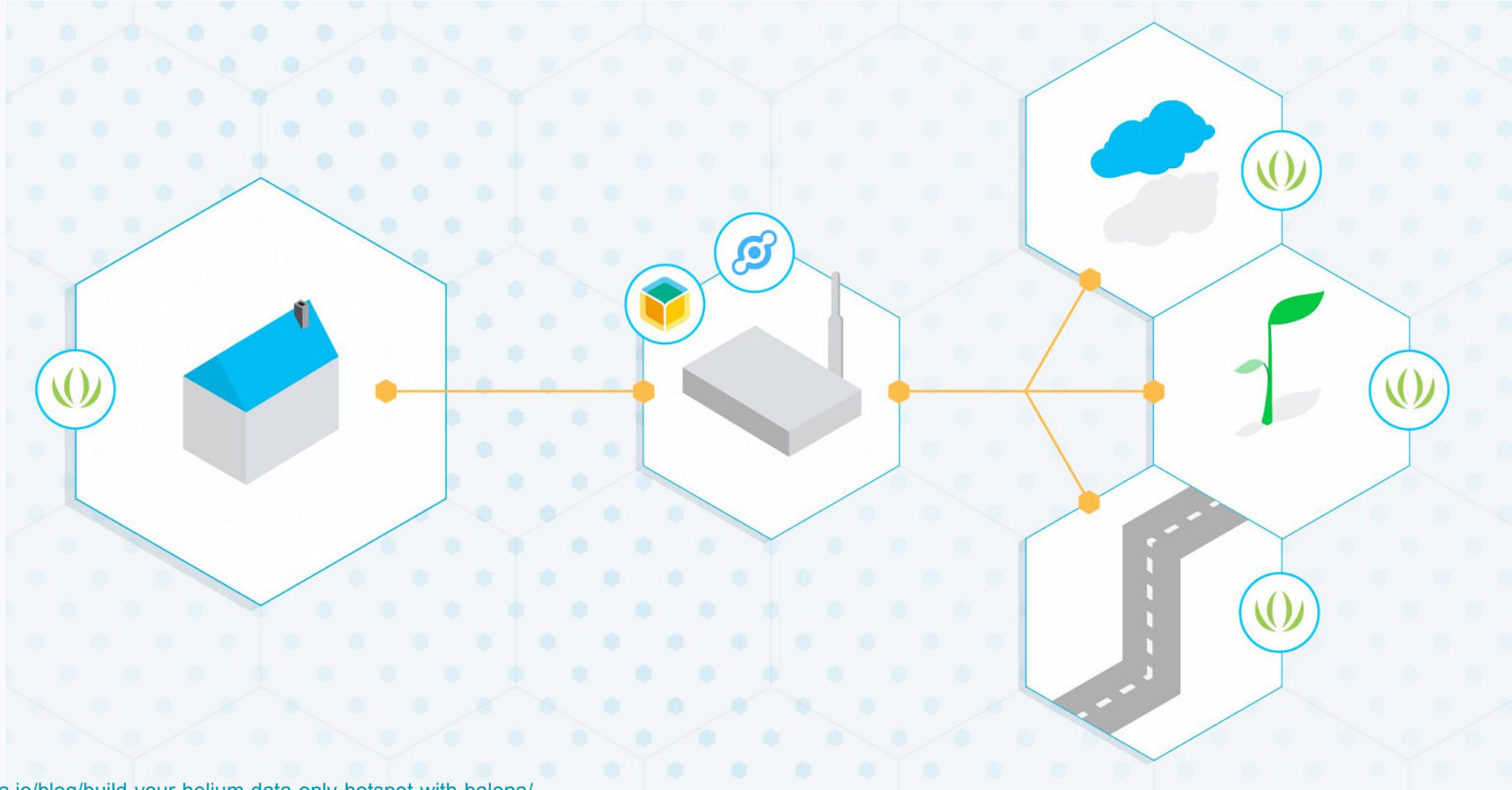
Time to go to <u>balenaHub</u>

balenaHub LoRaWAN apps

There are more LoRaWAN gateways on balenaHub

Ok! Let's wrap-up!

Why do we do this?

- Create a platform to build and share products upon.

- <u>Enable</u> the IoT developers.

- Start a chain reaction.

Questions?

The next balenaHub meetup:

Home Automation

Thursday 30th June, 6pm UTC

https://www.eventbrite.com/e/balenahub-meet-up-3-tickets-347070225387