DIGITAL WE DAYS 2023

LORA - INTERESTING FACTS ABOUT THIS SUBGHZ RADIO TECHNOLOGY

WÜRTH ELEKTRONIK MORE THAN YOU EXPECT

TODAY'S SPEAKERS

PRESENTATION
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MODERATION
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INFORMATION ABOUT THE WEBINAR

You are muted during the webinar.
However, you can ask us questions using the chat function.

Duration of the presentation	30 Min
Q&A:	10 – 15 Min

Any questions?
No problem! Email us digital-we-days@we-online.com

Please help us to optimize our webinars!
We are looking forward to your feedback.

On our channel	Würth Elektronik Group
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AGENDA

LoRa - Interesting Facts about this SubGHz Radio Technology

- LoRa and LoRaWAN OVERVIEW
- CHOOSING THE RIGHT IoT CONNECTIVITY
- ADVANTAGES OF LoRaWAN TECHNOLOGY
- FREQUENCY BANDS

- LoRaWAN NETWORK ARCHITECTURE
- LoRaWAN NETWORK DEPLOYMENT OPTIONS
- LoRaWAN CLASSES
- DAPHNIS-I KEY FEATURES
- LoRaWAN APPLICATIONS
- Q&A

BTY: there are no breaks, questions in the end and you will get a copy of this material.

LORA AND LORAWAN OVERVIEW

What are LoRa and LoRaWAN ?

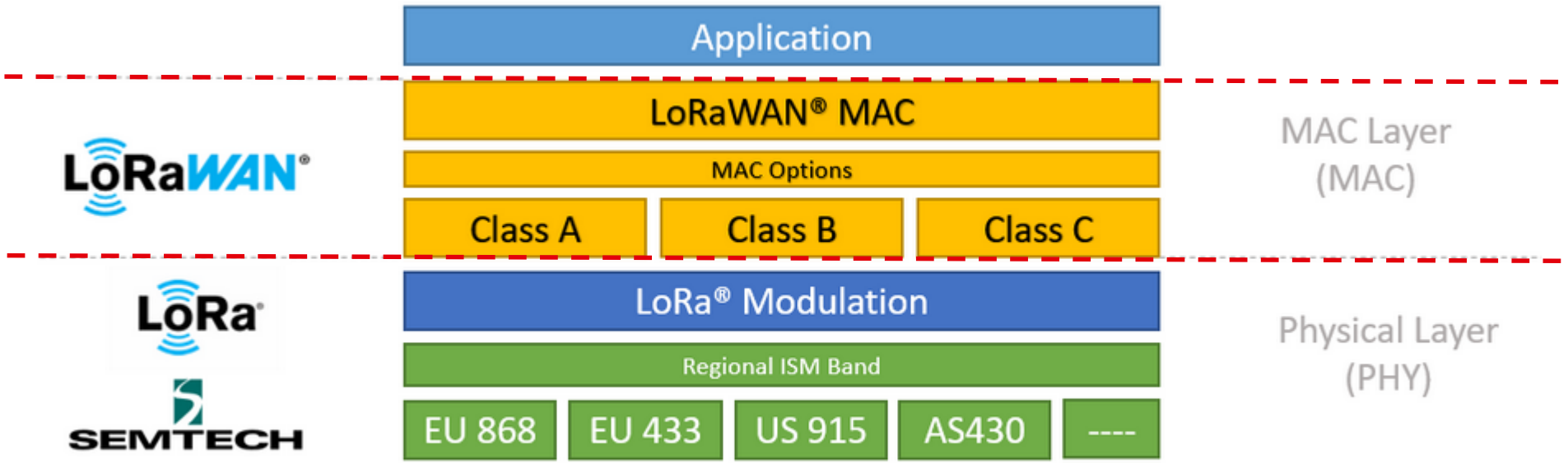
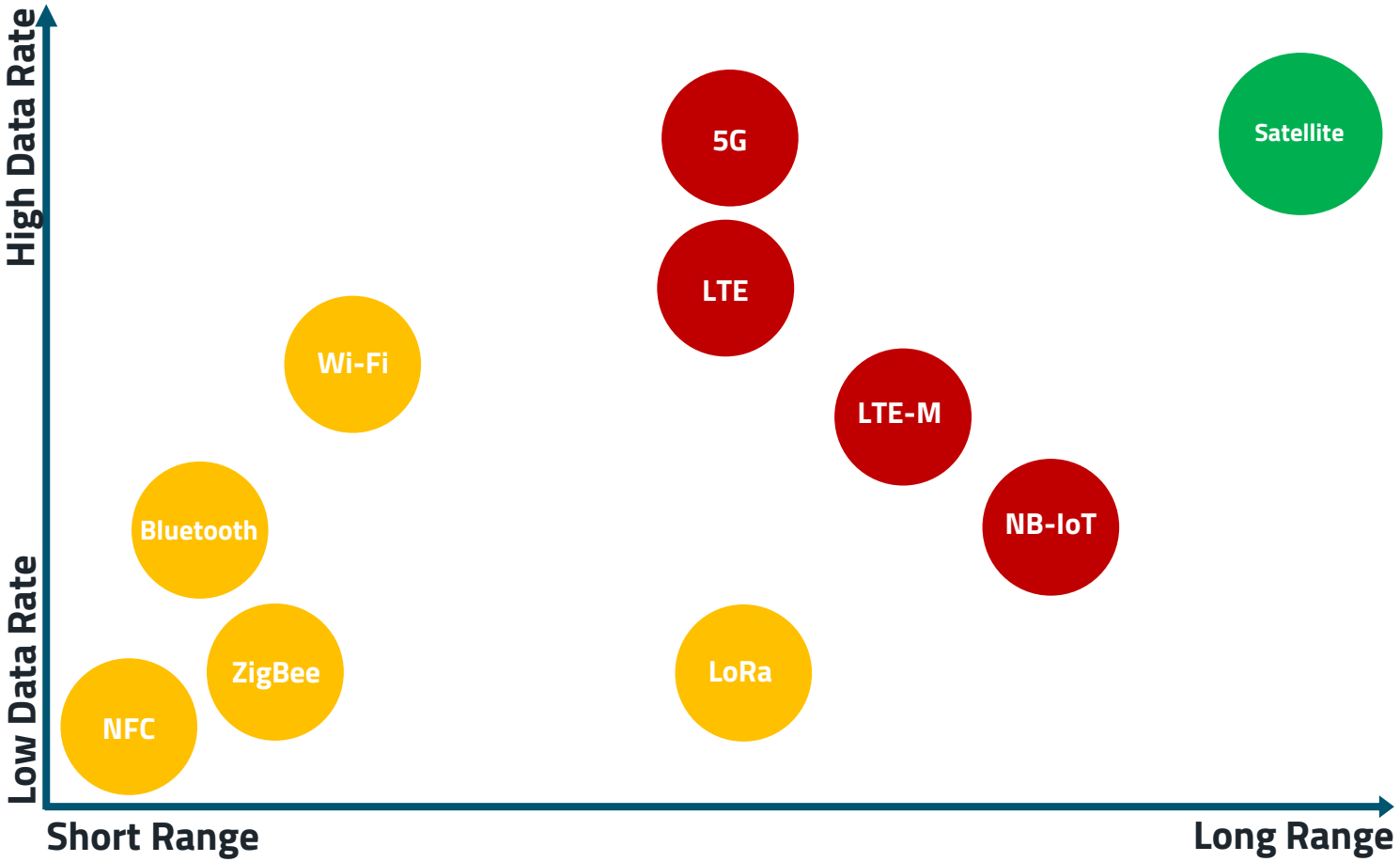


Image source: https://lora-developers.semtech.com/

CHOOSING THE RIGHT IOT CONNECTIVITY

LoRa is complementary to existing IoT communication technologies



Unlicensed spectrum

Licensed spectrum

- ✓ Range
- ✓ Data rate
- ✓ Power consumption

ADVANTAGES OF LORAWAN TECHNOLOGY

Why LoRaWAN is so awesome ?

- Low power consumption
- Long Range
- Licence free spectrum
- Indoor coverage
- Private and public deployment options
- Firmware updates over the air
- End to End Security
- Geolocation (Network can determine the device location)

FREQUENCY BANDS

Licence free sub-GHz radio frequency band

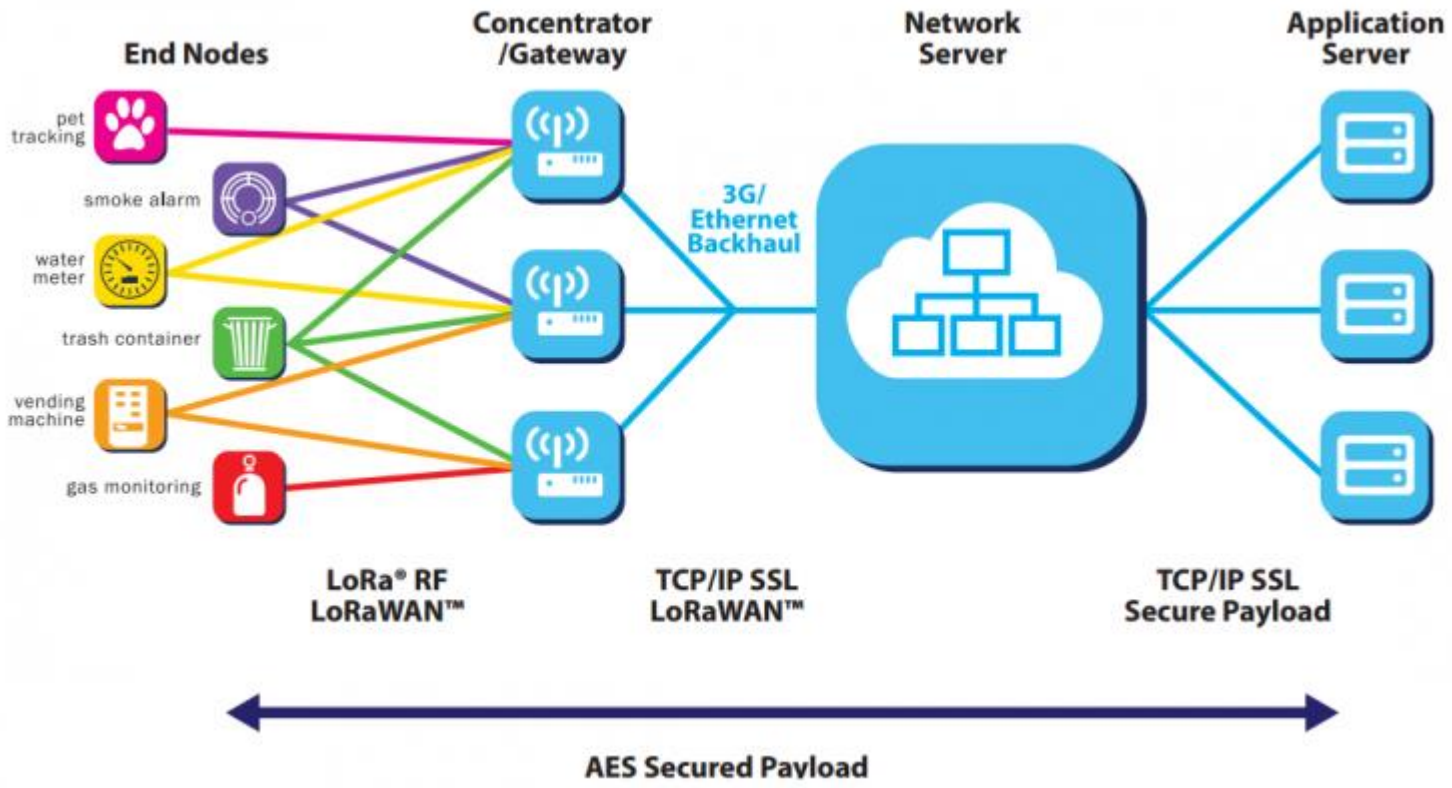
Country/Region	Frequency
EU	863 - 870 MHz (EU868) 433 - 434 MHz (EU433)
USA	902 – 928 MHz (US915)
China	779 – 787 MHz (CN779-787) 470 - 510 MHz (CN470-510)
Australia	915 – 928 MHz (AU915-928)
Japan	920.6 - 928.0 MHz (AS923-1)

Low Frequency = Longer Range

Source of information: https://lora-alliance.org/

LORAWAN NETWORK ARCHITECTURE

LoRaWAN networks are deployed in a **star-of-stars** topology



Source: https://lora-developers.semtech.com/

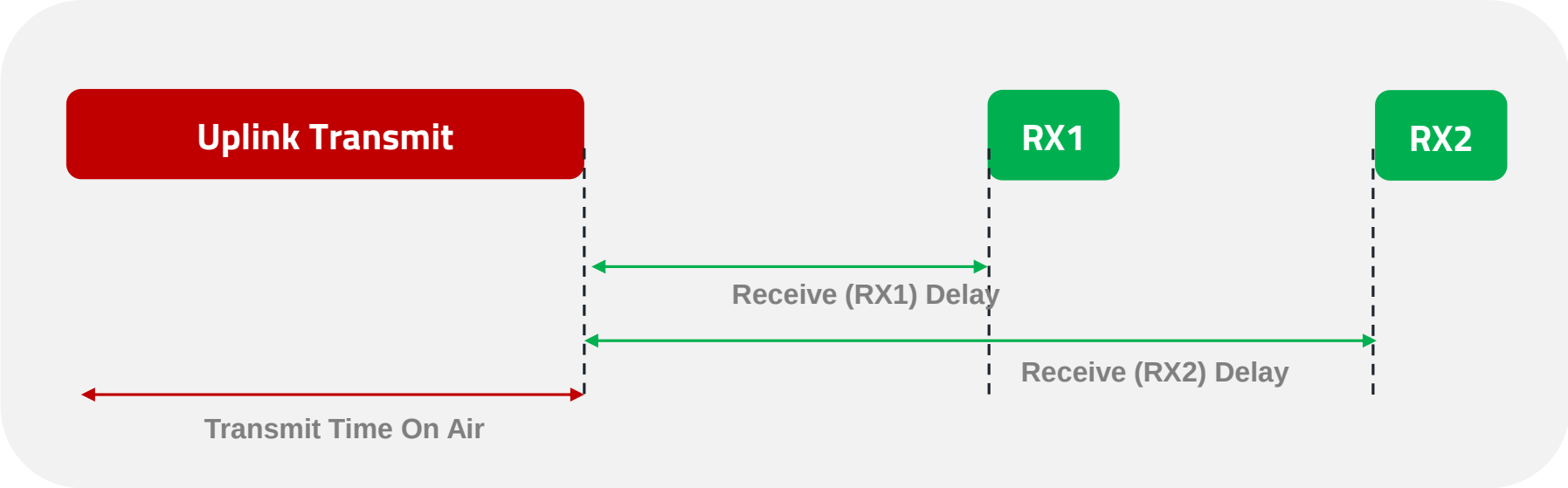
LORAWAN NETWORK DEPLOYMENT OPTIONS

- Private network deployment
    - Requires deploying & managing gateways
- Public network deployment
    - Choose operator (if available)

- Hybrid LoRaWAN Networks
    - allow a customer to move between public and private networks. This is suitable for use cases involving asset tracking.

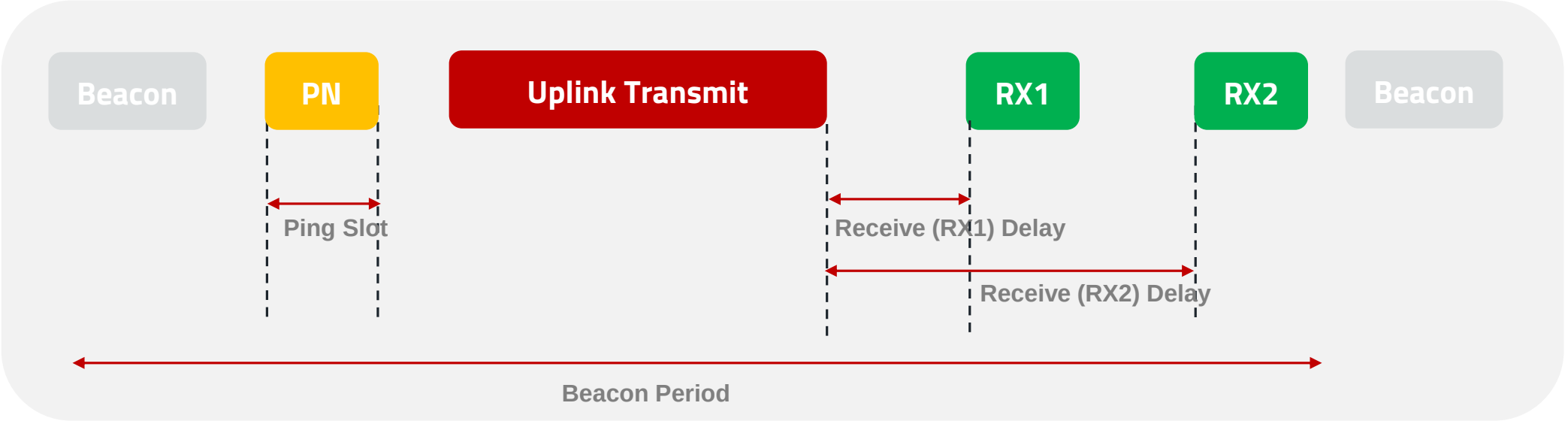
LORAWAN CLASSES

Class A devices



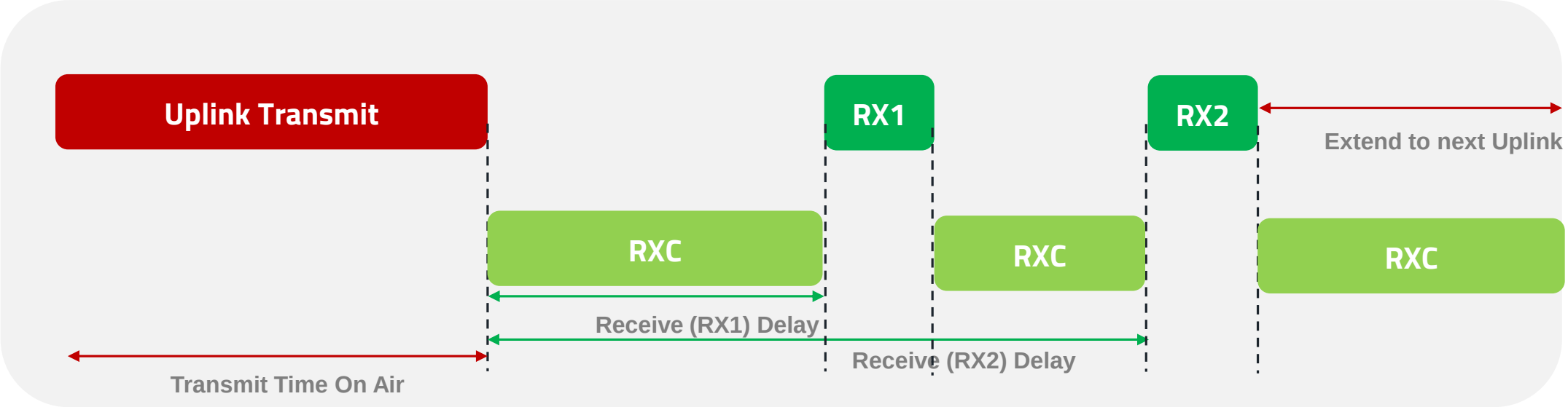
LORAWAN CLASSES

Class B devices

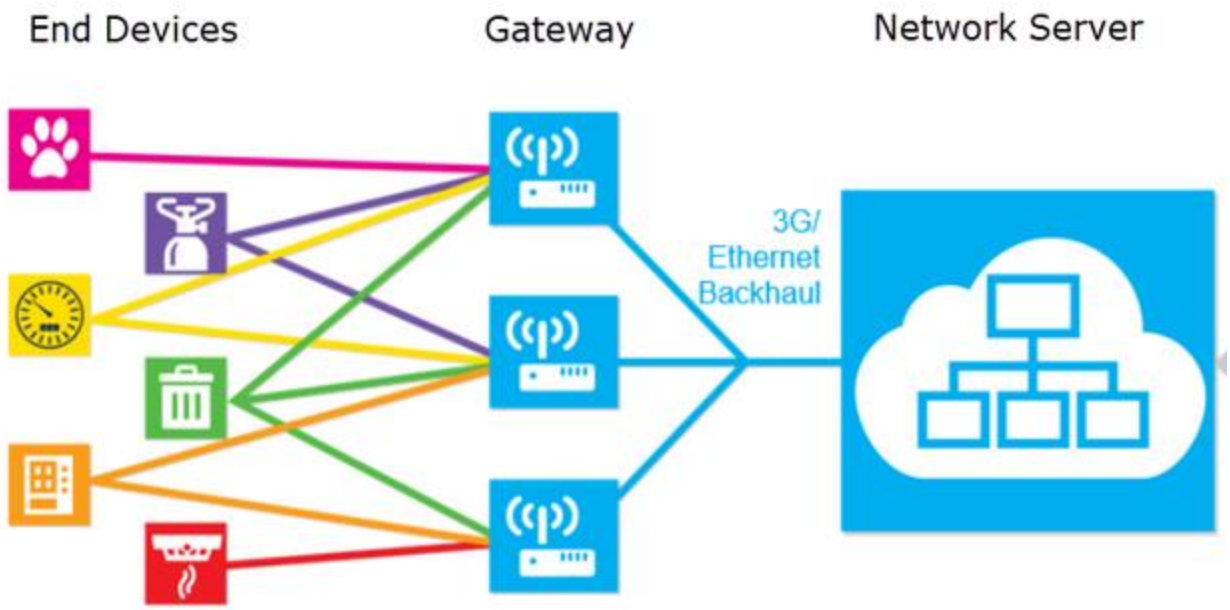


LORAWAN CLASSES

Class C devices



LOCALIZATION WITH LORA



Source: https://lora-developers.semtech.com/

DAPHNIS-I KEY FEATURES

LoRaWAN Module from WE

Feature	Description
Physical Dimensions	15 mm x 16 mm x 3 mm
Supported LoRaWAN Specification	1.0.4
Supported LoRaWAN Classes	Class A, Class B, Class C
Supported Frequency Bands	EU868
Maximum Power Transmission	14 dBm
Current Consumption (Sleep)	65 nA
Current Consumption (RX)	7 mA
Current Consumption (TX)	25 mA
Operating Voltage	2.0 V to 3.6 V


LIFESTOCK
MONITORING


CONNECTED
LIGHTING


SMART
FARMING


INTELLIGENT
IRRIGATION

SUMMARY:

Now we know…

- ✓ Many ways to send sensor data to cloud (IoT)
- ✓ LoRaWAN Network architecture
- ✓ What to do with different LoRaWAN classes
- ✓ Advantages of LoRaWAN networks
- ✓ You know LoRaWAN applications

Thank you for your attention

WE hope you learn something new to make business

Now we welcome ***any*** question

Questions

& Answers

We are here for you now!
Ask us directly via our chat or via E-Mail.

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