

muRata SPEAKS

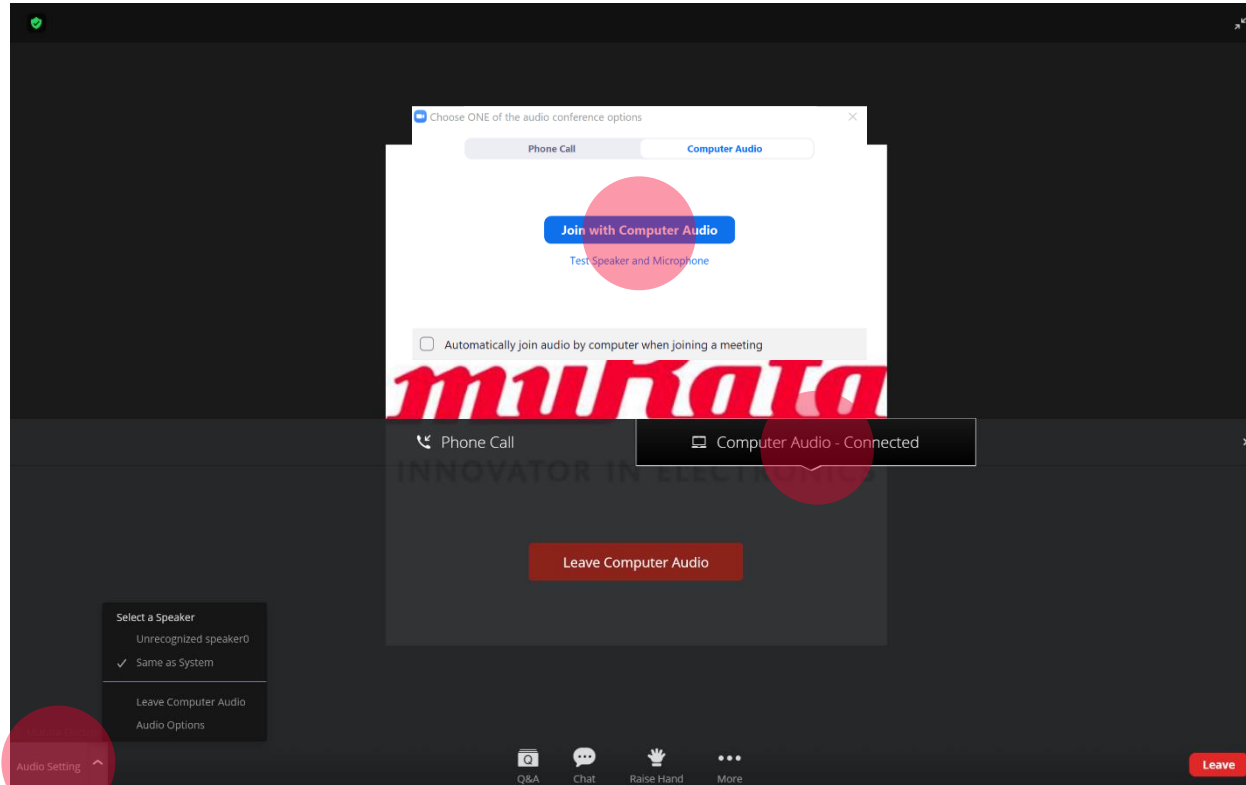
TECHNOLOGY | SOLUTIONS | INNOVATIONS

Murata Speaks - Monthly Webinar Series #21 [May 2022]

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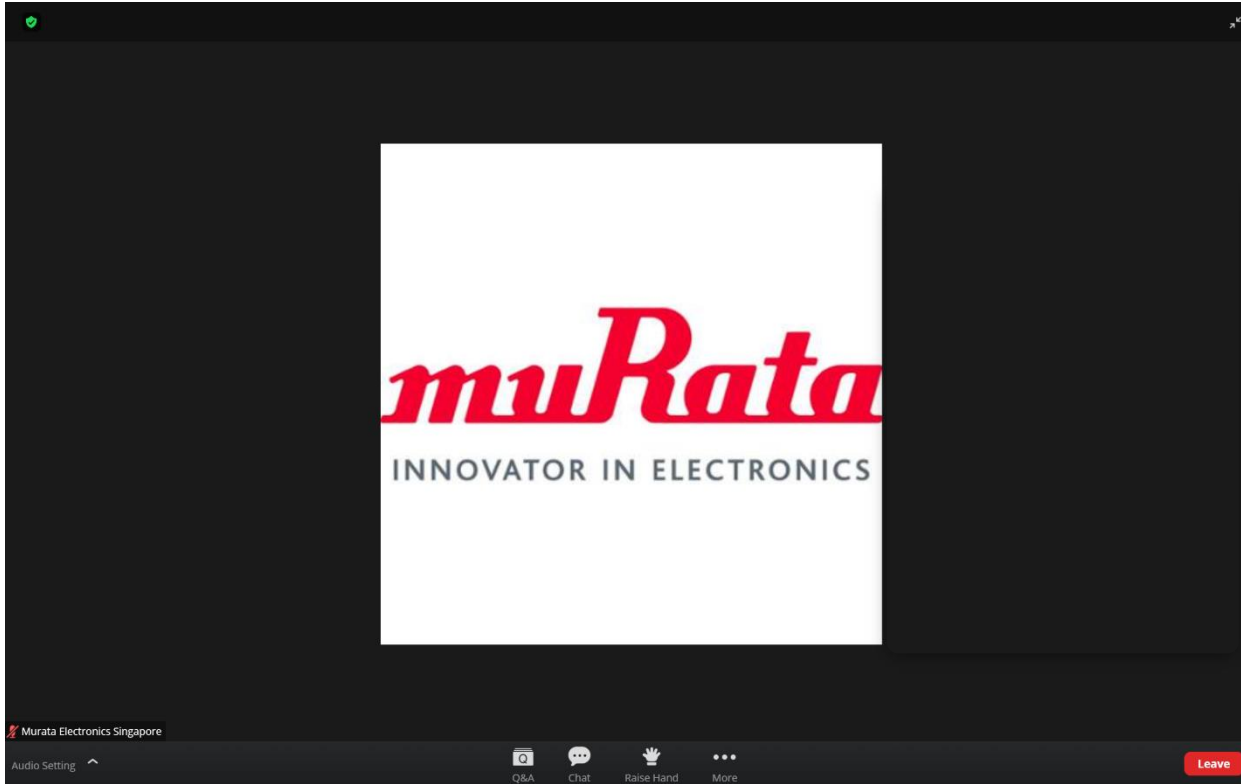


House Rules | Navigation Guide



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AUDIO"

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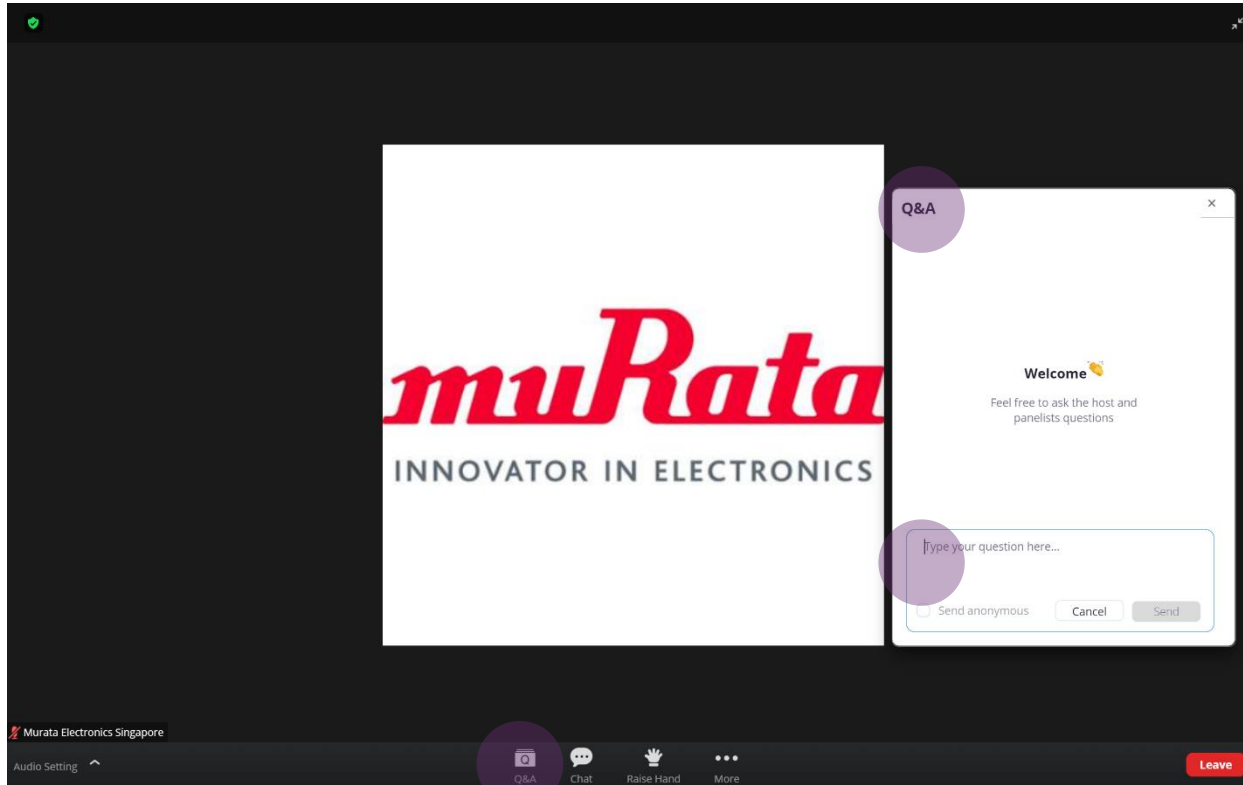


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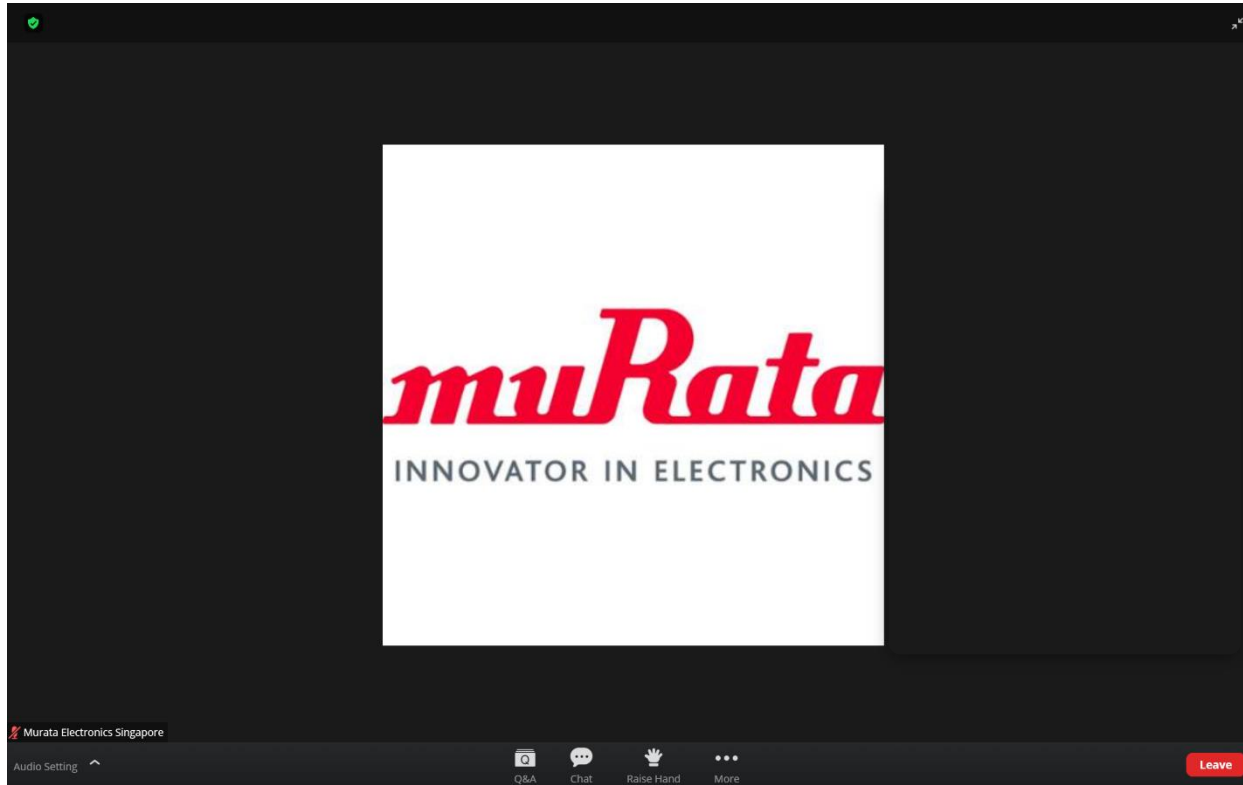


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**QUESTIONS?
PLEASE TYPE
THEM INTO Q&A.**

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WEBINAR.



QUESTIONS?
PLEASE TYPE
THEM INTO **Q&A**.



SLIDES AND
RECORDING WILL
BE AVAILABLE
AFTER THE
SESSION.

UNITING BRIGHT MINDS FOR IOT

Supercharge your IoT initiatives with Murata-Spark-NNCo-Actility's turn-key LoRaWAN® solution for better productivity and sustainability

 19th May 2022, Thursday  1.30pm (SYD)

In partnership
with



Today's Agenda

■ Introduction

■ Ecosystem Partners' Complete LoRaWAN End-To-End Solution

● Network & Services

- Network coverage & typical use cases
- IoT Platform & Services
- Activity ThingPark Community Platform for Developers

● Integrated Modules Solutions

- Type 1SJ / ABZ All-in-One Modules, EVK & SDK
- Type 1WL Geolocation module

■ Technical Demo (hands-on):

- LoRaWAN config. on Activity ThingPark LNS & IoT platform
- Type 1WL Geolocation module EVK bring-up

■ Q&A (10 mins)



Introduction

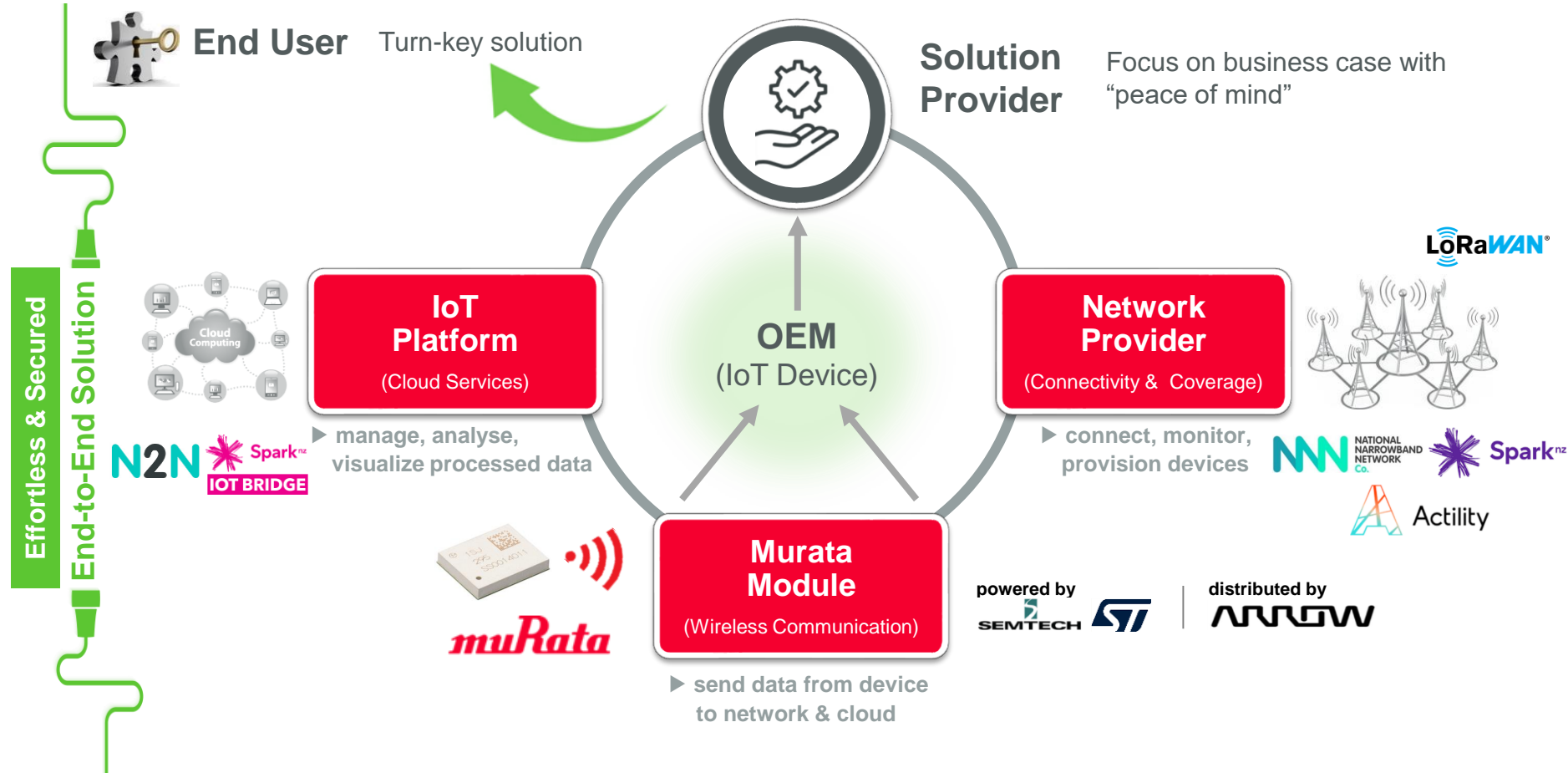


Who Are Arrow?



- Arrow provide guidance, find solutions and connect people with technology that makes life better.
- We guide innovation forward for over 180,000 leading technology manufacturers and service providers.
- Five Years Out is our way of thinking to bridge the gap between what's possible and the practical technologies to make it happen.
- ANZ: Local Warehousing, Technical Support, Supply Chain and Value Add Services

Ecosystem Partners' LoRaWAN End-To-End Solution



Today's Presenters



Australia,
New Zealand



Jaydyn Halliwell

Marketing Manager



Australia



Tony Tilbrook

Chief Technical
Officer
Chief Operating
Officer



New Zealand



Tonie de Vries

Product Manager
IoT/ Emerging
Technology



Australia,
New Zealand



**Sourmack
Darbouy**

Regional Sales
Director, APAC



Singapore



Gonzague Fraval

Regional
Product Marketing,
Wireless Module

Singapore



**Zeno Maverick
Low**

Application Engineer

Arrow LoRa Modules offering with Murata

■ Murata ABZ/1SJ Modules and Evaluation Kits

Type ABZ



Top Searched
Murata Manufacturing

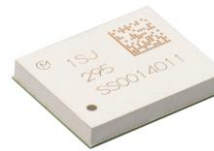
CMWX1ZZABZ

RF Transceivers

RF Transceiver FSK/OOK 3.3V T/R

[DOWNLOAD DATASHEET](#)

Type 1SJ



Murata Manufacturing

LBAA0QB1SJ

RF Transceivers

Integrated LoRaWAN Modem

[DOWNLOAD DATASHEET](#)

Eval Kit



STMicroelectronics

B-L072Z-LRWAN1

CMWX1ZZABZ-091 RF IC Development Board

[DOWNLOAD DATASHEET](#)

Eval Kit



Murata Manufacturing

LBAA0QB1SJ-TEMP-EVK

LBAA0QB1SJ RF Transceiver Evaluation Kit

[DOWNLOAD DATASHEET](#)

LoRaWAN Landscape in ANZ





Connecting & Powering Enterprise IoT

Tony Tilbrook, NNNCo CTO and COO

LoRa Alliance® Asia Pacific Regional Vice Chair & Global Ambassador

LoRaWAN® Solutions Technical Webinar – 19th May 2022

NNNCo: 100% IoT Telco



- Leading Australian telco carrier providing a shared, scalable IoT network service and platform, using LoRaWAN® technology to enable enterprise-grade IoT solutions for businesses and government.
- Now expanding globally.



Enterprise Service

Australia's leading LoRaWAN® operator with a carrier licence, enabling scalable enterprise-grade IoT solutions



City, Utility, Ag and Industry IoT

Fully integrated solutions provider working with cities and utilities, agriculture and industry, across a wide range of use cases



Proven Data Platform

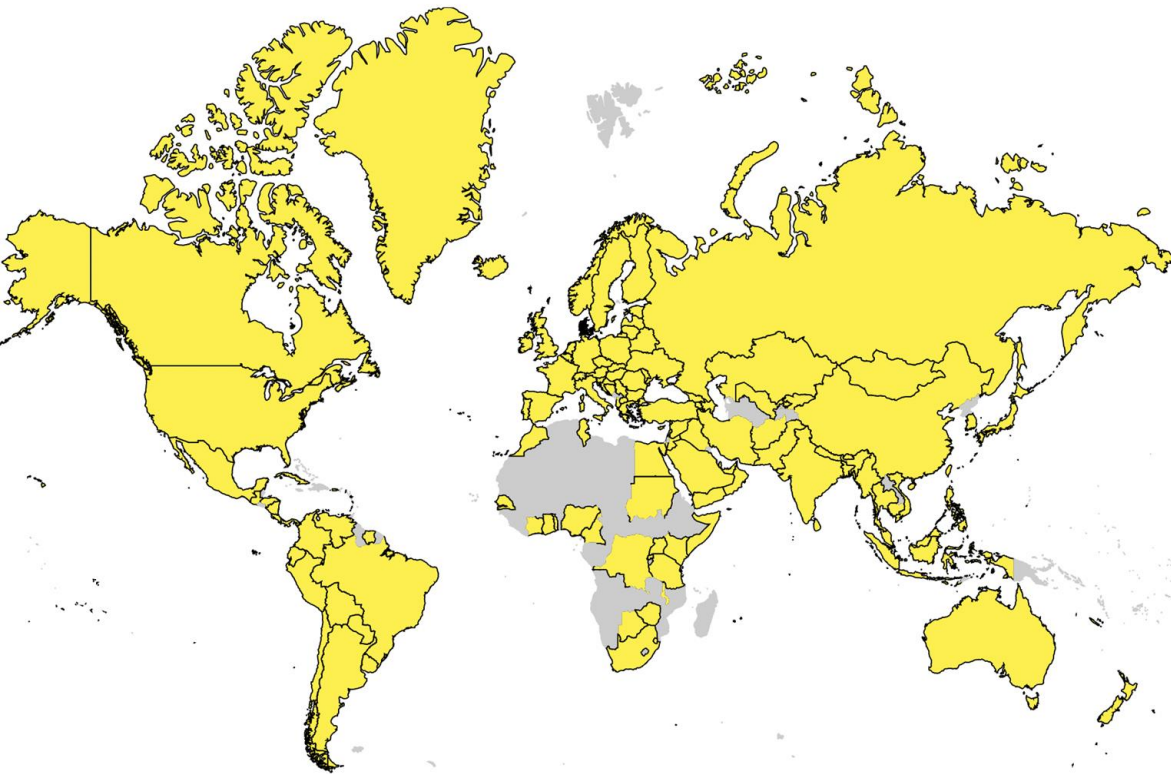
Best-in-class data platform, N2N-DL, to simplify and scale IoT deployment, selected by major cities and enterprise customers



Global Network

Part of the global LoRaWAN® ecosystem, enabling streamlined interoperability and adoption of IoT

LoRaWAN®: Fastest-Growing Tech Ecosystem



● LoRaWAN®: now ITU-T Y.4480 Standard

● 170 LoRaWAN Network Operators in
171 countries

● 550+ members in the LoRa Alliance®

● 225 million+ LoRaWAN connections

● 240 million+ devices deployed

● 3.2M+ gateways

>50% LPWA market share

+33% YoY growth rate of certified devices

~10 to 15 years* battery life

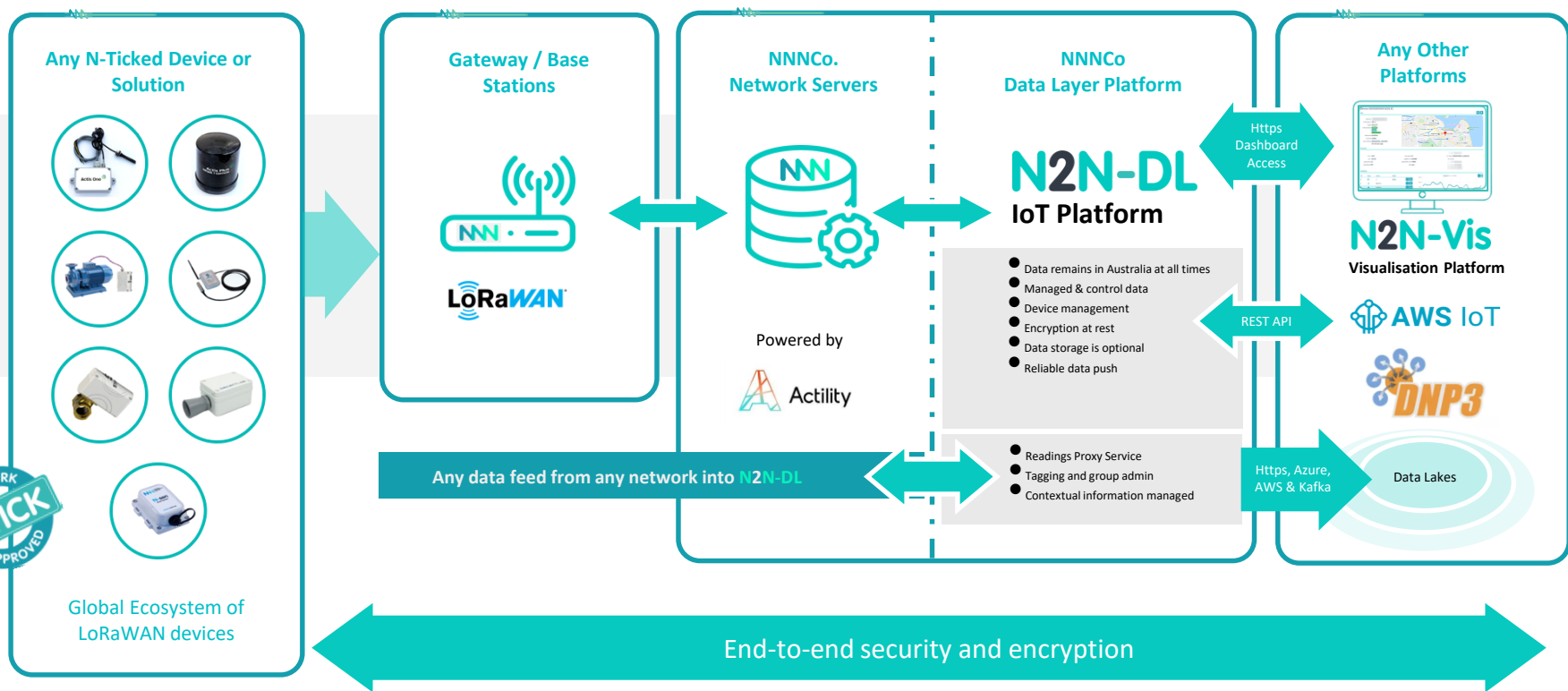
**Battery life dependent upon application parameters including frequency of transmission, quantity of data sent, distance data is sent, and whether there are acknowledgement transmissions.*

LoRaWAN®: 100% Network Coverage Where You Need It

- **Ubiquitous** network coverage.
- **Anywhere, anytime, any network.**
 - Indoor, including deep underground.
 - Outdoor, including underwater, or hilly terrains.
- Flexibility to **future-proof your IoT project.**
- Access to a global ecosystem of IoT solutions, enabling ALL use cases across vertical markets.



NNNCo Solution Design - Four Pillars of IoT

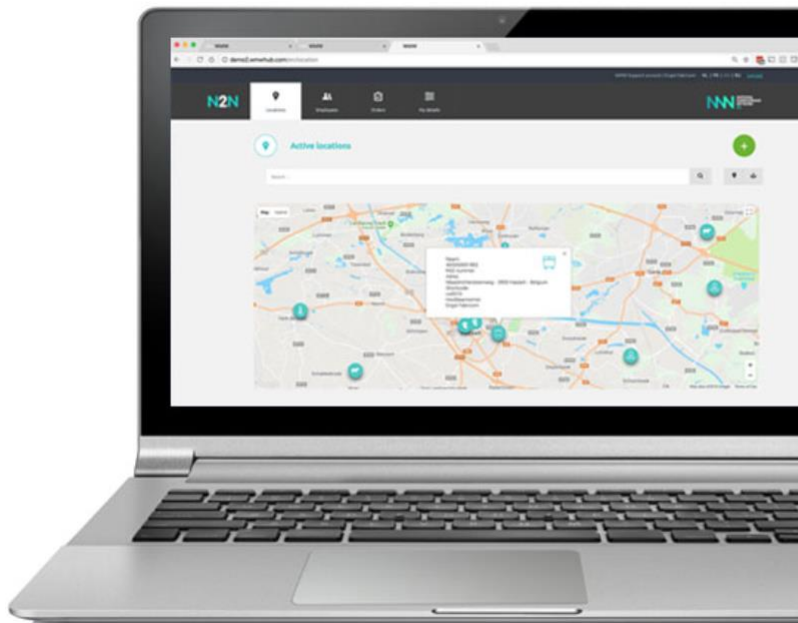


N2N-DL Unleash the IoT Ecosystem to Scale Fast

IoT Platform

NNNCo's super fast, highly scalable data platform:

- Streamlined interoperability.
- Aggregation platform for a smooth integration of data and users.
- Normalises and harmonises data into a single rest API.
- Quickly and easily integrates into any customer systems or analytics platform.
- 100% API driven with push and pull data flow.



Typical Use Cases - Ready for Scale



Smart Water: predictive maintenance, stormwater, sewage, water metering and leak detection.



Smart Buildings: Just in Time maintenance for public facilities, asset and people tracking.



Carbon Savings: public lighting 70,000 smart streetlights in Uruguay.



Smart Cities: operational use cases, people counting, environment, power management, parking and lighting.



Smart Industries: concrete sensors, efficiency and productivity.



Smart Agriculture: productivity, sustainability, water usage, environment, temperature, humidity, power, and gates.

NNNCo: Partnering With Spark New Zealand

- **Trans-Tasman network carrier agreement.**
- NNNCo and Spark NZ both leveraging **Actility's TPW technology.**
- Assimilated **AS923 channel plan** for **ease of device integration** across the Tasman.
- **Aligned commercial and business models** allowing for **100% LoRaWAN coverage.**





100% IoT Telco

Tony Tilbrook, CTO / COO NNNCo

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sales@nnnco.com.au

LinkedIn

<https://www.linkedin.com/in/tonytilbrook/>

Website

www.nnnco.com.au



UNLOCK PRODUCTIVITY AND PERFORMANCE

The Internet of Things (IoT) is transforming the New Zealand business landscape – and Spark IoT is leading the charge. With an ever-expanding range of smart connectivity solutions, we're helping customers bring equipment, processes and people together to gain powerful insights and efficiencies.





How we'll support you.



IoT SERVICE DESKS

1st and 2nd tier support for IoT related calls.



IoT TECH TEAM/DEVICE SPECIALISTS

Technical support capabilities for IoT devices/sensors, connectivity, platforms and solutions.



IoT SALES

Sales team with BDMs and Solution Specialists.



IoT FOUNDATION

Product squad to deliver network connectivity and foundational services.



IoT GROWTH

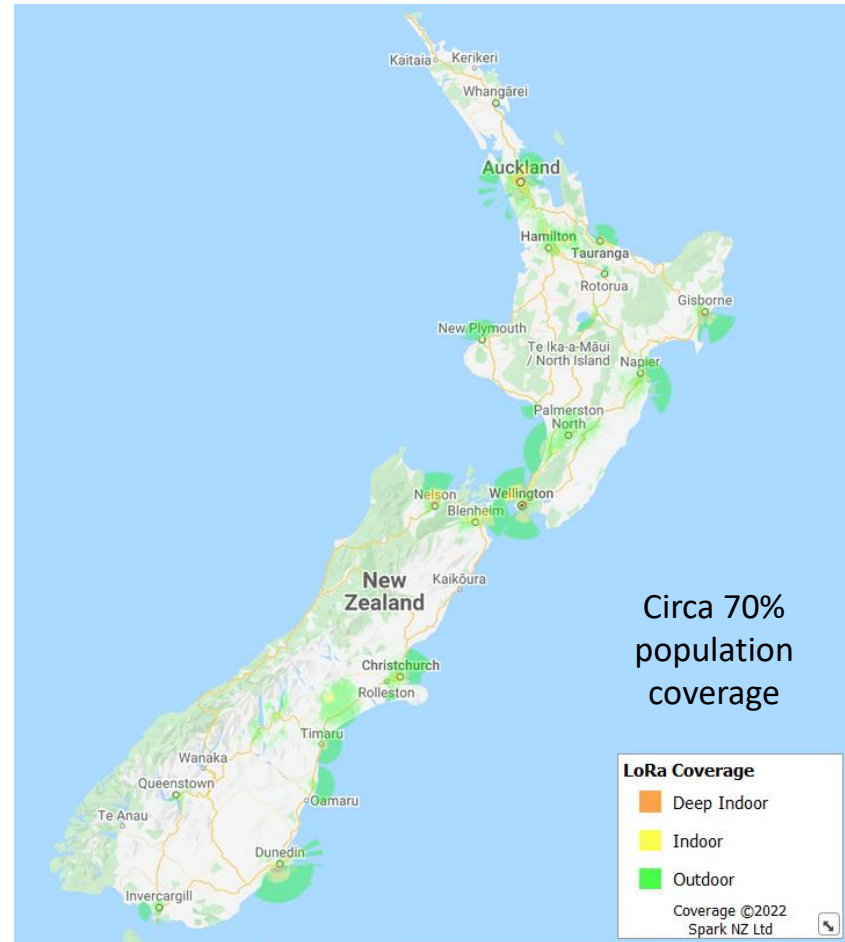
Product squads to deliver solutions beyond connectivity and GTM activities.



LoRaWAN coverage.



Coverage in a Box (CIAB)
solutions for locations with
no macro coverage.





What we can do

INDOOR



TEMPERATURE
+ HUMIDITY



OCCUPANCY



HEALTHY
ENVIRONMENT



ENERGY USE

Our IoT monitoring devices can help customers measure and better manage a variety of indoor and outdoor environments either as single or multi-use case scenarios.

OUTDOOR



WATER USAGE



WATER QUALITY



AIR QUALITY



VIBRATION



NOISE



SOIL

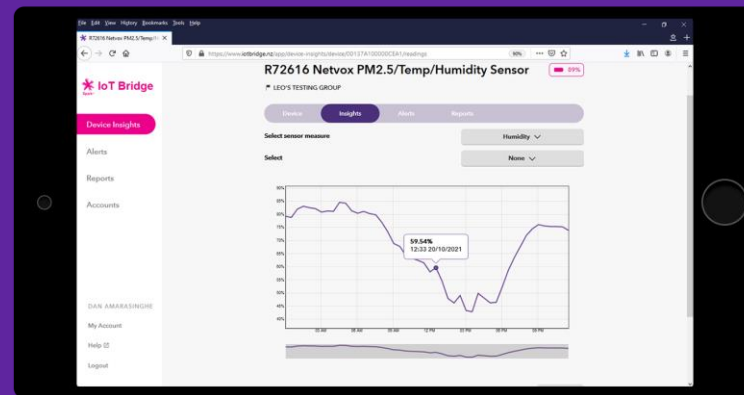


WEATHER

Know sooner, react faster with IoT Bridge

Spark's new IoT Bridge is a cloud-based platform that folds a variety of IoT monitoring solutions into one central dashboard. Get easy, timely access to the data you need for informed decision-making, wherever you are.

- ✓ Automate data collection
- ✓ Visualise data outputs in real-time
- ✓ Set mobile and email alerts for key people
- ✓ Generate in-depth reporting for stakeholders
- ✓ Extensible platform that can be adapted for business needs



If an asset or environment can be measured, it can be managed more efficiently.

So if you see a use case applicable for your business don't hesitate to let us know. If we know your key challenges or where you have a lack of visibility, we have the expertise and capability to help.

Ngā mihi nui.





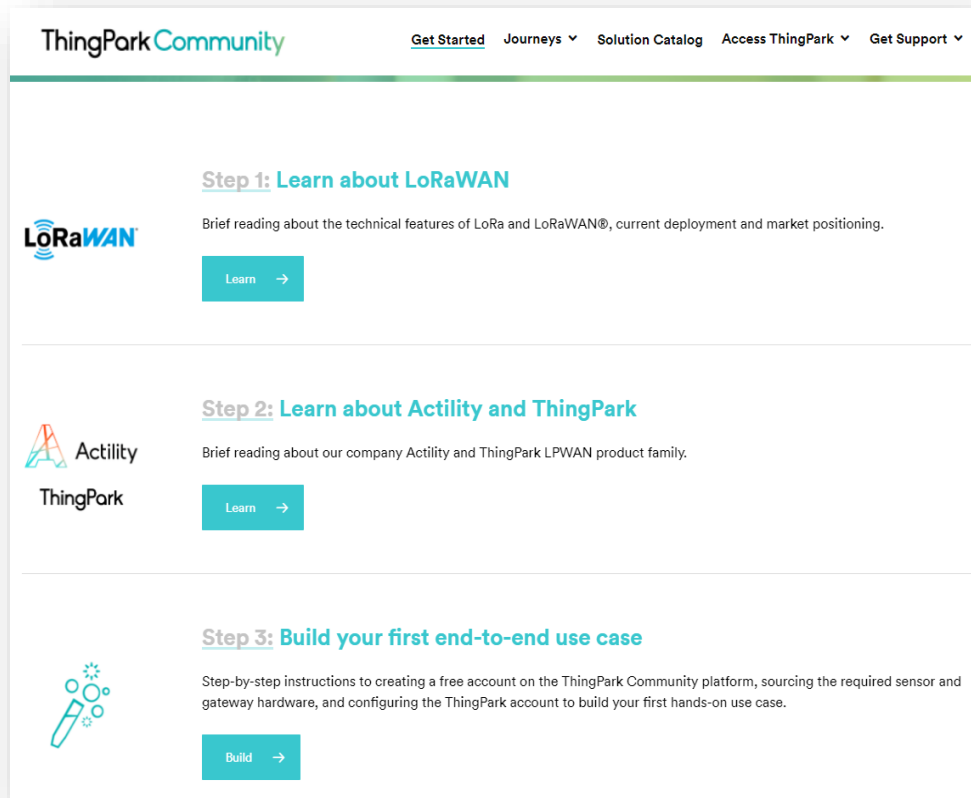
Activity
Connecting with intelligence

ThingPark Community

Connecting the LoRaWAN Ecosystem



Introducing ThingParkCommunity



The screenshot shows the 'ThingParkCommunity' website. The navigation bar includes links for 'Get Started', 'Journeys', 'Solution Catalog', 'Access ThingPark', and 'Get Support'. The main content area is divided into three sections, each with a heading, a brief description, and a 'Learn' button with a right arrow.

- Step 1: Learn about LoRaWAN**
Brief reading about the technical features of LoRa and LoRaWAN®, current deployment and market positioning.
Learn →
- Step 2: Learn about Activity and ThingPark**
Brief reading about our company Activity and ThingPark LPWAN product family.
Learn →
- Step 3: Build your first end-to-end use case**
Step-by-step instructions to creating a free account on the ThingPark Community platform, sourcing the required sensor and gateway hardware, and configuring the ThingPark account to build your first hands-on use case.
Build →

Connect the dots of the LoRaWAN™ ecosystem and unleash the potential of Industrial IOT with the latest ThingPark technology.

<https://community.thingpark.org/>

Get started in no time and for free!

Paving the way to industrial-grade IoT Solutions

Get Started

Build your first use-case in no time with our **quick start guides** and quickly gain **hands-on experience**.



Learn

Access **LoRaWAN** and **ThingPark documentation**, **ThingPark Community forum** or **blog** and get your in-depth questions answered by the experts.

Explore

Browse ThingPark Community Solutions Catalog to discover **industrial-grade IoT Solutions** and leverage ThingPark Community **crowd-sourced network**.

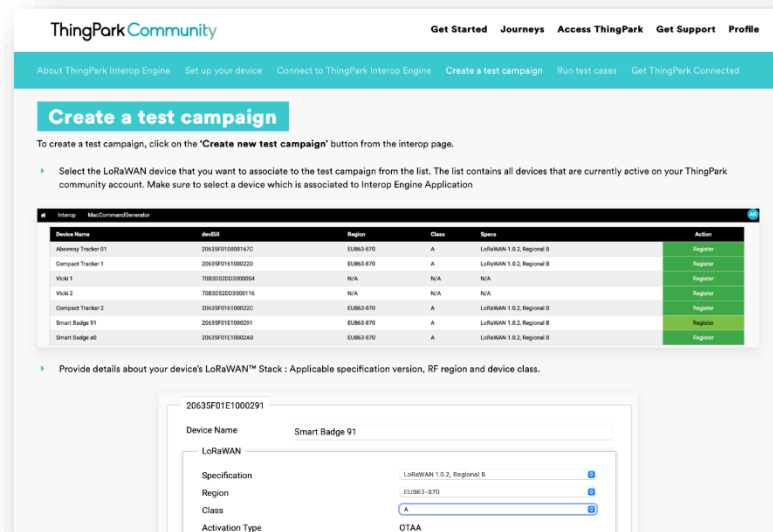
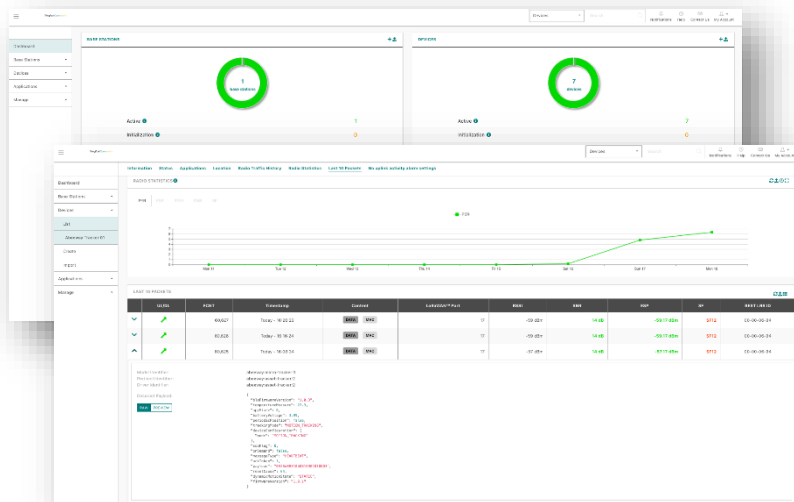


Accelerate

Take full benefit of ThingPark Products, services & ecosystem with **dedicated journeys** for Device Makers and Application Providers.

Relying on the **latest ThingPark Enterprise Software Release**, ThingPark Community is the perfect platform to experiment and innovate.

ThingPark Community provides access to ThingPark Interop Engine, helping device manufacturer to ensure compatibility with ThingPark.



Simplify end user data ingestion

ThingParkCommunity

Get StartedJourneyAccess ThingParkGet SupportProfile

Accelerate application integration with ThingPark X Drivers

IoT sensors are the foundation of IoT solutions as they provide the data required to deliver actionable insights to customers. However, their value only becomes tangible once sensors' payload is properly decoded, delivered and analyzed by business applications. To streamline this data ingestion process, ThingPark X IoT Flow provides ThingPark customers with an extensive library of IoT drivers, ensuring seamless payload decoding for ThingPark Connected sensors.

Developing your ThingPark X IoT Flow driver ensures your sensor to smoothly integrate with ThingPark connected IoT applications such as AWS IoT Core, Azure IoT Hub or PTC Thingworx.... making IoT solutions deployment easier and faster.

Learn how to develop a ThingPark X IoT Flow Driver

ThingParkX

Submit your ThingPark X Driver

Submit your ThingPark X Driver

Your Thingpark X Driver is ready for review? Submit your code and we'll get back to you shortly.

Fields marked with an * are required

Partner ID *

Please provide your partner ID. It can be found in the device registration confirmation email and should start with "SPO-" followed by 4 numbers. Example: SPO-1234. If you cannot find it, please enter "LOST"

Please provide brand and device model.

Developer's Name ***Developer's Company ***

Developer's email *

ThingPark X Driver Package

Upload your ThingPark X Driver package for review or...

Select Files

More than **150 models** from market-leading **device manufacturers**



Delivering actionable JSON to the application

Thank you

<https://community.thingpark.org/>

Sourmack.darbouy@actility.com



What features in LoRaWAN Network & IoT Platform Services are important for your application? (Multiple selection)*

- 1 Local coverage
- 2 Device management
- 3 Data analytics (cloud)
- 4 Inter carrier agreement (platform, roaming, etc.)



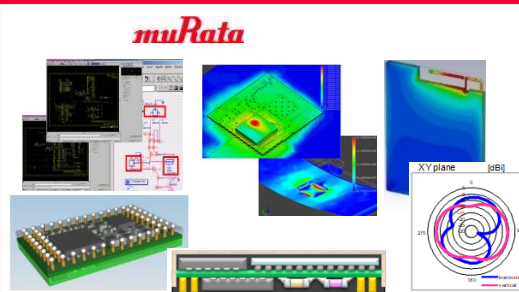
Integrated Modules Solutions



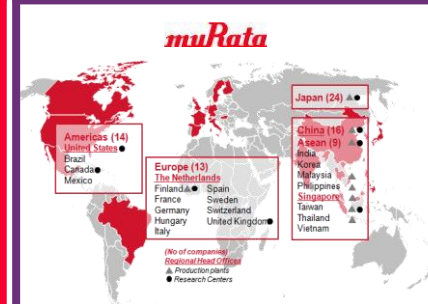
Why Murata RF Modules?

| | |
|------------------------|--|
| Establishment | October 1944 (HQ in Kyoto) |
| Our business | Design, manufacture and supply of electronic components and solutions |
| Net sales | ~US\$14.3 billion* (~JPY 1,630,193 million*) |
| Number of subsidiaries | 89** (Japan: 29, Overseas: 60) |
| Number of employees | 75,184* |

20 Years Experience in RF Module

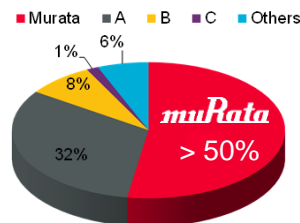


Large Global Network



Connectivity Module Market Share

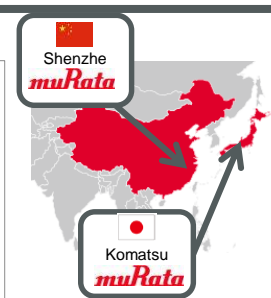
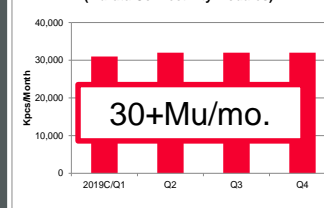
(2019CY – mobile devices)



No.1 Market Share

muRata

Production Capacity (Murata Connectivity Modules)



No.1 Supply Capability
(Flexible / Multi Factory locations)

* As of March 31, 2021

** Murata Manufacturing Co., Ltd. is not included in the number of subsidiaries

Why Murata RF Modules?



Chip-on-board

Certification required

Additional passives required

More space needed

Testing needed

More time and resources consuming

Production management investment

Module



Cross Section



✓ Reference certified

✓ Embedded passives

✓ Compact

✓ Pre-tested

✓ Easier implementation

✓ No extra investment



Spark^{nz}



NATIONAL
NARROWBAND
NETWORK
Co.

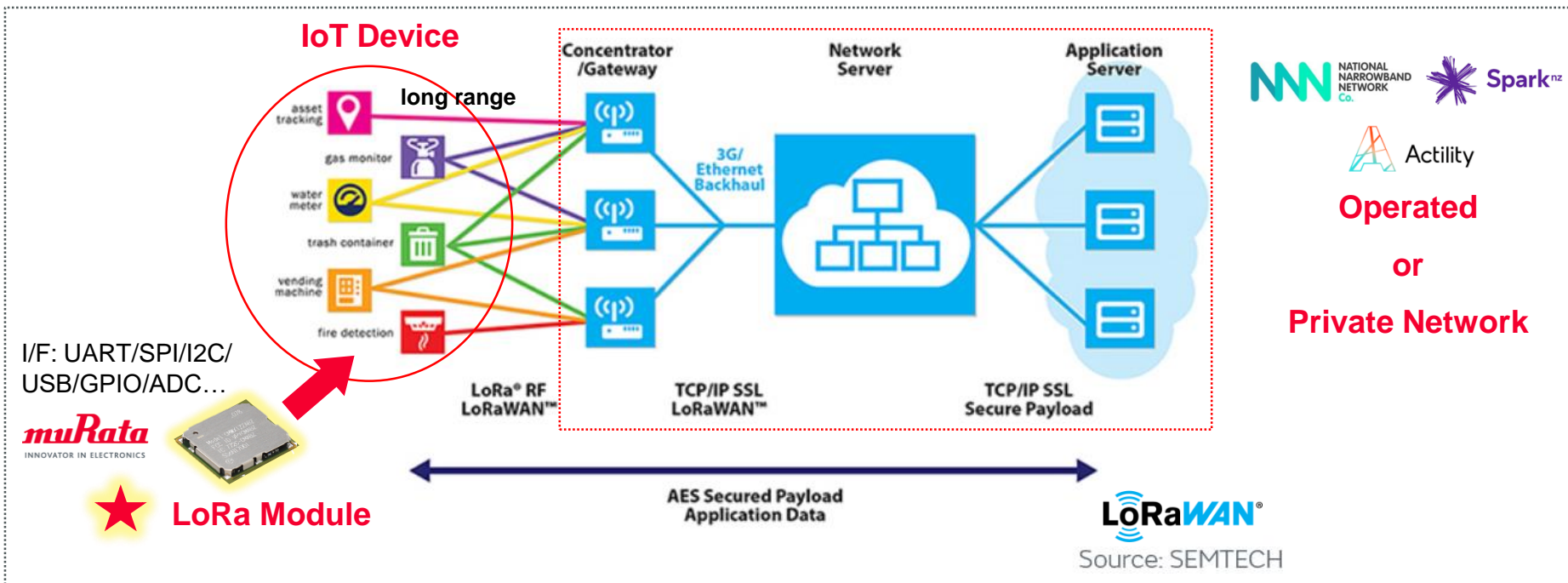


Activity

ARROW

LoRaWAN End-to-End Architecture

- ▶ communication range – up to 10 km (**outdoor*)
- ▶ device in hard-to-reach location or moving (**deep indoor/ remote area*)
- ▶ manage 24/7 operations (**reliable secured network*)



TypeABZ: SX1276 (LoRa + MCU)



Part Number

| | |
|-------------|--|
| Part Number | CMWX1ZZABZ (MP) CMWX1ZZABZ-TEMP (sample) B-L072Z-LRWAN1 (eval kit) |
|-------------|--|

Chipset

| | |
|------|-----------------|
| LoRa | Semtech SX1276 |
| MCU | STMicro STM32L0 |

Features

| | |
|---------------------------|--|
| LoRa | LoRaWAN |
| Supported Frequency | 860 ~ 930MHz |
| Interface | UART/SPI/I2C/USB/GPIOs/ADC |
| CPU Core | Cortex-M0+ |
| CPU Clock (MHz) | 32MHz |
| ROM/ RAM (KB) | 192kB/ 20kB |
| RF Transmit Power | +14dBm / Up to +20dBm |
| Transmit Mode Current | 128mA @ 20dBm setting |
| Receive Mode Current | 21.5mA @ 125kHz BW |
| Current in Sleep mode | 1.65µA |
| RF Sensitivity | -135.5dBm @ SF=12/125kHz BW |
| Supply voltage range | 2.2 ~ 3.6V |
| Software Option | OpenMCU (LoRa SDK), AT commands Secured MCU flash (Trusted Objects) |
| Dimensions L x W x H (mm) | 12.5x11.6x1.76(max) mm |
| Shield/Mold | Metal case shielded |
| Operating Temp. (°C) | -40 ~ +85 °C |

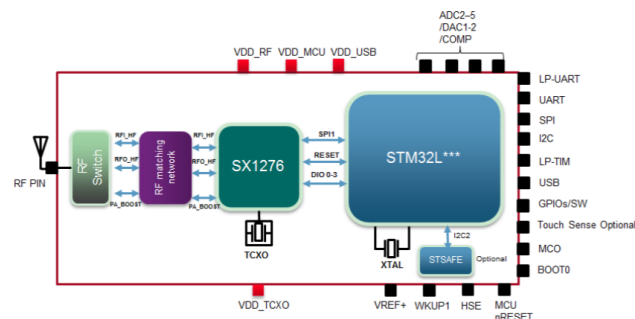
Certification

| | |
|------------|-----------------------|
| Regulatory | FCC/IC, CE(R&TTE/RED) |
|------------|-----------------------|

Schedule

| | |
|--------|-----------|
| Sample | Available |
| MP | Available |

Block Diagram



Evaluation Kit



Module Views



How to Start:

- ✓ Get TypeABZ EVK: <https://www.trustedparts.com/en/search/B-L072Z-LRWAN1>
- ✓ Create my.murata Community Account: <https://my.murata.com/en/home>
- ✓ Request Access to ABZ Support Site: https://my.murata.com/en/web/lrwan_abz
- ✓ Community Forum: <https://community.murata.com/s/topic/0TO5F000001b9NkWA/lora>

Type1SJ: SX1262 (LoRa + MCU)



Part Number

| | |
|-------------|--------------------------------|
| Part Number | LBAA0QB1SJ (MP) |
| | LBAA0QB1SJ-TEMP (sample) |
| | LBAA0QB1SJ-TEMP-EVK (eval kit) |

Chipset

| | |
|------|------------------------|
| LoRa | Semtech SX1262 |
| MCU | STMicro STM32L0 |

Features

| | |
|---------------------------|--|
| LoRa | LoRaWAN |
| Supported Frequency | 860 ~ 930MHz |
| Interface | UART/SPI/I2C/USB/GPIOs/ADC |
| CPU Core | Cortex-M0+ |
| CPU Clock (MHz) | 32MHz |
| ROM/ RAM (KB) | 192kB/ 20kB |
| RF Transmit Power | +14dBm / Up to +22dBm |
| Transmit Mode Current | 118mA @ 22dBm setting |
| Receive Mode Current | 15.5mA @ 125kHz BW |
| Current in Sleep mode | 1.3µA |
| RF Sensitivity | -137dBm @ SF=12/125kHz BW |
| Supply voltage range | 2.2 ~ 3.6V |
| Software Option | OpenMCU (LoRa SDK), AT commands Secured MCU flash (Trusted Objects) |
| Dimensions L x W x H (mm) | 10.0x8.0x1.60(max) mm |
| Shield/Mold | Shielded Resin Mold |
| Operating Temp. (°C) | -40 ~ +85 °C |

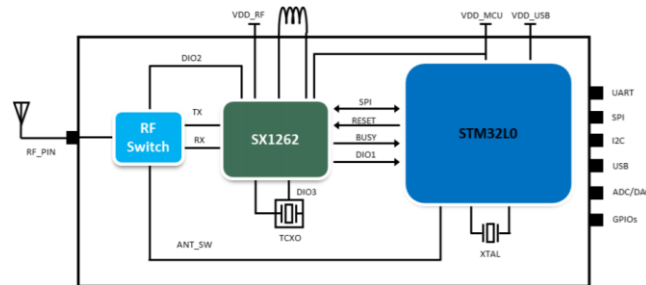
Certification

| | |
|------------|-----------------------|
| Regulatory | FCC/IC, CE(R&TTE/RED) |
|------------|-----------------------|

Schedule

| | |
|--------|-----------|
| Sample | Available |
| MP | Available |

Block Diagram



Evaluation Kit



Module Views



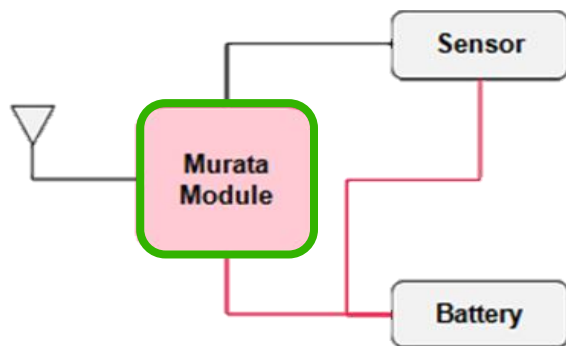
How to Start:

- ✓ Get Type1SJ EVK: <https://www.trustedparts.com/en/search/LBAA0QB1SJ-TEMP-EVK>
- ✓ Create my.murata Community Account: <https://my.murata.com/en/home>
- ✓ Request Access to 1SJ Support Site: https://my.murata.com/en/web/lrwan_1sj
- ✓ Community Forum: <https://community.murata.com/s/topic/0TO5F000001b9NkWA/lora>

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Hostless and Hosted options available

“Hostless” Module



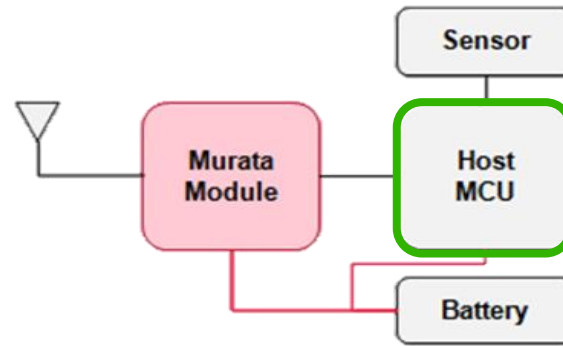
No external MCU (use internal MCU STM32L0)

All-in-One integrated (modem, MCU, software etc.)

ST **SDK I-CUBE-LRWAN** (SW development kit)
Easy to develop Application in the STM32L0 MCU

► **Fast Go-to-Market and Robust design**

“Hosted” Module



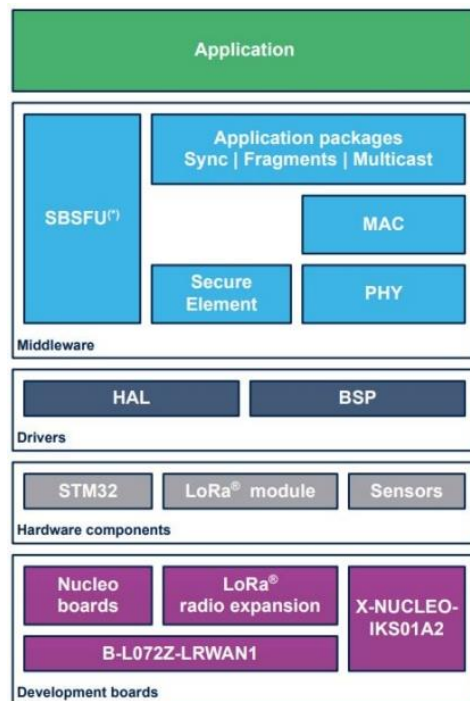
Use external host MCU

Discrete: Module (modem) + external host MCU

Application run in the external host MCU, and communicates with Module by **AT Commands**
options: Murata Modem FW or I-CUBE-LRWAN SDK

► **Customized & Flexible design approach**

Software Development Kit (SDK)



(*) Limited to mbedTLS component.

PART NUMBER / KEY FEATURE

| | |
|-------------------------|--|
| STMicro Part Number | I-CUBE-LRWAN |
| Feature | <ul style="list-style-type: none">- Application integration ready- Easy add-on of the low-power LoRa® solution- Extremely low CPU load- No latency requirements- Small STM32 memory footprint- Low-power timing services provided |
| More Information | STMicroelectronics I-CUBE-LRWAN |
| To create my ST Account | STMicroelectronics Account Login page |

Download SDK: <https://www.st.com/en/embedded-software/i-cube-lrwan.html>

- can use as it is with **TypeABZ**
- apply SW patch (provided by Murata) first to use with **Type1SJ**

Merits of Murata LoRa Modules



muRata
INNOVATOR IN ELECTRONICS



- ✓ **High Quality / Strong Robustness**
- ✓ **Excellent RF performance**
- ✓ **Ultra low power consumption**
- ✓ **Scalability**
- ✓ **Proven on the field**
- ✓ **Small size**
- ✓ **Integrated memory**
- ✓ **Competitive price**
- ✓ **Software options**
- ✓ **LoRa sample code available**
- ✓ **Reference antennas / Pre-Certified**

Quality control / metal shield or resin molded

Transmit/ Receive, -137dBm sensitivity

Tx 118mA @22dBm, Rx 15.5mA, Sleep 1.3μA

Global frequency plans in 1-SKU

Mio's units deployed globally

10.0 x 8.0 x 1.60(max) mm

20k RAM / 192k Flash

MCU & Memory integrated, min external BOM

Hostless or Hosted Mode of operations

in SDK (Software Development Kit)

Optimal RF performance, Ref Ant. available



Spark^{nz}



NATIONAL
NARROWBAND
NETWORK
CO.



Activity



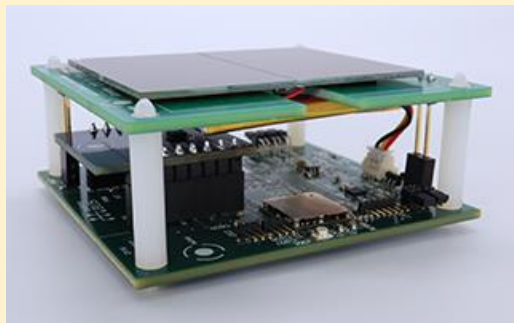
TypeABZ/1SJ Development Platforms (*examples)

Nowi



■ Energy Harvesting

- Harvest power from ambient energy sources
- Send external sensor data via LoRa



<https://www.murata.com/en-eu/news/connectivitymodule/lpwa/2021/0527>

Sentinum

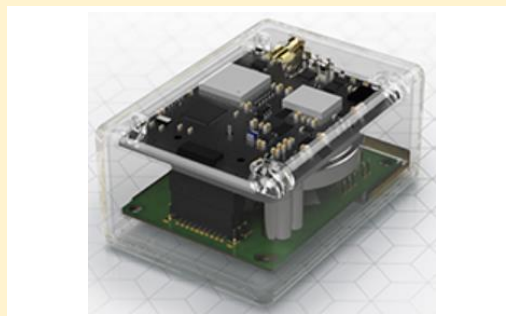
(Yamori)



Sentinum
FORGING FUTURE

■ Multi Sensors

- Humidity
- Altitude
- Air pressure
- Speed
- Distance



<https://www.murata.com/en-eu/news/connectivitymodule/lpwa/2020/1217>

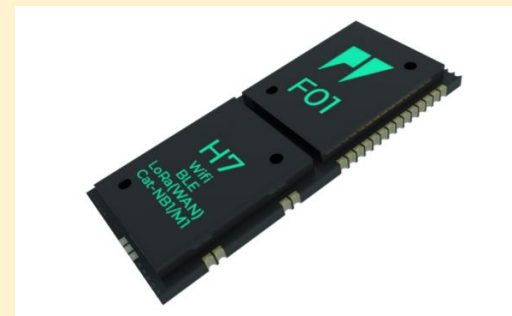
<https://www.youtube.com/watch?v=megaVLEZg2Y>

Pycom



■ IoT Full-Stack

- ARM Cortex H7 CPU (STM32H7B3QIY6QTR)
- LoRa – Type 1SJ
- WiFi / BLE / CAT M1/NB1
- Encryption Chip (NXP SE050C2HQ1)
- 32MB RAM + 32MB Flash Ram



<https://pycom.io/press-release-murata-pycom-collaboration-to-slash-iot-projects-time-to-market/>

<https://pycom.io/wp-content/uploads/2021/06/Draft-01-08-June-2021-F01-H7-Specification-Sheet.pdf>



Spark^{nz}



NATIONAL
NARROWBAND
NETWORK
Co.



Activity



Type1WL: Geolocation Module



Part Number

Part Number LBEU5ZZ1WL-633 (MP)

Chipset

LoRa LR1110
BLE STM32WB
GNSS MT333x
Secure Element TO136

Features

Dimensions L x W x H (mm) 17 x 17.7 x 2.45(max)
Form Factor Metal case + PCB
Interface UART/USB/SPI/I2C/JTAG
LoRa IN865, EU868, US915 and AS923
WLAN IEEE802.11b/g/n (2.4G)
Bluetooth BT v5.0
GNSS GPS, GLONASS, Galileo, Beidou, A-GPS

Schedule

Sample/ EVK MP Available
Q3 2022 (plan)

Modules

Features

Version 1



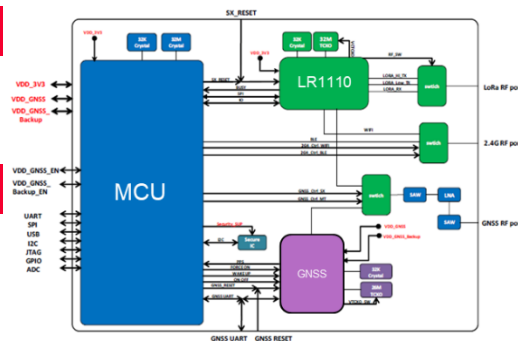
Version 2



Version 3



Block Diagram



Applications

- Asset Tracking (indoor/outdoor)
- Logistics
- Pet Tracker
- Cattle Management
- Geofencing

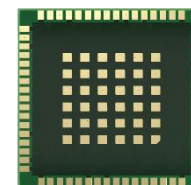
Evaluation Kit



Module Views

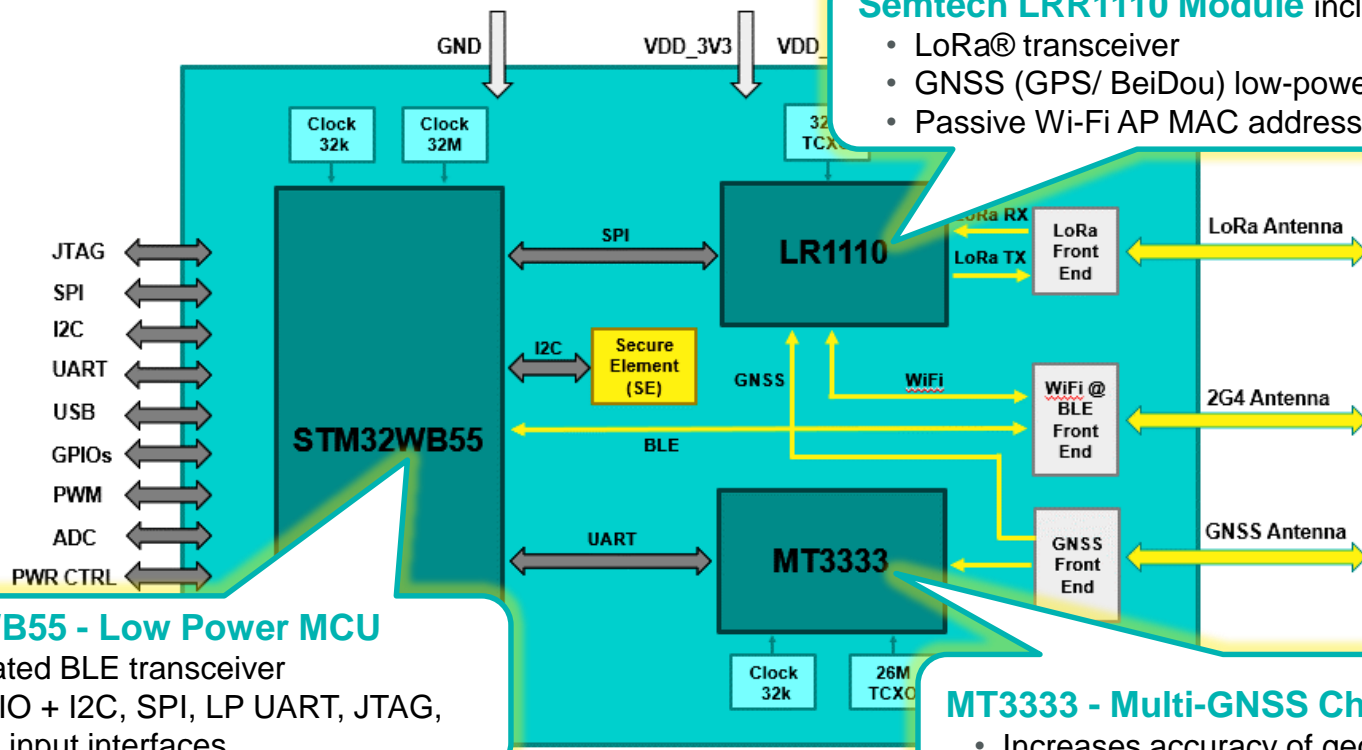


TOP



BOTTOM

Type1WL: Block Diagram



Semtech LRR1110 Module includes:

- LoRa® transceiver
- GNSS (GPS/ BeiDou) low-power scanner
- Passive Wi-Fi AP MAC address scanner

STM32WB55 - Low Power MCU

- Integrated BLE transceiver
- 10 GPIO + I2C, SPI, LP UART, JTAG, + ADC input interfaces

MT3333 - Multi-GNSS Chip

- Increases accuracy of geolocation
- Shortens time to first fix

Type1WL:

Firmware & Device Management



- **Module delivered with the Abeeway Asset Tracker Firmware supporting a long list of use cases**

Asset Tracker Firmware

Multi-technology geo-localization

GPS
LP-GPS
BLE Scanning
WiFi Scanning
Quoppa beaconing

Several tracking operation modes

Permanent tracking
Motion tracking
BLE Zoning / Geo-fencing
Start/End of movement tracking




Several non-tracking operation modes

Activity monitoring
Scan collection
Shock detection
SoS op. mode
Proximity policy enforcement
Connection with smart phone as a BLE peripheral device

- **Pre-integrated with ThingPark Framework**

- **ThingPark X Location Engine**
 - Multi-technology location solver
- **Abeeway Mobile App**
 - A turnkey B2C tracking solution including an Android/iOS application with its backend
- **ThingPark Activation**
 - An advanced Key Manager/Join server solution that allows secured device activation
- **FUOTA**
 - Firmware Upgrade Over The Air solution utilizing Actility's Reliable Multicast Server

Actual Use Cases in ANZ (*examples) & Solution Merits

| | Smart meter | Livestock tracking | Industrial data logger |
|-------------------------|--|---|---|
| Use Case |  |  |  |
| Application | <ul style="list-style-type: none"> automate meter consumption reading and monitor status reduce operator maintenance | <ul style="list-style-type: none"> track cattle location and health condition reduce on-field manpower | <ul style="list-style-type: none"> equipment monitoring and processes automation predictive maintenance |
| Challenges | <ul style="list-style-type: none"> hard-to-reach remote location risk of tempering attempt deployment in large scale | <ul style="list-style-type: none"> small form factor battery size network coverage | <ul style="list-style-type: none"> fast & easy configuration data security 24/7 operation |
| *Solution Merits | <ul style="list-style-type: none"> ✓ technical support ✓ security ✓ FOTA ✓ Total Cost of Ownership (TCO) | <ul style="list-style-type: none"> ✓ small size ✓ low power ✓ indoor location (WiFi/BLE) ✓ outdoor location (GPS) | <ul style="list-style-type: none"> ✓ reliability ✓ security ✓ FOTA ✓ ecosystem |
| | <ul style="list-style-type: none"> ✓ Device Management ✓ Data Visualization ✓ Alerts & Reports | <ul style="list-style-type: none"> ✓ Location Engine ✓ Mobile App | <ul style="list-style-type: none"> ✓ Device Configuration ✓ Multi-cloud connector ✓ Data Analytics |

What key parameter/s are you looking for in LoRa module to design your smart IoT device? (Multiple selection)*

- 1 Low power consumption**
- 2 High integration (embedded MCU, small package, etc.)**
- 3 Global bands coverage**
- 4 Geolocation features**



Technical Demo:



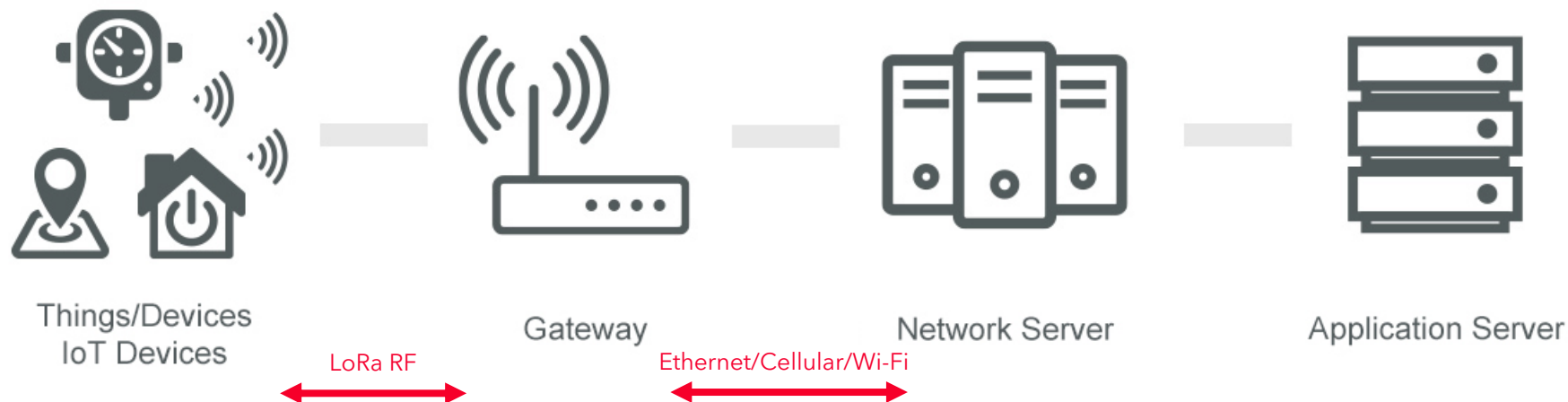
LoRaWAN® Hands-On using ThingPark Platform

Zeno Maverick
Application Engineer



Interested in creating a Tracking Application? Or simply wondering how to connect your devices to Activity's ThingPark platform?

Architecture (general)

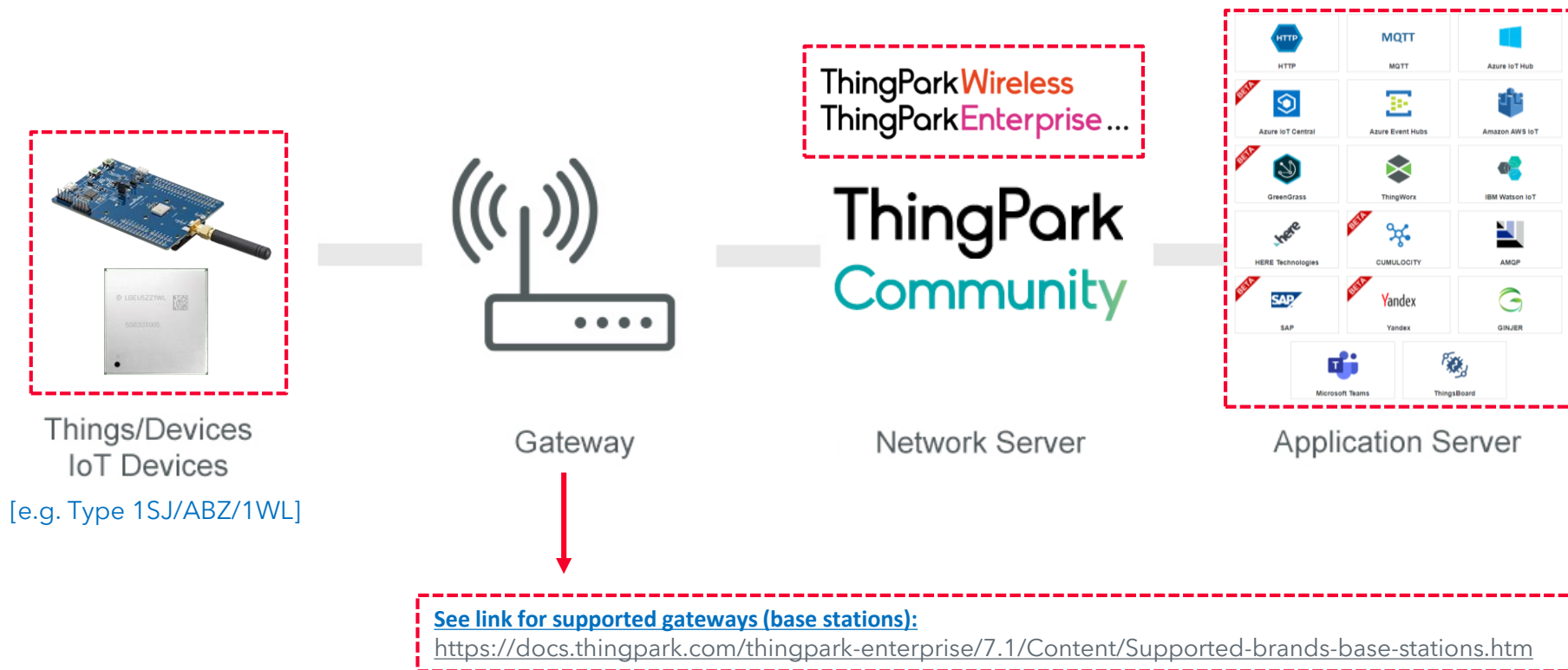


LoRaWAN® Architecture

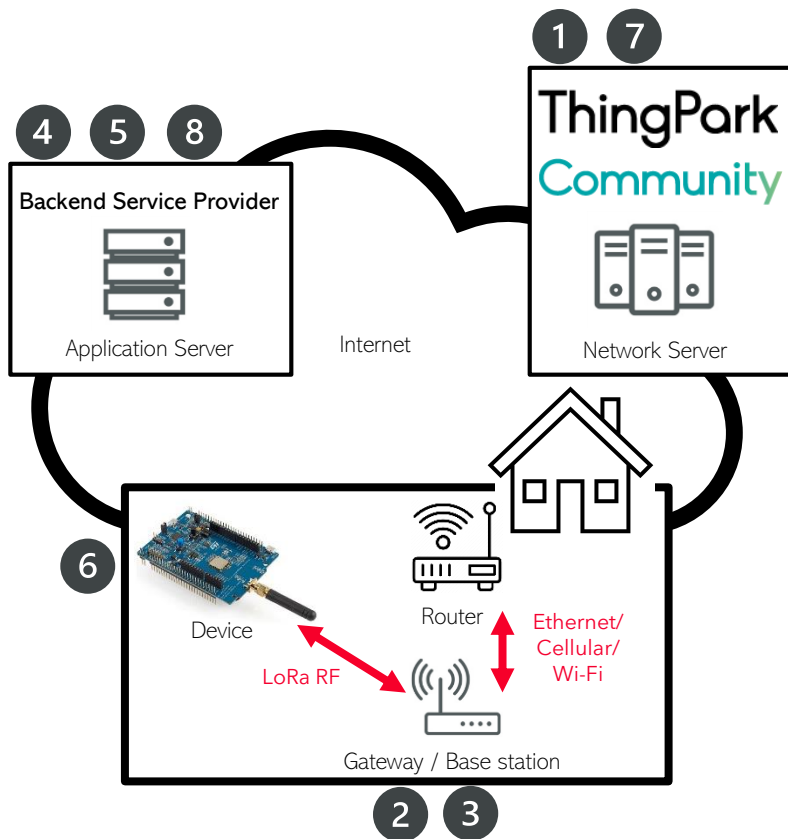
Architecture (an example)



Architecture (alternatives)



Create a LoRaWAN network in 8 simple steps



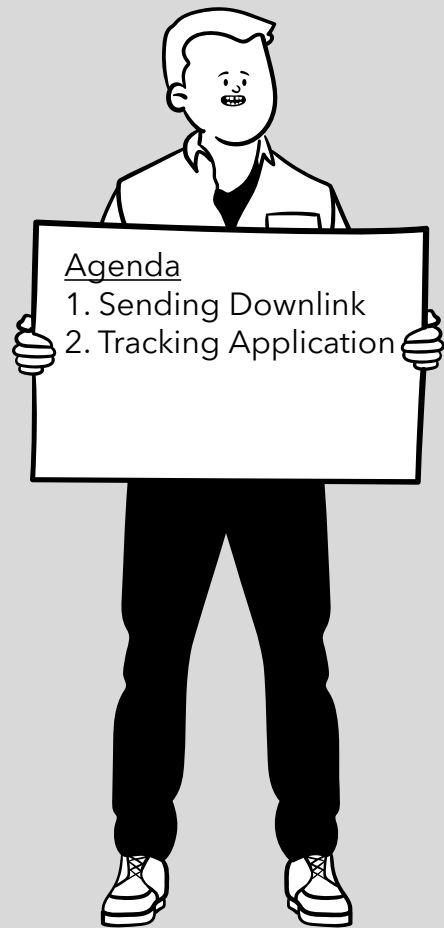
Steps

- 1 Creating a ThingPark Community Portal (TPCP) Account
- 2 Configuring our Gateway for TPCP
- 3 Provisioning the Gateway on TPCP
- 4 Creating a Backend Application
- 5 Creating a Connection on TPCP to the application
- 6 Connecting the End-Device to TPCP
- 7 Monitoring Data on TPCP
[Optional: Adding driver to decode LoRa payload]
- 8 Monitoring Data on the application

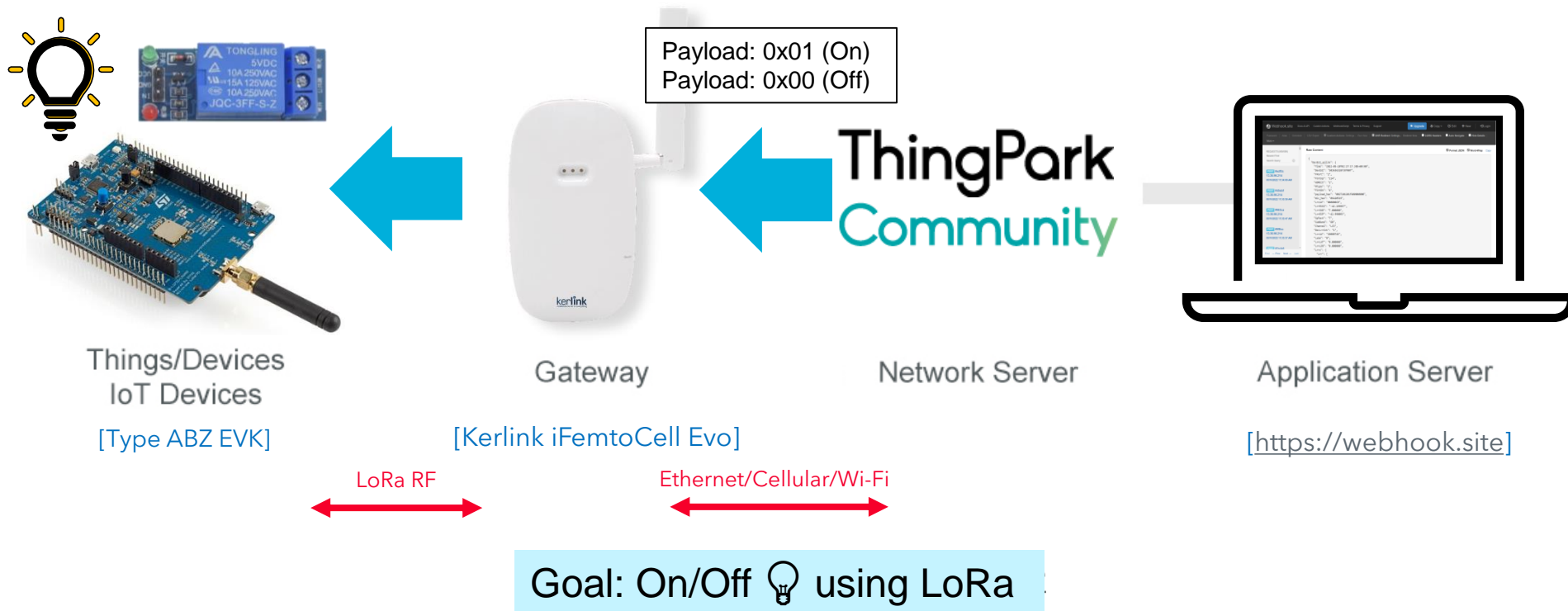
See link for in-depth guide:

<https://community.thingpark.org/index.php/hello-lorawan-and-thingpark/>

Technical Demo



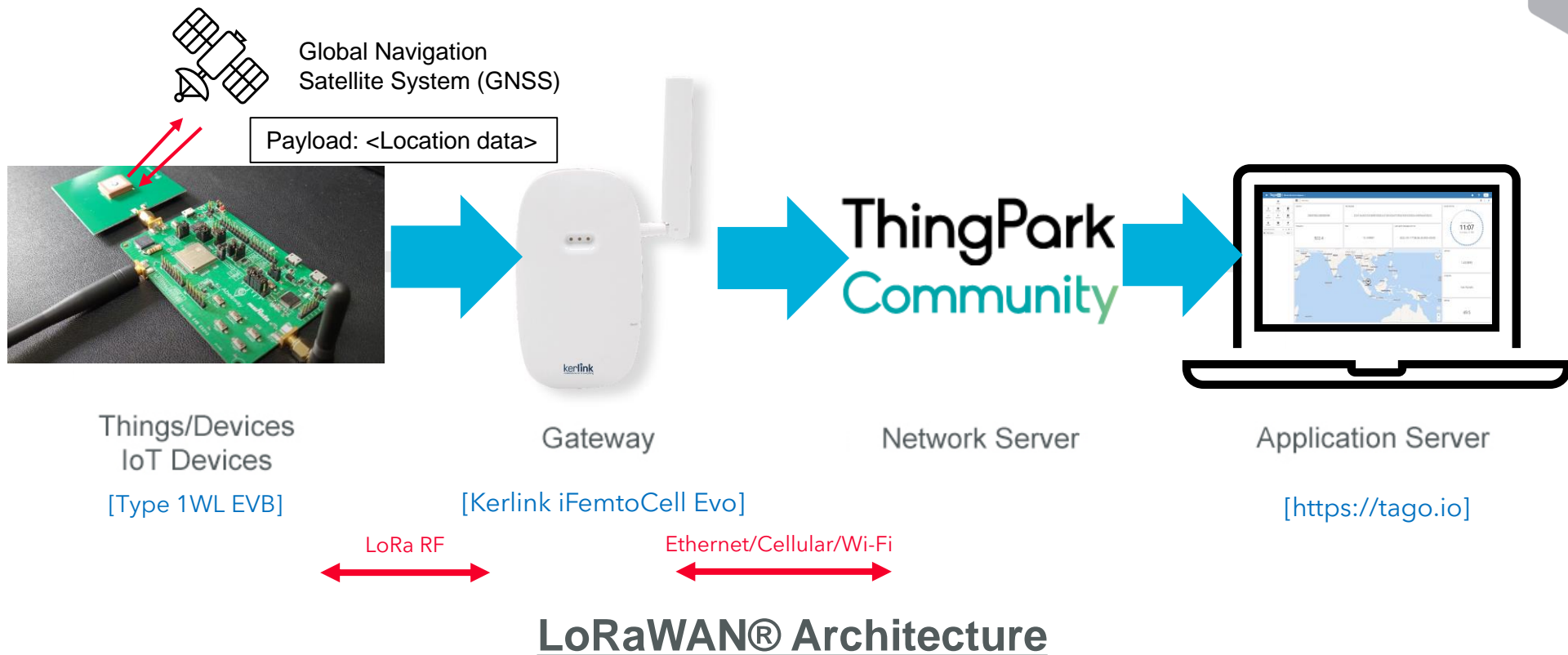
Demo 1 (Simple Downlink – Bulb On/Off)

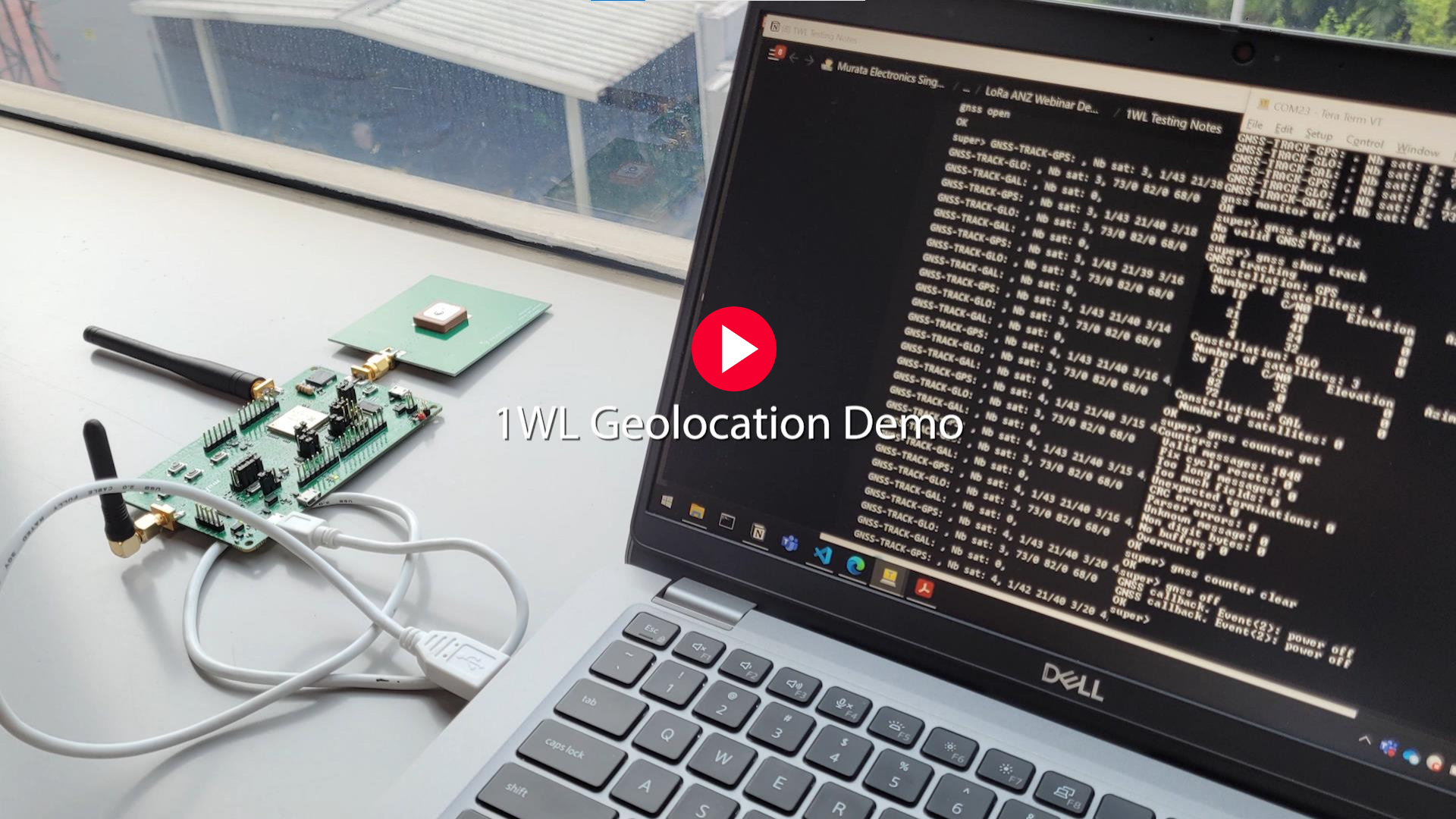




ABZ Downlink Demo

Demo 2 (Geolocation using 1WL)





1WL Geolocation Demo



- **What we've learned so far:**
 - ❑ How to create a simple LoRaWAN® network using Actility's ThingPark Community Platform (TPCP).
 - ❑ How to send downlink data from TPCP to the device.
 - ❑ How to create a tracking application with the Type 1WL EVB.

Link to Documentations



- **Hello LoRaWAN and ThingPark - ThingPark Community**
<https://community.thingpark.org/index.php/hello-lorawan-and-thingpark/>
- **Setting up ThingPark Community Platform (Network Server) and TagoIO**
<https://lora-developers.semtech.com/documentation/tech-papers-and-guides/lr1110-tracking-evk-user-guide/setting-up-your-thingpark-account/>
- **Supported gateways (base stations):**
<https://docs.thingpark.com/thingpark-enterprise/7.1/Content/Supported-brands-base-stations.htm>



Thank You!

Any questions?

Ask us in the QnA section.



Actility
Connecting with intelligence



muRata
INNOVATOR IN ELECTRONICS

Summary

■ NNNCo & Spark LoRaWAN networks

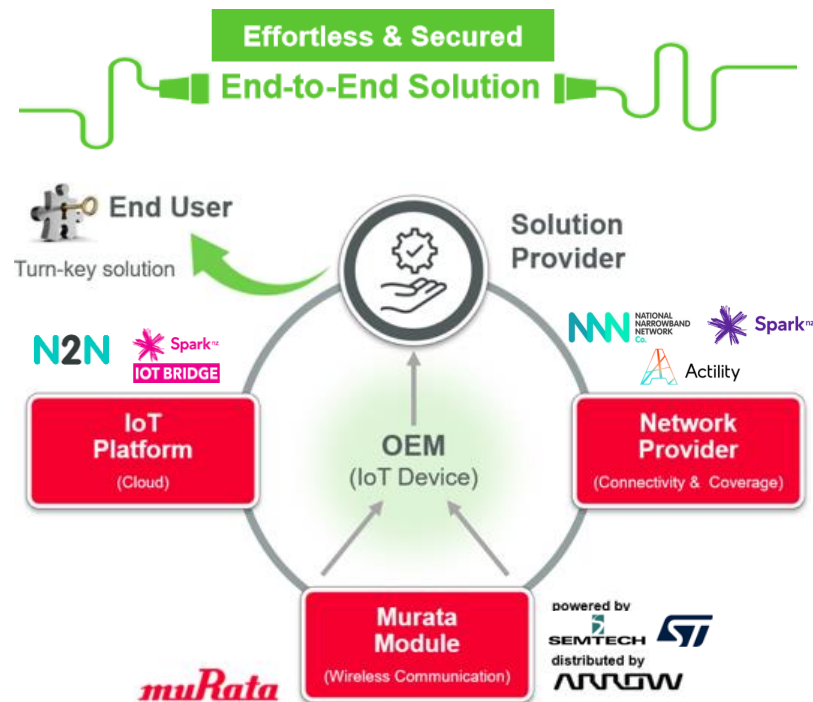
- **scaling up** of smart devices for multiple applications
- **interoperability** assured with Murata's module

■ Murata with partners

- offer 3 modules solutions – **effortlessly & securely** develop end-to-end IoT products
 - **Type ABZ**: LoRa module, multiple SW options
 - **Type 1SJ**: LoRa module, optimized performance
 - **Type 1WL**: LoRa module w/ geolocation features

■ IoT Platform services

- Device Management, Data Visualization, Alerts & Reports, Multi-cloud connector, Data Analytics etc.



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Questions & Answers

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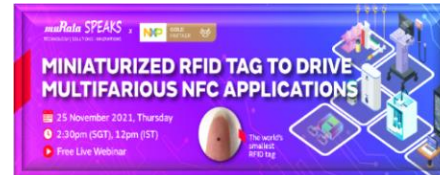
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September 2021



October 2021



November 2021



December 2021
*Thai Language



January 2022
*Bahasa Indonesia



February 2022



March 2022
*Thai Language



April 2022

Thank you for joining us today!



SCAN ME

We would love to hear from you!

Please take a moment to share with us your experience so that we can do better at future events.

<https://bit.ly/May22-Survey>

