



Activity
Connecting with intelligence

Activity Webinar Series: LoRaWAN Frontline #3

LoRaWAN Network Collaboration (a.k.a., Roaming)

LoRaWAN: Autonomy

Low-cost infra + Unlicensed band → Organic growth!



Home



Commercial building



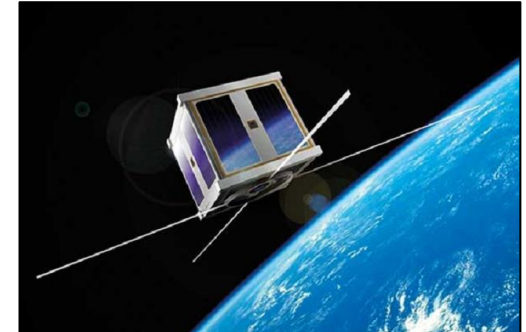
Campus



City

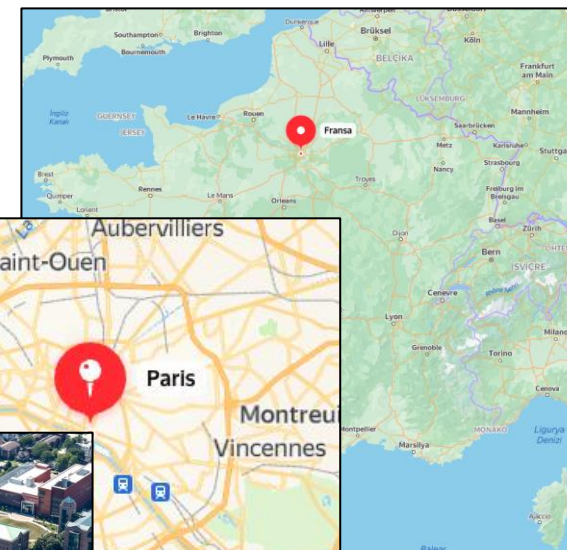
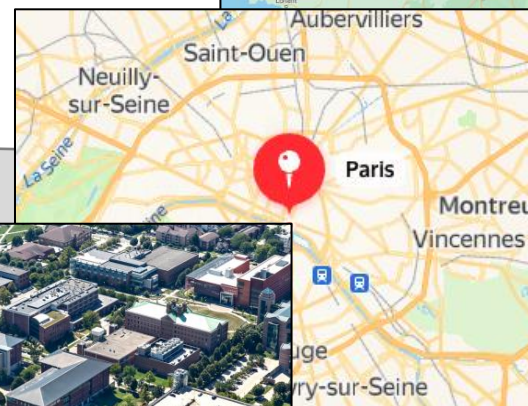
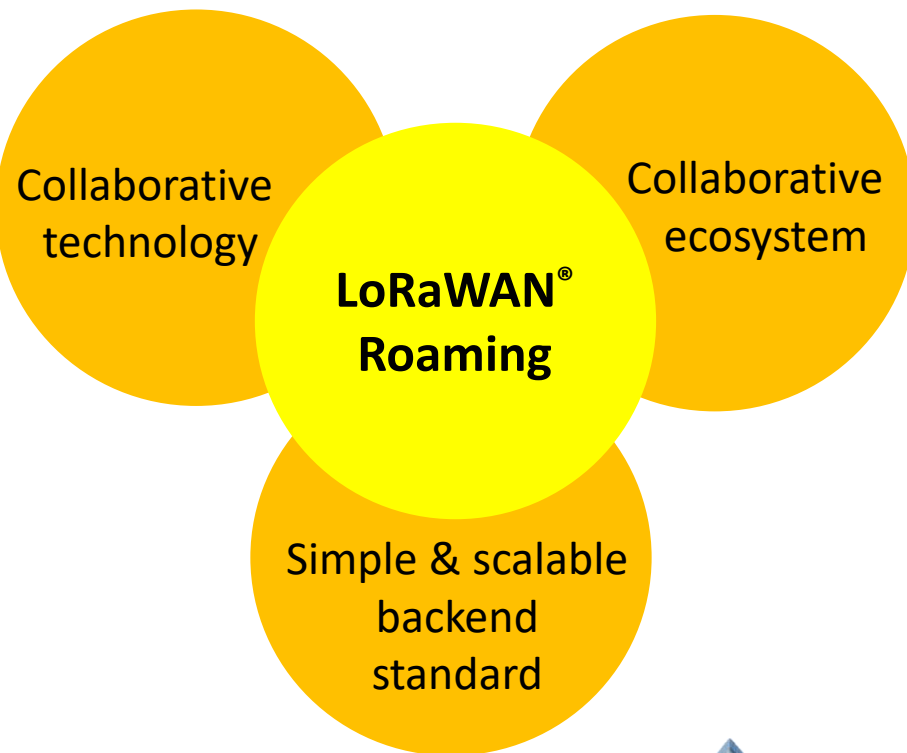


Country

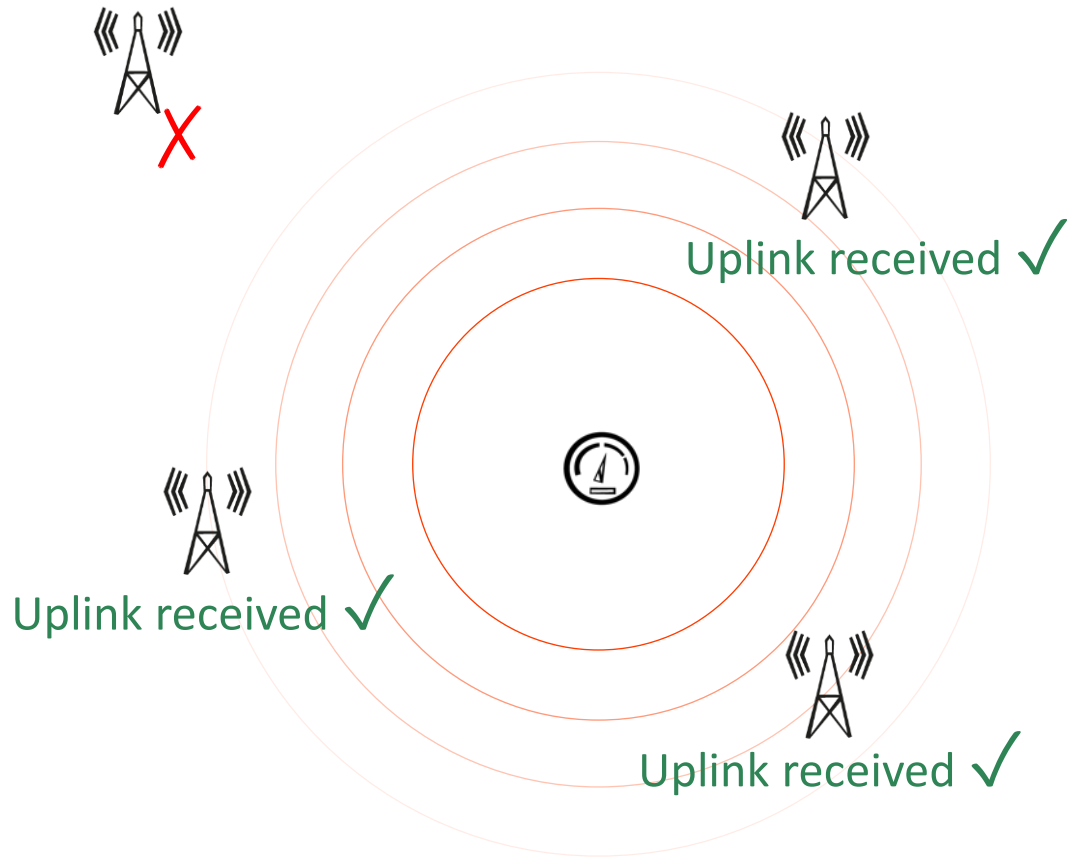


Planet

LoRaWAN: Unity

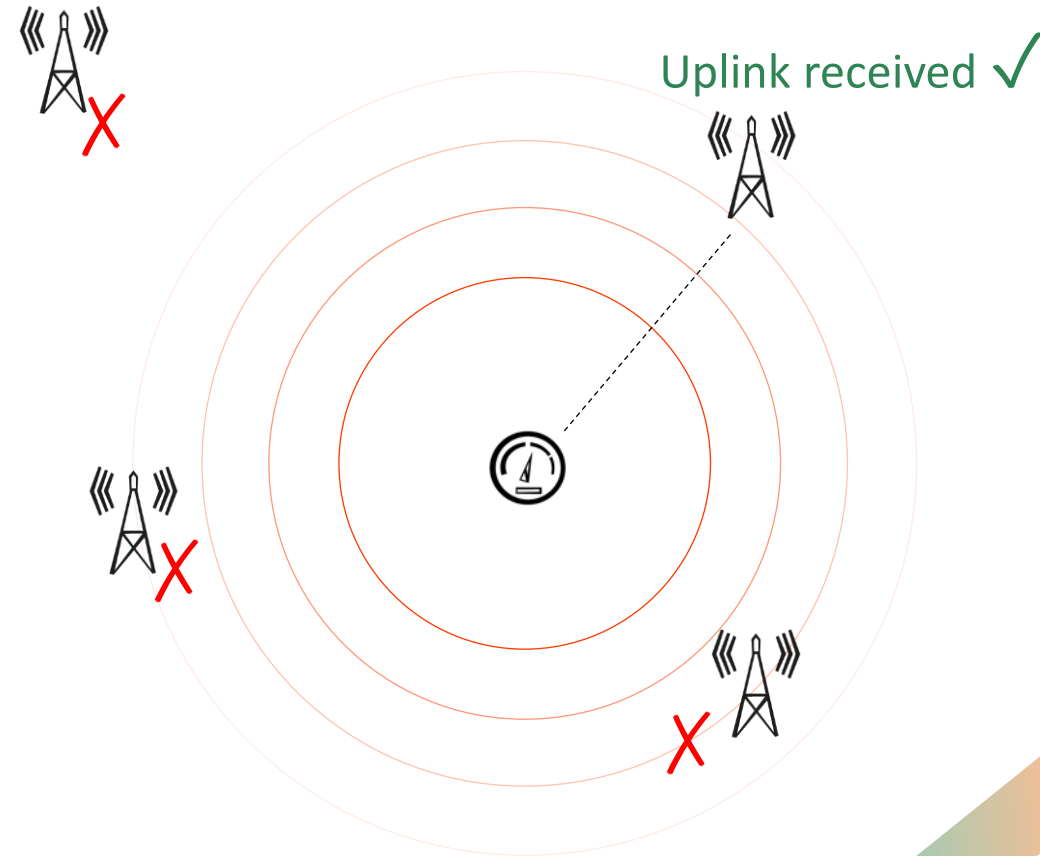


Collaborative Radio: Macro-Diversity



LoRaWAN®

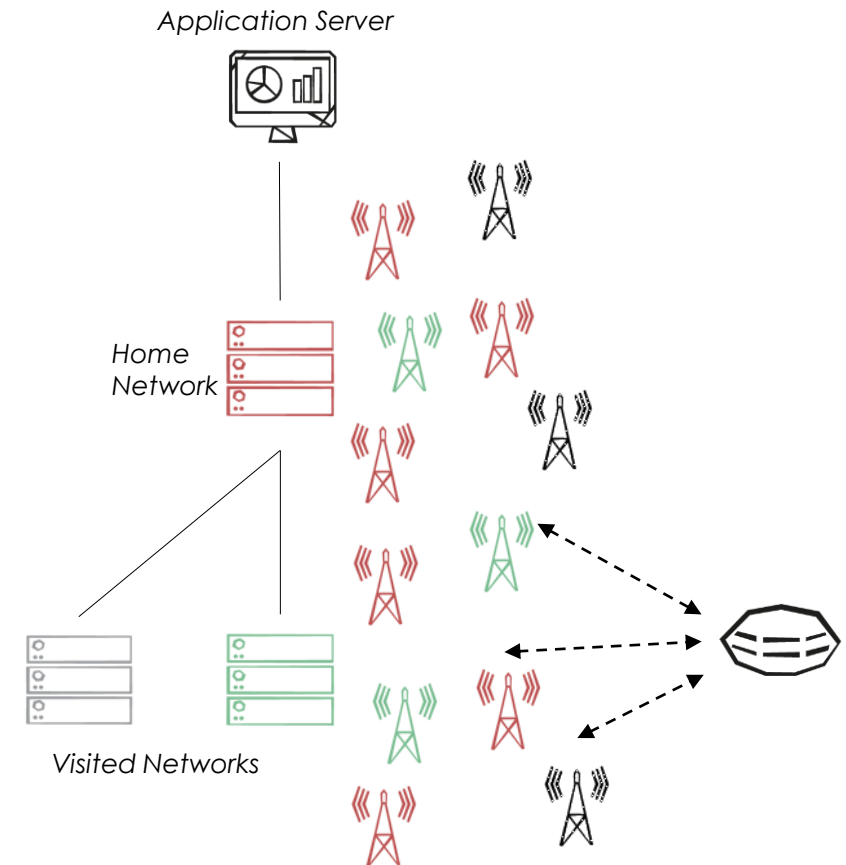
Activity



NB-IoT/LTE-M/5G/WiFi

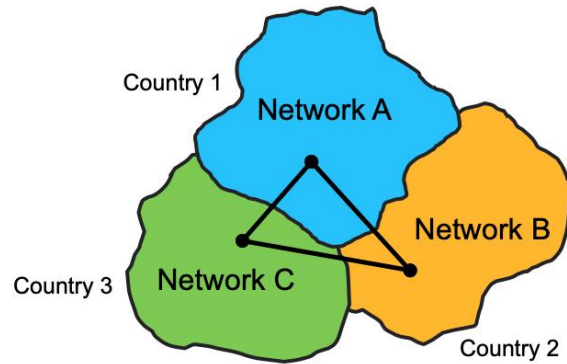
LoRaWAN® Passive (Transparent) Roaming

- Coverage extension → Necessity
- Coverage densification → Differentiation
 - Macro-diversity via Passive Roaming not possible with cellular IoT & Sigfox
 - Device battery consumption reduction
 - Interference reduction
 - Network capacity increase
 - Geolocation improvement

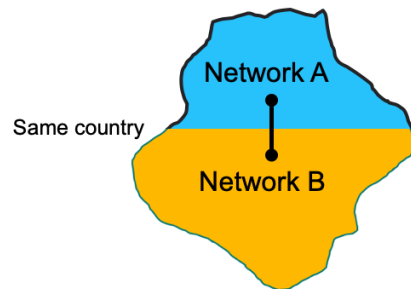


Flavors

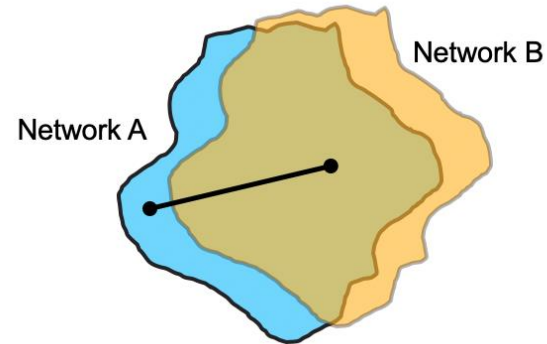
Coverage Types



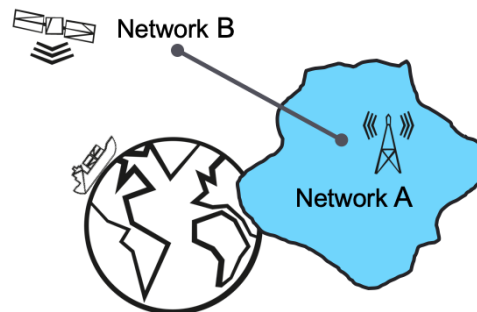
1. International complementary coverage (extension)



2. National complementary coverage (extension)

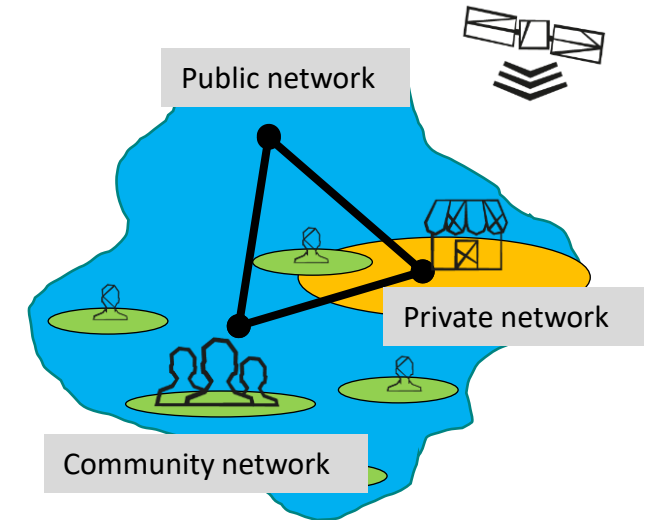


3. National overlapping coverage (densification)

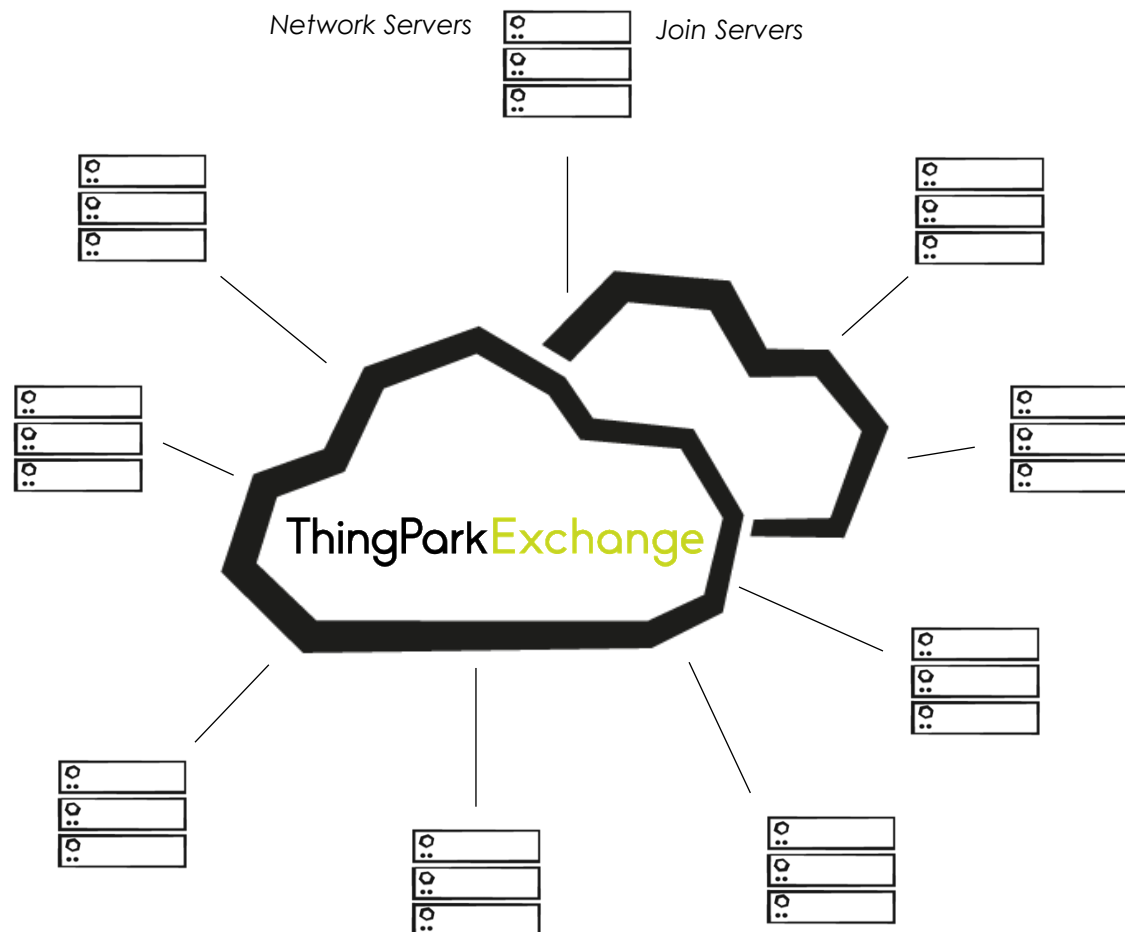
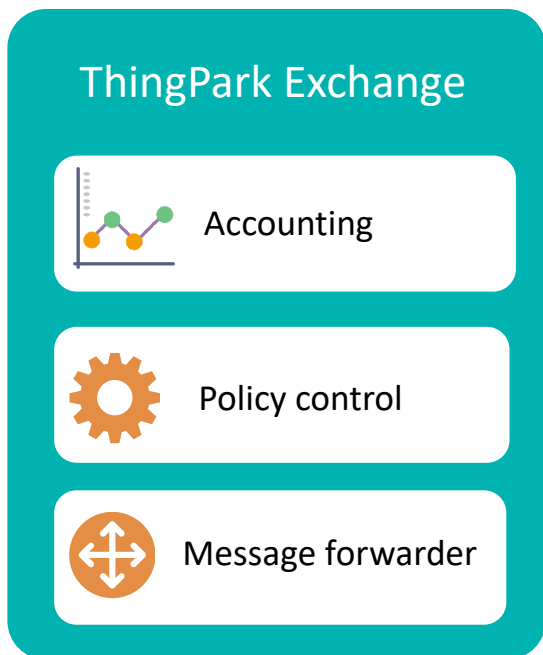


4. Satellite-terrestrial roaming

Network Types

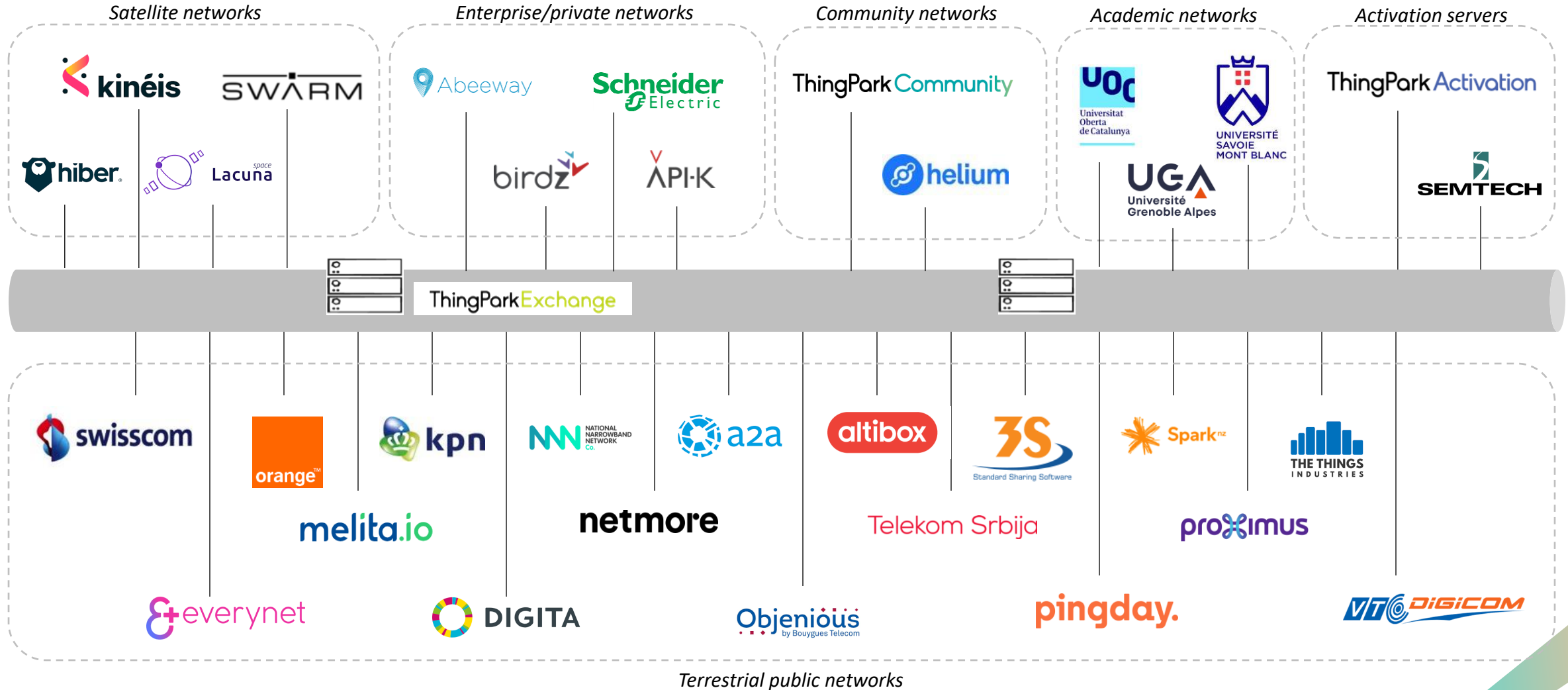


Peering Hub

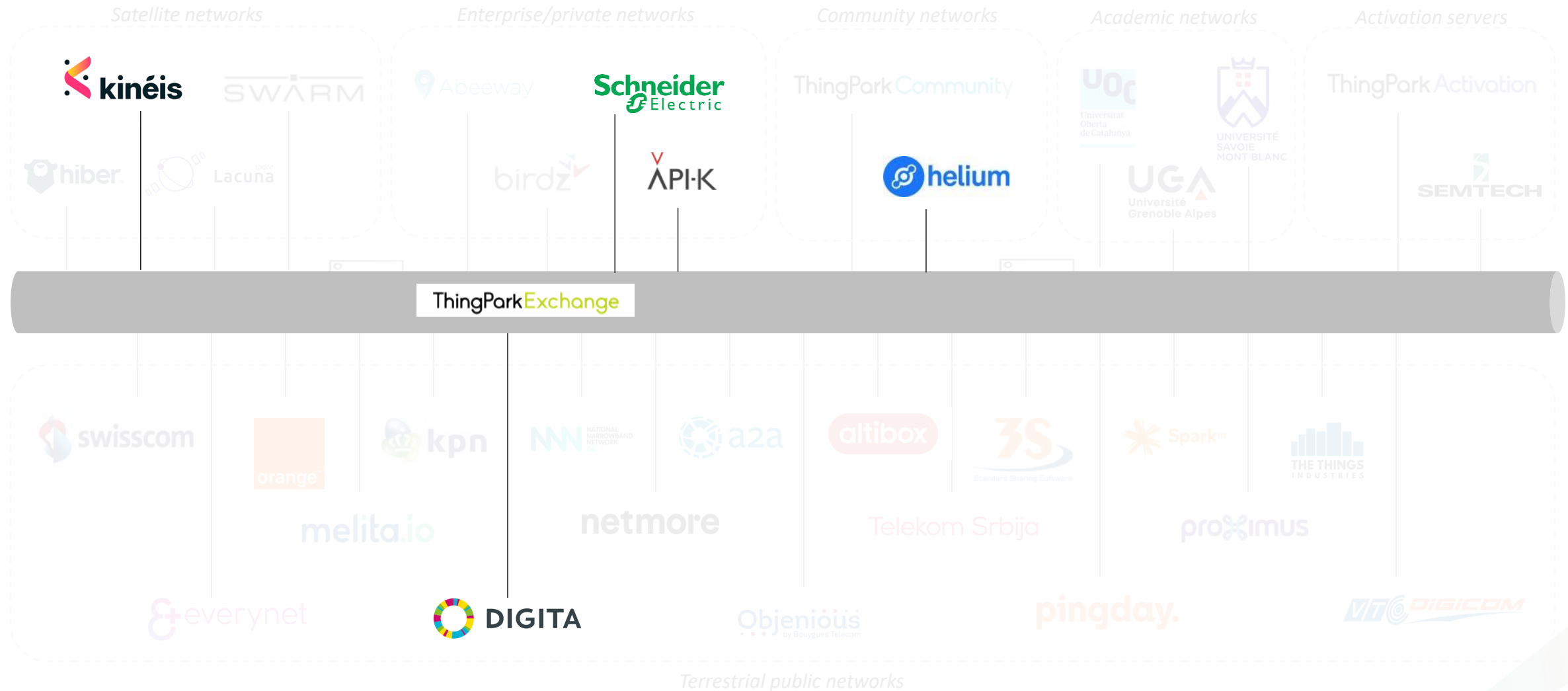


- Public & private & community networks
- Terrestrial & satellite networks
- Roaming & Activation
- Actility & non-Actility networks (standards-based)
- Global service

LPWAN Backbone



LPWAN Backbone





Activity

Supporting customers on multinational markets with LoRaWAN roaming

Digita Oy

Ari Kuukka

7th Dec 2021



DIGITA

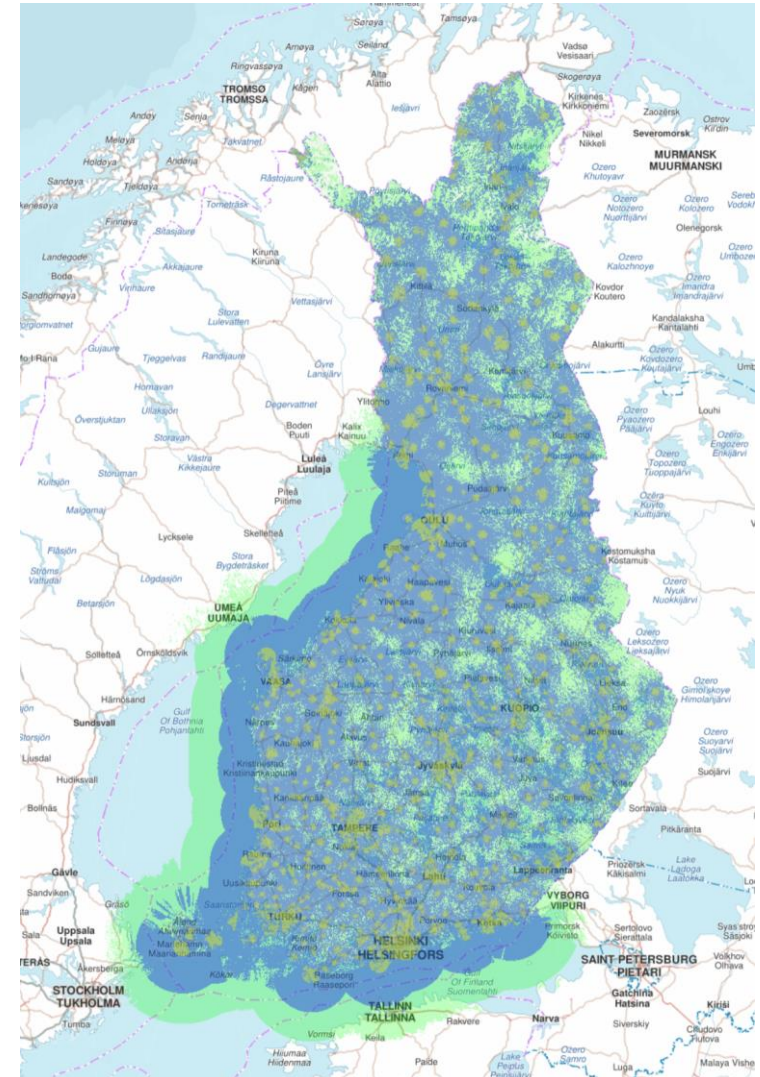
Agenda

- Digita Oy
- Real-life customer cases for roaming
- Roaming supporting customer growth & success
- Roaming driving LoRaWAN growth & success
- Great roaming customer experience



Digita Oy

- Digita provides wide variety of digital infrastructure services to its customers: TV and radio broadcasting, IoT networks and services, private 5G networks, as well as telecom sites and datacenter services.
- Turnover 80M€ with 200 employees based in Finland.
- Digita is owned by DigitalBridge Group, Inc., one of the world's largest digital infrastructure companies.
- Nationwide LoRaWAN network in Finland, covering >99% of the country with deep indoor coverage in all cities.



Real-life customer cases for roaming



- Multinational wood products manufacturer, with their own production facilities and large number of end customer sites in multiple countries around the world.
- IoT solution provider for construction industry, expanding their sales from Finland to other European countries.
- Indoor air quality monitoring services company, bidding for multinational real estate customer projects.
- Industrial equipment vendor, with end customers around the world, developing LoRaWAN based add-on solution for their products located on end customer facilities.
- Environmental services company looking for asset tracking solution for their Scandinavian home markets

Roaming supporting customer growth & success

- The geographical footprint for IoT solution deployments is growing
 - Multinational enterprises, with their own facilities in many countries
 - Solution providers, expanding their business from the home market to other countries
 - Logistics companies transporting goods between countries
 - Consumer solutions for people travelling
- Simplicity is a business advantage
 - Ease of expanding the business footprint
 - Avoiding multiple integrations and management platforms supports technical & operational efficiencies
 - Commercial predictability on multi-national markets
- LoRaWAN is great for mobility
 - LoRaWAN fits most mobile use cases very well within same network
 - Opportunity to expand the same customer benefits for larger scope & footprint

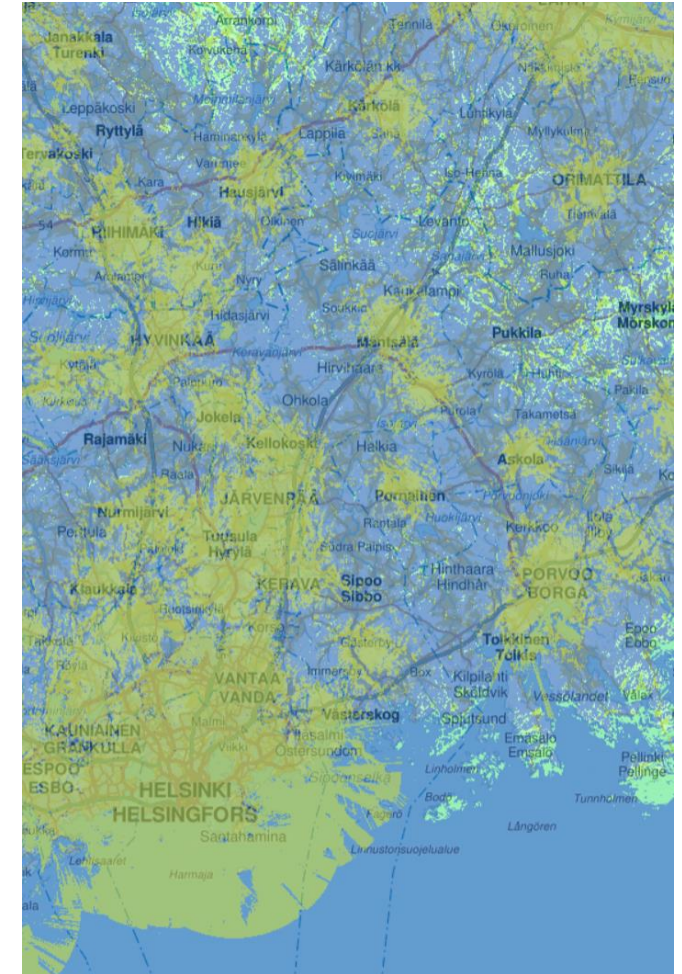
Roaming driving LoRaWAN growth & success



- Customer landscape is maturing
 - From smaller IoT pioneers to larger and more multinational enterprises
 - From national footprint to EU-wide or global markets
- Customers increasingly looking for LPWAN connectivity solutions scaling to multiple markets
 - Logistics
 - In-house solutions for multinational enterprises
 - Multinational customer marker for solution providers
- None of the competing technologies really solve the challenge today
 - Opportunity for LoRaWAN take the leading position and define the multinational LPWAN market

Great roaming customer experience

- Good roaming customer experience is more than operator APIs
- Network coverages & service levels
 - Varying use cases: indoor vs outdoor vs deep indoor
- Uniform and predictable pricing
 - Use cases from 1 message per day to hundreds
 - Permanent & stationary or mobile country-to-country
- Device compatibility
- Take away the complexities from end customers, allowing them concentrate on their business



Thank you!





IoT Sensors Program Manager – Maxime Loidreau – 7th of December 2021

LoRaWan® Deployment at Schneider Electric

Schneider Electric, leading the digital transformation of Energy Management and Automation

€24.7 billion

FY 2017 revenues

~5%

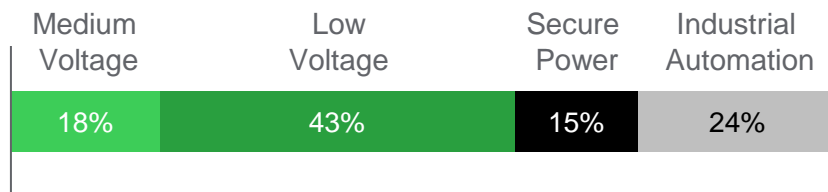
of FY revenues devoted to R&D

142,000+

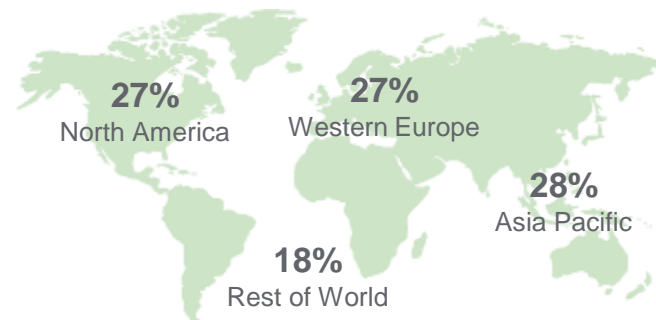
people in 100+ countries

Our Products & Solutions

– FY 2017 revenues



Balanced geographies – FY 2017 revenues



Our Challenge: Connect the unconnected assets...

Many of our assets are difficult to connect...

Our assets are...

...placed in location like
basement or technical cabinet

"Deep indoor"

...have no access to IT networks
... are installed early in the
building phase

...sold via a chain of
intermediaries

"Remove complexity"



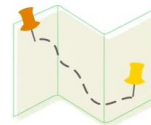
...for 20 years in the field

"Low TCO of connectivity is
mandatory"

LoRaWan® at Schneider Electric



LOW BANDWIDTH



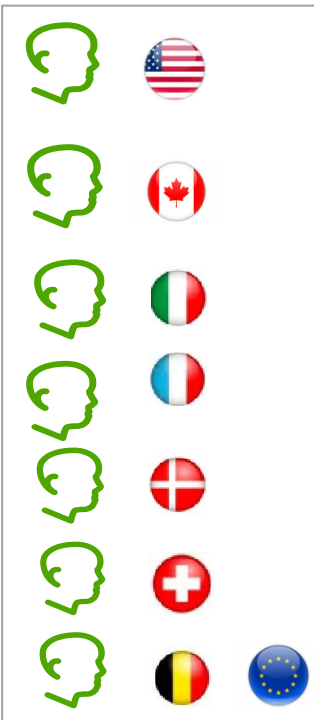
LONG DISTANCES



LOW COST

Our Challenge over the whole chain

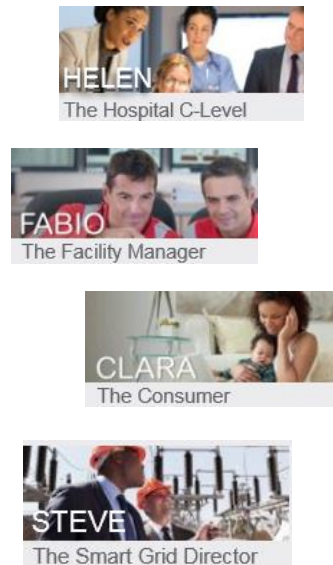
Countries Front Office / sale



Intermediaries



End Customer



Need to remove the complexity from the field:

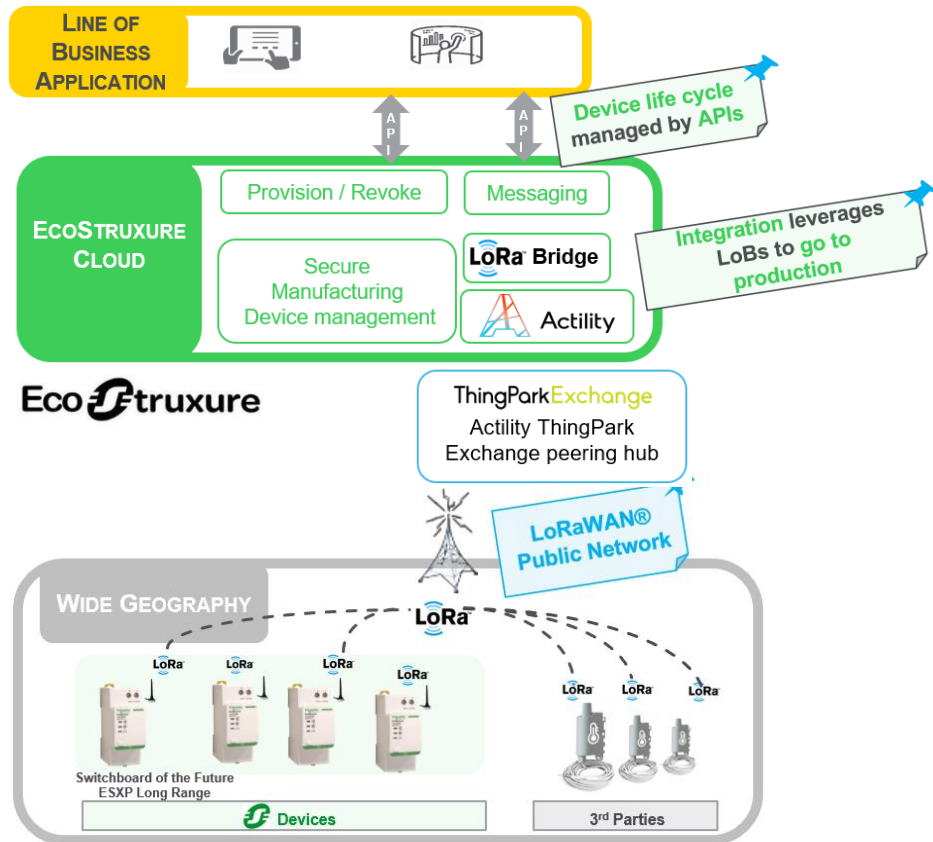
- ⇒ Unified Enrolment process
- ⇒ Seamless Integration
- ⇒ Ensure Cybersecurity by design / Secure Manufacturing

⇒ **“Schneider Electric Network”**

Challenges: **Security** and **ease of use**

- End to End Cybersecurity
- Unified enrollment process for diversity of our Offers and for various geography
- Unified access to Public and Private Network worldwide

Leveraging the Complementary of hybrid architectures “Public + Private” network



Schneider Electric launching “Easy Smart Panel”



Smart electrical panels for simple and efficient maintenance

Commercially launched since
March 2019 in France,
Switzerland, Belgium

*Looking forward to launch in
other geographies...*

Heat Damage Prevention

- *FireTag*: wireless sensor to generate alert by detecting overheating cables through gas emissions



PrismaSet Active

Mobile platform for maintenance

- *EcoStruxure™ Facility Expert*: cloud-based application for managing maintenance plans, real-time notification of alert and simple energy monitoring

Wireless Energy measurement & Voltage loss Alarm

- *PowerTag*: wireless energy sensors continuously measure power and generate alert notification for voltage loss.



PrismaSet active

Life Is On

Schneider
Electric

Looking forward to scale up together...

Global coverage



LoRaWAN
Connectivity

Schneider
Electric
Cloud



Schneider
Electric
Line of
Business

Global Business



Easy global connectivity over LoRaWAN®
ecosystem is mandatory to reach maturity phase

Life Is On



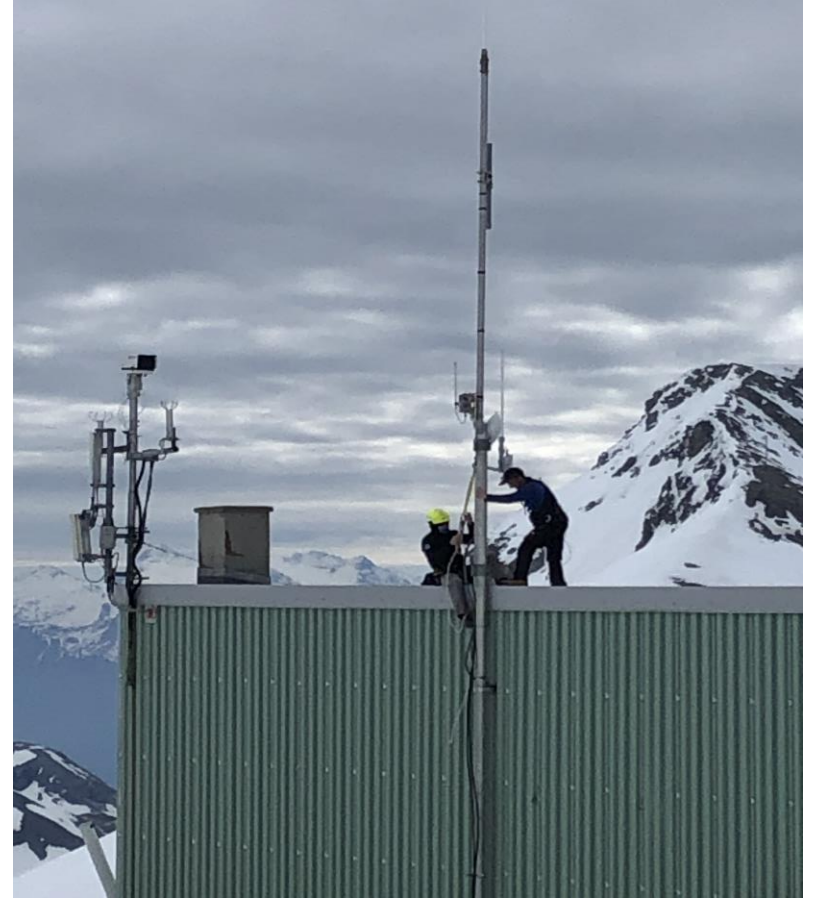
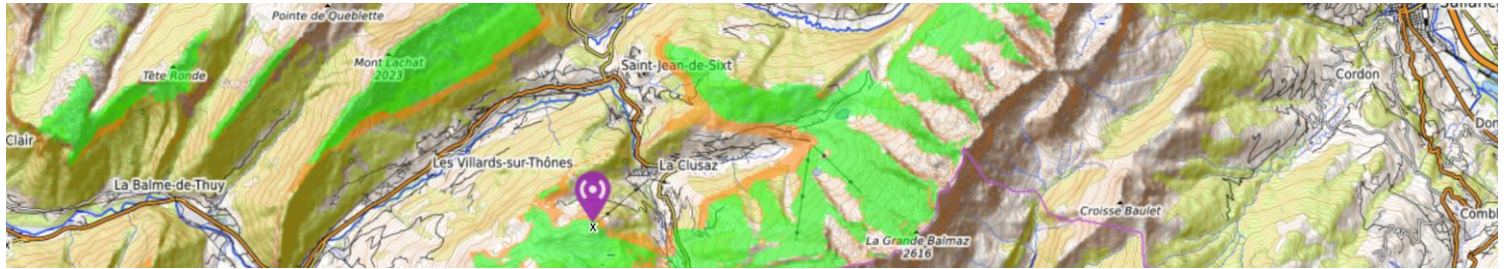
Schneider
Electric

V API-K

SÉCURITÉ ET GÉOPOSITIONNEMENT

LoRaWAN Interface
API-K / Birdz

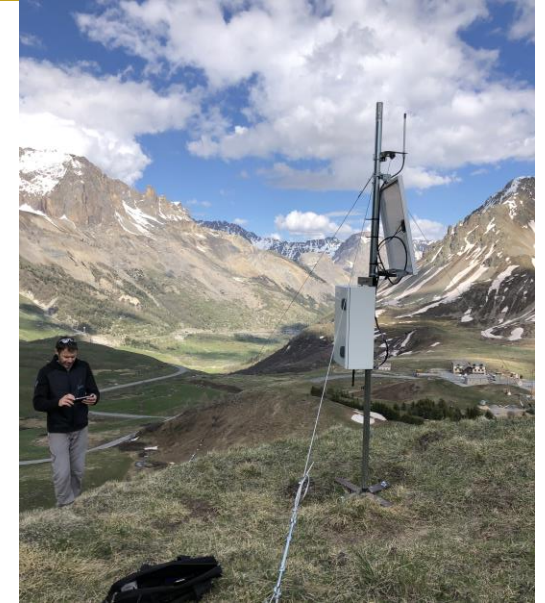
Mountains: Not the usual gateway deployment

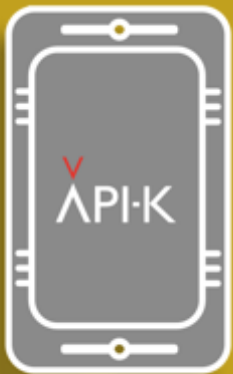


Mountains: Not the usual gateway deployment



- Difficult cellular backhaul
- Temperatures
- Wind & icing
- Solar supply
- Hard to reach
- Sometimes deployed for a few days (sports events)

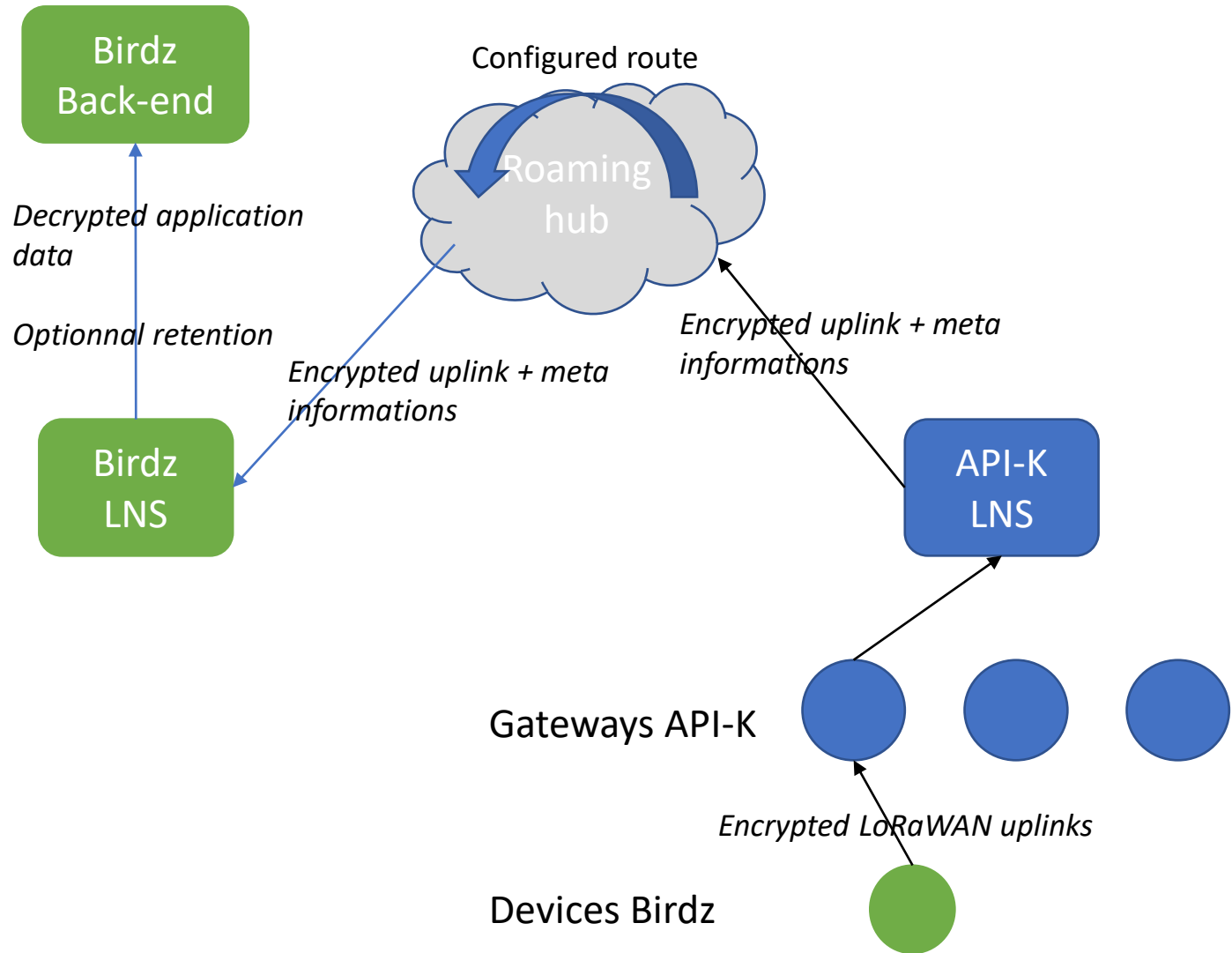
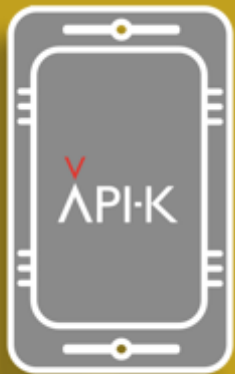




Following the terms of « back-end interface »:

- API-K is the « forwarding network »
- The LNS instance of birdz is the « home network »
- The water meters are provisioned in the birdz LNS = homeNS.
- The devices can join over the API-K gateways, Birdz LNS gives them a devAddr starting with birdz netID







- No application/provisioning interface changes on Birdz's side
- No specific connector to implement on API-K's side
- Birdz has complete ownership&control of device management
 - Provisioning
 - Inventory
 - Adaptive Data Rate => battery life
- Standard backend interface

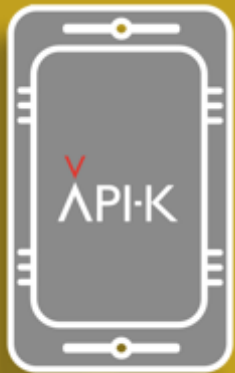


API-K & Birdz agree on :

- The average number of packets per day per device to route
- The number of devices per location
- A yearly price per device

At the end of the year API-K simply checks that traffic & device number are within agreed limits

No complicated metrics, no bean counting 😊



Thank You !





THE WORLD'S LARGEST WIRELESS NETWORK WITH A BLOCKCHAIN.

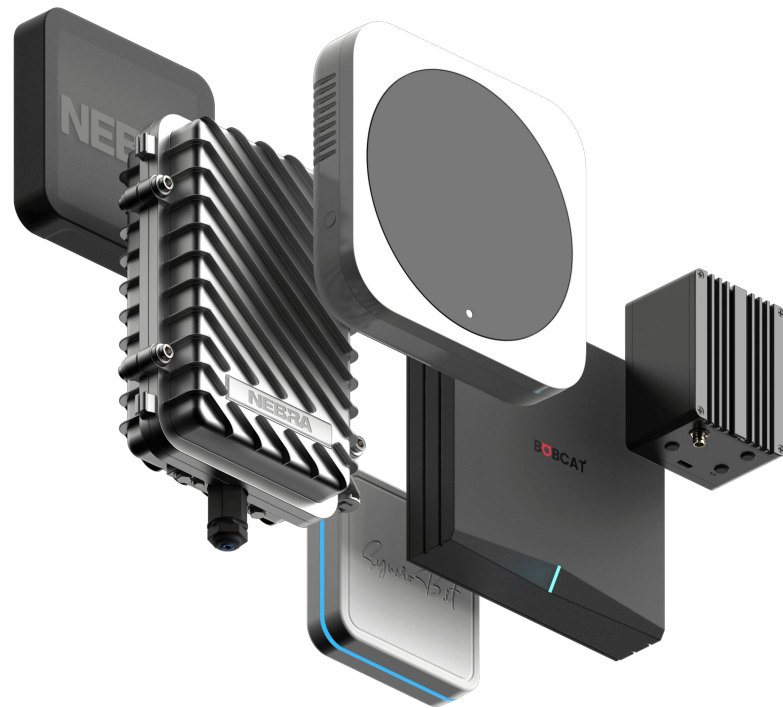
HELIUM

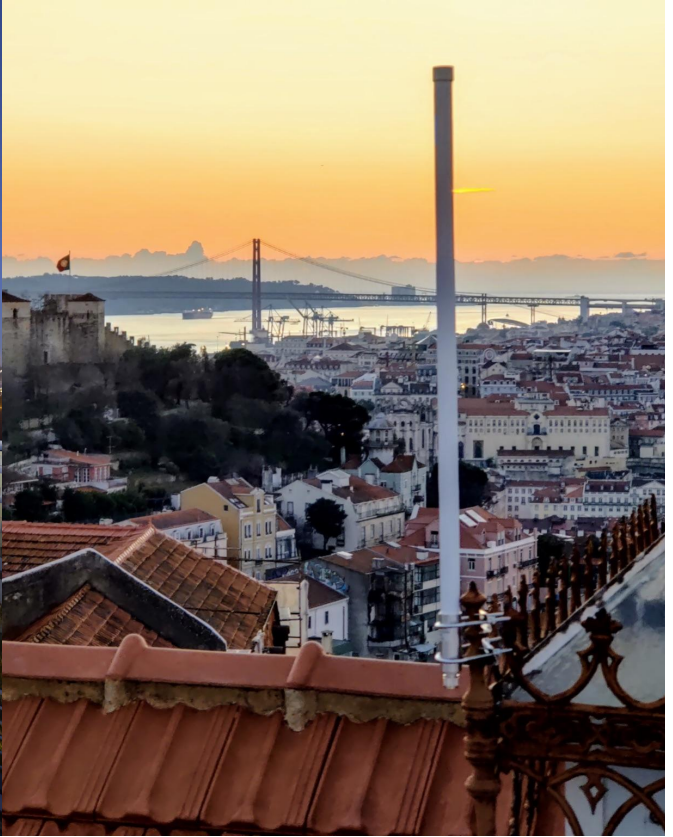
Speaker: MARK PHILLIPS - VP, BUSINESS DEVELOPMENT

What is a Helium Hotspot?

Hotspots create long-range wireless coverage which is then used by IoT and (soon) 5G devices.

In exchange for this, the blockchain rewards Hotspot operators with \$HNT, the native token of the Helium blockchain.





450K+

Estimated Hotspots on
the Helium Network at
EOY 2021

\$4.3M+

Data Credits spent in
last 30 days

152

Countries with Helium
Network Coverage

29,000+

Cities with Helium
Network Coverage

145K+

Hotspot Operators
deploying globally

120K+

Active Community
Members on Discord

1M+

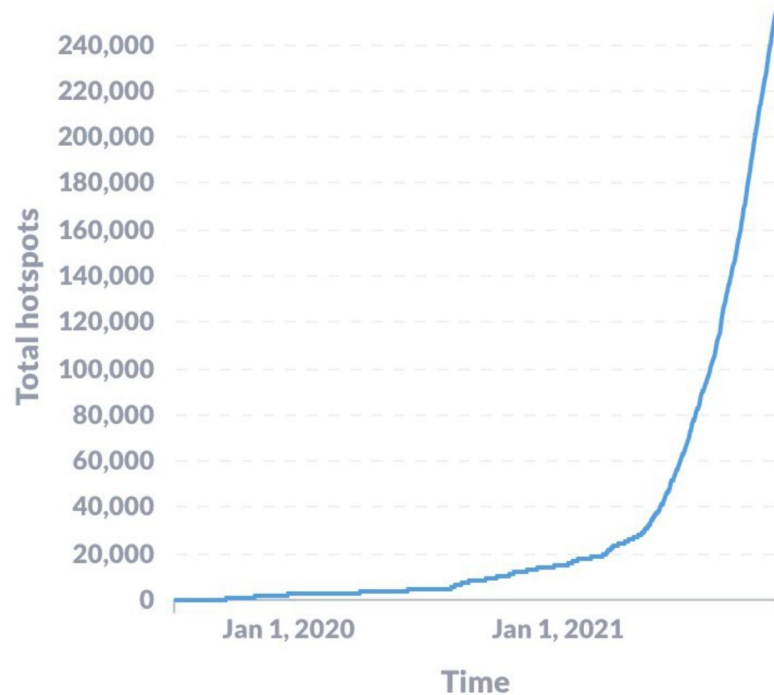
Daily Views on TikTok

25 (+40)

Hotspot Manufacturers
(Makers)

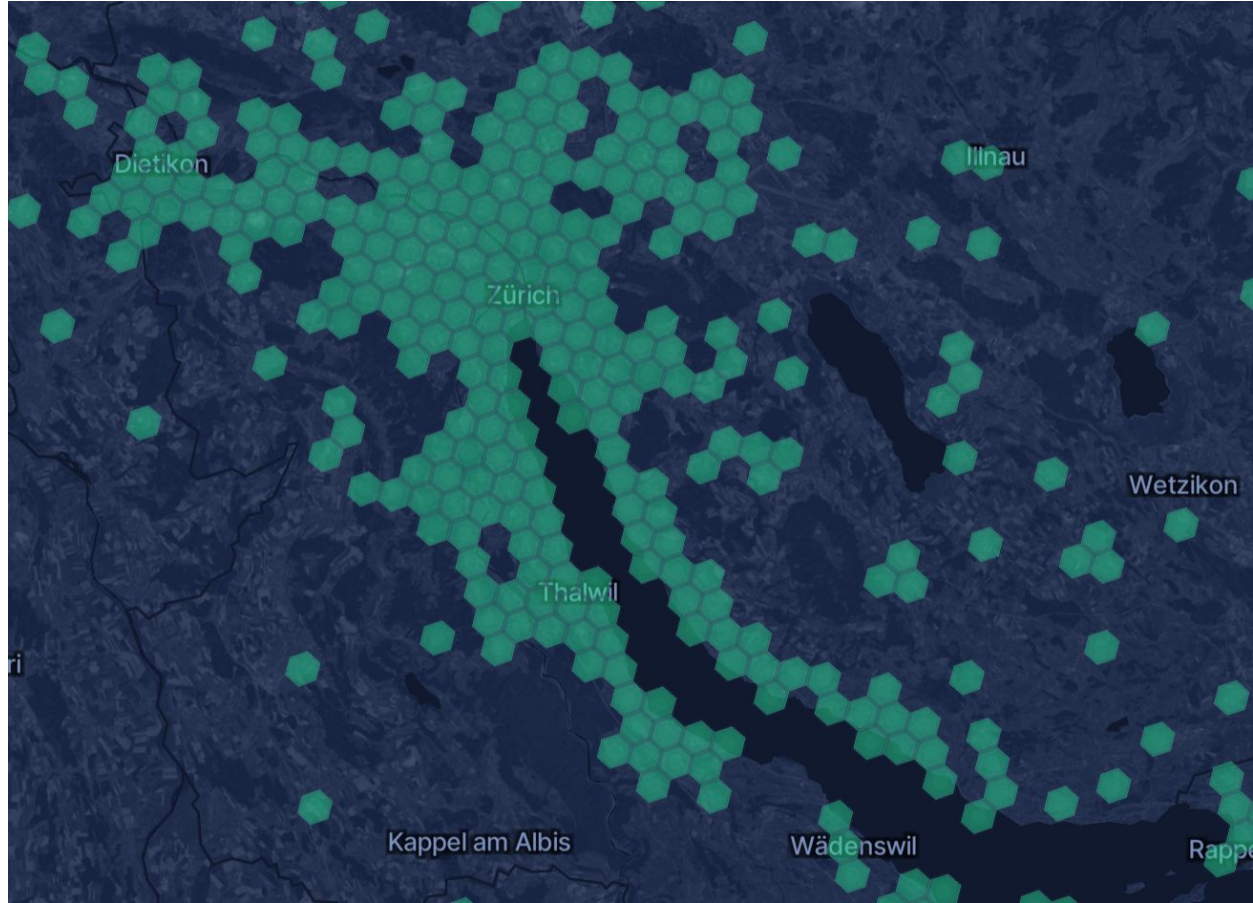
A PROVEN DEPLOYMENT MODEL

Since launching with 200 Hotspots in August 2019, the Helium Network has shown exponential growth.



HELIUM IN ZURICH

As of today, over
300 Hotspots online
in Zurich alone.



HELIUM NETWORK USERS

Developer, startups, and enterprises use the Helium Network as the foundation for sensor-based, IoT applications.





THANKS!

Mark Phillips

@pharkmillups (everywhere)

mark@helium.com

Join The Movement

discord.gg/helium

explorer.helium.com

helium.com/mine

github.com/helium

twitter.com/helium

Kinéis covers every single place on Earth

Satellite operator



40+ years
experience



Service
available



25 nanosats
in 2023



20 ground
stations

Global connectivity provider



Truly global
24/7



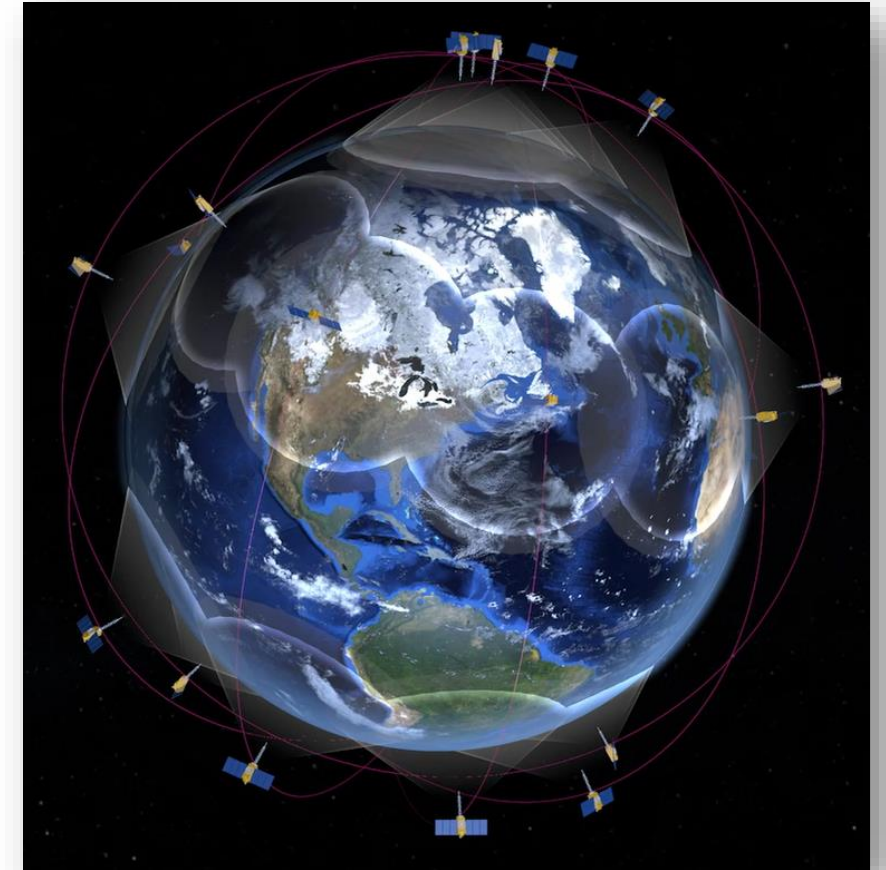
Low
data rate



Easy &
reliable



Low
consumption



Kinéis 2023 constellation

IoT with Kinéis: a whole range of applications

Sciences & Environment



NGO



Maritime



Smart Agriculture



Outdoor activities



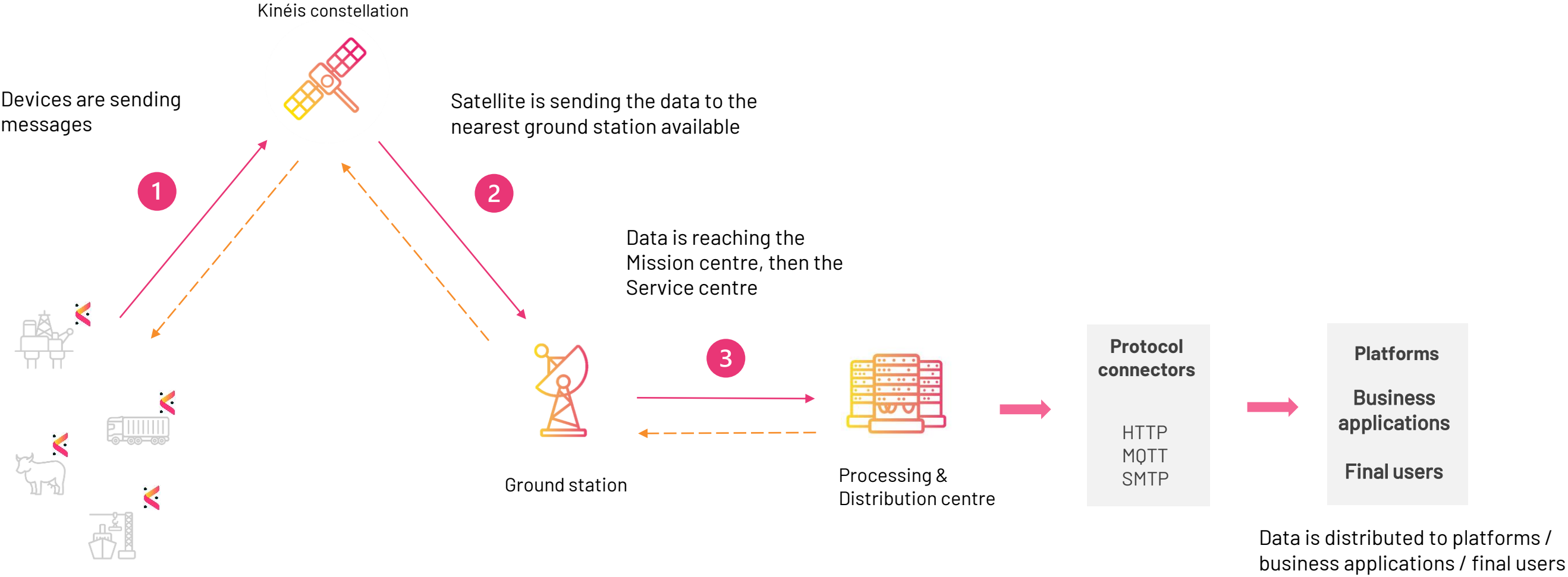
Networks &
Infrastructures



Transports &
Logistics

< **Kinéis** provides a **truly global** satellite connectivity to cover every single place on earth >

Kinéis data distribution architecture



We announced the integration with Actility early 2021

Satellite network coverage
now available to any
terrestrial LoRaWAN®
network provider



Customers can now receive IoT
data **seamlessly aggregated** from
Kinéis or any LoRaWAN®
operator through ThingPark –
Actility's IoT platform.

Integration with Actility ThingPark solution

Kinéis-ready devices



Kinéis Service Centre

- + Device management
- + User management
- + Data access & monitoring
- + Contract management

Protocol connectors

Data distribution



ThingPark RAN connector

ThingPark Exchange

LoRaWAN Operators

Customer integration

Customer Platforms

Business applications

Final users

< By getting integrated with the ThingPark Exchange ecosystem, Kinéis makes the satellite network coverage available to any terrestrial LoRaWAN network provider, public or private >

Use case illustration



An asset is monitoring with a device using private LoRaWAN connectivity within a private industrial site



Using Kinéis or private LoRaWAN connectivity depending on coverage available on site



Using Kinéis connectivity through transport and delivery



With theThingPark Exchange integration, Actility and Kinéis provide a ready-to-use solution to manage hybrid connectivity and bring an answer to use cases where continuity of connectivity is needed.