



internet
made in france

LPWAN- July 03rd 2025

- Simplifying LoRaWAN Applications with DNS

- Sandoche BALAKRICHENAN

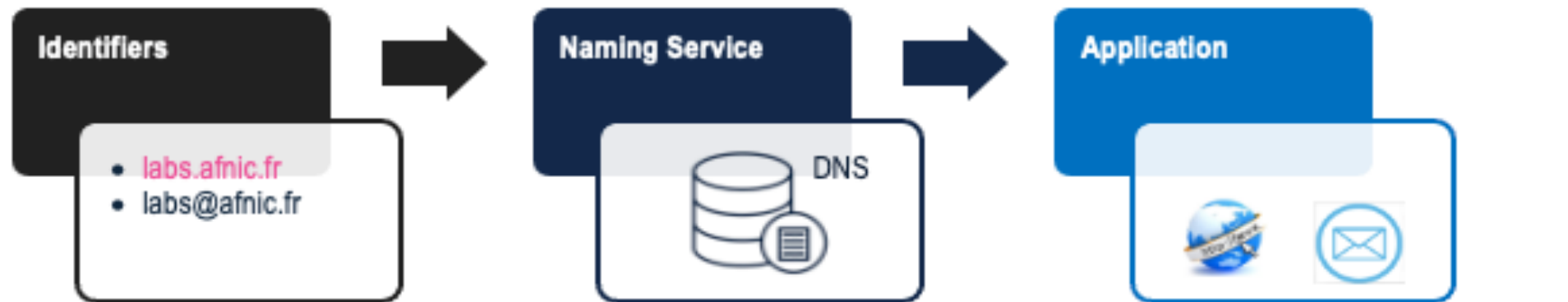
Multi-Stakeholder in the Internet - works well

1. Naming Conventions

IETF is the SDO

- Domain names, URI
- IP Addresses (IPv4/IPv6)

3. Resolution

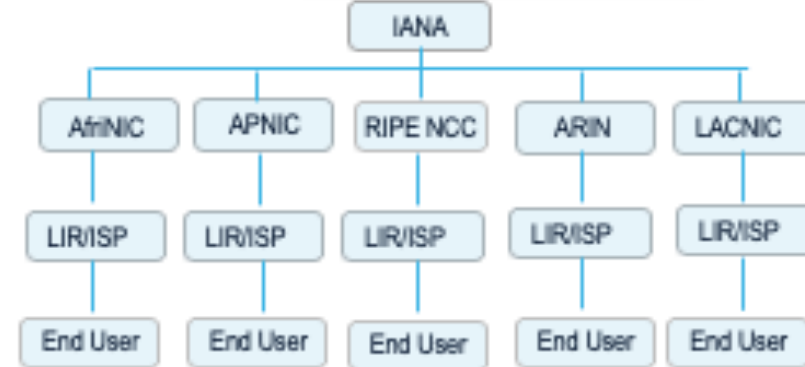


2. Provisioning

2.1 Domain registry



2.2 Internet number registry



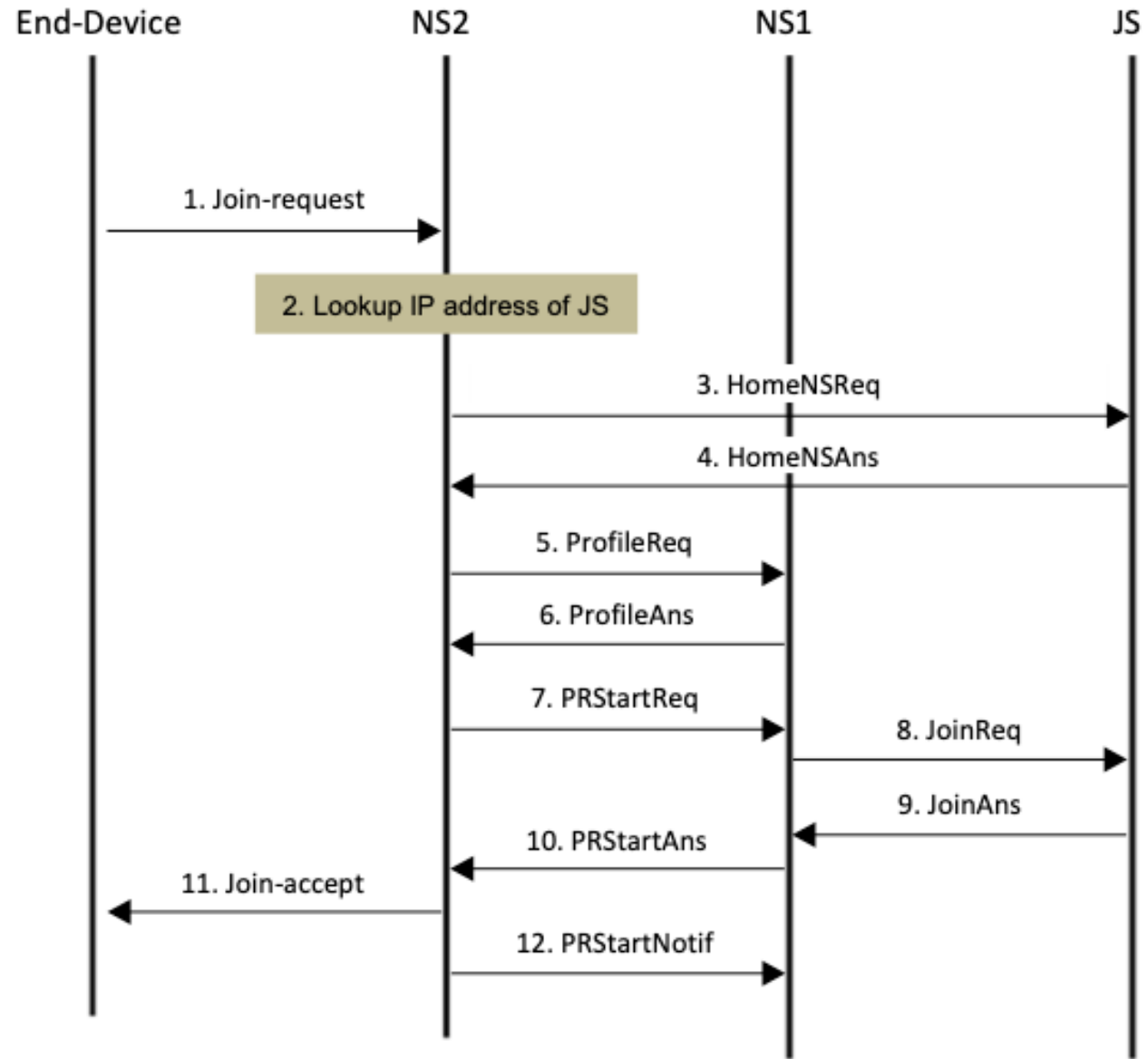
LoRaWAN Interconnection discussion - *The elephant in the room*



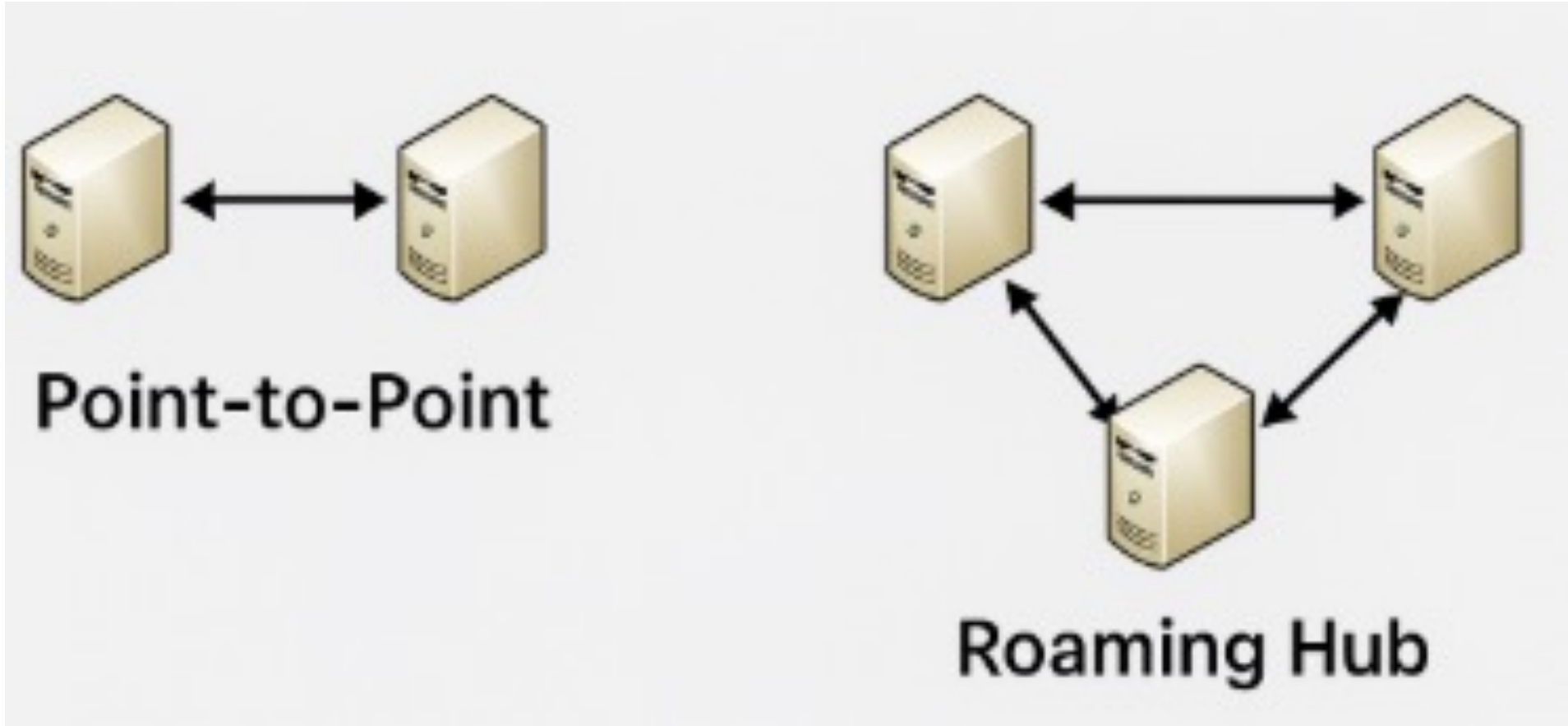
We need identifiers for interconnection

Identifier	Description	Provisioning Authority
DevEUI	Globally unique ID for the end device (like a MAC address)	Device manufacturer (allocated from IEEE EUI-64 space)
JoinEUI (AppEUI)	Identifies the Join Server; used during OTAA	Device manufacturer or Join Server operator (also EUI-64)
DevAddr	Short device address used in actual LoRaWAN communication	Network Server (assigned dynamically, often from NetID space)
NetID	Identifies the network operator (assigned by the LoRa Alliance)	LoRa Alliance (to network operators as members)

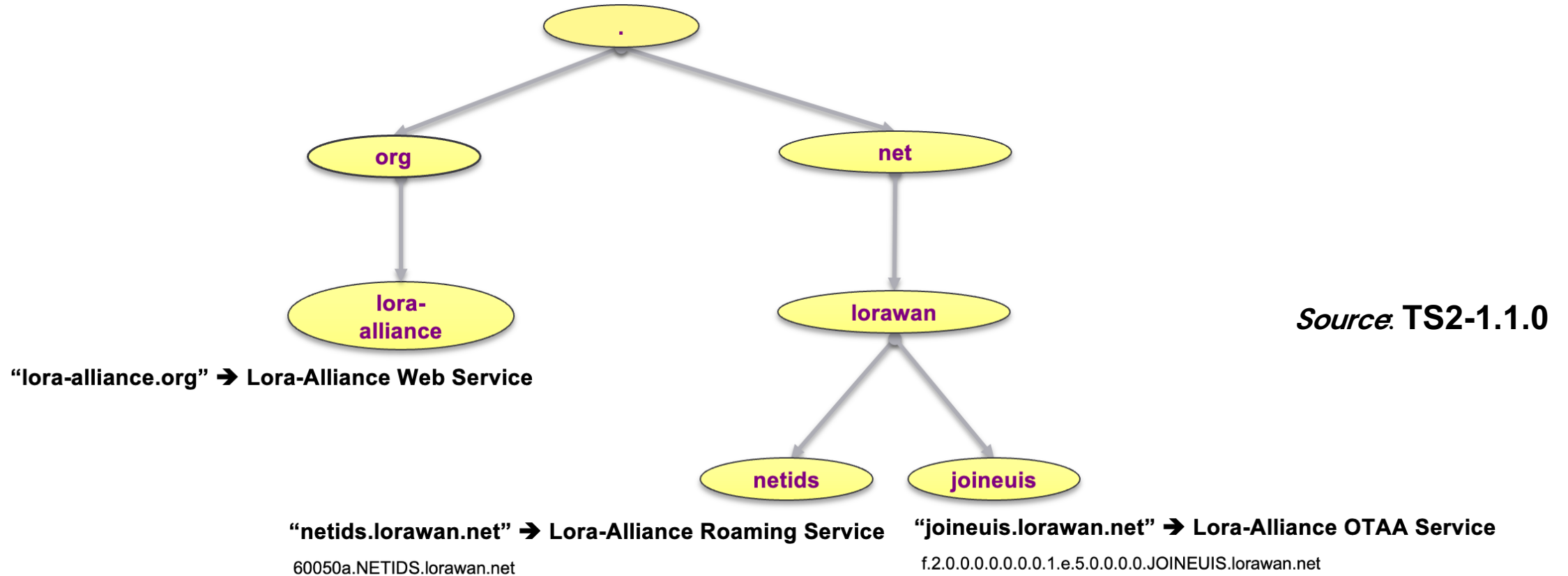
Interconnection



Current solutions

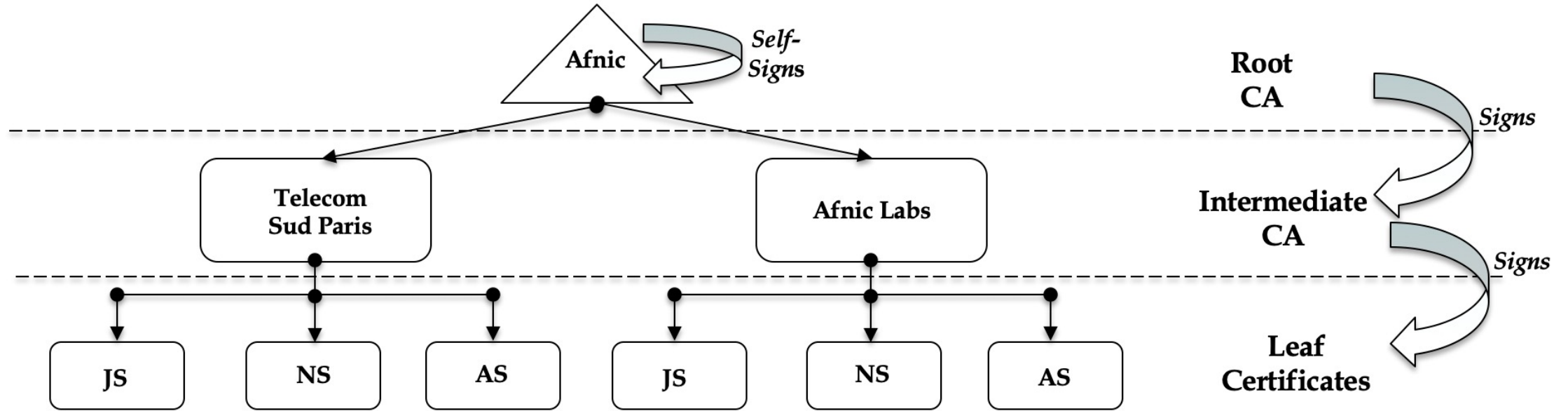


Interconnection with DNS



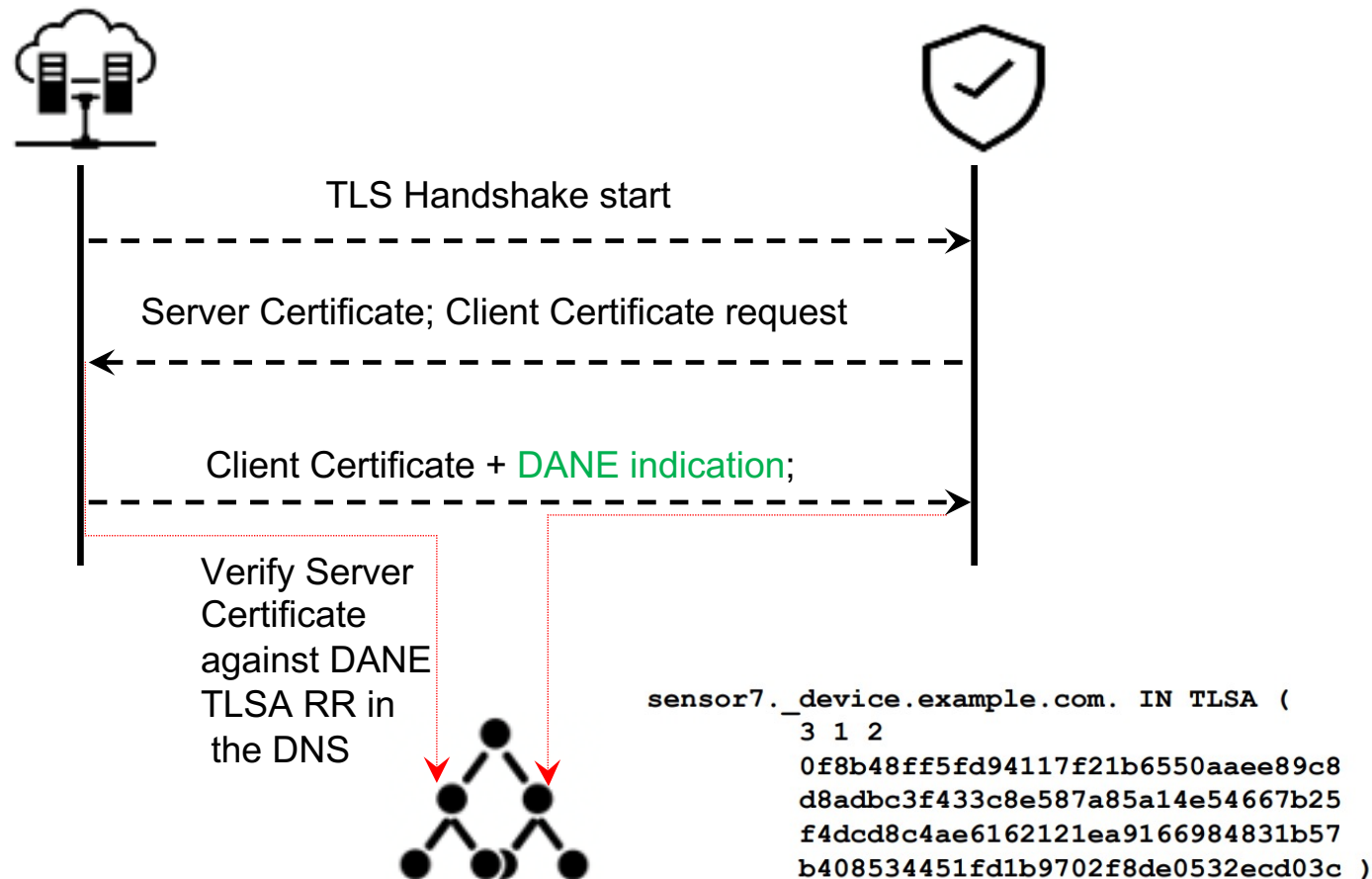
Ref: Section 20 of the LoRaWAN Backend Interfaces specification

Interconnection – Trust is Siloed



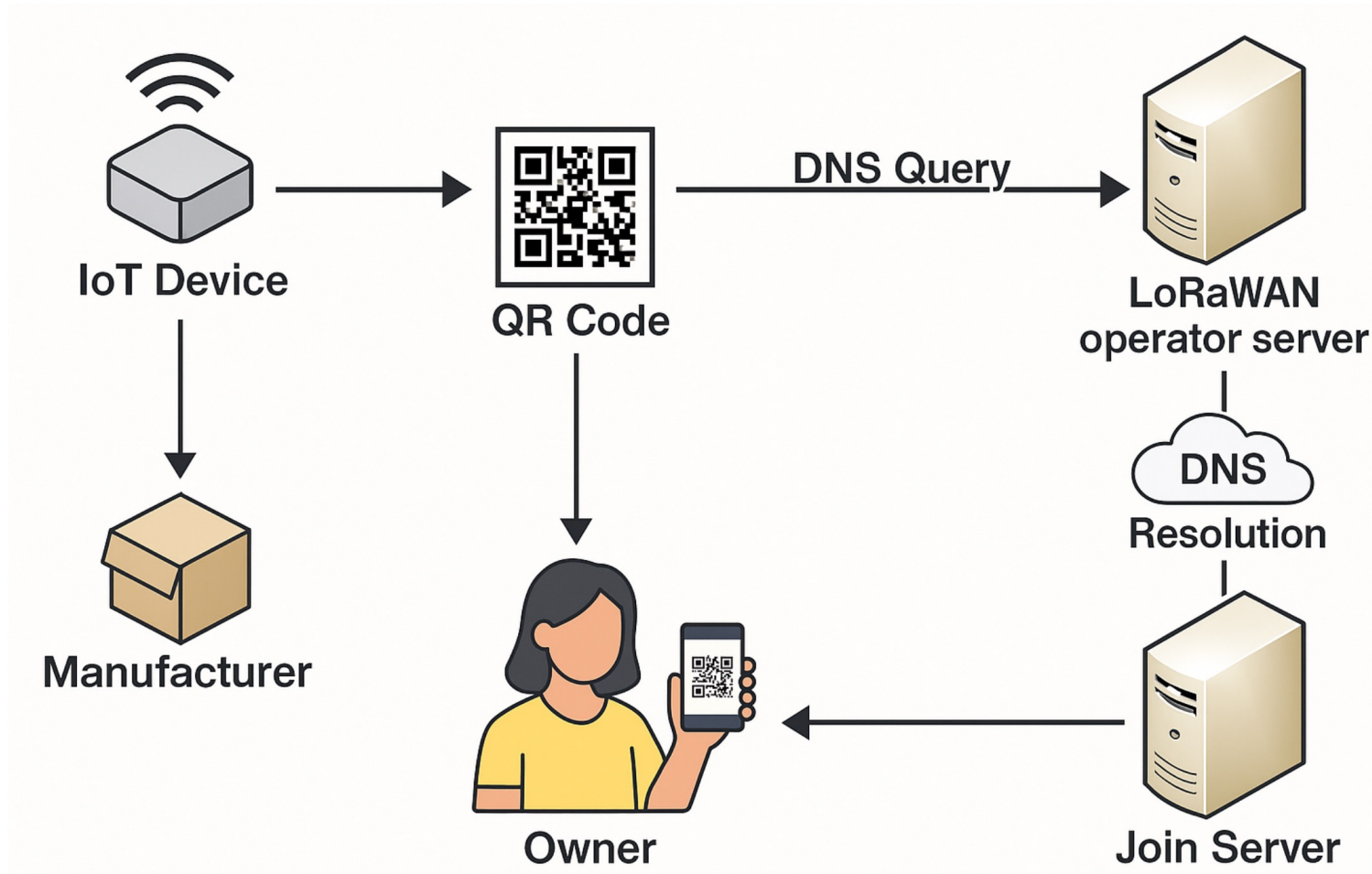
Interconnection – Trust using DNS

- DANE Client ID has made it possible to mutually authenticate between different private PKI's*



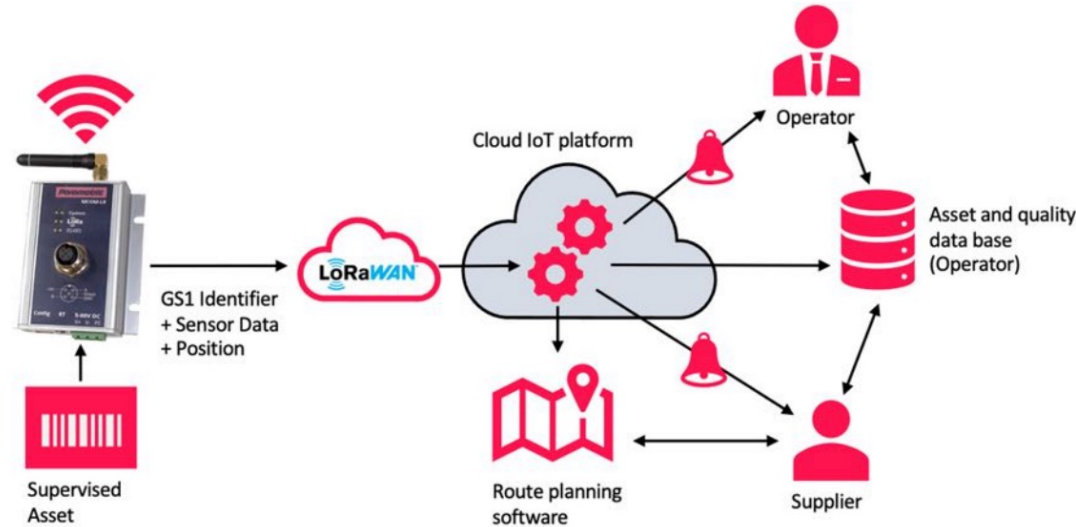
Interconnection - ADPD

LW:LW:D0:1122334455667788:AABBCCDDEEFF0011:AABB1122:0AABBCCDDEEFF: 263
SYYWWNNNNNN:PFOOBAR:CAF2C



Source: TR005 LoRaWAN

Interconnection – RFID & LoRaWAN



Source: Railway Case Study by LoRa Alliance® and GS1 in Europe

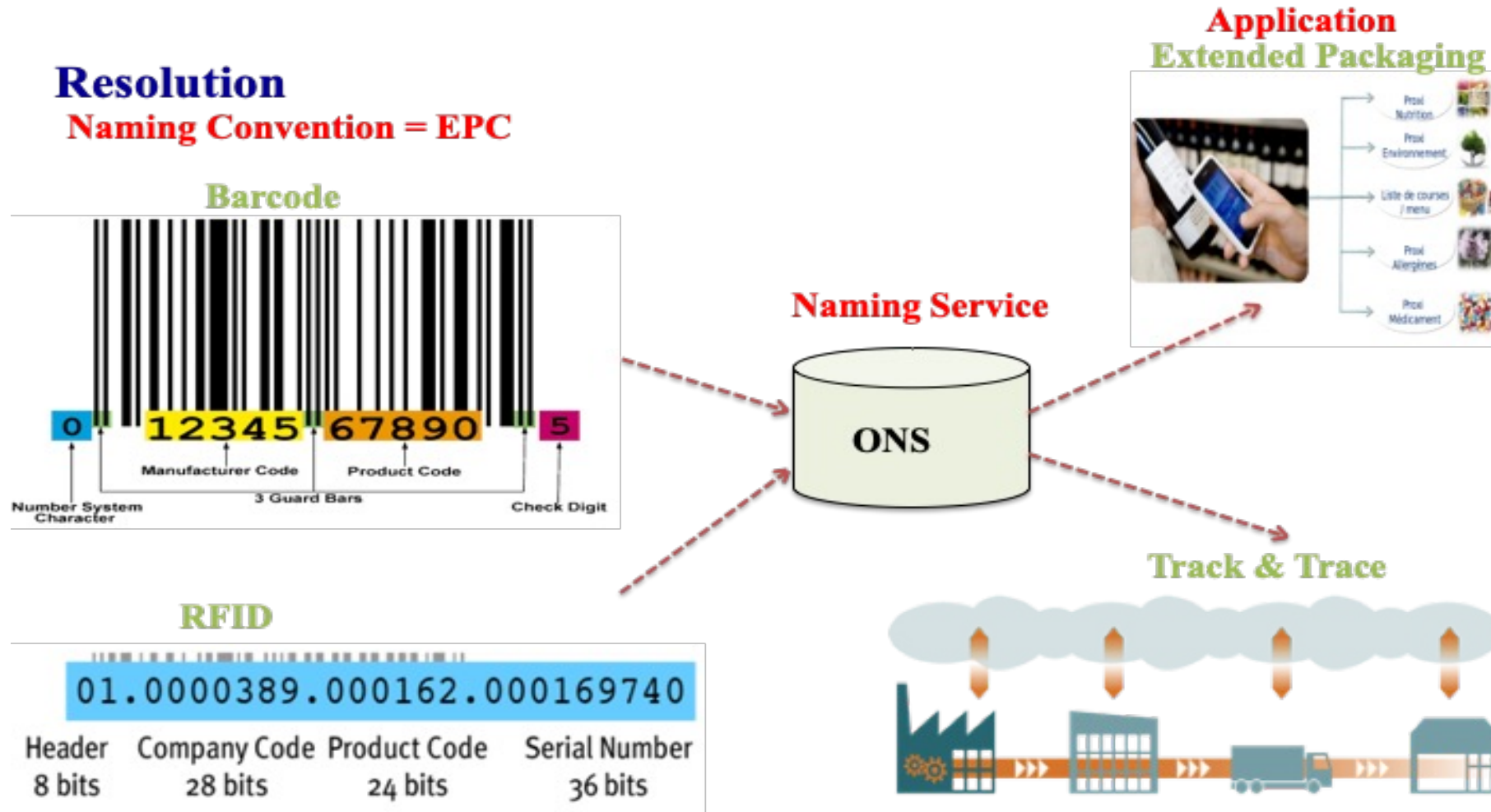
Process without live data/GS1+LoRaWAN:

1. Operator detects an issue
2. Operator checks hardware
3. Operator replaces hardware
4. Operator finds GS1 identifier and notifies supplier of issue
5. Operator generates new serial number
6. Operator orders new material
7. Supplier delivers new material
8. Inbound check of shipment
9. Operator changes entries in asset management database
10. Operator updates quality documents for supplier

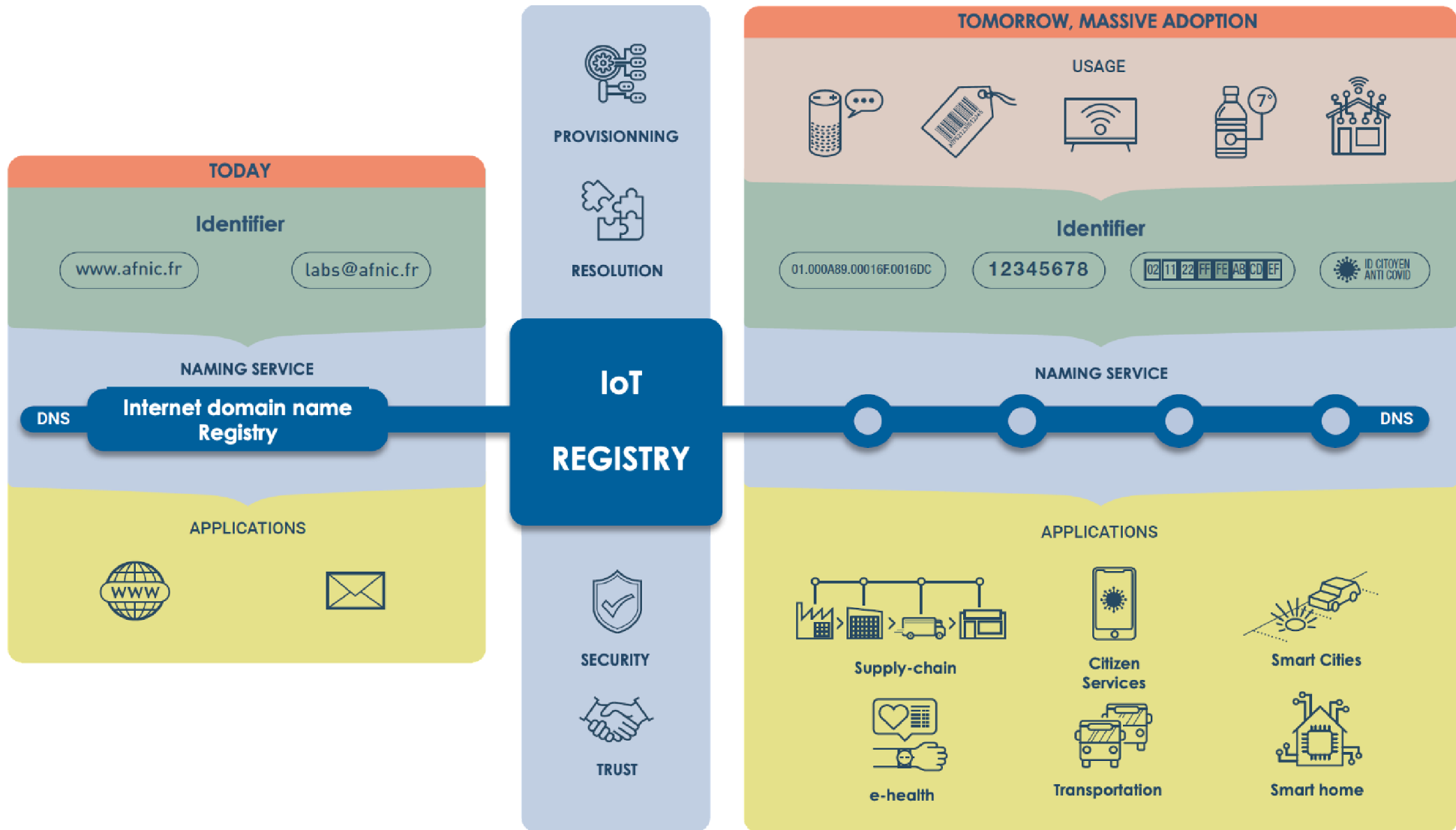
Process with live data/GS1+LoRaWAN:

1. Issue detected based on sensor data
2. Supplier sends or replaces module
3. Inbound check of shipment
4. Asset management and quality database is automatically updated

Interconnection – Afnic's experience with GS1



Why Afnic (‘.fr’ Registry) Is involved in IoT?



Afnic's experience working with IoT Stakeholders

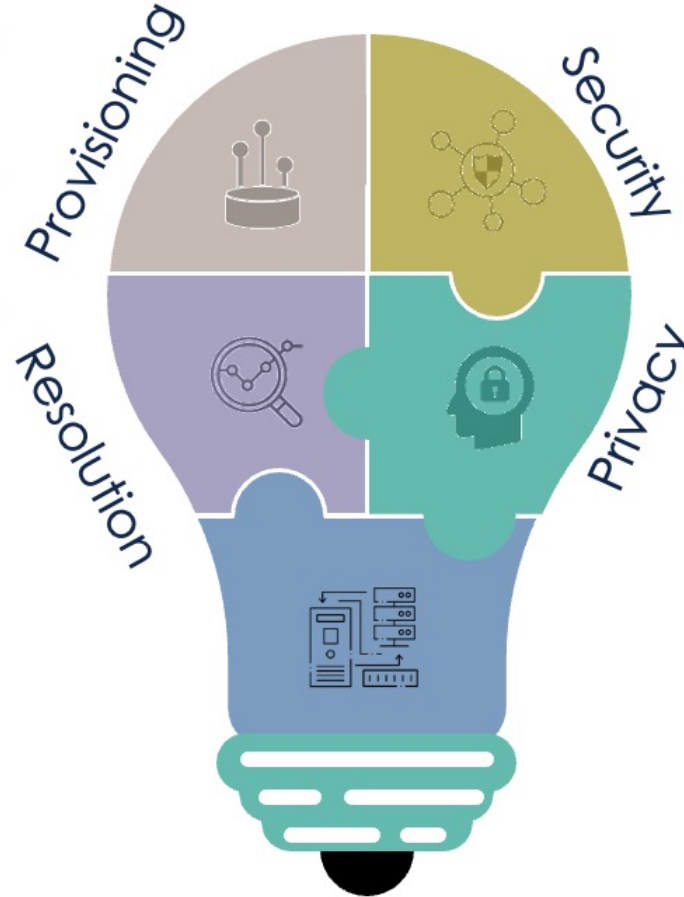
DONE

WINGS
Widening interoperability for networking Global supply Chains

PoC


LoRa Alliance®
DNS Service



DONE

DINS*
DNS Naming and Services for Secure Seamless IoT

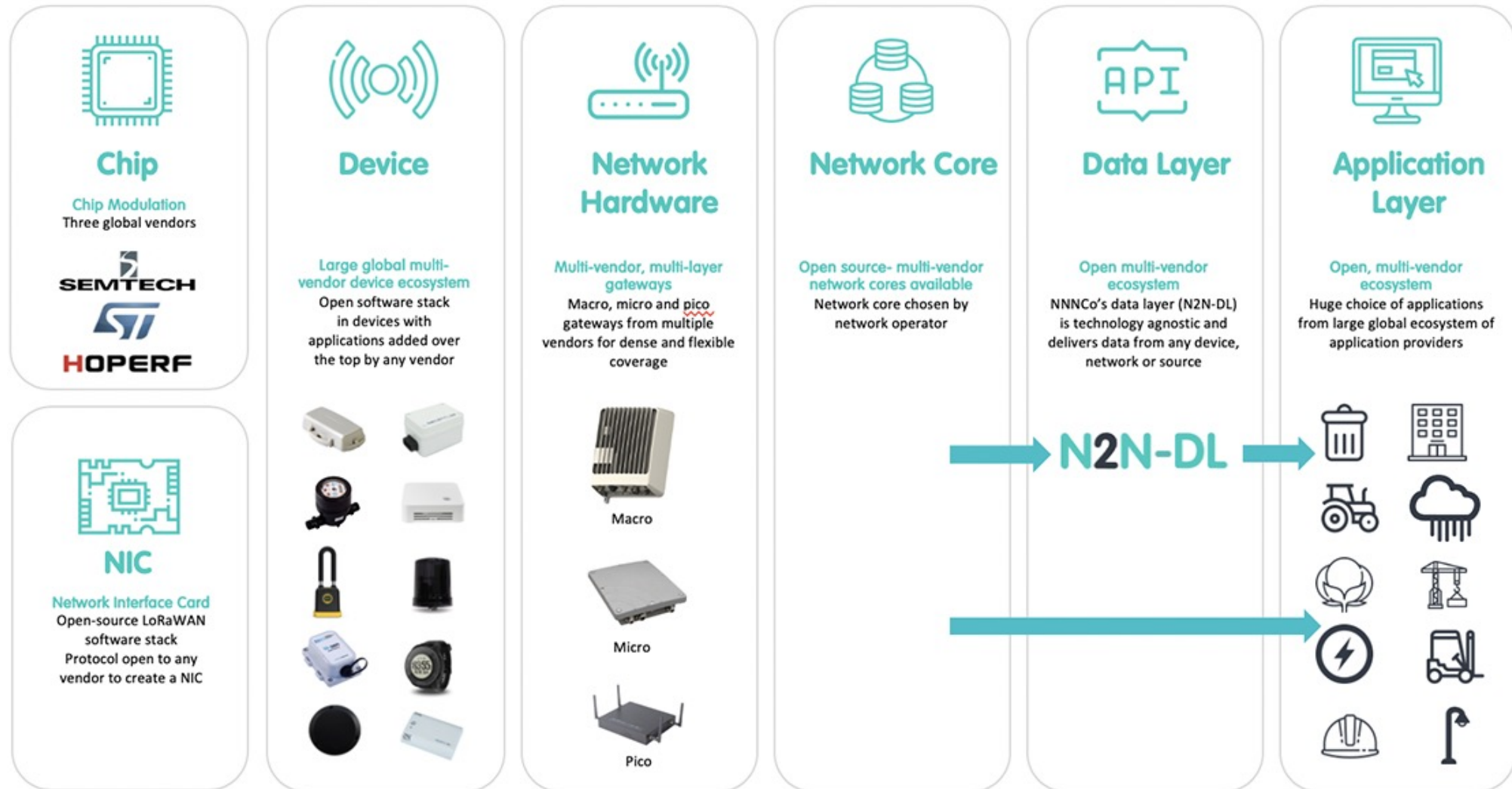
   
 

DONE

PIVOT*
Privacy-Integrated design and Validation in the constrained IoT

Multi-Stakeholder in LoRa Ecosystem



Success of LoRa with the Academics



I should be able to pick which applications I use for managing my life, I should be able to pick which content I look at, and I should be able to pick which device I use, which company I use for supplying my internet, and I'd like those to be independent choices.

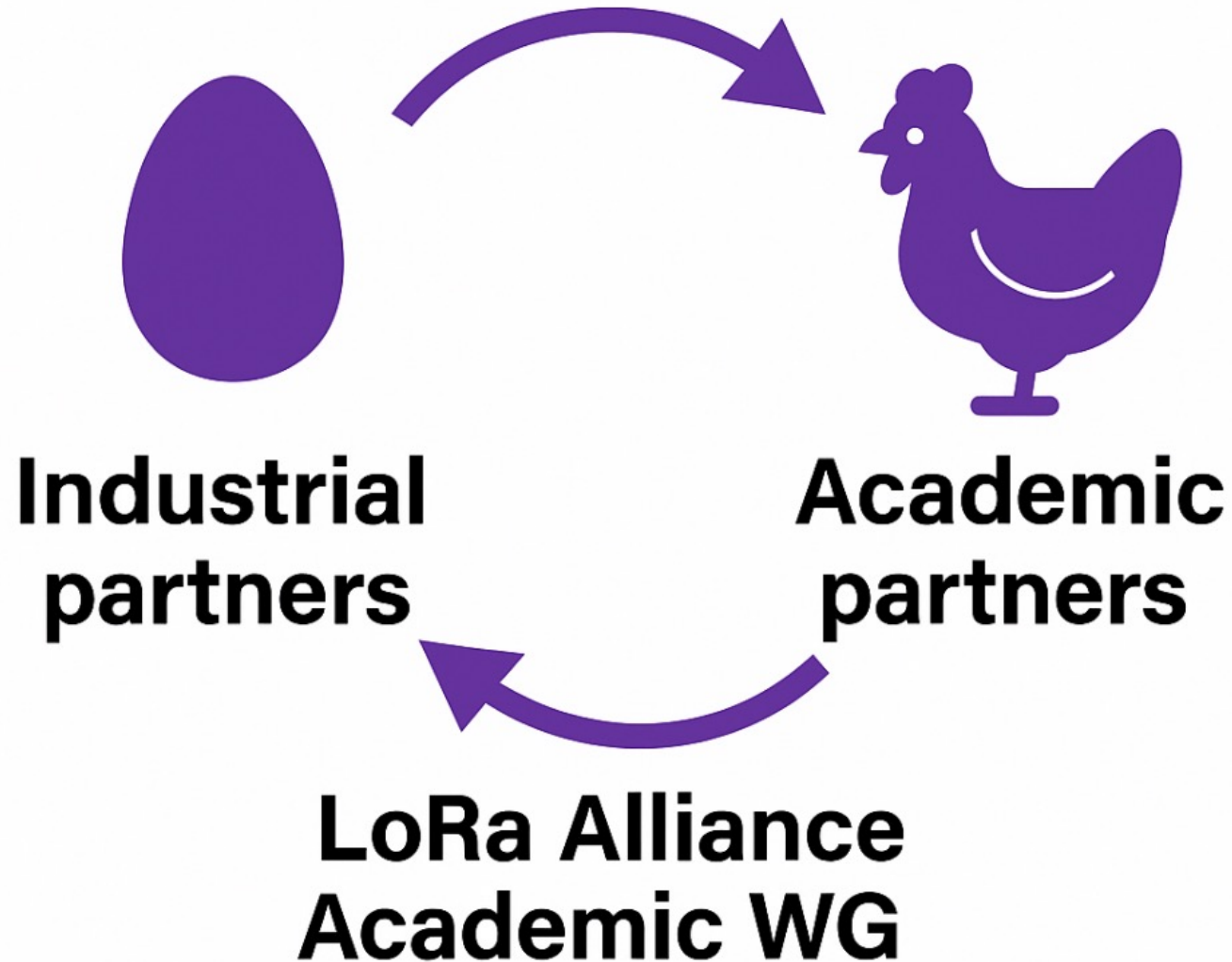
— *Tim Berners-Lee* —

AZ QUOTES

Rewild the LoRa Ecosystem



Chicken & Egg problem



The following table lists out membership benefits by membership tier. Additional benefits of membership are listed below this table.

Membership Tier	Adopter	Contributor	Sponsor	Institutional
Annual Subscription	\$3-6k*	\$20k/year	\$50k/year	FREE
Steer LoRa Alliance and LoRaWAN Technology				
Eligible for board nominations and voting on board elections, shaping the direction of the LoRa Alliance			✓	
Chair Committees		✓	✓	
Chair Working Groups and Task Forces (see all groups)	✓	✓	✓	
Vote in Committee Meetings and Roadmap Item Selections		✓	✓	
Access Technical Assets				
Learn the technology (access to insights, draft specs, roadmap, experts) by joining groups (Committees/Working Groups/Task Forces), leverage as extension to own team	Only TF/WGs**	All Committee/ TF/WGs	All Committee/ TF/WGs	All Committee/ TF/WGs
NetID for globally unique identification of network and device address (DevAddr) space. [learn more]	Small address space	Medium address space	Large address space	Small address space
VendorID for uniquely identifying vendor platforms (mandatory for using standard device QR code) [learn more]	✓	✓	✓	✓
Regulatory Support [learn more]	✓	✓	✓	✓
Certify Your End-Devices				
End-device certification, with access to pre-certification test tool (LCTT) and self-certification, and boosted marketing for certified devices. [learn more]	✓	✓	✓	✓
Build Your Own Partner Network				
Meet online and in-person with prospective/active customers and partners at the Alliance all member, vertical industry event, and committee/TF/WG meetings, and other networking events.	✓	✓	✓	✓
Boost Your Marketing				
Exclusive use of “LoRa Alliance Member” and “LoRaWAN” logos and word marks	✓	✓	✓	✓
Join the Marketing Committee and TF/WGs to gain more ecosystem visibility through collaboration in marketing activities promoting LoRaWAN (see all groups)	Only TF/WGs**	All Committee/ TF/WGs	All Committee/ TF/WGs	All Committee/ TF/WGs
Join the Speaker Bureau and represent the LoRa Alliance as a LoRaWAN Ambassador during industry events, webinars and interviews		✓	✓	✓
Speak at LoRa Alliance events and webinars	✓***	✓***	✓	✓***
Exhibit at LoRa Alliance events and industry events	✓***	✓***	✓	
Get your products on the LoRaWAN Device Wall at industry events	✓	✓	✓	
Get sales leads by presenting at LoRa Alliance webinars, participating at industry events	✓	✓	✓	✓
Receive referral traffic and visibility from: <ul style="list-style-type: none"> • Listings on member directory • Products listed on marketplace • Content listed in Resource Library and pages • Press and News listed on website • Events listed on website and newsletters • Mention/reposts on social media (>70K followers across LinkedIn, X & Facebook) • Testimonials on certification and membership 	✓	✓	✓	✓
Access to market data and insights reports from analytics firms	✓	✓	✓	✓

*Adopter Startup eligibility based on Total Revenue for Company less than \$1M USD (or the top level parent company level if a subsidiary). Total Revenue must be verified by

● Thank you for your attention

Do not hesitate to reach out

Sandoche.balakrichenan@afnic.fr



Association Française pour le Nommage Internet en Coopération

7 Avenue du 8 mai 1945, 78280 Guyancourt – France

Tel. +33 (0)1 39 30 83 00

www.afnic.fr | contact@afnic.fr | X : @AFNIC | Facebook : facebook.com/afnic.fr