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NWWC
2023

Eric Bourbeau
Co-founder and CEO

How LoRaWAN® wireless technology is changing the AMI game

Historical landscape

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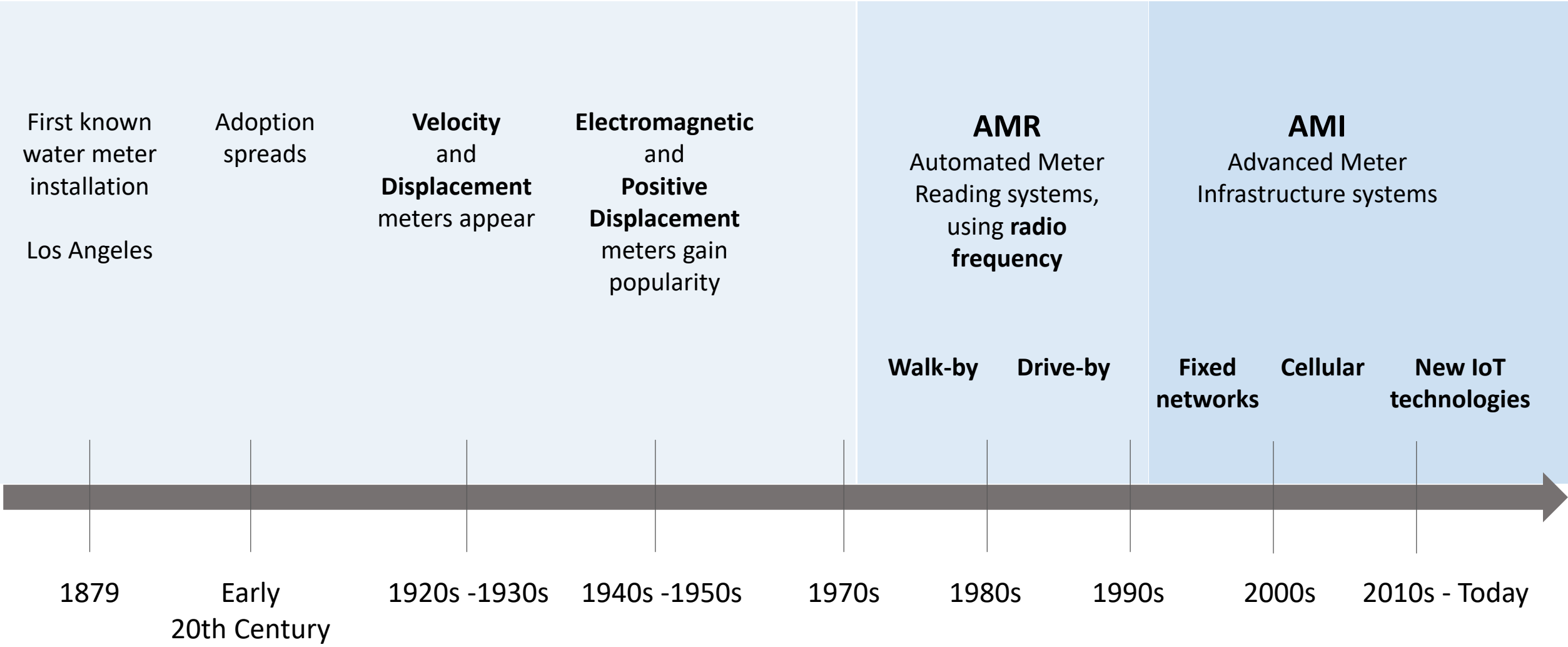

The limitations of AMR

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Walk-By / Drive-by Systems

PROS	CONS
Cost-effective	**Requires physical proximity**
Relatively simple implementation	**Labour intensive**, doesn't scale well
Technology will work for meter lifetime	Limited amount of data
	Infrequent data
	Complex data extraction
	Proprietary communication standards and data formats = **vendor lock-in**

AMI leads to continuous reading

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Fixed network

PROS	CONS
Continuous communication	**High upfront cost**, limited range
Stable communication technology	Potential maintenance challenges
Low latency leak detection	Proprietary data formats
Enough data to provide insights	Proprietary radio technology $$$ **Vendor lock-in**

Cellular

PROS	CONS
No need to deploy RF infrastructure	**Cellular standards won't last 20 years**
Mostly ubiquitous coverage	**Can't expand coverage**
Low latency leak detection	Proprietary hardware
Enough data to provide insights	Proprietary data formats = **vendor lock-in**

Cellular technology life cycle

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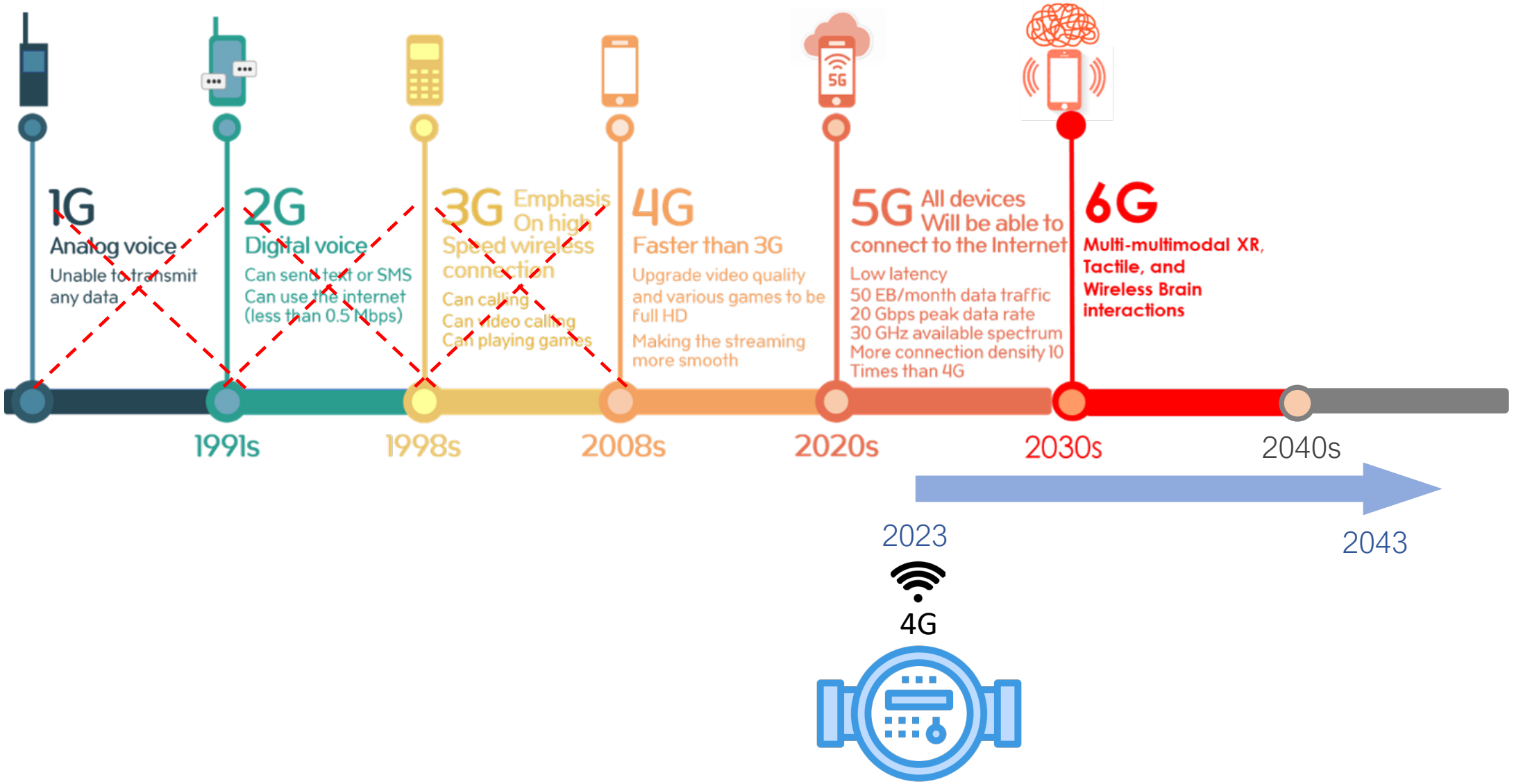

LPWAN New IoT technologies for AMI

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LoRaWAN™

sigfox

- **Ultra low power / very long battery life**
  (1-3 km urban / 20 km rural)
- **Very long range**
- **Great penetration capabilities**
- **Low operating cost**

LoRaWAN leading the market globally

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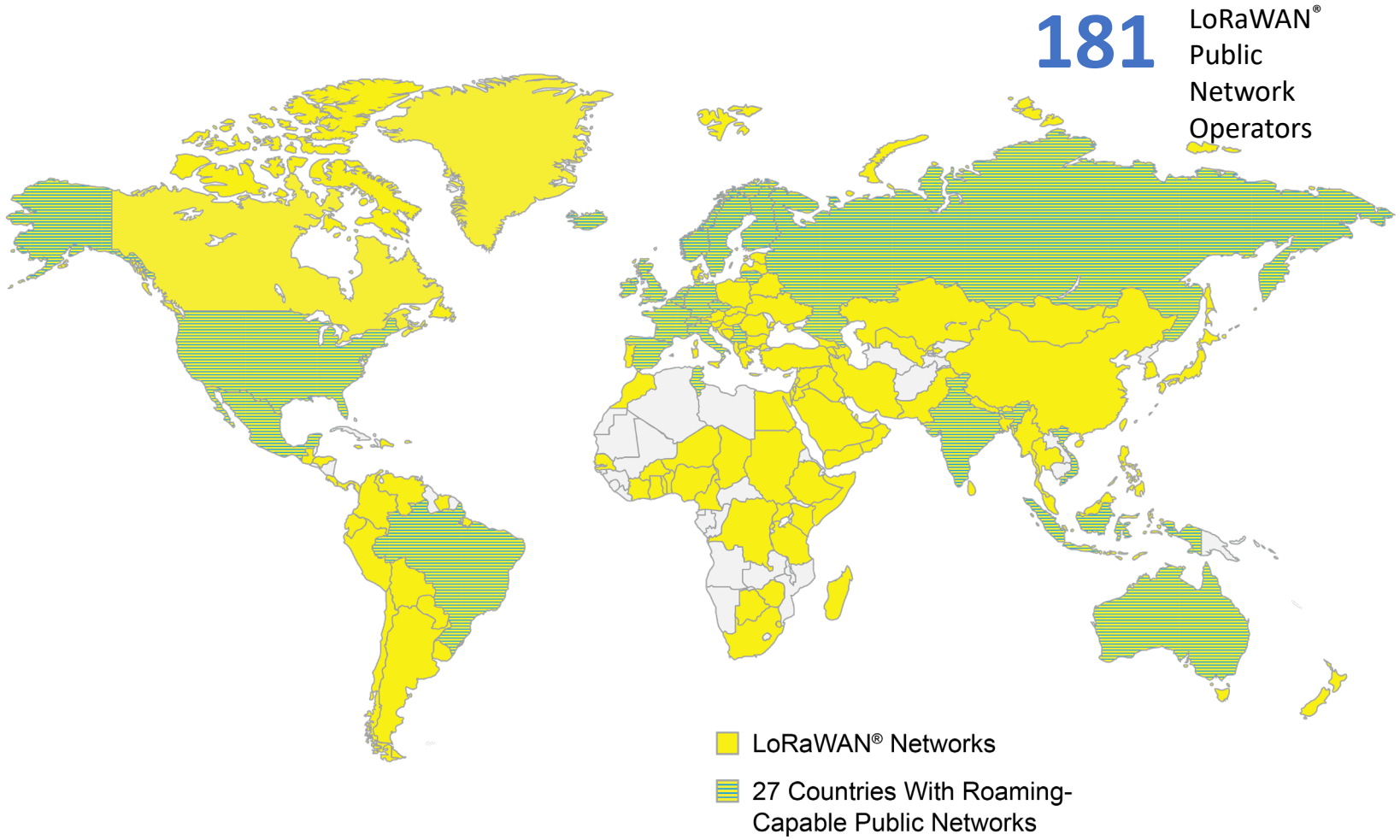

66% increase in number of public LoRa operators in last 3 years*.

Roaming in over 23 countries

Open source global standard

LoRa-Alliance = 500+ companies

Research estimates that **LoRaWAN® will be the leading non-cellular LPWAN technology by 2026.**

** Source LoRa-Alliance. (lora-alliance.org)*

LoRaWAN for profitable and efficient utilities

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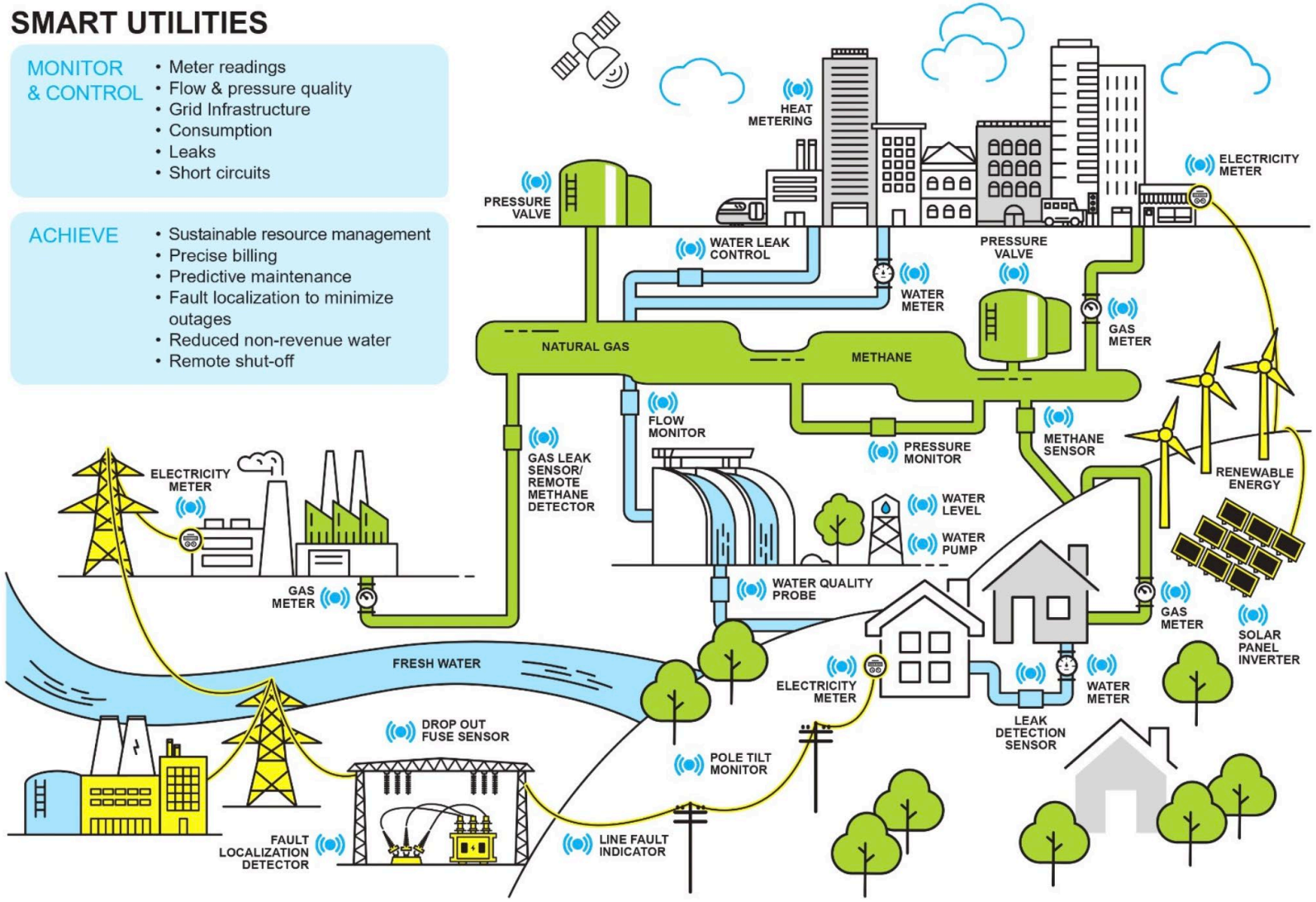
SMART UTILITIES

MONITOR & CONTROL
- Meter readings
- Flow & pressure quality
- Grid Infrastructure
- Consumption
- Leaks
- Short circuits

ACHIEVE
- Sustainable resource management
- Precise billing
- Predictive maintenance
- Fault localization to minimize outages
- Reduced non-revenue water
- Remote shut-off



LoRaWAN™

One network, multiple use-cases

Reduces non-revenue water with leak detection and continuous monitoring

LoRaWAN global growth

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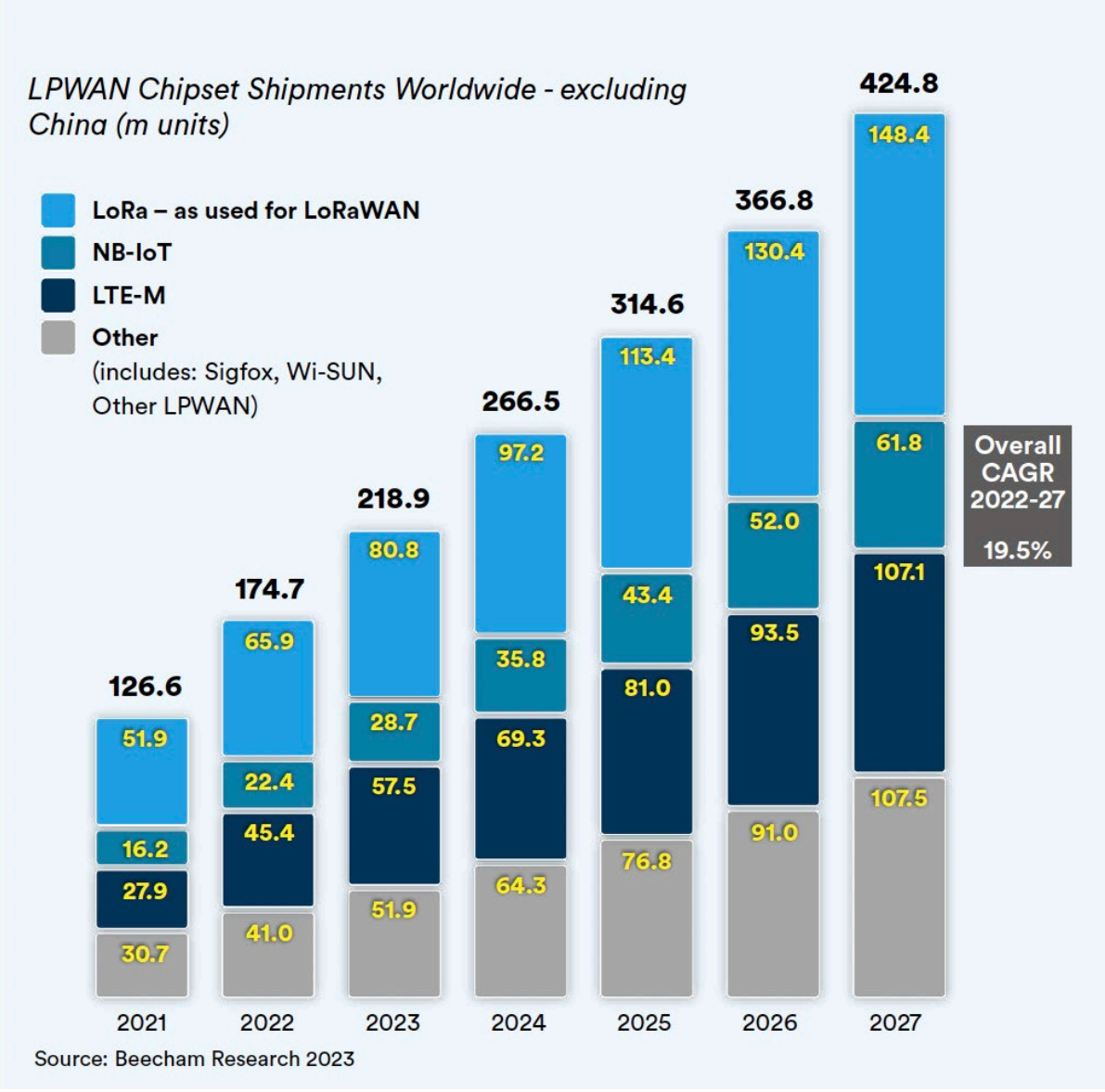

LoRaWAN™

It is estimated that 50% of LoRaWAN chipset shipments are for **smart gas** and **water meters**.

Estimated **200 million** smart gas and **water meters** were connected between 2021-2023.

Estimated **490 million** smart gas and **water meters** will be connected between 2024-2027.

A fast growing market

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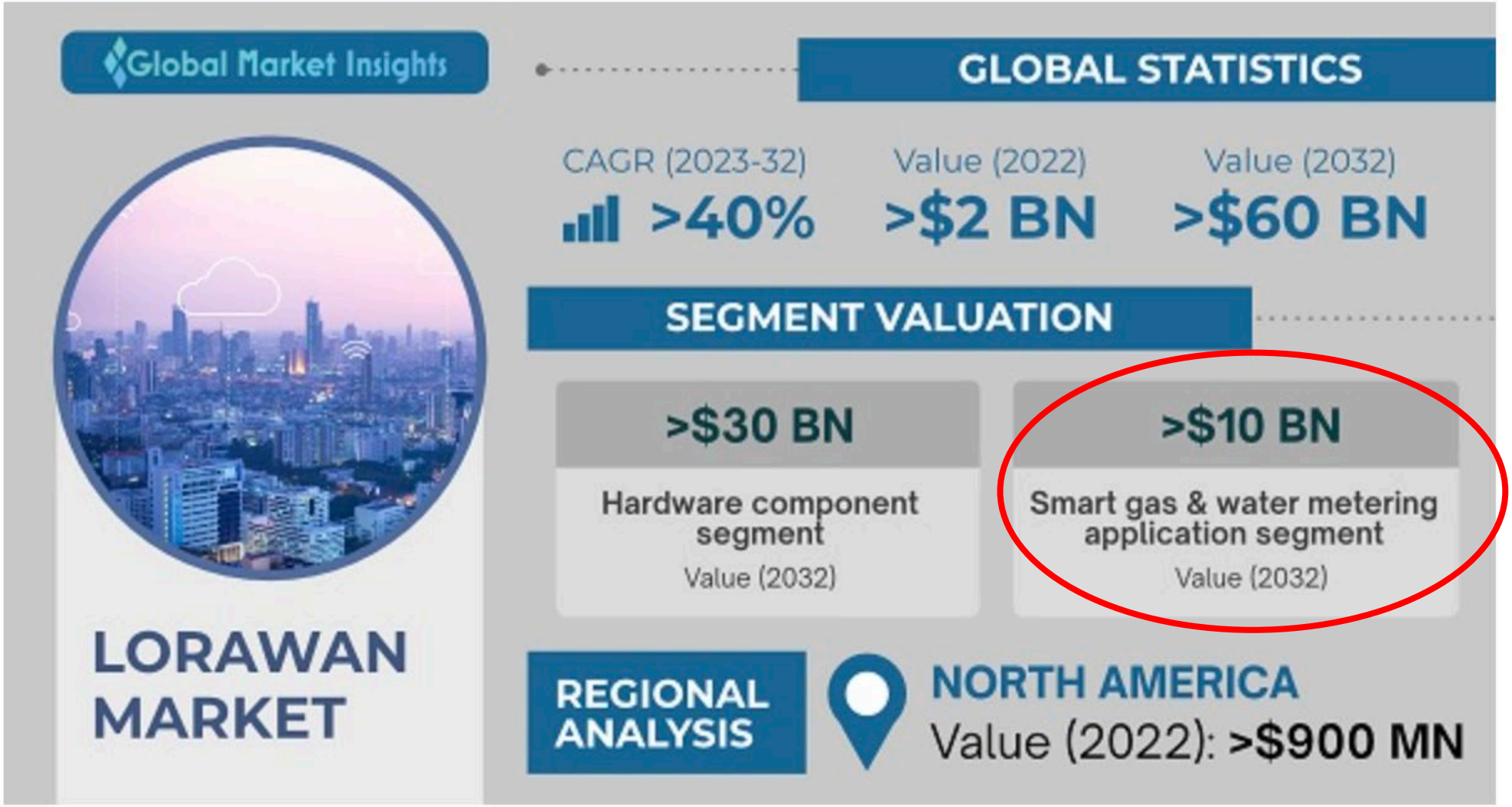

LoRaWAN AMI architecture

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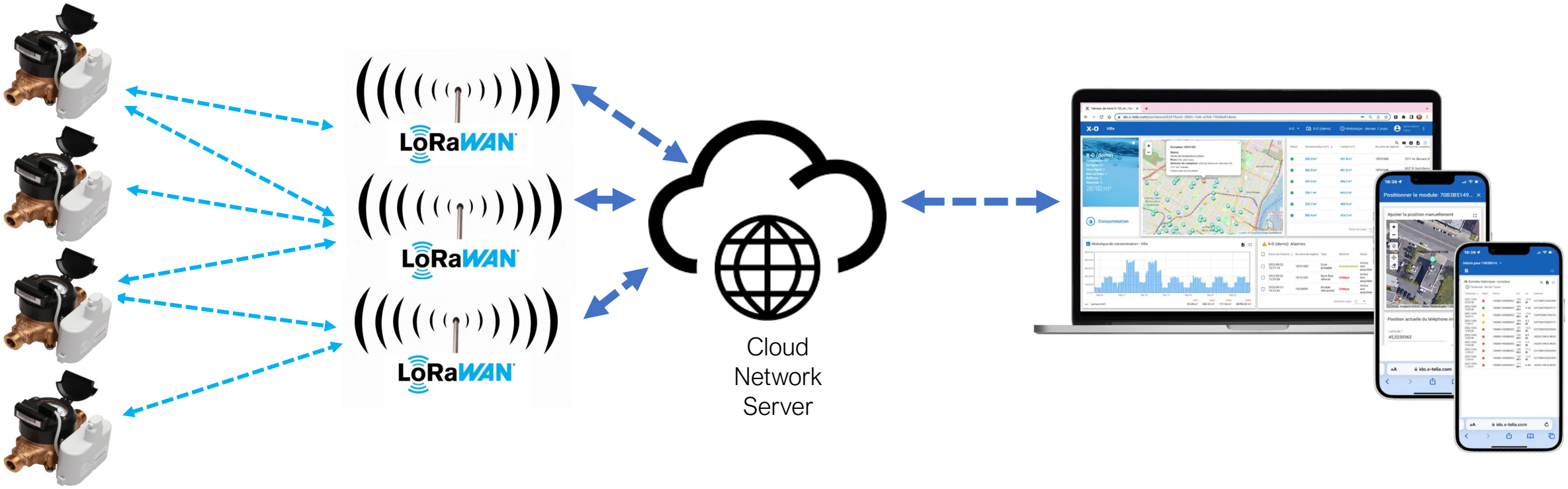
Water meters + MIUs

Gateways

LoRa Network Server

AMI application



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End-to-end secure payload

The “Open Standard” Paradox

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LoRaWAN™

Compatible interfaces	Battery life
Sensus (UI1203)	10—20 years
Pulse	10—20 years

Traditional model

Proprietary Data Format
No decoder available
Data only accessible via vendor cloud subscription

Vendor lock-in

New game changing model

Open Data Format
Decoder provided
Raw data can be decoded by the utility / city, choice of applications

Open data

The traditional single vendor model

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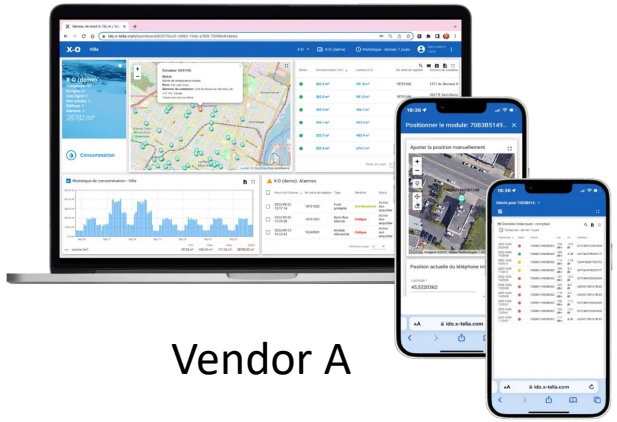
Vendor A

Vendor A

4c0d006888ec00250026

ENCODED MESSAGE



Vendor A

Proprietary end-to-end AMR and AMI solutions have been the norm for decades. Proprietary hardware, proprietary data formats and high switching costs have made it close to impossible to switch vendors.

Open standards and open data are changing the game

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Vendor A

Vendor B

LoRaWAN

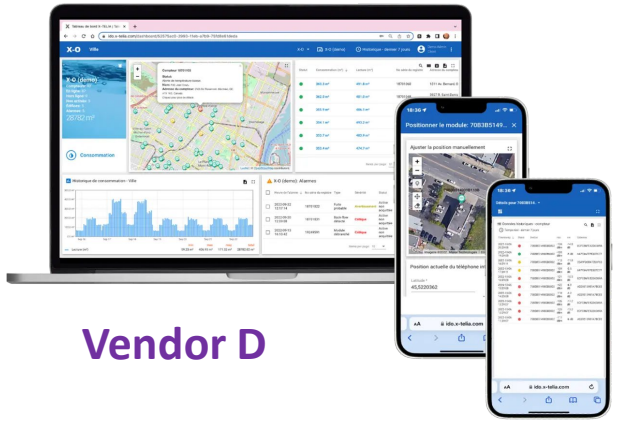
4c0d006888ec00250026

ENCODED MESSAGE

Vendor C

685,087.1 m³

DECODED MESSAGE



Vendor D

Decoupling MIU from meter, and meter data from the AMI application opens the market for new innovative AI-driven AMI applications providing more insight, deeper analysis, recommendations, etc.

No more Vendor lock-in !

Why continuous meter reading ?

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A running toilet can waste up to 1,100 liters – or 10 bathtubs – of clean water in just 24 hours.

AMI platforms getting smarter

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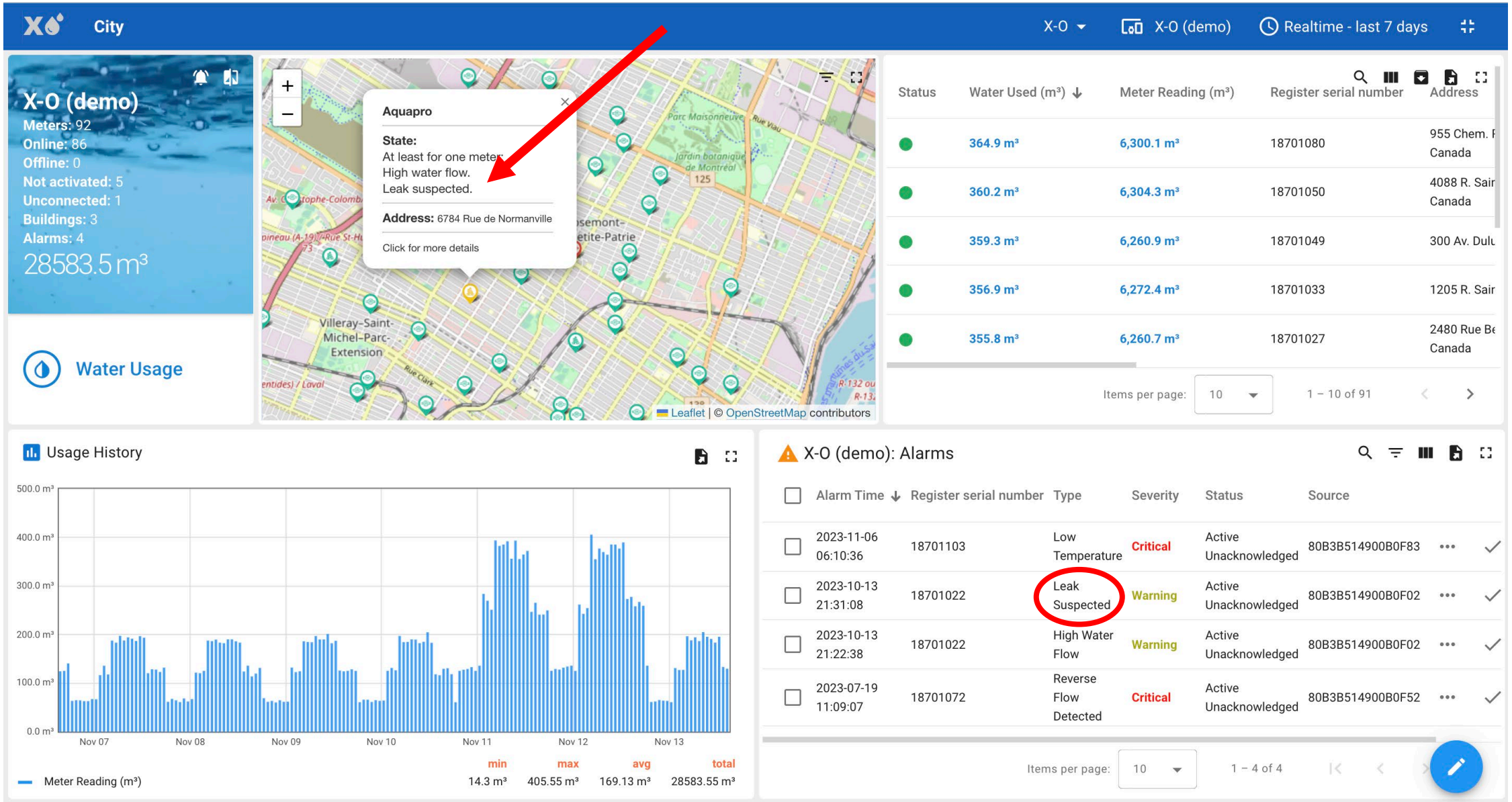

Smart residential leak detection

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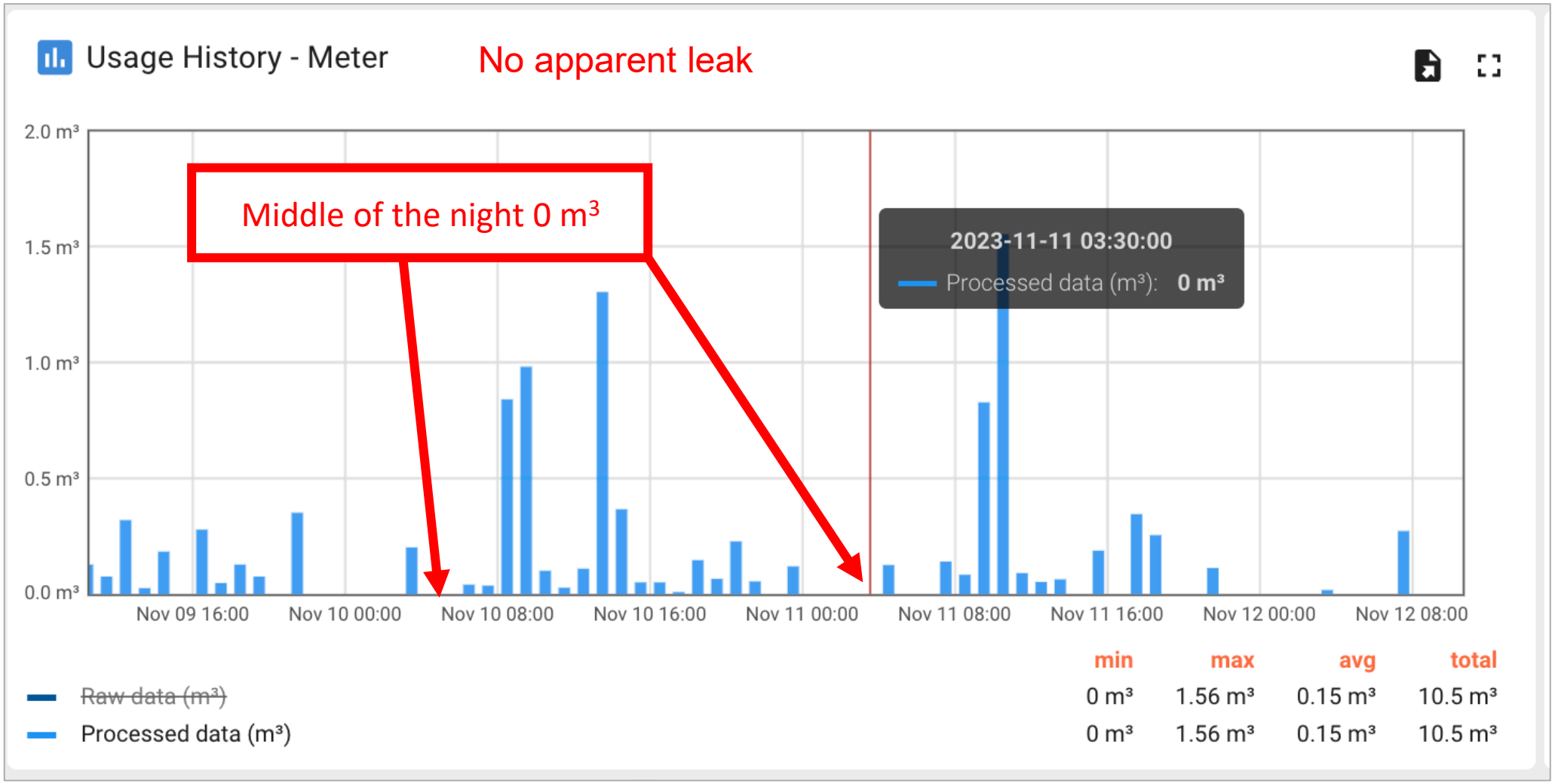

Smart residential leak detection

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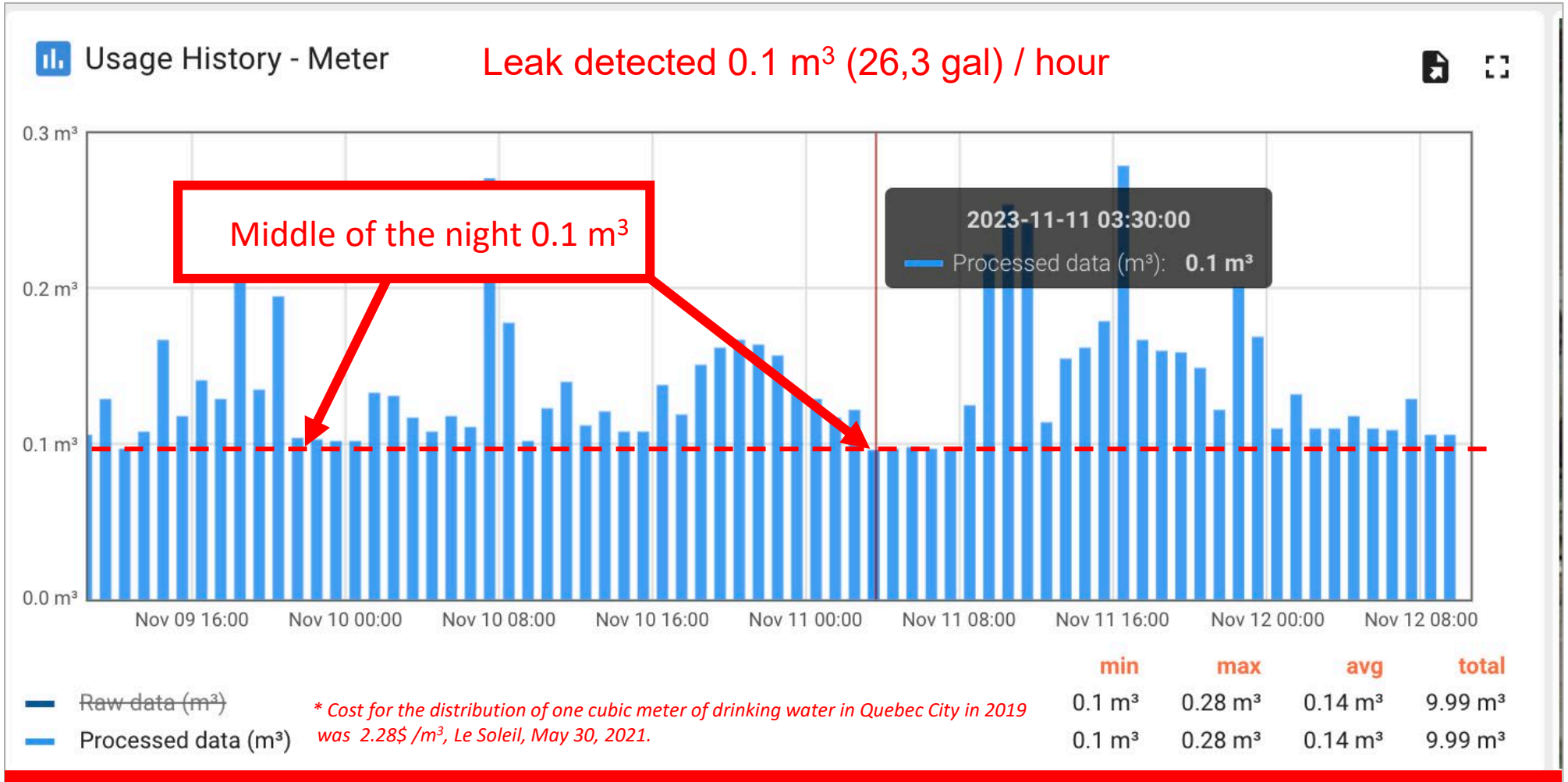

Waste of 0,9 million liters (230K gal) of drinking water annually estimated at 2,000$* for this residence

LoRaWAN is changing the way water meters are read globally. It allows for **continuous meter reading** and the **freedom of open-data**.

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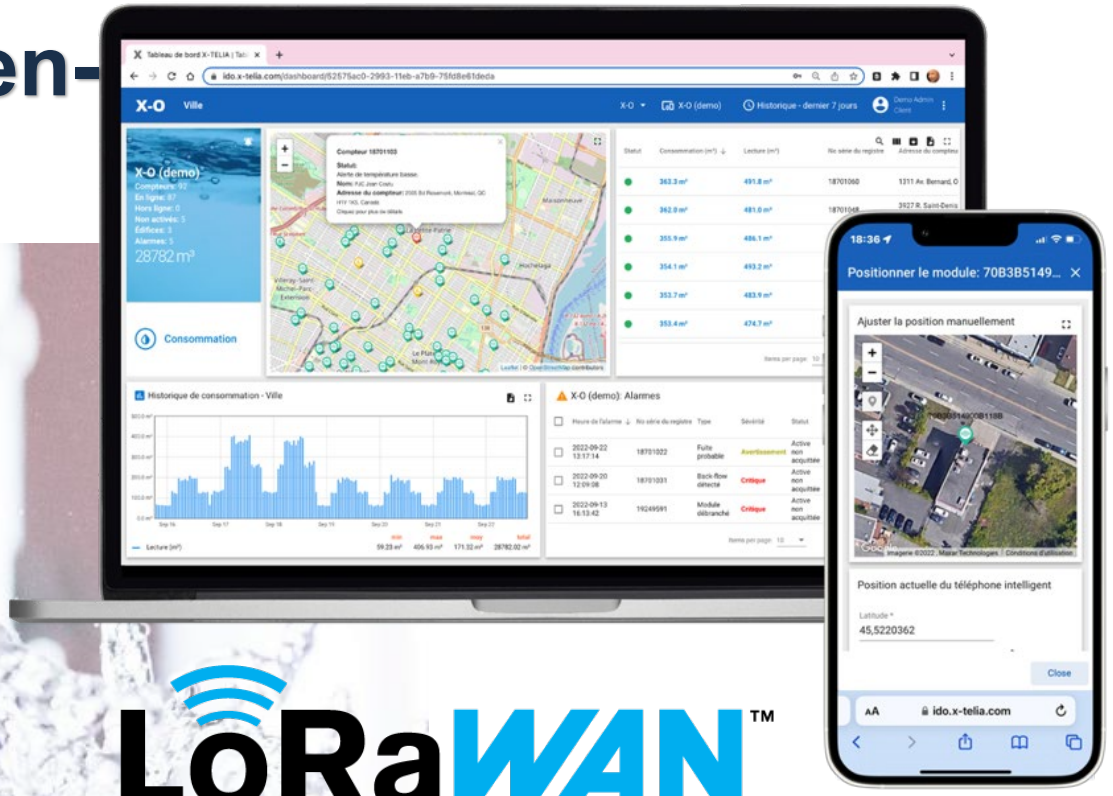

LoRaWAN™

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NWWC 2023

Eric Bourbeau
Co-founder and CEO

Co-founder et CEO
+1-514-831-1226
ebourbeau@x-telia.com