EPISENSOR

The Future of Energy Management

An IoT perspective

Awarded Technology Innovation of the Year 2023

EnergyCap Catalyst London - 14th May 25

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Everything will be connected

And it needs a reliable, rugged, scaleable, accurate and secure IoT infrastructure

...designed for delivering energy services **fast**

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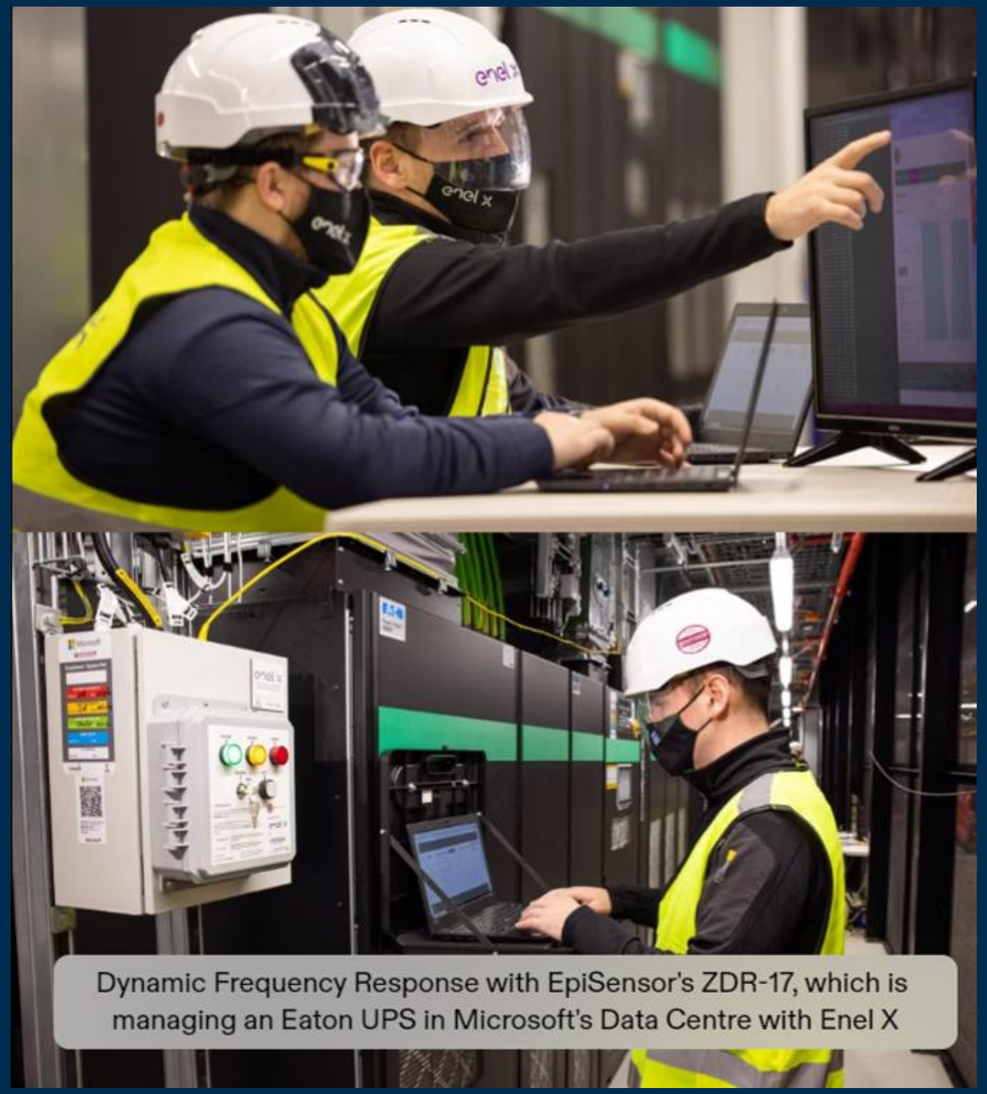
We Provide The IoT Infrastructure Behind World-Class Energy Services

We sell via partners (Aggregators, ESCOs, SaaS, VAR's, etc) who deliver complete solutions for:

- **Energy Management**
- **Demand Response**
- **Other energy-related IoT applications**



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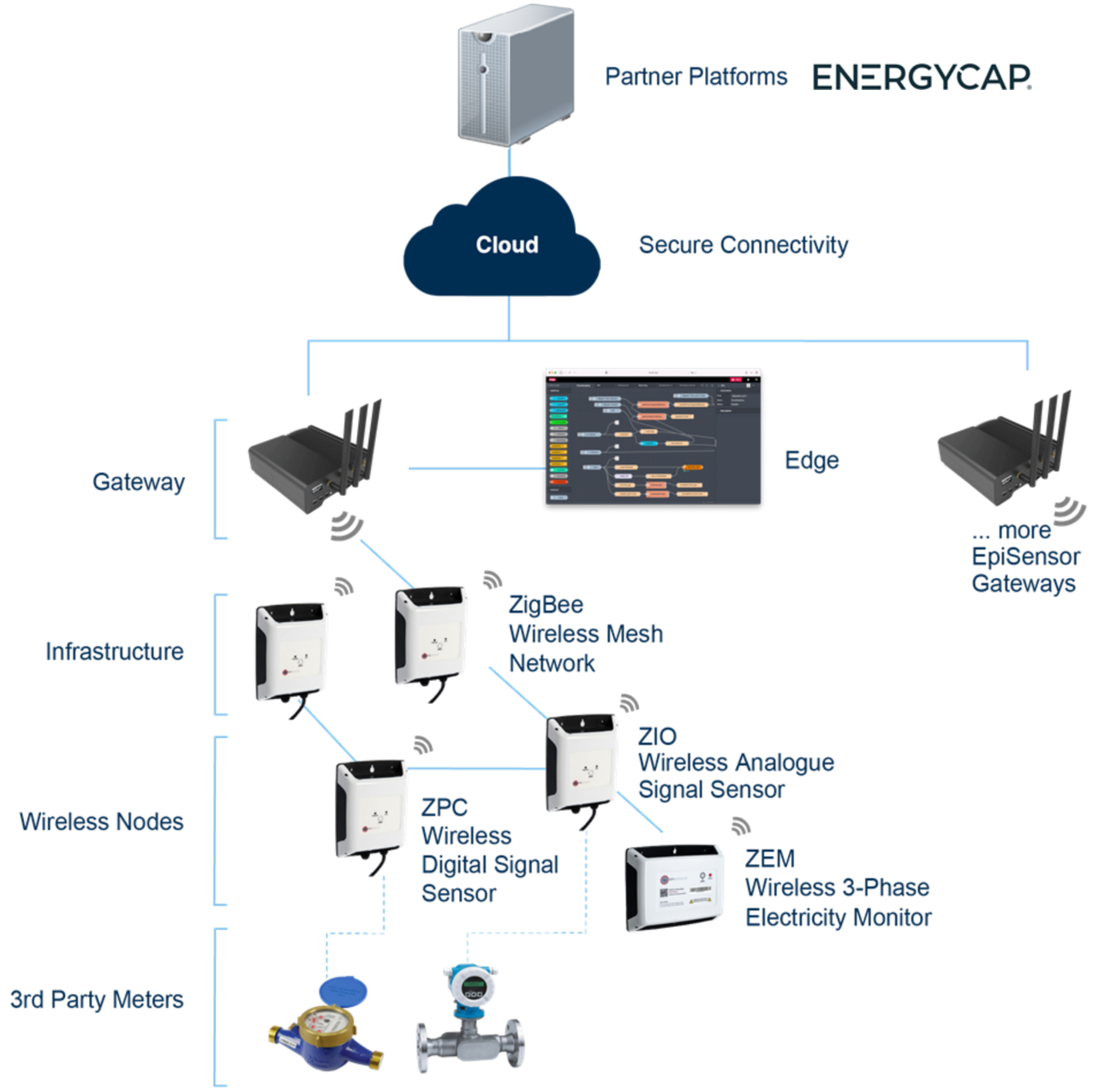
System Architecture Example:

Energy Monitoring on Commercial / Industrial Sites



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What is Edge?

- ➔ Visual programming tool for custom integrations
- ➔ Easy-to-use management UI
- ➔ Pre-built ‘services’ for connected devices

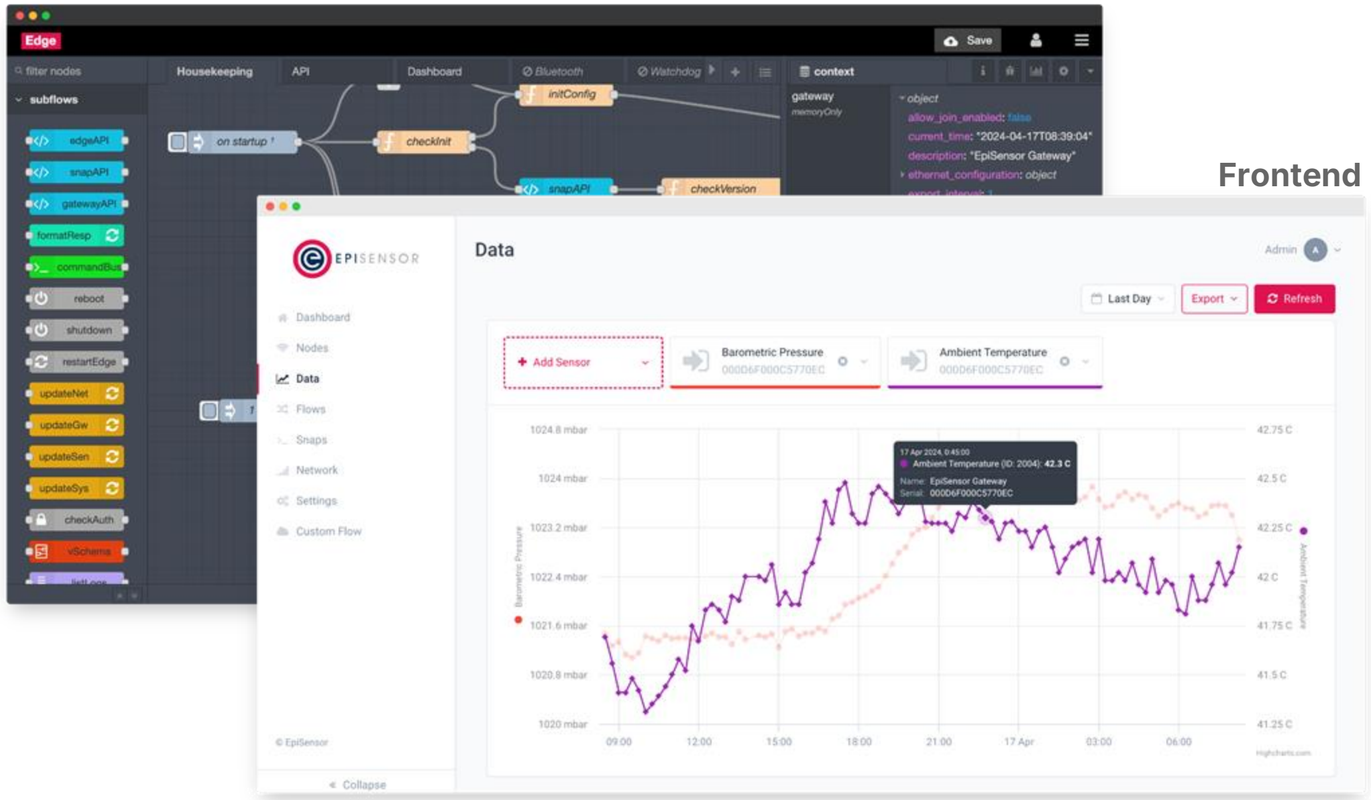
Almost every IoT solution for energy services needs some custom software…Edge is right solution to run it!

Designed for 3 different audiences, each with different needs:

1. Software Devs
2. Installation Teams
3. Operations

Backend

Frontend



Services:

- Telemetry Data
- Logging
- Secure Onboarding
- Factory / Project Config
- Local Data Storage
- Email + SMS Gateways
- Snap / OS Management
- Firmware Updates
- Cloud Comms
- Networking
- Data Visualisation
- Certificate Management
- Flow Management
- Node Management
- Protocol Translation
- Automation / Rules Engine
- Custom Dashboards
- Peripheral Management
- Watchdogs
- Housekeeping / Health Alerts
- User Management

ubuntu core

Hardware

We have a complete range of battle-hardened wireless nodes

Full coverage for energy and demand response applications:

- Static and Dynamic Frequency Response (ZDR)
- Single and 3-phase electricity monitoring (ZEM)
- Industrial Comms (ZMB, ZHM)
- Digital & Analogue Signals (ZIO, ZPC, ZDI)
- Temperature, Humidity, Air Quality (ZHT, ZAQ)

Easy to use without sacrificing quality!

Royal Mail Case Study: Powering Energy Visibility Across UK Operations

// Background

- Royal Mail aimed to enhance operational efficiency and sustainability
- Already using EnergyCAP's Smart Analytics for utility data analysis
- EpiSensor engagement started at EnergyCAP’s 2024 Catalyst Event in London

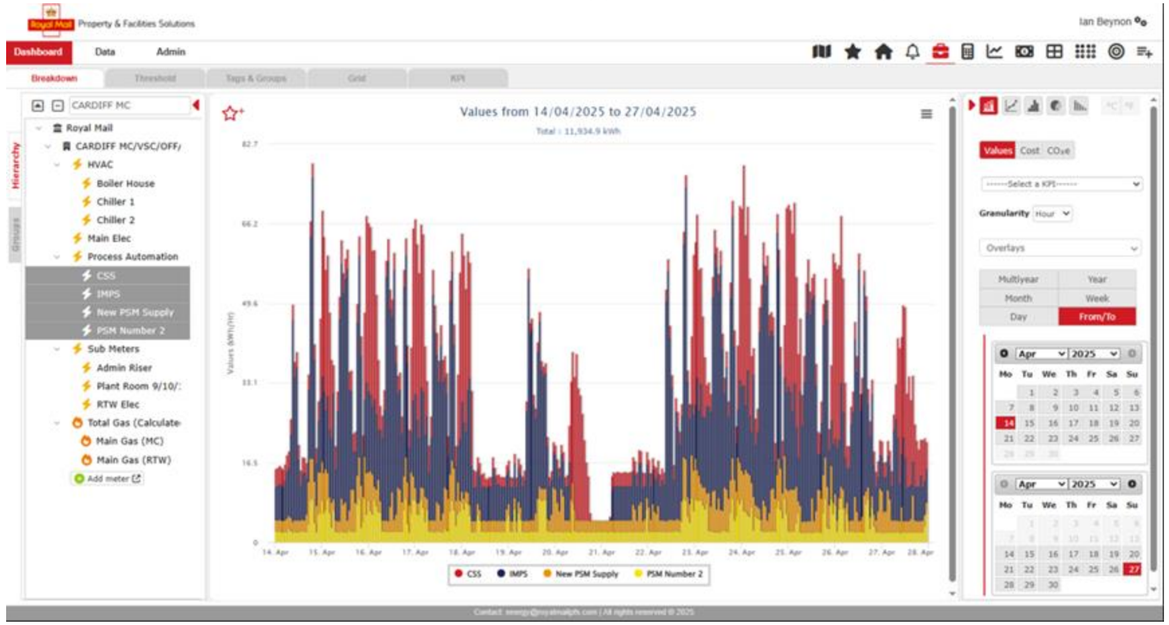
// Why EpiSensor?

- Wireless, scalable installations
- High-accuracy, pre-calibrated monitoring
- 4G Gateways for secure, independent data transmission
- Seamless integration with EnergyCAP Smart Analytics
- Pilot-first approach ensured strong IT collaboration

// Pilot Project – Cardiff Mail Centre

- **Technology Deployed:**
  - ZEM-63 wireless 3-phase Electricity Meters
  - ZGW-10 Gateway

- **Data Integration:**
  - Real-time data to EnergyCAP Smart Analytics



Royal Mail Case Study: Powering Energy Visibility Across UK Operations

// Nationwide Rollout

- Expansion to 40 major Mail Centres across the UK

Scalable, wireless system ensures rapid, low-complexity deployment

// Key Learnings:

- Early IT stakeholder alignment on cybersecurity
- Minimal IT overhead via standalone 4G gateways
- Blueprint created for national rollout

// Looking Ahead

- Royal Mail leverages full site-level energy visibility
- Enables data-driven decisions to:
  - Reduce energy consumption
  - Optimise operations
  - Achieve sustainability goals

Leader in pharma technology comprehensively manages all utilities with EpiSensor solutions

// About the Project

- Merck Life Sciences.
- Large campus; 700 employees.
- Monitoring electricity, gas, and water in a single system.
- Contributing to global sustainability targets.

// Objective

Install EpiSensor's Industrial IoT Platform to:

- **Get granular view of electricity, gas, and water usage across entire facility.**
- **Reduce overall consumption.**
- **Improve sustainability.**

// Key Features & Benefits

- Launched in 2015; growing with Merck as new buildings were added to overall campus.
- Expanded to **150 total wireless sensors deployed** - still reporting
- Electricity, water, and gas monitored centrally.
- Energy usage data has enabled Merck to reduce electricity and gas consumption year-on-year.
- **Ease of installation** - Merck can independently expand the system as their needs grow with new products added annually.
- **Full ownership and control of all data** produced by the system.
- Sensor communications are encrypted from 'sensor to server.'

// Outcomes

- Comprehensive management of all utilities.
- Granular data insights easily delivered to headquarters for global monitoring.
- Contributing to ambitious global sustainability target (climate neutrality by 2040).

Ireland’s largest entertainment venue slashes energy spend with EpiSensor IoT

// About the Project

- 3Arena
- Entertainment venue - part of LiveNation Group.
- Reported 6-figure annual reduction in energy spend.
- Optimised venue efficiency.
- Gained control of costs.

// Objective

Install EpiSensor’s Industrial IoT Platform to:

- Get granular view of energy consumption throughout venue, and in specific areas.
- Identify venue energy consumption when dormant v’s at capacity, for cost management purposes.

// Key Features & Benefits

- Granular insights required for venue when dormant, partially active, and at capacity.
- Clear ROI on operational change.
- Electricity monitored throughout facility and in targeted bars and entertainment spaces.
- Substantial energy savings introduced in several areas:
  - Lighting enhancements and scheduling,
  - Rationalisation of areas in use per event,
  - Ventilation scheduling in targeted areas of the venue,
  - More effective pricing strategies.
- Boosted sustainability efforts at 3Arena, contributing to self-imposed environmental targets (leading to CSRD compliance).
- Enhancements to utility cost projections.

// Outcomes

- 6-figure energy savings annually.
- Optimised venue energy consumption.
- Implemented operational changes driven by granular data insights.

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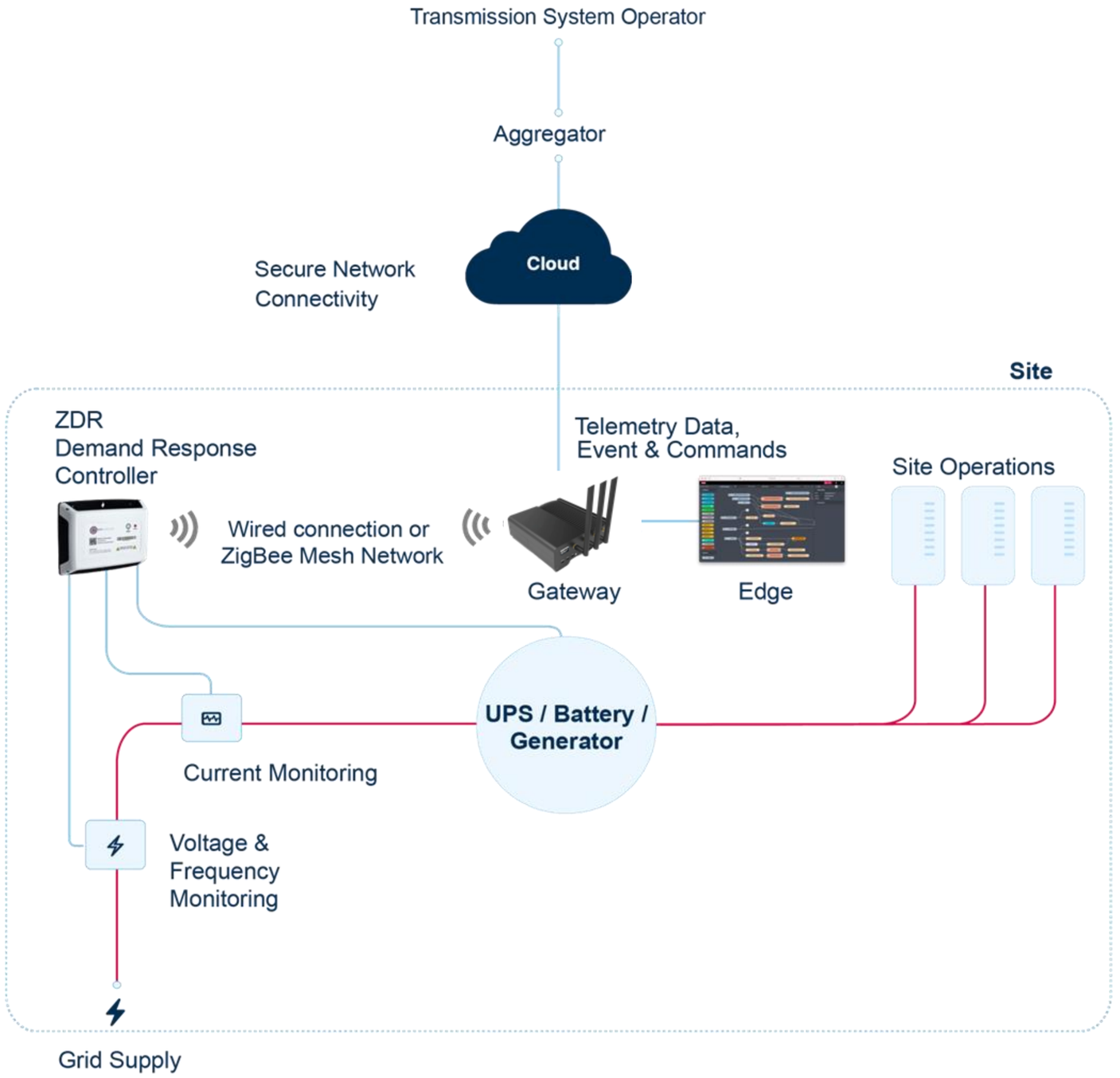
System Architecture Example:

Dynamic Frequency Response on a Data Centre UPS



EpiSensor tapped as tech integrator for Enel X virtual power plant (VPP) in Taiwan

- Connecting **2,500 of Gogoto's battery-swapping stations**
- **World's first commercial deployment** of this technology
- EpiSensor delivered the project in partnership with **Enel X, #1 Demand Response aggregator.**
- It resulted in up to **10MW** of 'dispatchable' load
- The batteries (shown here in green) are **used for transport (EV's), Demand Response and Energy Arbitrage**
- In the near future, **millions more of these assets will be connected**
- This project was **fully installed and commissioned in 6 weeks**, on sites spread across the island of Taiwan.

What our partners say

"The energy transition requires us to keep up with ever-changing rules and regulations in order to deliver our demand response services. EpiSensor enables us to meet those requirements in an agile and futureproof way"

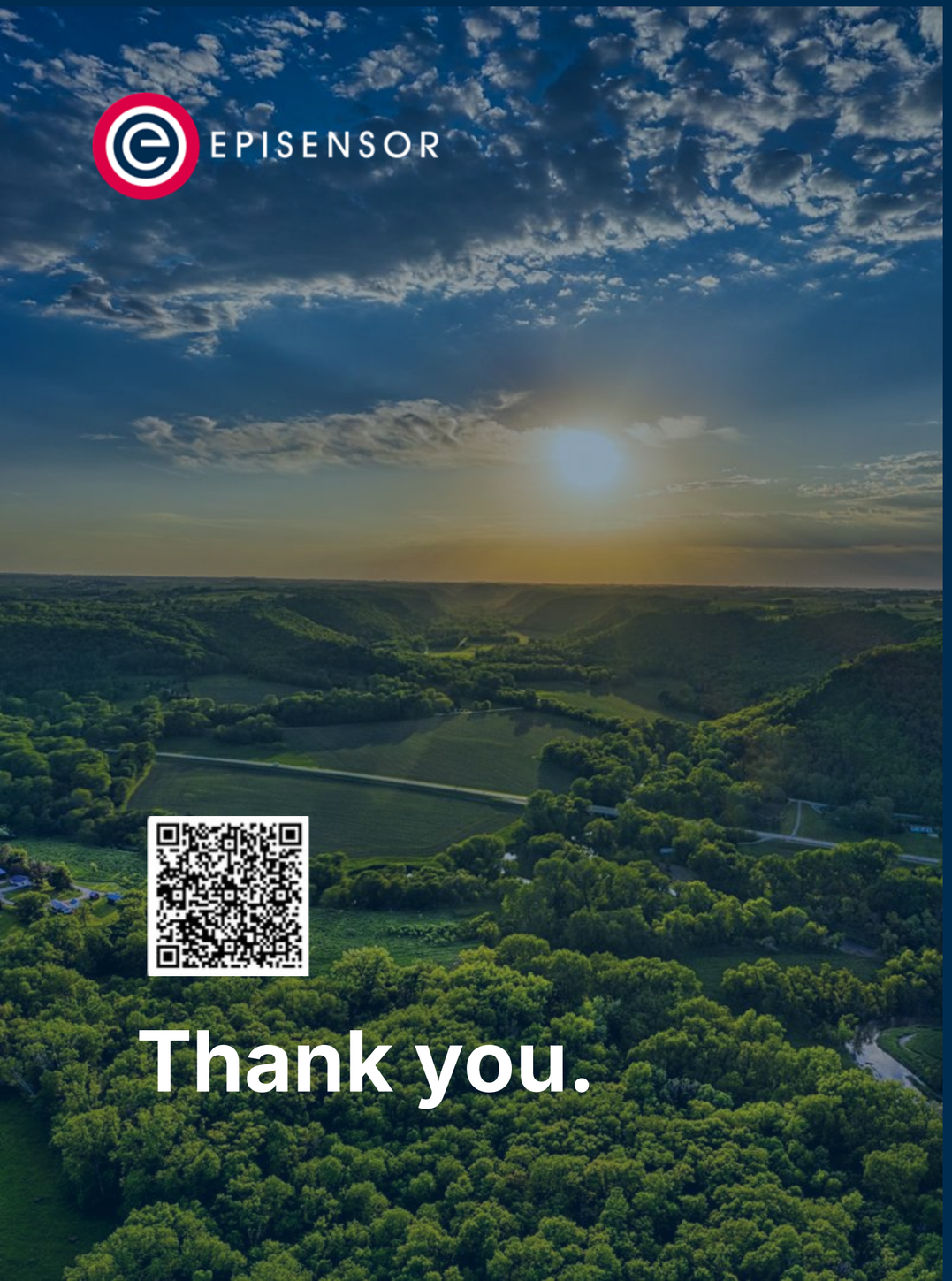
John Byrne
Head of Operations
Enel X

"I've worked with the EpiSensor team on a bunch of projects over the years, and they've always been great to work with. Super supportive - from getting up to speed on their tech to placing orders, installing gear, and even troubleshooting when things get tricky. Their tech just keeps getting better as new challenges come up.."

Alberto Guerrero
Product Manager
EnergyCap

"EpiSensor's technology is fantastic. It's reliable, easy to deploy - and integrates seamlessly with our systems."

Paul Maloney
Contracts Manager
Veolia



A Global Leader in delivering IoT infrastructure for the sustainable energy transition

WEBSITE

www.episensor.com