

-Webinar-

**Mitigating Risks in Precision
Hazardous Zones: Real-Time
Tracking for Enhanced Worker
Safety in Oil & Gas**



Activity

CUMULOCITY



Speakers



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Nicolas Jordan

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Agenda

Speaker	Time	Topics
Nasri Nassereddine Vice President META, Cumulocity	00:00:00 - 00:010:00	Introduction: Importance of IoT in Oil & Gas
Nicolas Jordan COO, Actility	00:10:00 – 00:20:00	Presentation of Abeeway ATEX trackers and the LoRaWAN technology
Wael Alkadamani Country Director, Cumulocity	00:20:00 – 00:30:00	Demonstration using Abeeway trackers and Cumulocity platform for safety in Oil & Gas industry & actual use cases
Hussein Al Rasheed DT Specialist, Saudi Aramco	00:30:00 – 00:45:00	Live feedback & customer experience: added value of seamless integration between Cumulocity & Actility
All Panelist	00:45:00 – 01:00:00	Live Q&A

Introduction: IoT in Oil & Gas

Nasri Nassereddine, Cumulocity

Why Cumulocity for Oil & Gas IoT

A proven and recognized leader in global industrial IoT software platforms



People ~
300

Operating
in countries
15+

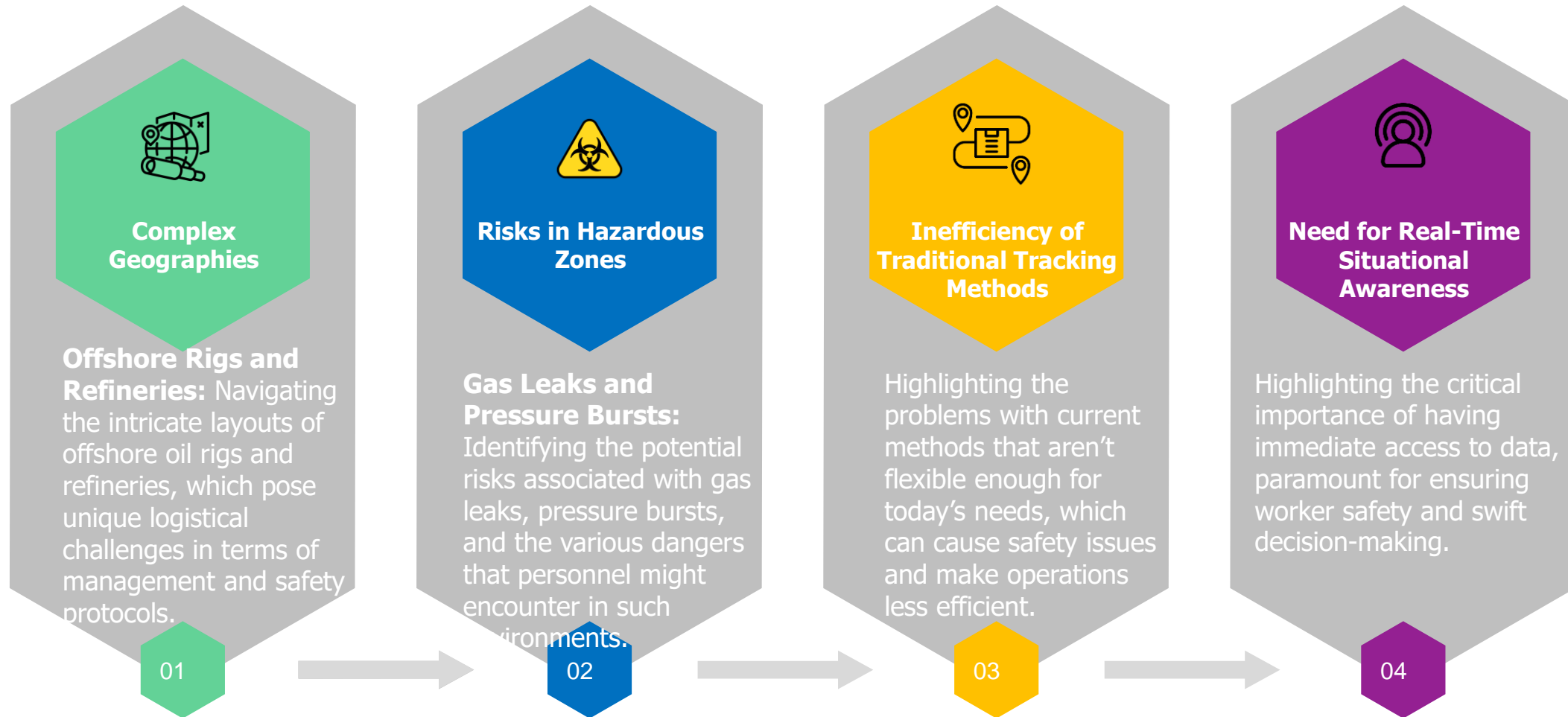
Active Customers
1000+

ARR Growth rate
> 30%

Connected Devices
25M+

Messages per day
3 Billion

The Oil & Gas Challenge



Why IoT Matters in Oil & Gas



Instant Visibility with IoT

IoT devices enhance situational awareness by providing instant visibility of assets and personnel across oil and gas sites, ensuring proactive management of potential risks.



Predictive Analytics

Utilizing data analytics to foresee potential equipment failures, thereby enabling timely maintenance actions to avoid operational downtime.



Geofencing for Safety

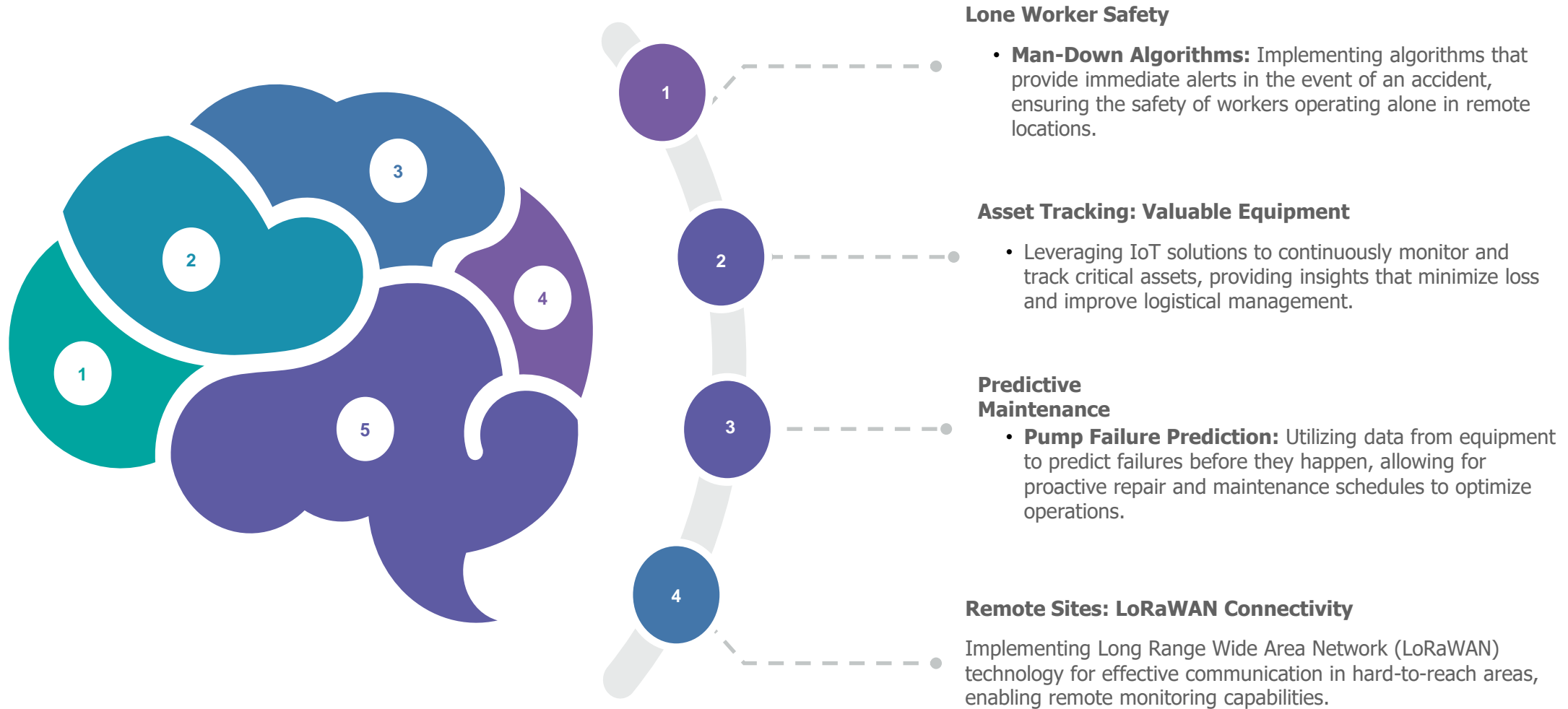
Employing geofencing technology to enforce safety protocols and restrict access to hazardous zones, providing alerts for unauthorized activity.



Digital Twin Capabilities

Creating digital representations of physical assets that facilitate real-time data synchronization, improving operational coordination significantly.

Key IoT Applications in Oil & Gas



Abeeway ATEX trackers and the LoRaWAN technology

Nicolas Jordan, Actility, COO



Battery lifetime



Low data rate
Very low power
Very short range



Medium data rate
Low power
Short range
Paired



WirelessHART

ZigBee

Meshed network
Low data rate
Low power



Meshed network



Medium data rate
Medium power
Long range
Licensed spectrum



Metering only



Low data rate
Low power
Long range
Licensed spectrum



Low data rate
Very low power
Very long range
Low cost
Unlicensed spectrum

Satellite
e LEO



High data rate
Medium power
Medium distance

Cellular &
Satellite



Broadband Satellite



1m

100m



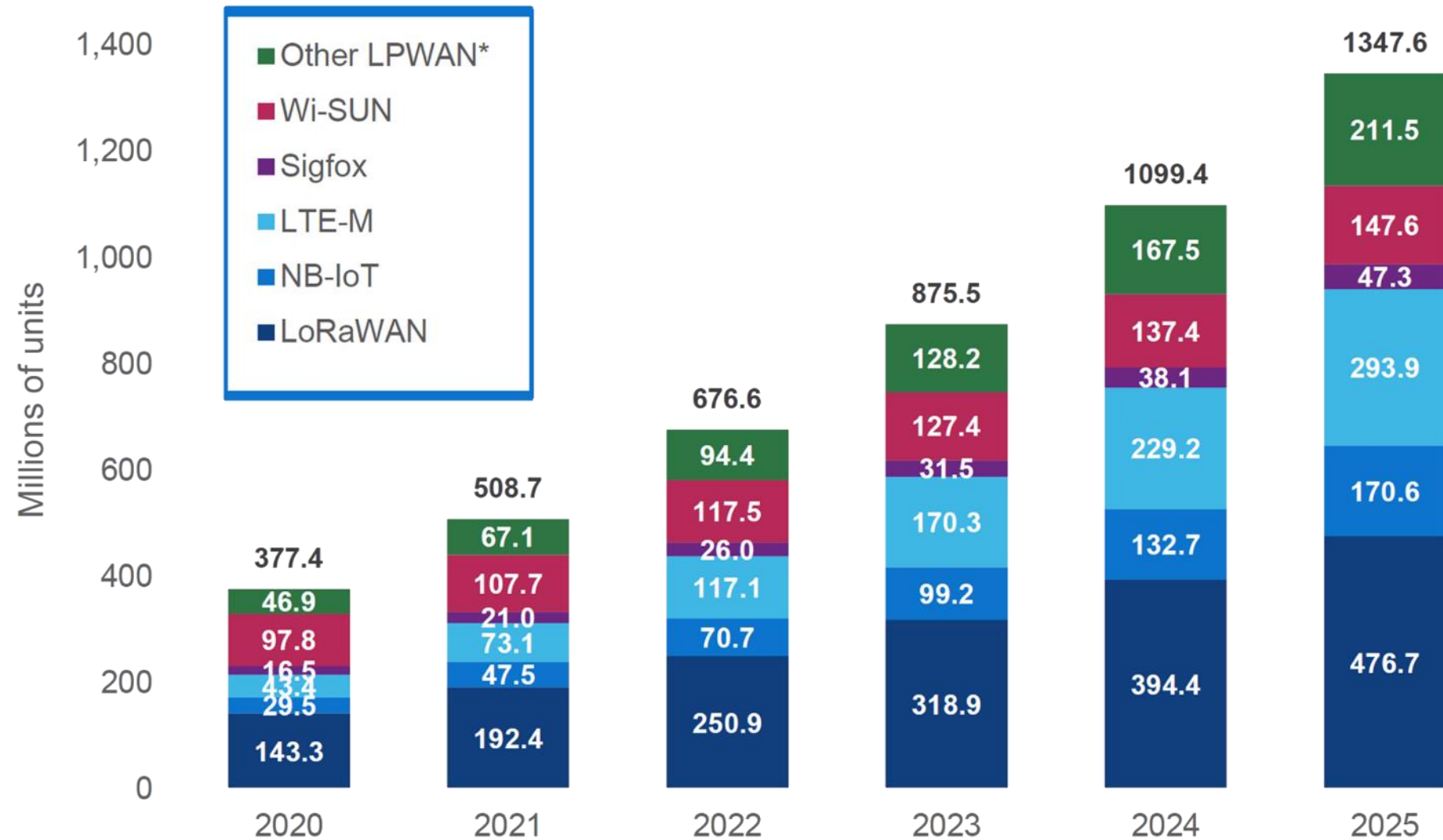
Range

Wide area

Activity

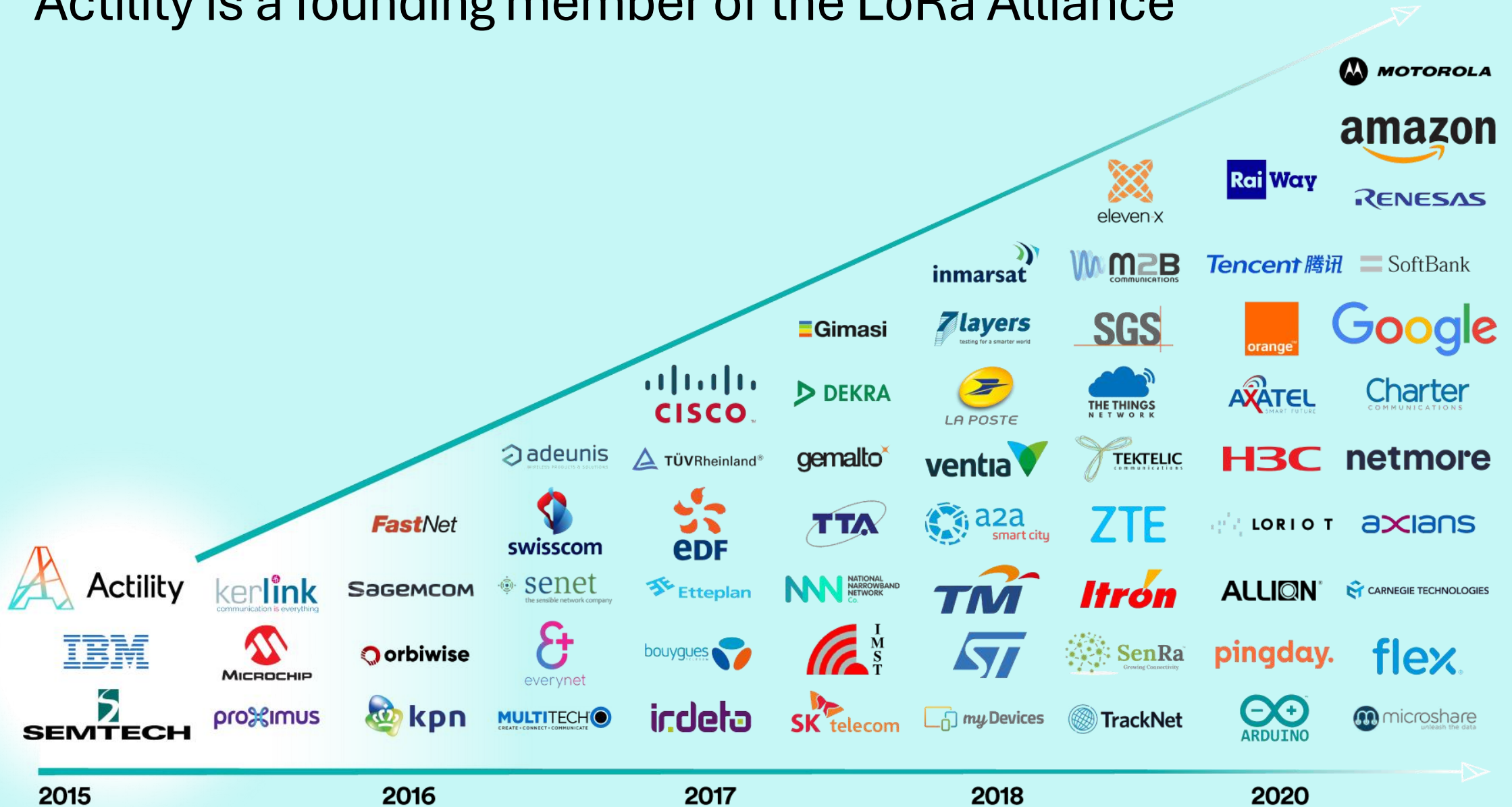
Worldwide LPWAN Active Installed Bases Excluding China, By Technology

Source: VDC Research, The Global Market for LPWAN



*Includes non-LoRaWAN LoRa

Actility is a founding member of the LoRa Alliance™



A versatile catalogue of trackers to match a wide variety of vertical applications



Compact tracker

Solid and lightweight, built for heavy-duty tracking.
Asset tracking and management, even in the harshest environments.

*3xAA 2.7Ah replaceable batteries, IK68/IP68, ATEX 0 & 2, IECEx, C1D1 temperature & motion sensors
Up to 4 years battery life in LP GPS at 24 fix per day.*

ATEX Zone 0 & 2 Certified



Smart Badge

Sleek, smart, and multi-functional.

ideal for worker protection and zone alerts

IP65, ATEX 1 & 2, Buzzer with 70dB high volume, industrialized magnetic connector, 1300mAh rechargeable battery, multimode button.

Battery life :

- Proximity mode : 1 to 2 months depending on data precision
- Location mode : 120 days battery life at 60 fix per day with indoor/outdoor positioning.

ATEX Zone 1 & 2 Certified



Industrial Manageable ATEX Beacon

The Industrial Manageable ATEX 0 Beacon is a rugged, long-lasting beacon with Bluetooth and LoRaWAN capabilities, designed for use in harsh and hazardous environments.

*Functional temperature range -20°C to + 65°C
Temperature sensor, Magnetic switch (option),*

*Size : 112mm x 66mm x 33mm, very modular fixation
Waterproof enclosure (IP68); IK08, tropicalised PCB.*

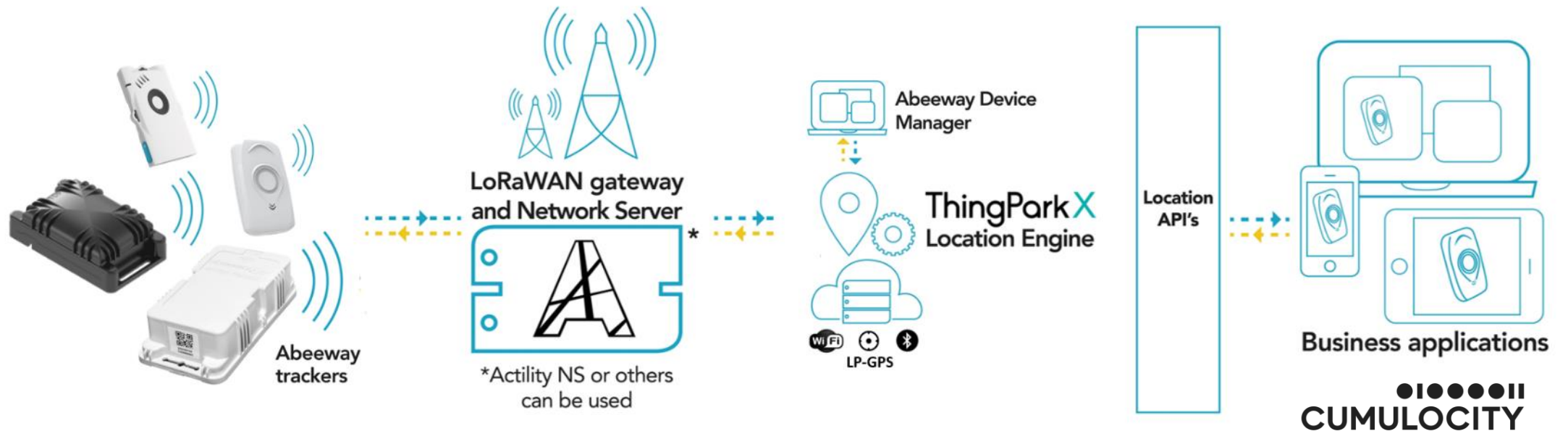
3xAA 2.7Ah replaceable batteries, IK68/IP68, ATEX 0 & 2, IECEx, C1D1, temperature & motion sensors

Programmable using Abeeway app or over LoRaWAN

ATEX Zone 0 & 2 Certified

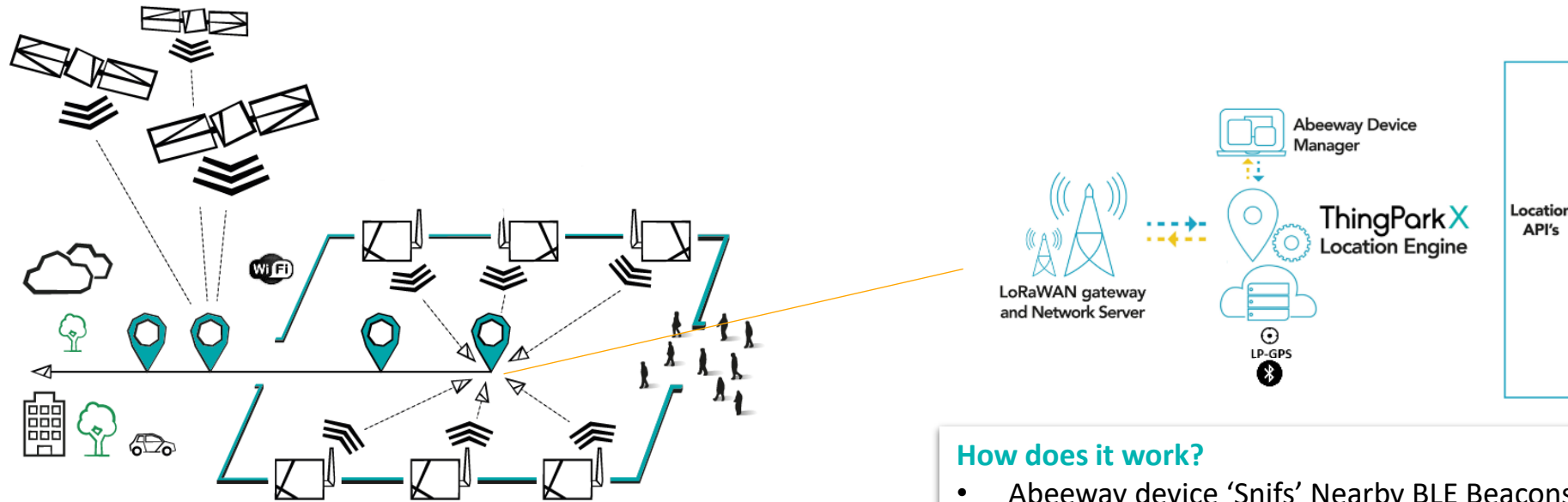
Infrastructure Overview

ThingPark Location is a solution combining **low-power multi-technology trackers** with a **modular location engine** to allow IoT Application to unlock the value of LPWAN-enabled geolocation.



Processing the positioning information at the edge of the LPWA network to deliver the actionable positioning information to the business application.

Outdoor Geolocation: GPE, Wifi Sniffing Indoor Geolocation: BLE Beacon Sniffing –



How does it work?

- Abeeway device 'Sniffs' Nearby BLE Beacons.
- The Beacon ID's (iBeacon, Eddystone, Altbeacon) are sent over LoRaWAN to the Application Server.
- The Business Application determines most likely position based on the Beacon ID's and signal strength.

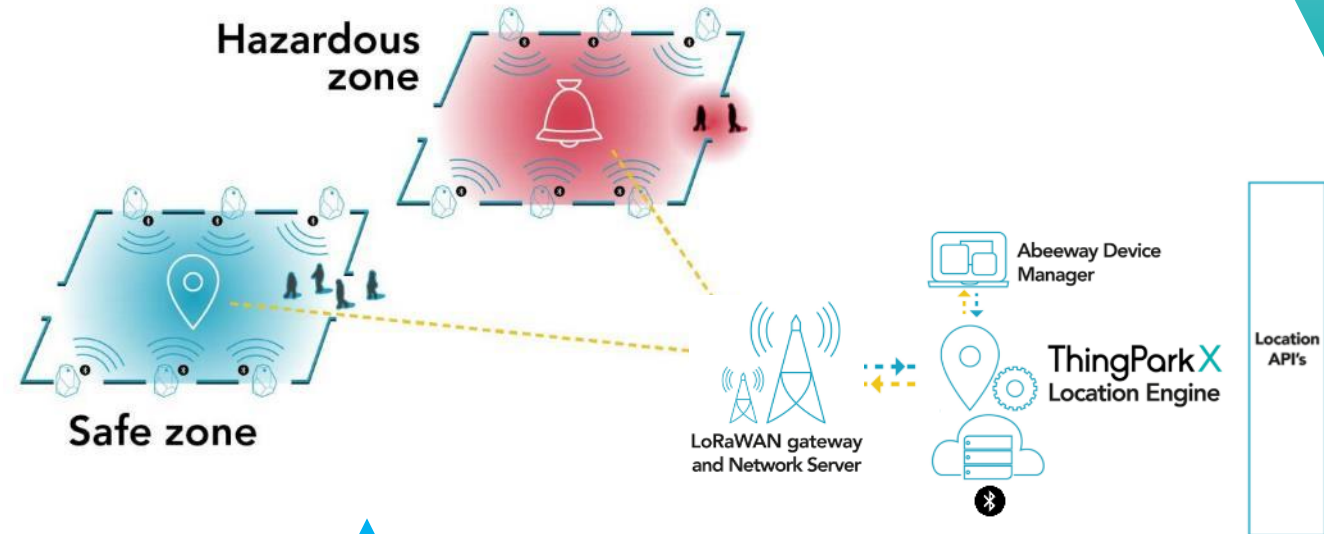
It's a **very battery efficient** geolocation technology, but requires **additional infrastructure** (BLE Beacons) to be installed.

The **accuracy** can reach 3-5m, strongly depending on the number of BLE beacons.

Advance feature

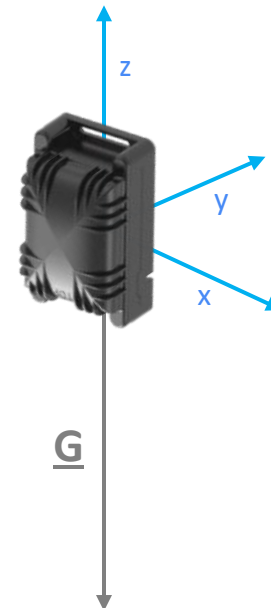
How does it work?

- Abeeway device 'Sniffs' Nearby BLE Beacons.
- The Beacon Types (based on prefixes) are configured to mark different zones:
 - Safe
 - Hazard
- The tracker changes the operating mode/buzzer and LED UI depending on the detected beacon types and reports it over LoRaWAN along with GPS/WiFi positioning information to the business application
- The main use case is **to track worker safety** and management of **time spent by workers in different zones**



Programmable Functionalities

- Motion Tracking / Permanent track/ Start & Stop / Activity Tracking / Standby
- Geofencing: Send notification when leaving/entering a specified zone
- Movement, sock Detection





Workers safety and tracking on oil & gas site in Oman (near deployment)

- Actility supports partners in the deployment of their Connected Construction solution based on Abeeway trackers & ThingPark Enterprise.
- With its **1000 to 1500 workers**, the final customer has decided to utilize employee tracking solutions to ensure both worker optimization and safety, also to use trackers to monitor and secure their heavy machinery.
- **1000 micro-trackers, 30 industrial trackers, and 5 gateways were deployed in the construction site in Oman**, with future deployments on other construction sites (Algeria and Abu Dhabi).



Benefit: enhanced worker safety and increased operational efficiencies



Worker Safety with TATA Steel

- Abeeway provides its tracking devices for geofencing and safety monitoring of worker staff on industrial plants.
- Solution implementation due to recent accidents in Tata Steel plant (death of workers in Jamshedpur plant).
- Tracker used: Smart Badge used as **ID Card in order to detect safe zone and avoid workers to move to dangerous zones.**
- Technology used: Bluetooth Beacon geofencing. Strong LED buzzer
- Accuracy up to 10m. Manual SOS button for workers in emergency
- Project size : 205 000 trackers



Benefit: improved safety and security for workers

Construction Workforce Safety and Counting in Parisian Subway Tunnels with RATP

RATP Group, the 5th biggest transport urban operator in the world, based in Paris, installed a **safety and counting solution for its workers** in the Parisian subway undergoing large-scale extension works.

The French law obliges tunnel managing companies to **precisely track the number of people on the site**. In case of an accident, people must be quickly identified in order to **evaluate the operating mode and the risks of the intervention**.

3900 Smart Badges deployed on a private LoRaWAN® network by Actility. **BLE tags every 50 meters** create a positioning reference frame, scanned by Smart Badges with **over 1 year of battery life**. The **spotless LoRaWAN network** allows to **significantly minimize the wiring**, needed only for antennas placed every 3 km, creating a more efficient system than RFID or standard BLE.



Benefit: efficient monitoring of high-risk areas with significantly reduced capital and operating expenses

Site-safety Demonstration

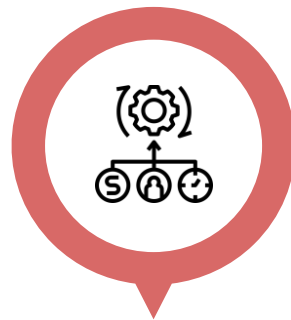
Wael Alkadamani, Cumulocity

Why Cumulocity for Oil & Gas IoT



Pre-integrated with Activity's sensors and Gateways

Cumulocity's architecture reduces setup time and allows for an out-of-the-box configuration, ensuring rapid deployment for IoT applications.



Low-Code Tools for Dashboards and Alerts

Offering user-friendly tools that allow quick customization and deployment of dashboards and alerts, enhancing data visibility for operational teams.



Geofencing for Incident Management

Our integrated geofencing capabilities provide critical safety management solutions, ensuring that teams comply with established safety protocols.

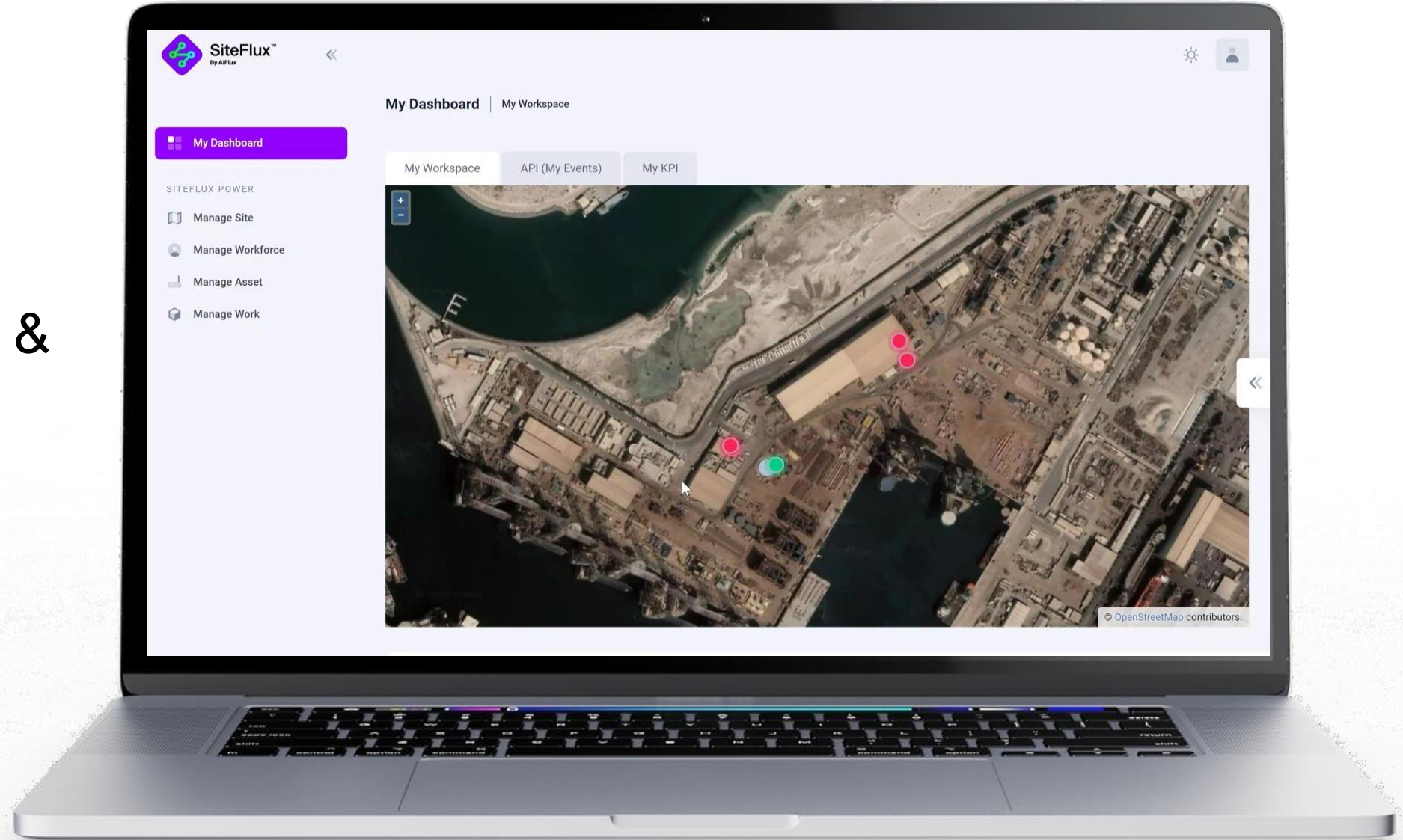


Integration with ERP, SCADA, SAP...

Ensuring a seamless connection with existing enterprise systems for real-time data access and operational efficiency improvement.

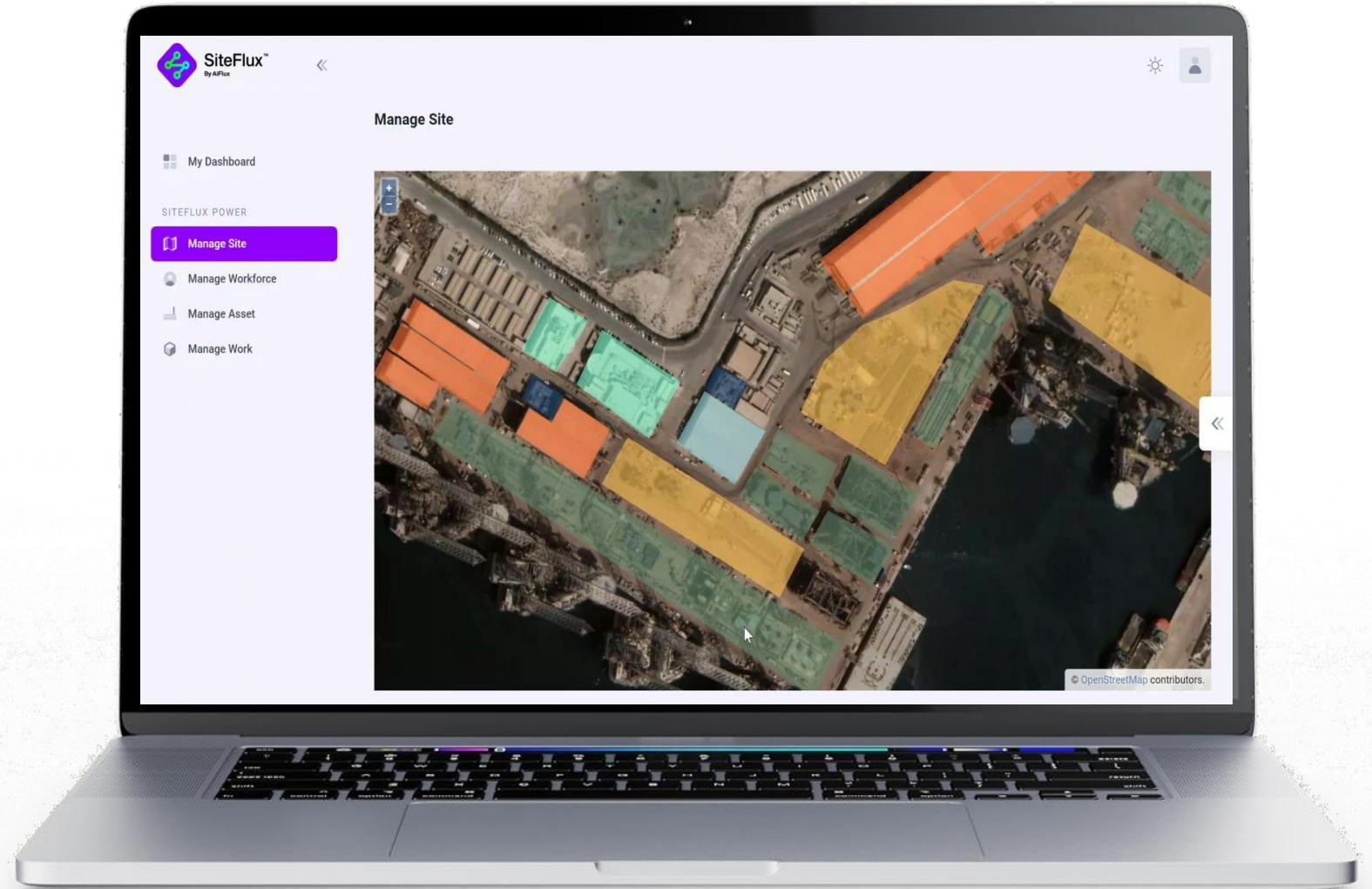
Demo Overview

Worker Location & Status



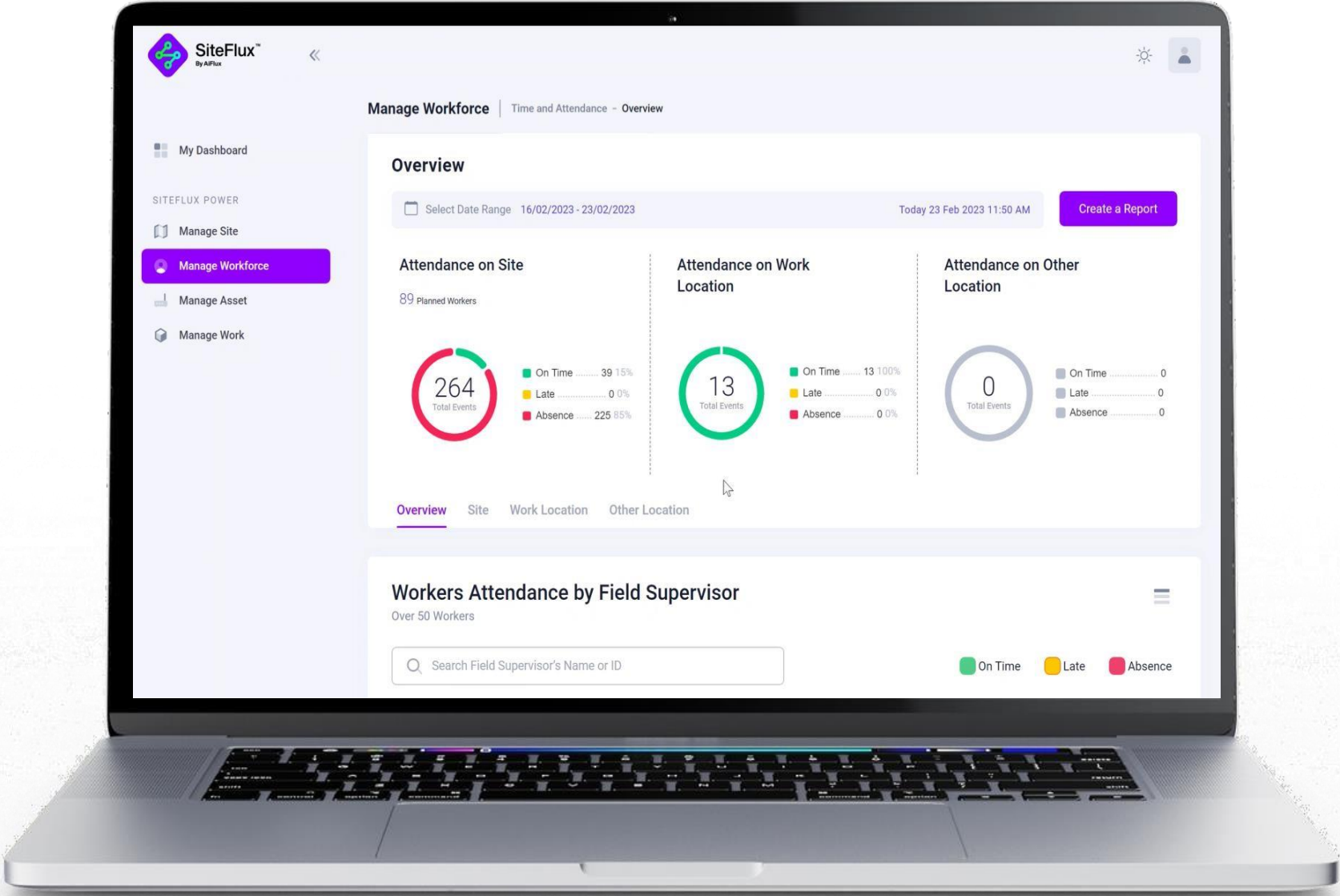
Demo Overview

Site Geofences



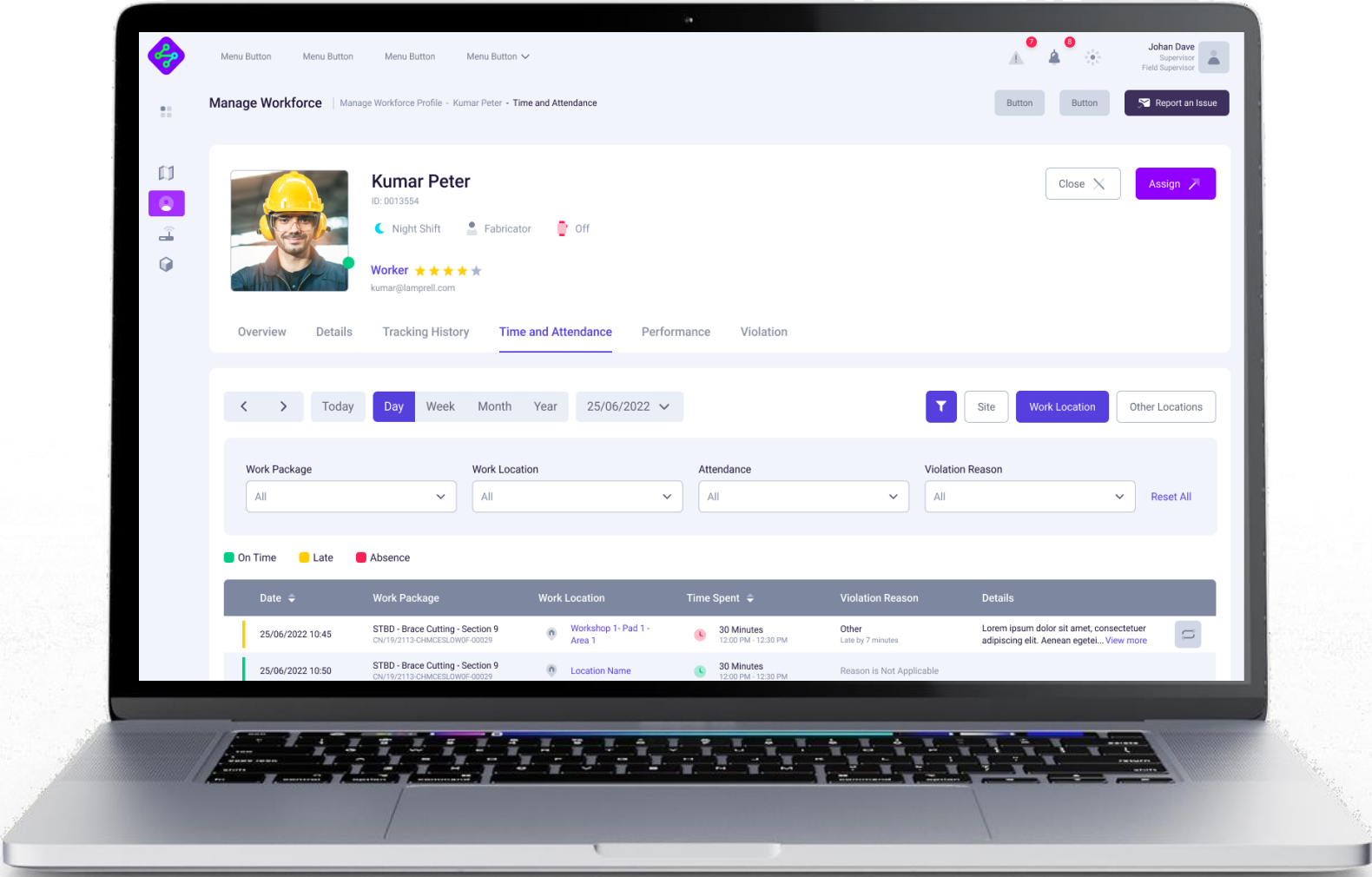
Demo Overview

Attendance KPIs



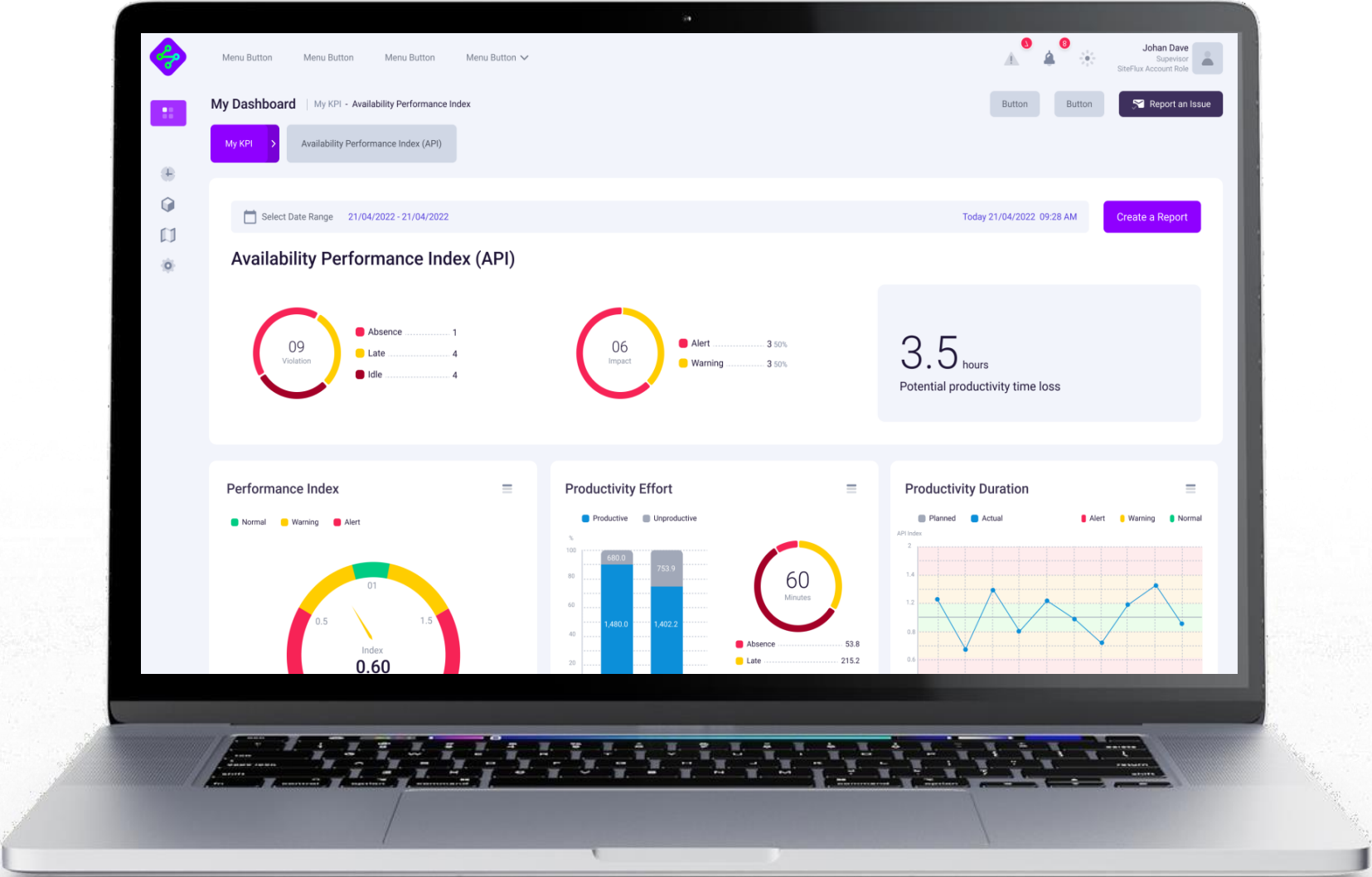
Demo Overview

Alert & Notifications



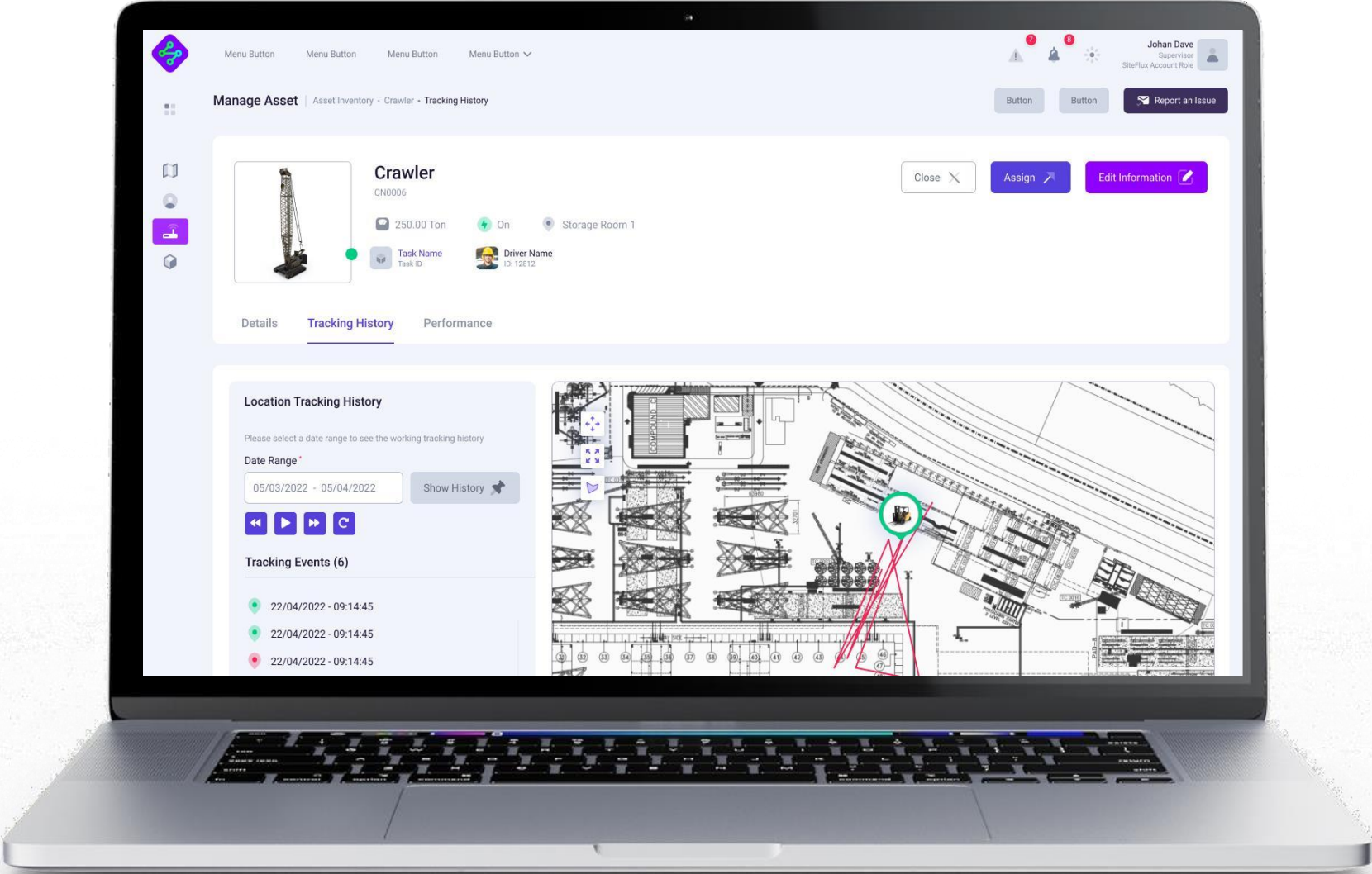
Demo Overview

Site Productivity KPIs



Demo Overview

Equipment tracking
and utilization



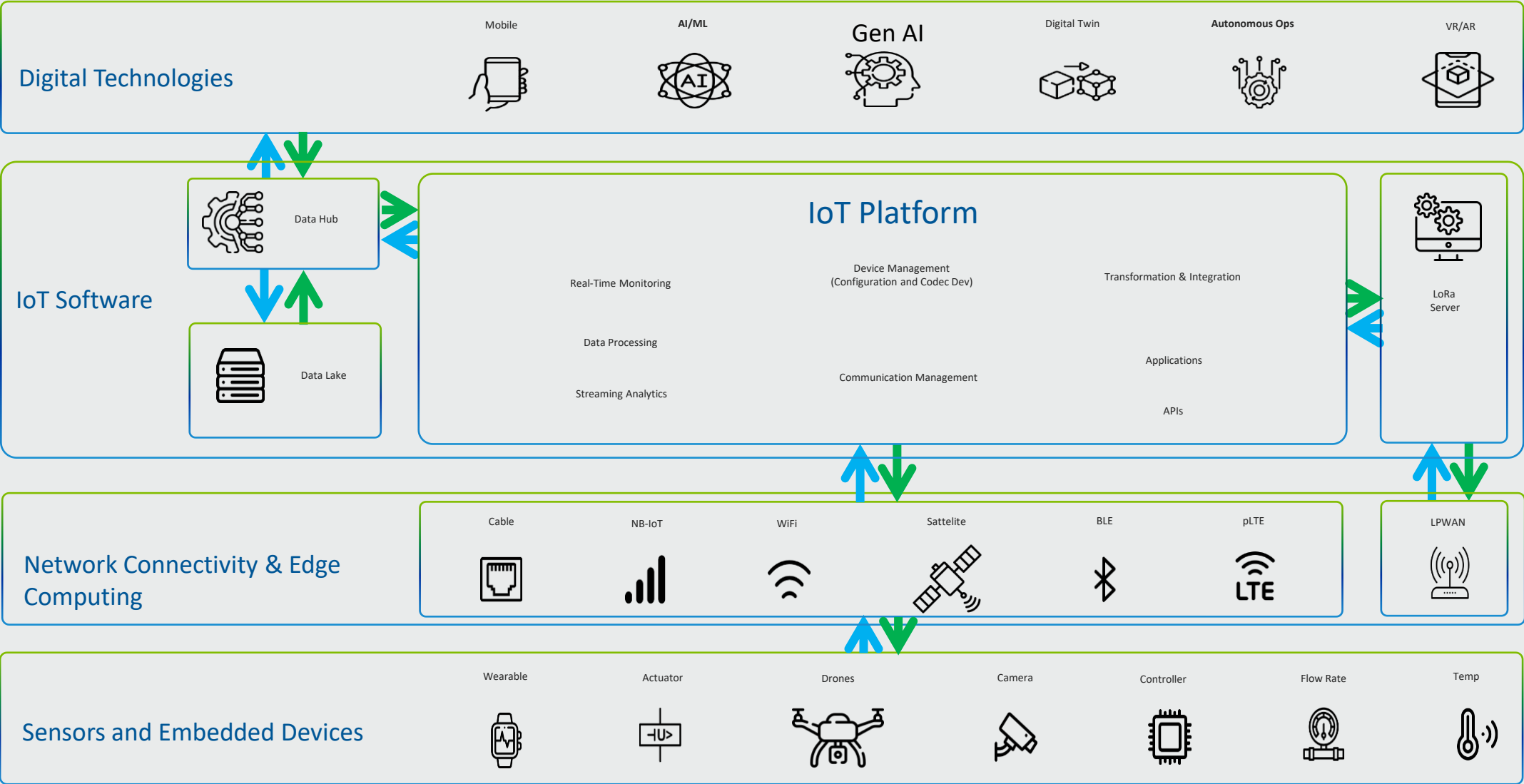
LoRa Integration with IoT Platforms

Hussain Al Raseed, Aramco

LoRa Integration with IoT Platforms



Typical Architecture

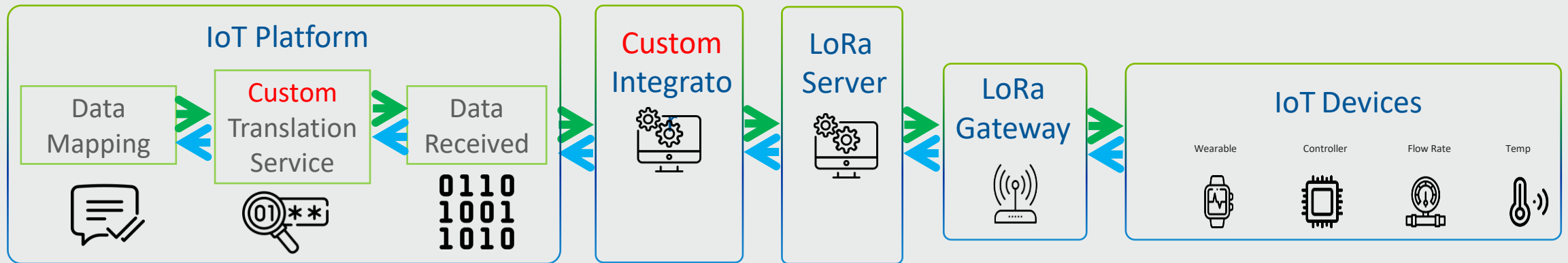


Collect
Control

Fact!
500 Million today
are connected via
LoRa

What is the Challenge?

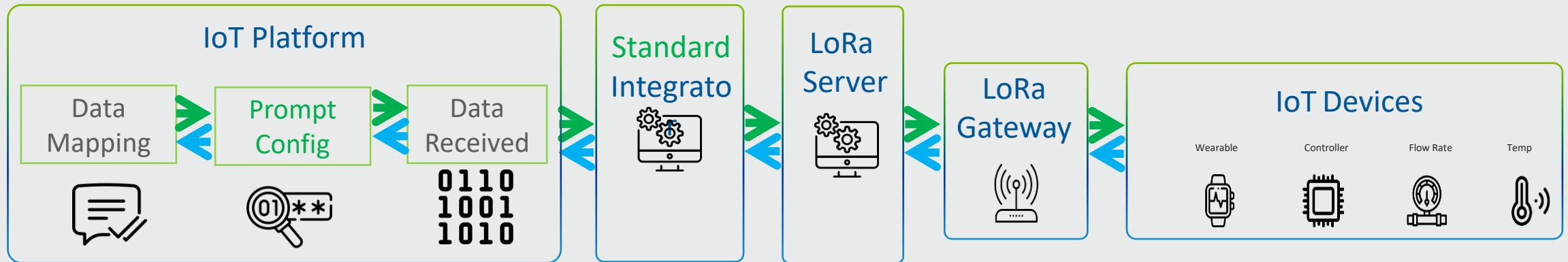
Collect
Control



- Higher cost due to required development
- Longer time to market
- More breaking points
- Higher potential of human errors
- Know how challenges

Best setup 👍

Collect
Control



- Reduced cost, no need for development
- Faster return of investment
- Less errors to address
- Easy fixes to human errors
- Intuitive screens
- Enables for future automations

Thank You!

Continue the discussion and contact **Cumulocity** and **Actility** technical and commercial experts directly at:

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