OCTOBER 26, 2023

Unlocking the future by transforming data collection with intelligent data pipeline solutions

A presentation by JEA

Casey Nettles, Patrick Harwood, Rob Raesemann

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CASEY NETTLES

The Environment at JEA

Situation and Challenges

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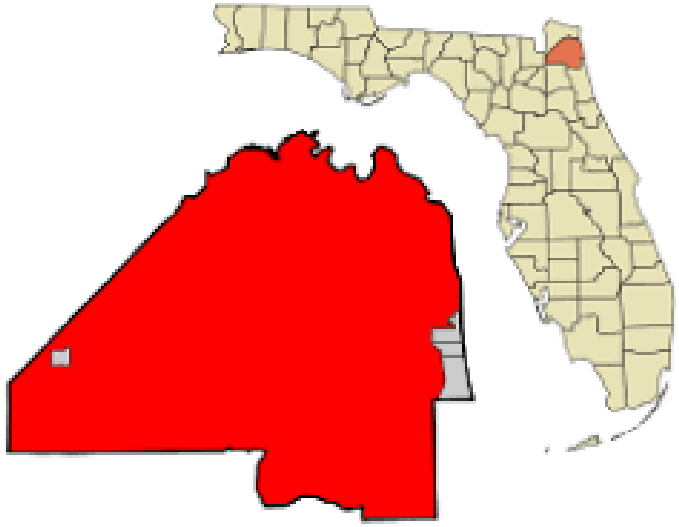
Who is JEA?

Established in 1895

- Community-owned and operated by an independent authority
- Serves those who live in Duval county and surrounding communities
- Sole purpose to ensure the electric, water, and sewer demands of our customers are met, both today and for generations to come.
- Provide reliable services at the best value to our customers while protecting our area's precious natural resources.



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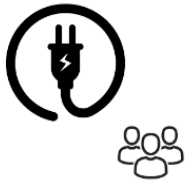
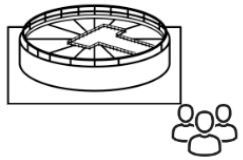
Who is JEA?

Customers



Electric
514,000

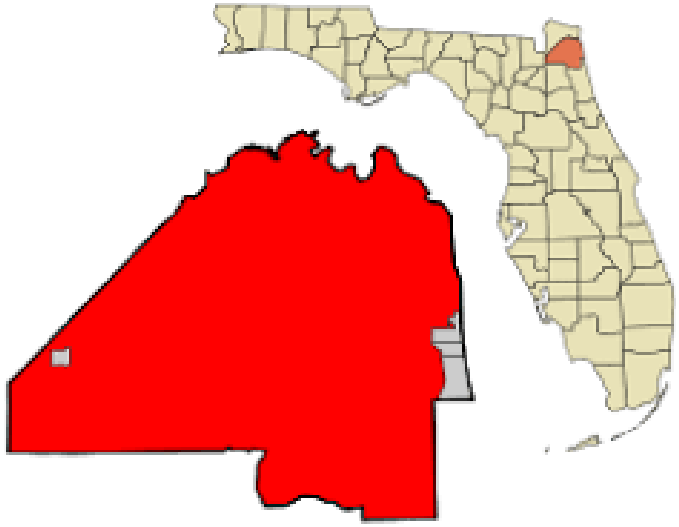
Water
391,000



Sewer
311,000

One of the fastest-growing areas of the country

AVEVA PI System users since 1996



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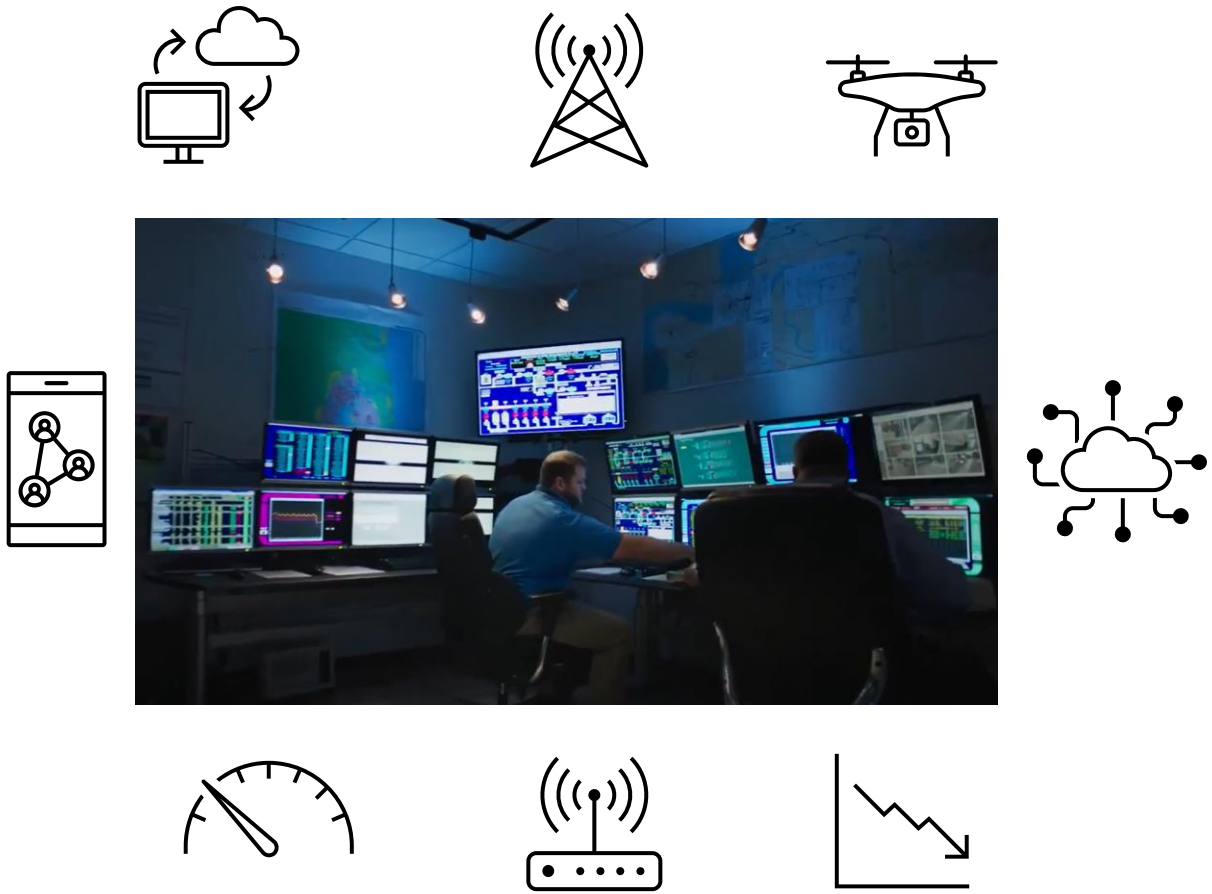
The Challenge: Unifying data for enhanced visibility

OPERATIONS

- Single pane of glass
- Need for data from assets typically not monitored for performance due to locations too far from infrastructure
- Ease of understanding
- OIT device data available to SCADA
- Only data needed for operational decision-making (Measurements/Alarms)



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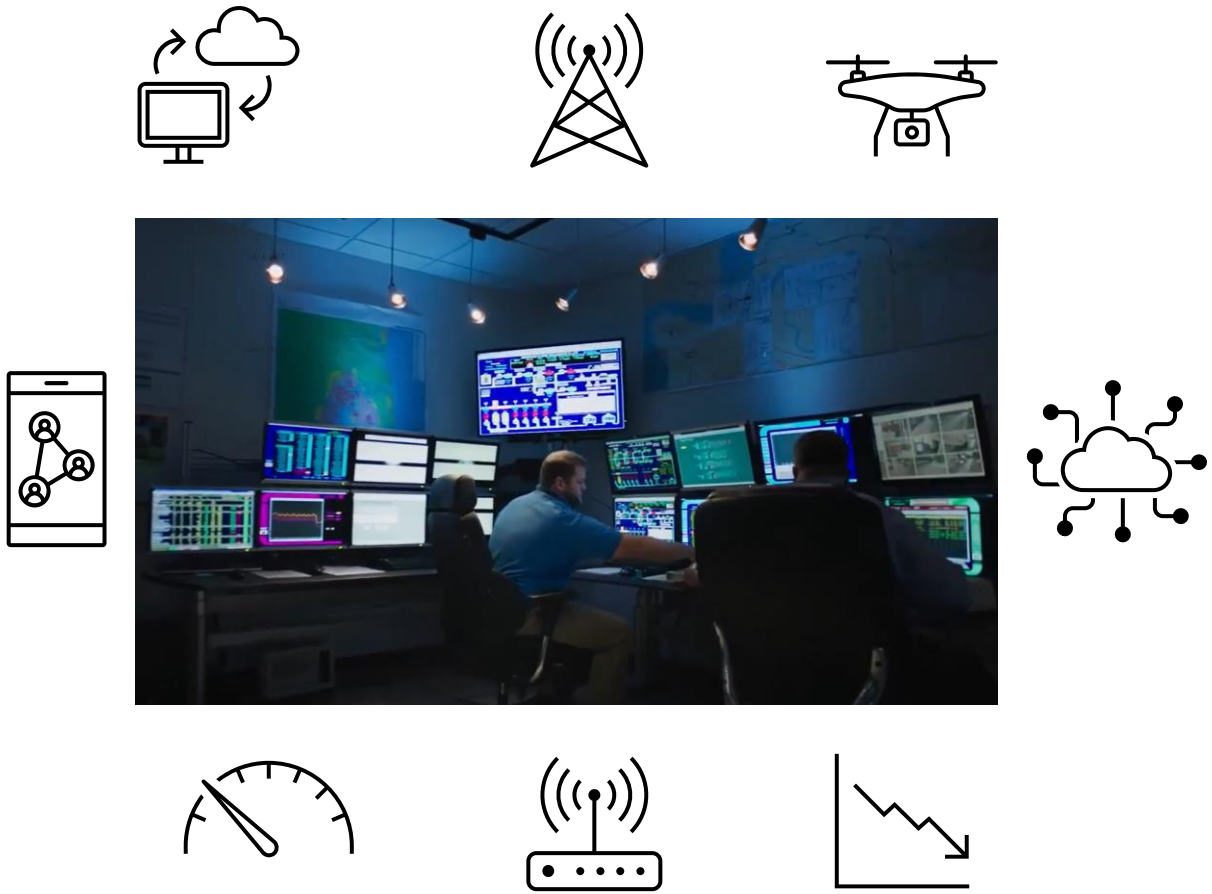
The Challenge: Unifying data for enhanced visibility

IIOT DEVICES AND HARDWARE

- Proprietary cloud solutions require a separate login and subscription for each
- Requires specialized training for each application
- It is difficult to monitor and track performance on multiple systems/workstations
- Challenging to extract and combine data for analytics
- Alarms and exception notifications are hard to manage



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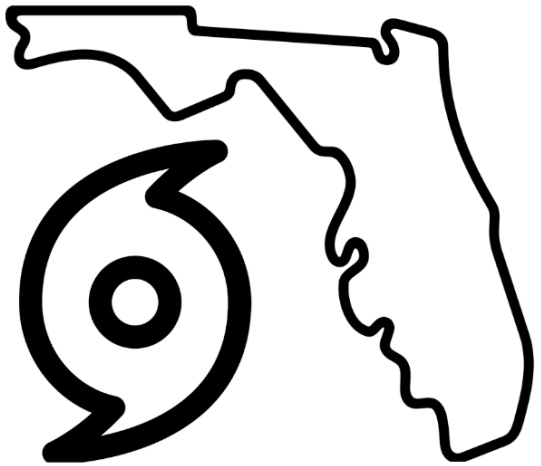
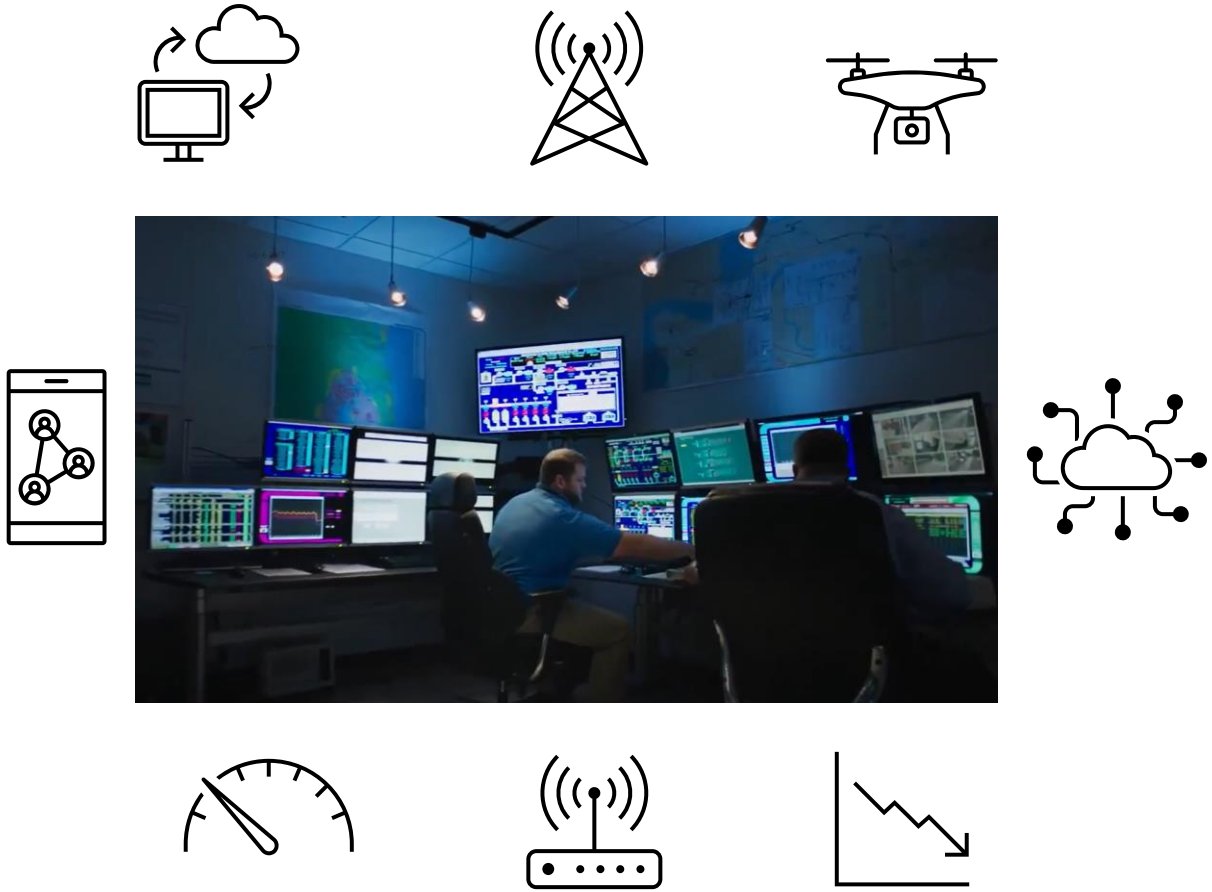
The Challenge: Unifying data for enhanced visibility

IMPORTANCE



Situational awareness is vital during intense weather events



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PATRICK HARWOOD

Third Party IoT Devices

Examples and Usage

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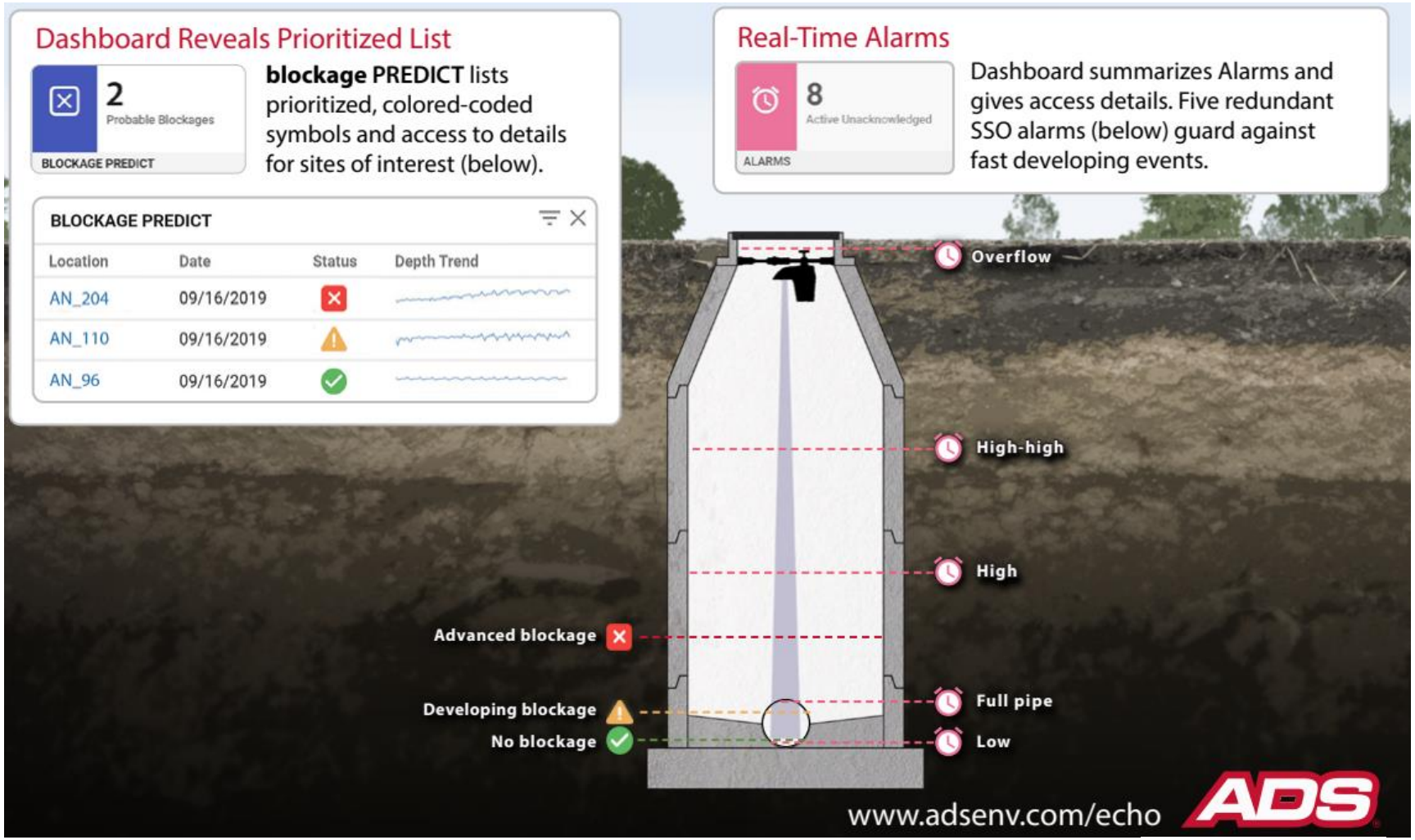
ADS Manhole Monitoring System

- SSO protection
- Alarms
- Trend levels
- Blockage prediction
- Reduced cleaning
  - 350 Cleaning sites
  - 730 Work Orders
  - 276 Reduction
- API custom attributes



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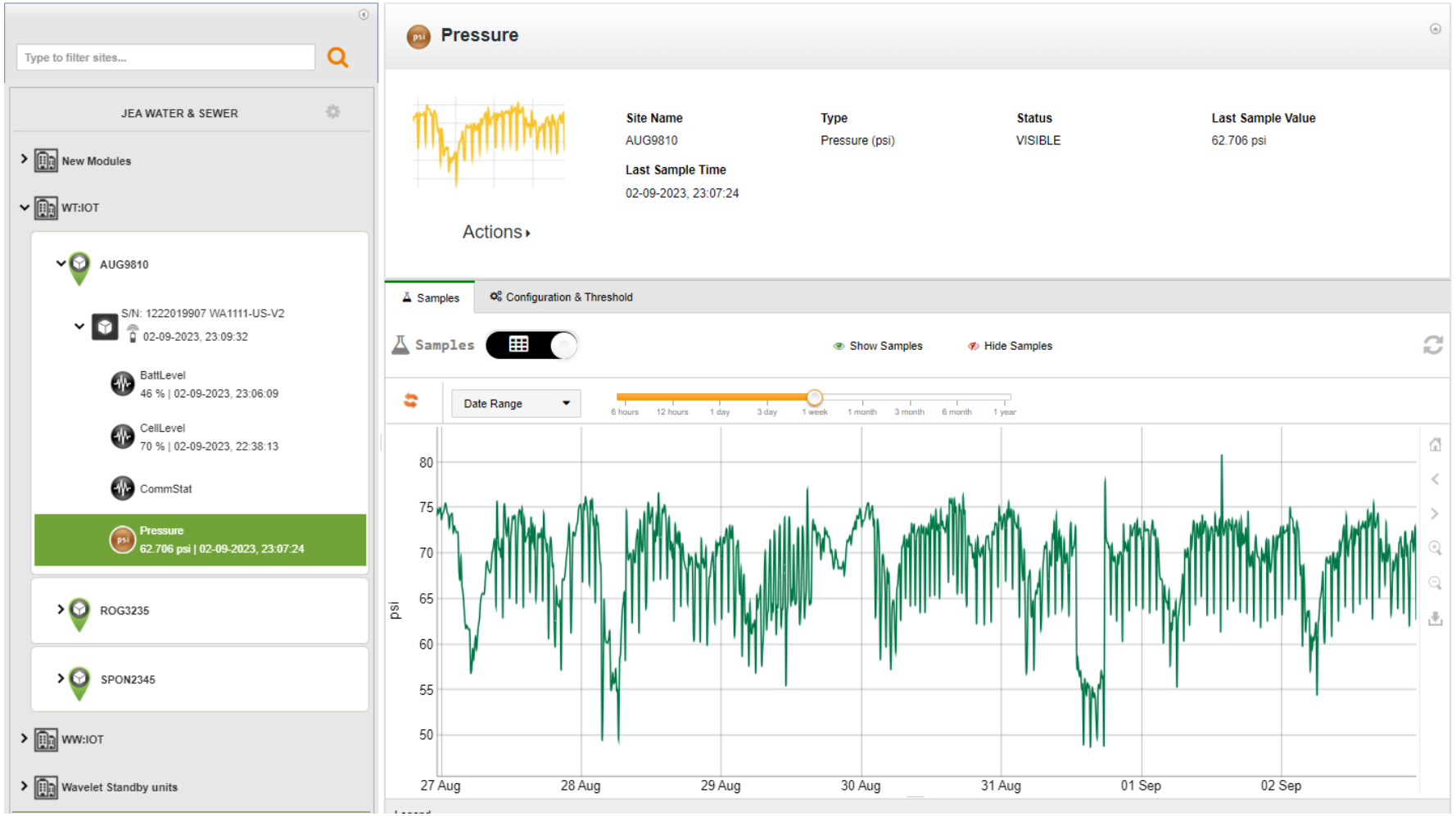
Ayyeka Wavelet IIOT Device

- Remote analysis of critical assets
- Create alarms
- Trend values
- Trigger events



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ROB RAESEMANN

IIoT Data Integration Project

Details and Results

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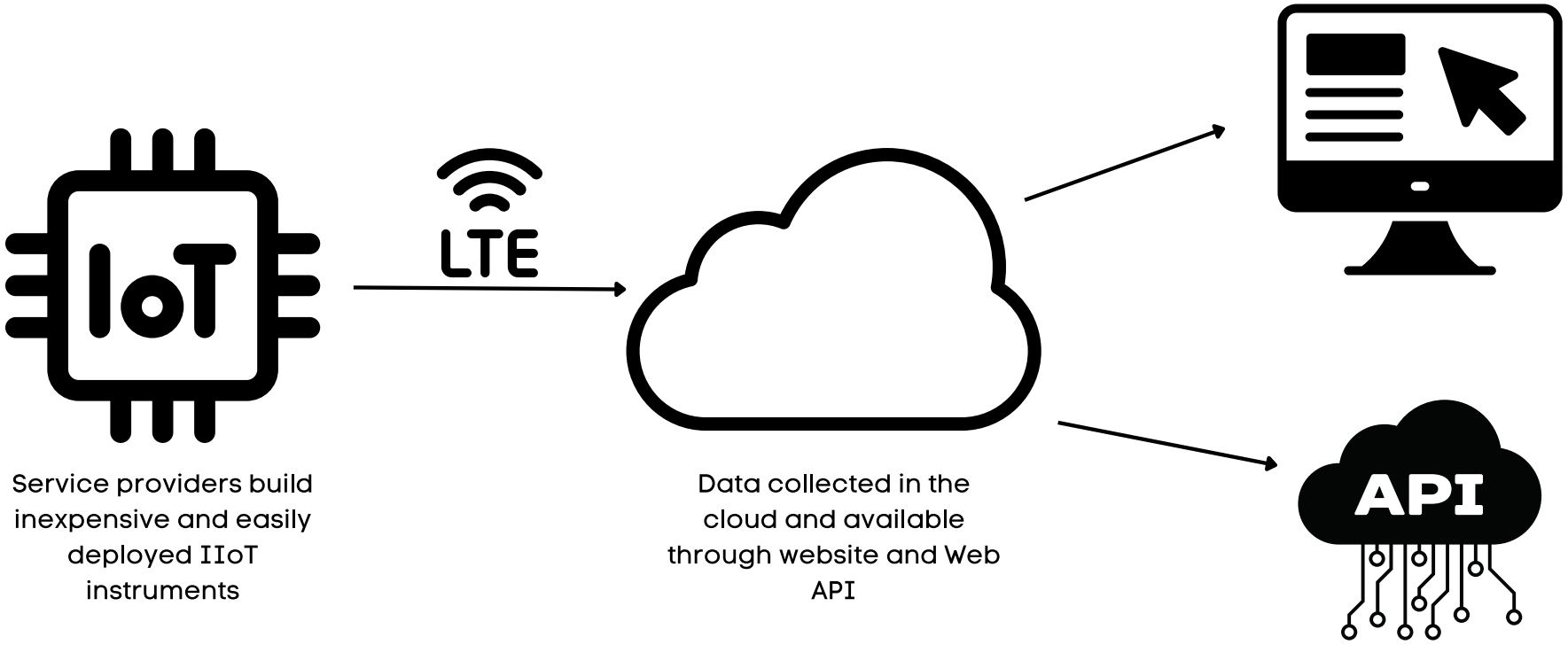
Leveraging 3rd Party IIoT/SaaS data



Service providers build inexpensive and easily deployed IIoT instruments

Data collected in the cloud and available through website and Web API

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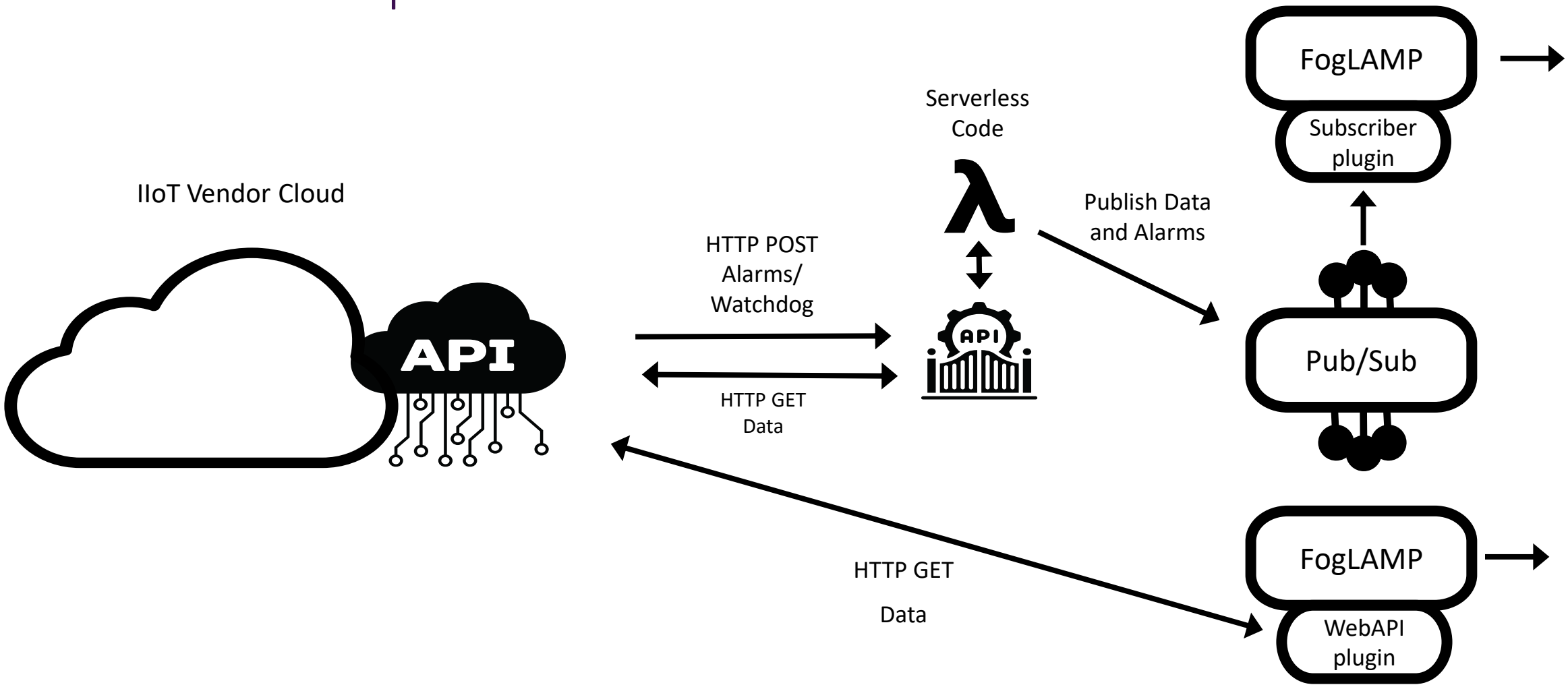
IIoT Data to Corporate IT Network



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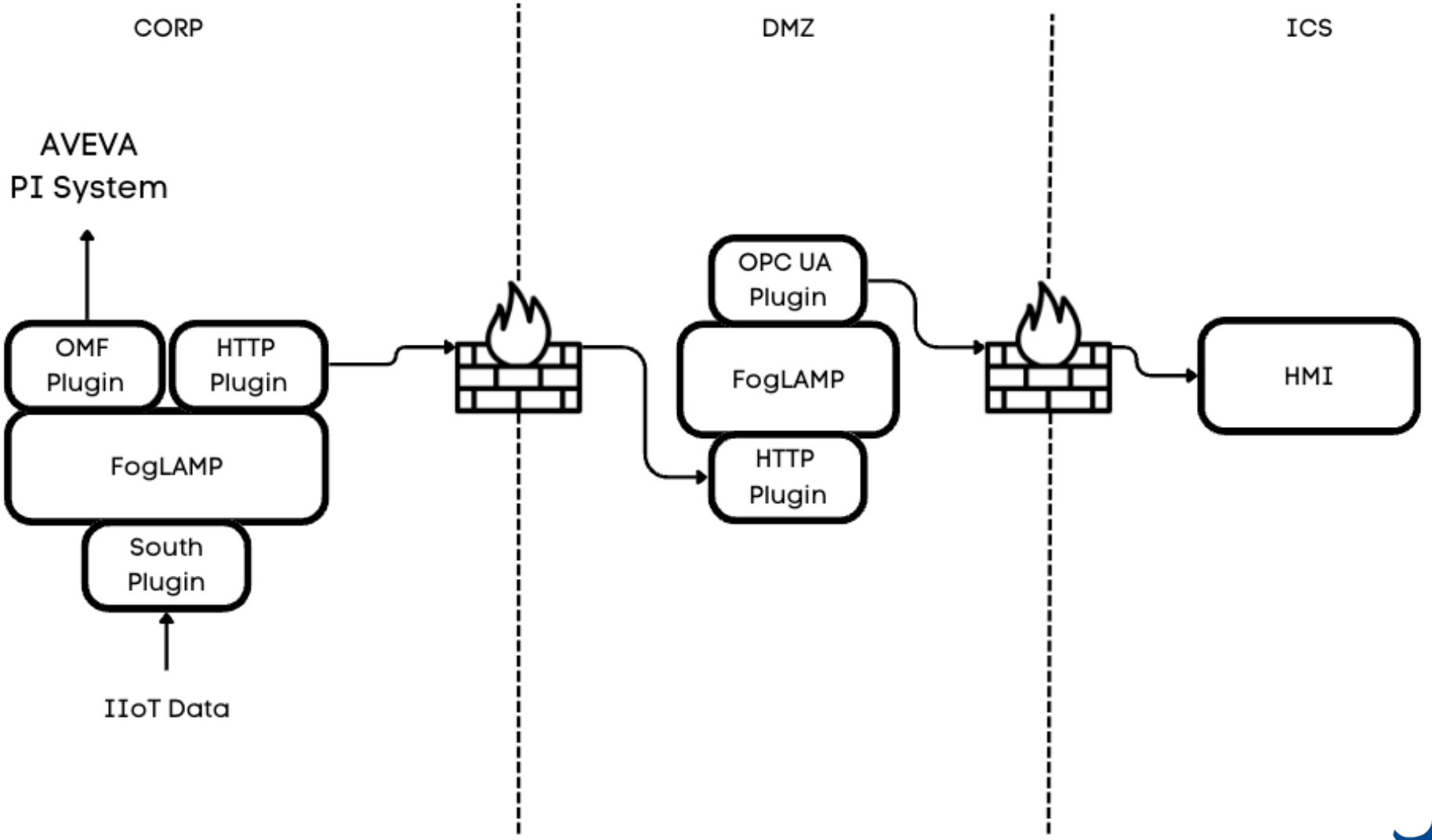
Corporate IT Network to ICS Network



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Why FogLAMP?

- IoT Platform with Industrial Focus
- OMF Plugins make AVEVA Integration Easy
- Open Source
  - No vendor lock-in
    - Data formats are published
    - APIs are published
    - Source code available
- Part of Linux Foundation LF Edge Community of Projects
  - Established and proven governance model
- Dianomic offers commercial production licenses with support
  - Purchase from AVEVA
  - Premium features
    - FogLAMP Manager
- Linux-based
  - X86-64, ARM64, Raspberry PI supported
  - Docker
  - AWS Container Orchestration, Cisco IOx, Ubuntu Linux

Benefits

- 3rd Party IIoT systems were integrated into ICS HMI and AVEVA PI Systems
- Single pane of glass – Operators not forced to access separate system
- Increased situational awareness
- Same solution feeds IT and OT system
- Open platform – No vendor lock-in
- Establishes repeatable pattern for future system integration
- Proves general-purpose approach for building intelligent data pipelines between OT/IT/3rd Party

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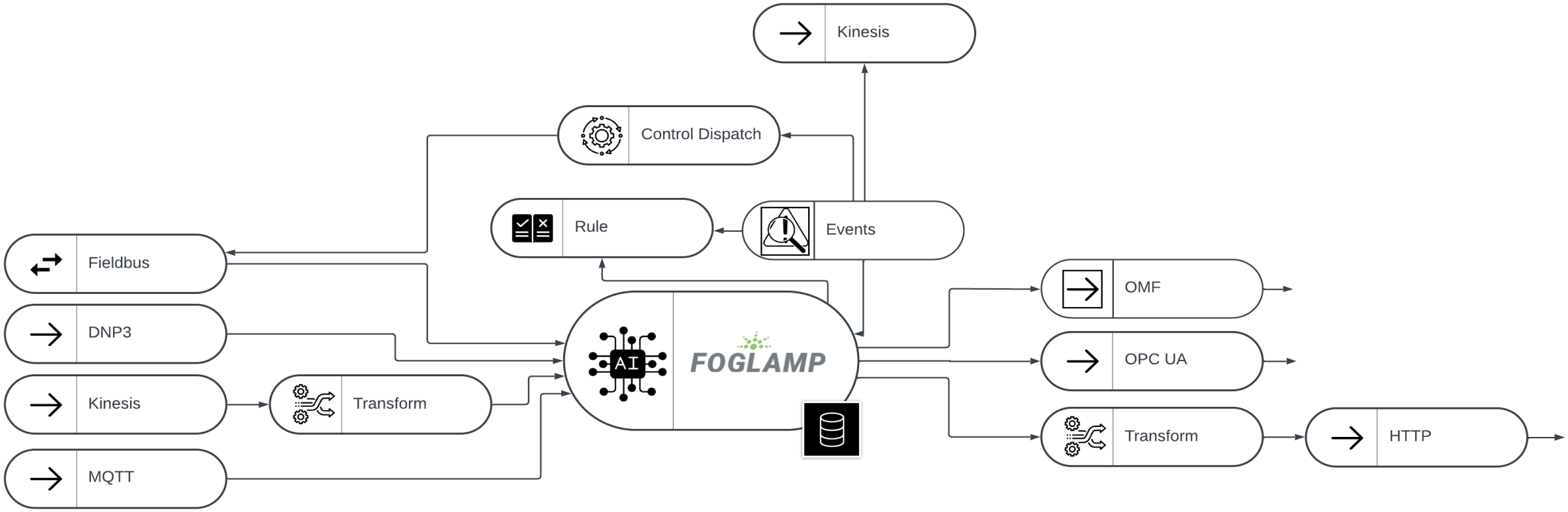
The Intelligence



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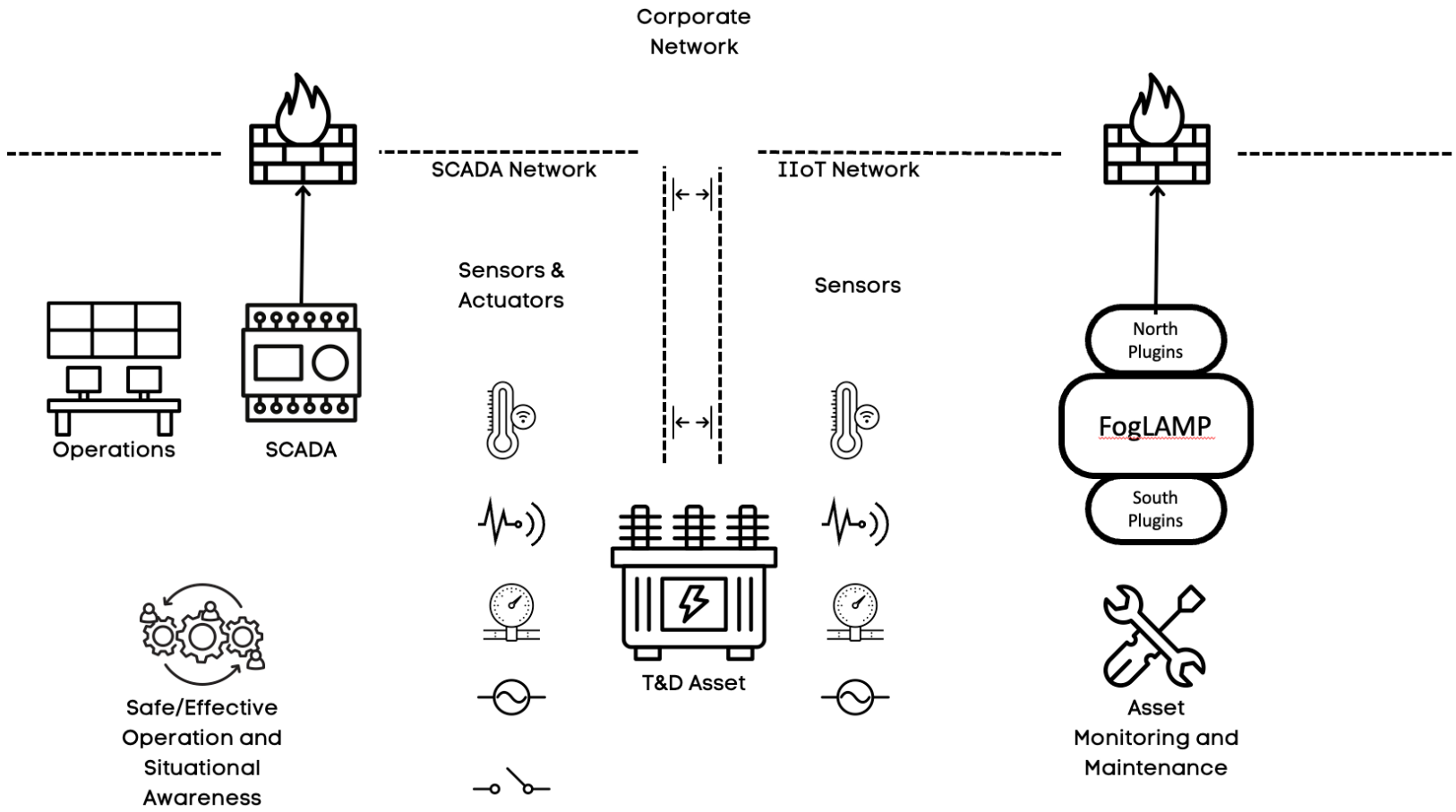
Other Systems and Initiatives

- Electric T&D transformer monitoring
- Hosting FogLAMP on Cisco IOx
- Common platform across business units



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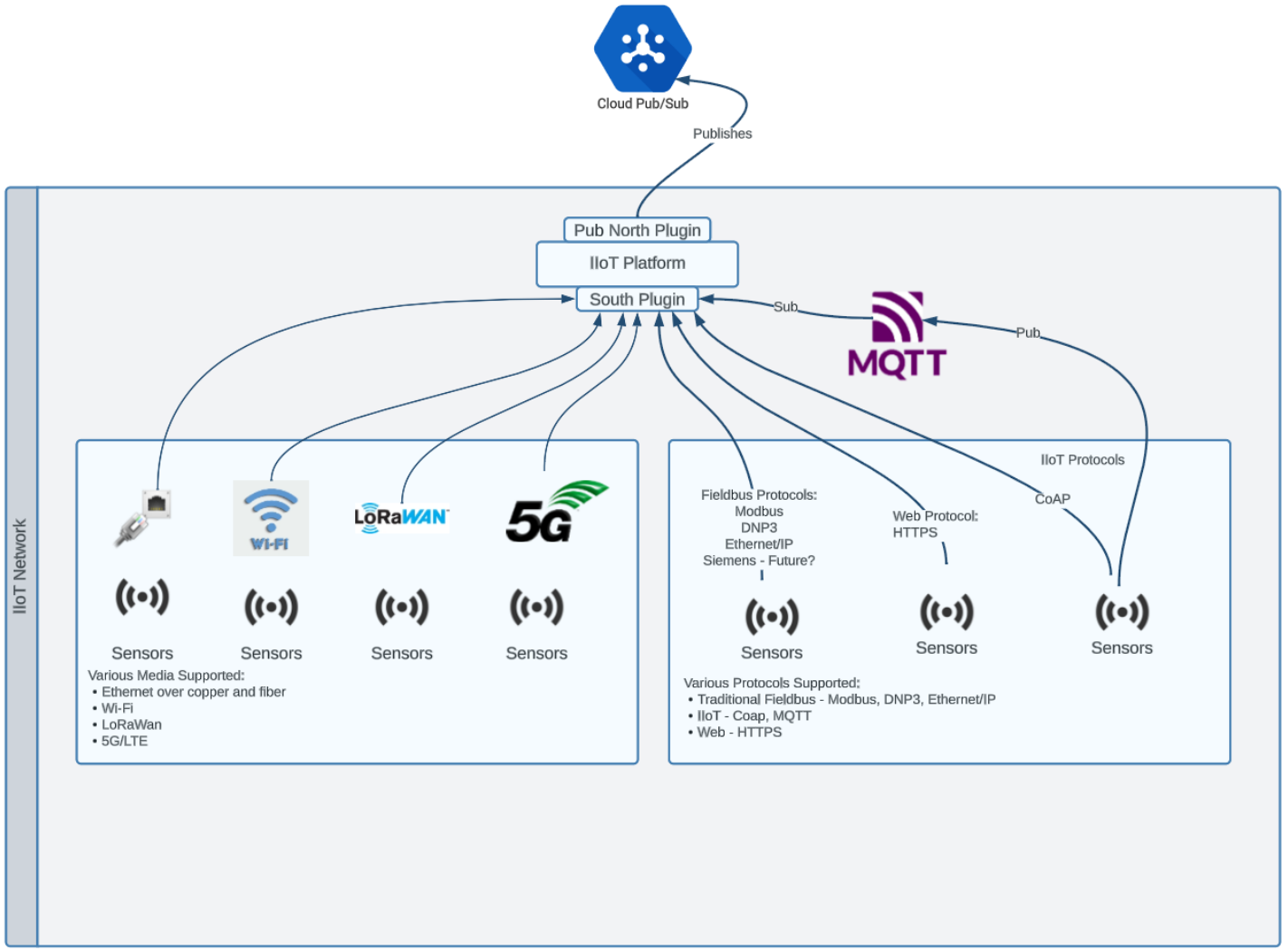
The Future

- Explore low-cost I/O options (lower unit cost)
- Private LTE
- LoRaWAN



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POWER | NORTH AMERICA

JEA reduces effort of data integration as smart devices continue to grow

Challenge

- Fast-growing provider of electricity, water and sewage services
- Multiple vendor systems used across their service area to monitor, deliver and manage utility services
- Operators spent too much time querying multiple systems and integrating data

Solution

- Deployed Dianomics FogLAMP to collect real-time data from third-party IIoT devices and integrate it with ICS/HMI and AVEVA PI System

Results

- **Operators able to use single pane of glass to view all relevant data**
- **Increased situational awareness across their service area**
- **Same data platform feeds IT and OT systems**
- **Established a repeatable approach for integrating future data pipelines**

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Questions?

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State your name and company.

Please remember to…

Navigate to this session in the mobile app to complete the survey.

Thank you!

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