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

A presentation by JEA

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The Environment at JEA

Situation and Challenges
Who is JEA?

• 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.
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
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)
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
The Challenge: Unifying data for enhanced visibility

Situational awareness is vital during intense weather events
Third Party IoT Devices

Examples and Usage
• SSO protection
• Alarms
• Trend levels
• Blockage prediction
• Reduced cleaning
  • 350 Cleaning sites
  • 730 Work Orders
  • 276 Reduction
• API custom attributes
Ayyeka Wavelet IIOT Device

• Remote analysis of critical assets
• Create alarms
• Trend values
• Trigger events
IIoT Data Integration Project

Details and Results
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

HTTP POST Alarms/Watchdog

HTTP GET Data

Serverless Code

Publish Data and Alarms

FogLAMP

Subscriber plugin

Pub/Sub

FogLAMP

WebAPI plugin
Corporate IT Network to ICS Network
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
Other Systems and Initiatives

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

- Explore low-cost I/O options (lower unit cost)
- Private LTE
- LoRaWAN
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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
Questions?
Please wait for the microphone.
State your name and company.

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

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