
WE UNDERSTAND
WE WANT YOU TO SUCCEEED
PLUG 2017
Complex Simplified
WE LISTEN
WE DELIVER PERSONALIZED SERVICE
Tailored to your end user needs
WE'RE HERE TO HELP

ABOUT **US**

our philosophy

We’re about creating a solution that works, is reliable, secure, and usable while maintaining integrity in our relationships

ABOUT US

background

- Founded in 2002 as E-Metriks Inc.
- Developed a strong customer base and key relationships
- Sold the company name and customer base in 2010 to ensure continuity as we transitioned to an overseas project
- Returned in 2014 with a significant customer base needing support
- Re-launched as Integris Inc with a much stronger focus on Industrial Control System Security
- Certified SCADA Security Architect

ABOUT **US**

what is an EcoXpert

https://youtu.be/tM7LR-91x2U

ABOUT US

EcoXpert Partners

- Let's assume that PME fits the majority of the problem you need solved.
- Unique ability to get into the corners
- Flexibility allows for creative, cost effective solutions
- Strong focus on client satisfaction
- Not everything is a nail
- Maximize ROI

Do we really need an EMS?

return on investment

It's about money isn't it?

- Private Sector does what it does to make a profit
- Public Sector is limited in what it can achieve by their budgets

- Agreed?

Do we really need an EMS?

Return on Investment

It's about money isn't it?

- As a business owner, I want to know what my return is on money I spend.
- As an agency, I want to know if this money is aiding in my mission

- Fair?

EcoStuxure PME

Historically

Electrical Data from Meters

Key Users

- Engineering
- Operations
- Accounting

EcoStuxure PME

Historically

Electrical Data from Meters

Key Questions

- How much electricity are we using?
- Where is the electricity going?
- Who should be paying their share of the bill?

EcoStuxure PME

Historically

Electrical Data from Meters

Key Purposes

- Design
- Status / Management
- Cost Allocation
- Regulatory Reporting

Energy Monitoring Systems

Market Trends

- PREDICTIVE ANALYTICS
- MACHINE LEARNING
- ARTIFICIAL INTELLIGENCE
- MODELING
- CONTINUOUS COMMISSIONING
- REALTIME PUE

Technology Changes

1971 GMC Sierra

- Three on the tree
- Manual transmission
- Carburetor Engine
- Leaded Gasoline
- Speedometer
- Odometer
- Fuel Gauge

Technology Changes

2017 GMC Sierra

- GPS
- Touchscreen
- Voice Recognition
- Onstar
- Auto Climate Control
- Memory Seats tied to the user
- Traction Control

- Convenience and Comfort

Technology Changes

Vehicles of Today

- Greater Efficiency
- Cleaner Exhaust
- More Safety
- Many subsystems that feed data into central processing
    - Instant efficiency
    - Fuel filter life
    - Oil life
    - Tracking

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What do we know about our Assets

- Technology has moved beyond the speedometer and odometer
- We have the ability to pull data from many sources
    - OPC
    - XML
    - SNMP
    - SQL
    - EWS
        - Alexa and SmartConnector
        - RESTful API

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Centralized Energy Analysis

What impact does a change of setpoint on the chilled water loop of your facility make?

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Centralized Energy Analysis

Solution: Multifactor modeling (factors that impact efficiency)

- Chiller Loads
- Electrical Loads
- Weather Data
- Bodies in Building
- Product Produced (Widgets)
- FLOPS and/or IOPS in the Datacenter
- Time of Day

Complex Simplified

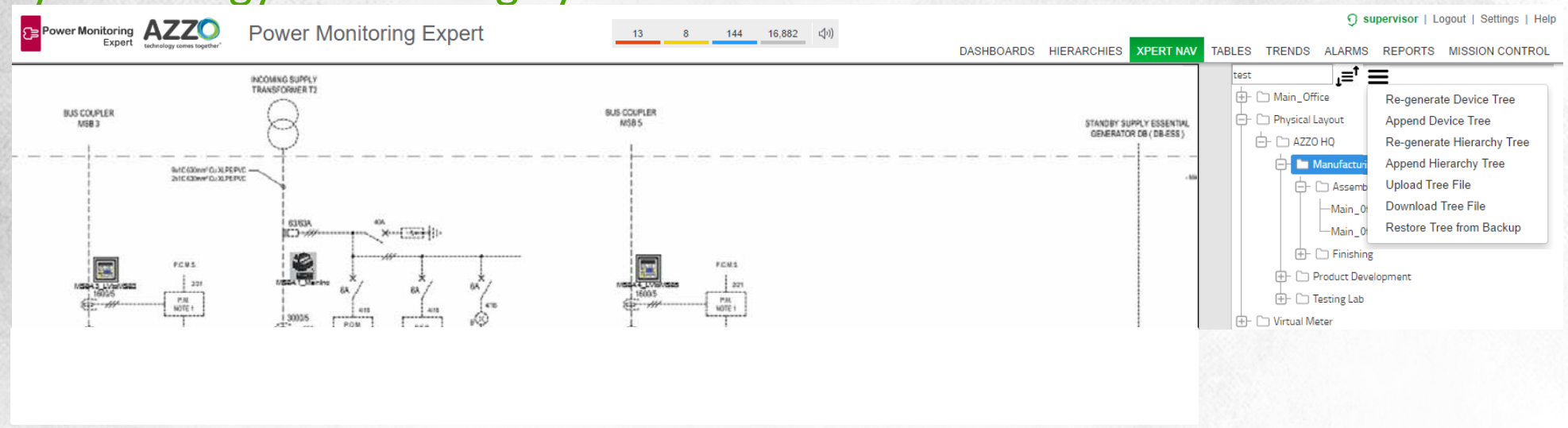
Centralized Energy Analysis

What about the interaction between that takes place between the Chiller VFD, the capacitor bank, and the UPS's in the facility?

- As more nonlinear generators come online and an increase in nonlinear loads the impact are yet to be realized
- The ageing assets in our facilities were primarily designed and sized for 60Hz loads. An increase in efficiency may have additional maintenance costs.
- Ie. using lower grade gasoline may reduce costs initially, but the damage to engine components may only be discovered years down the road with unseen wear.
- The solution is to collect and integrate as much of this data that is available into a single purpose Energy Monitoring System.

Xpert Navigation (Azzo)

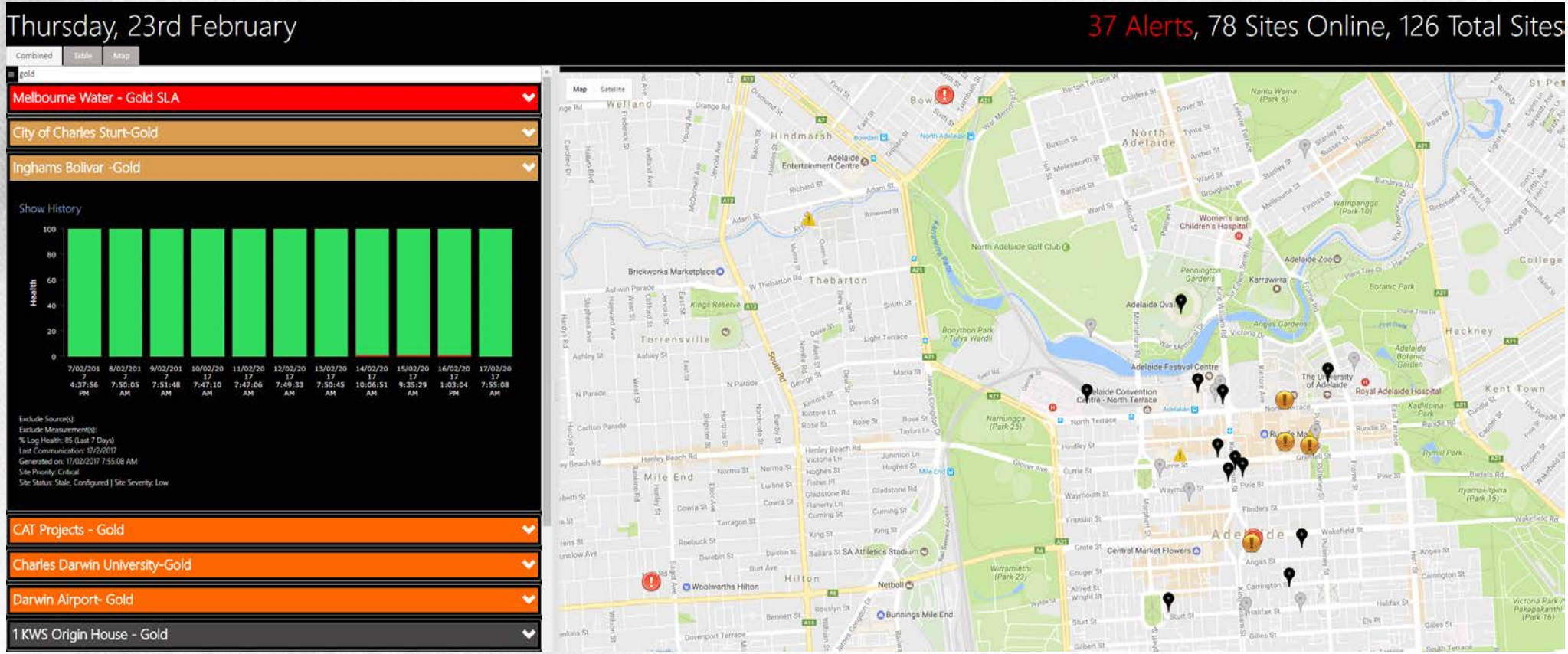
A user-friendly and easy way to generate and expand the navigation of your Energy Monitoring System



- Multi-user support, easy tree-structure navigation
- Automatic tree generation/link to Vista device diagrams
- Supports virtual meters and apportionment
- Easily locate nodes with search feature

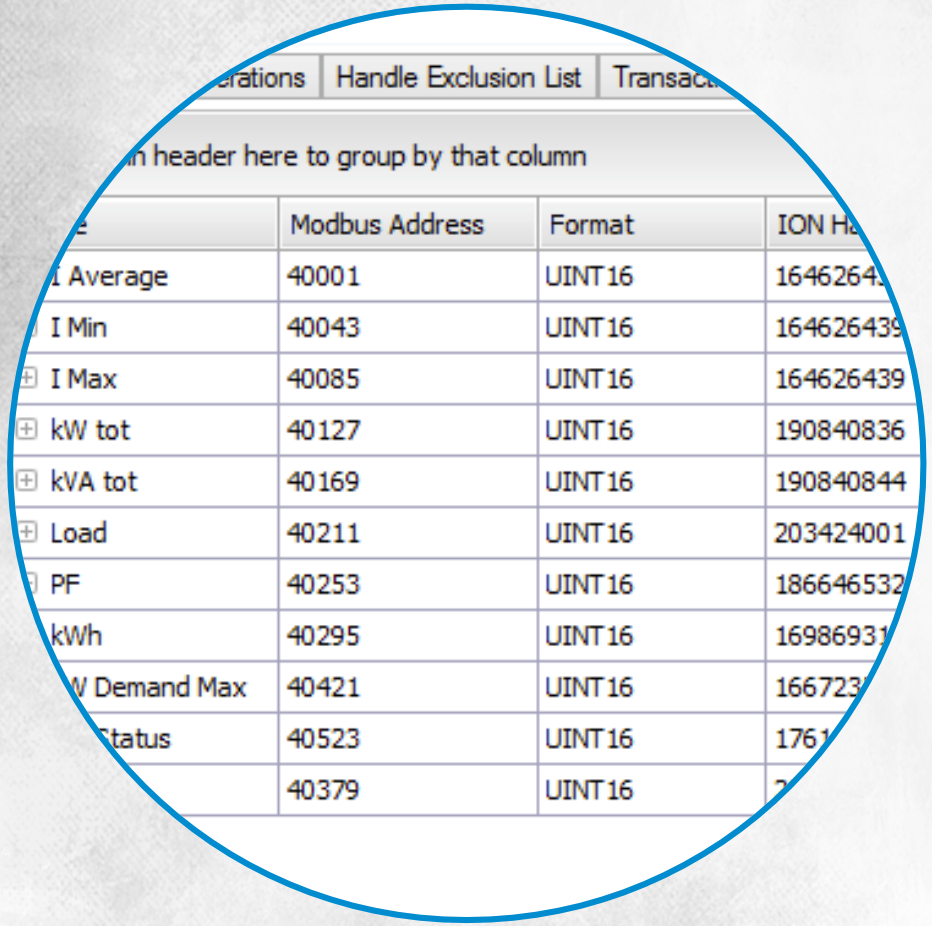
Mission Control (Azzo)

Manage the health of large systems, multiple sites, or complex networks in one live dashboard application



Device Type Editor

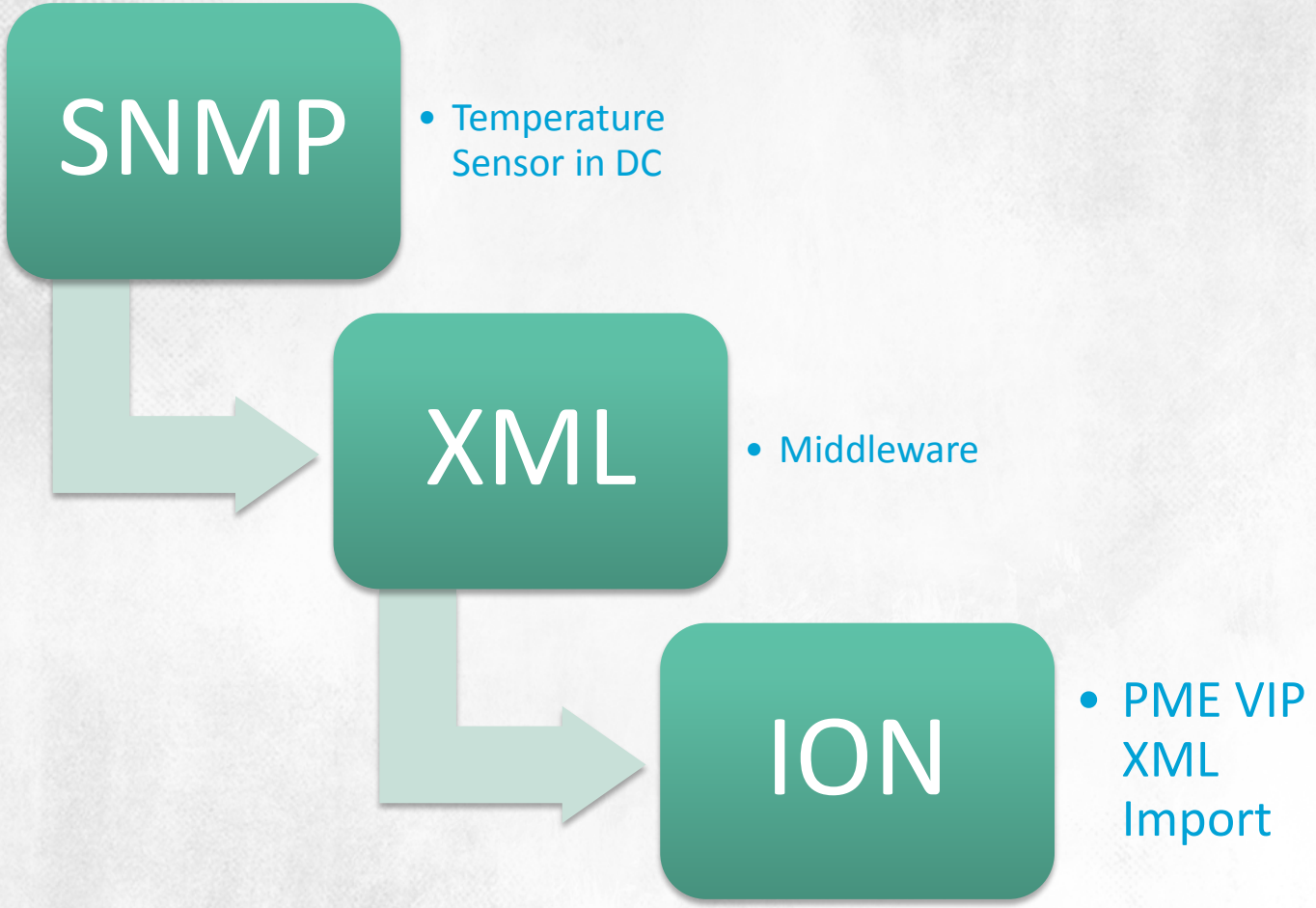
Custom Drivers for non Schneider Devices



- Modbus Drivers
- OPC Compliant
- Generators
- Chillers
- Automatic Transfer Switches
- BTU Meters
- Cogen Plants
- PDUs
- Eaton PXM meters
- Comtrade Files

SNMP Temp Sensors

Low Cost Datacenter Monitoring



Long Term Data Storage

Statistical Data Trimming

Presenting Problem: Large databases that cease to perform well

Solution: Statistical Database Trimming

- Release 5 minute data from 1 year ago
- Ability to profile over longer periods
- 15 year trend of transformer temperature, load, and harmonics vs 3 year of 5 minute data

Data Analytics

Machine Learning and AI

Using machine learning to scan measured values to look for signatures that lead to premature failure of assets.

- Flicker measurement was used to identify a failing tap changer at a utility
- As more data is collected, libraries will be created for comparative analysis
- Gone are the days where a staff member needs to sit thru each meter looking for high and low voltages

Maximize the ROI

Simplify the complex by using the data available

- You have the tools
- You have the raw materials
- Expect the results, and measure your return on investment.
- Track the savings and reinvest.
- Low hanging fruit can finance the more complex data acquisition but many times there are already systems with data available.

FINAL THOUGHT

Cybersecurity is your responsibility

Don’t sacrifice security for convenience