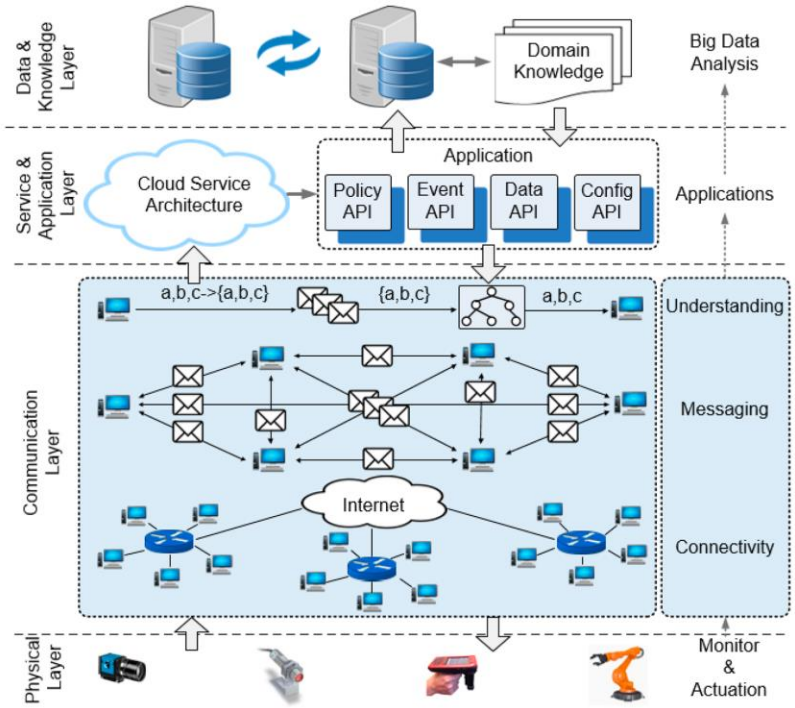
ATOMATION.net

Giving Utility Equipment a Voice

ATOMATION

Atomate It!

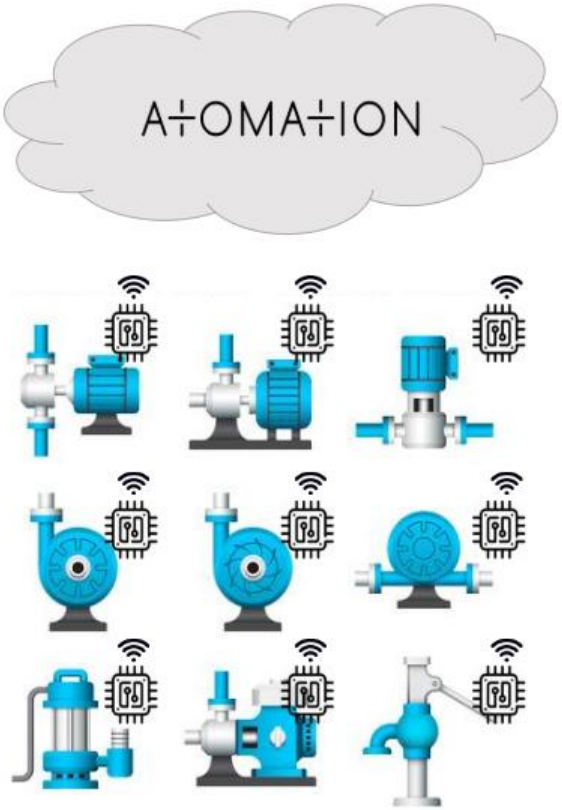
Automation vs. ATOMATION



M2M Automation
Top Down
Approach

VS.

Distributed
Intelligence
Approach



What if Things Talked Only When They Had Something Interesting To Say?

The ATOMATION Solution

Atomate It! We easily add Atoms to legacy devices, giving every thing a voice.

Smart

Uses onboard sensors with an individualized object profile to understand normal operational behavior and communicate only when necessary

Simple

Easily attaches to any object regardless of age or type and transmits information wirelessly to our cloud without additional customer IT infrastructure

Scalable

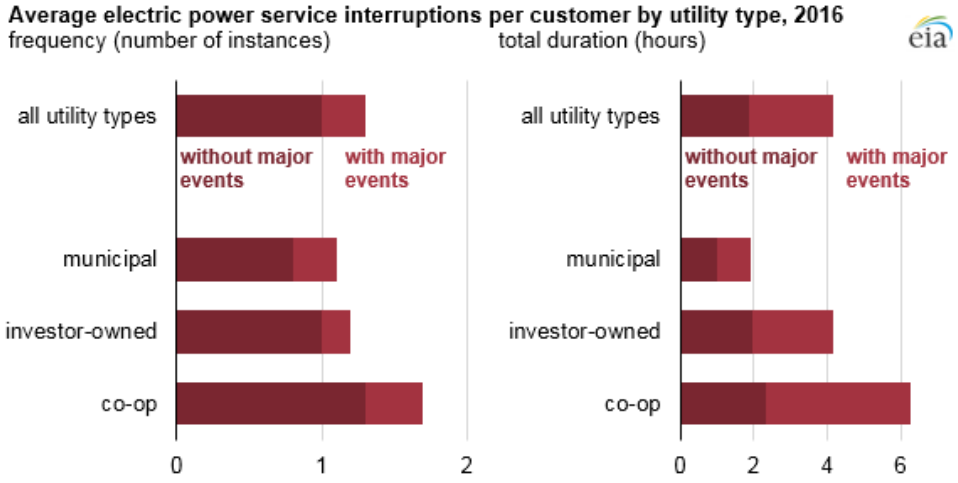
Flexible, cost-effective solution that is quick to deploy and configure

Electrical Outages Continue to be a Major Problem

2017 Statistics

- 64 major outages (>50000 customers affected) due to severe weather
- ~47M customers affected (~610K in Missouri)
- Average duration: 55 hours

Source: US Energy Information Administration



- Major events make up less than 20% of total interruptions but make up over 50% of average outage duration
- “Regular” events still involve significant outage duration
- Co-Ops facing the toughest challenges due to low meter density

Preventative Maintenance Helps But Equipment Still Fails

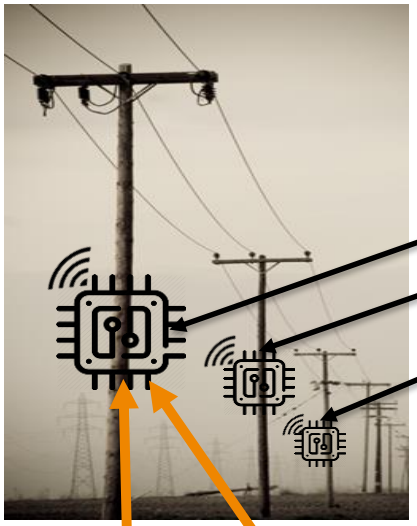
Smart Grid Helps But Manual Inspection/Triage Still Required

"There is no way to instantly pinpoint the location of a fault on a line segment that cannot be automatically restored. These faults are typically located by linemen getting into a utility truck and driving around the neighborhood inspecting every part of the line segment."

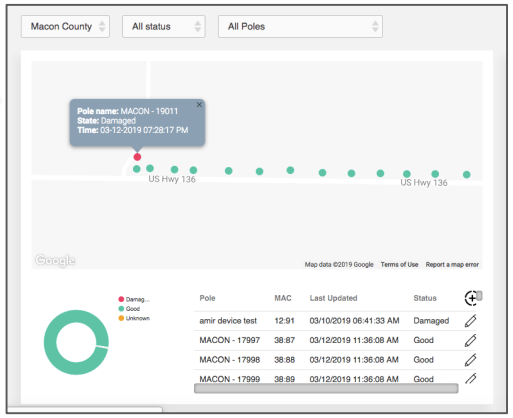
Source: Puget Sound Electric

What If Equipment Could Talk?

Introducing the Atomation Utility Solution



Atomation Cloud Database



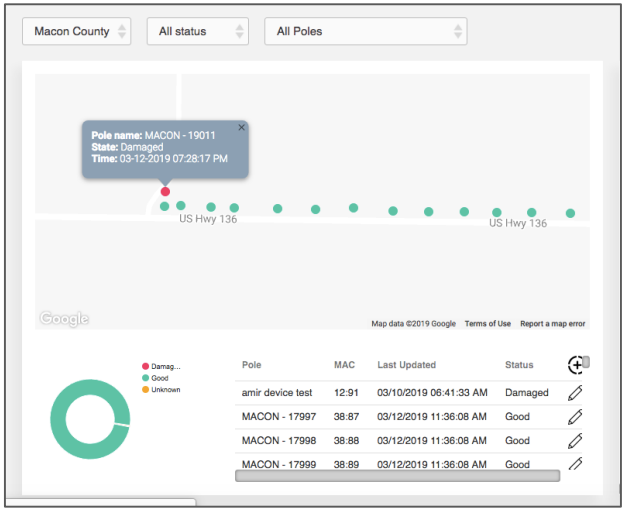
Atomation or Customer Dashboard

- See problems before failure
- Effectively dispatch crews
- Increase customer satisfaction
- Scalable with no single point of failure
- Data collection and long-term analytics

Resilient, Secure and Instant Visibility Requiring No New Infrastructure

Atomation Utility Pole Atom is the Heart of the Solution

- Pole Normal
- Pole Power Alarm
- Pole Fire Alarm
- Pole Tilt Alarm
- Pole Fall Alarm
- Pole Impact Alarm
- Battery Low Alert



- Self-calibrating
- Customizable thresholds
- Communicates with other Atoms
- Positive validation of repairs

- Real-time incident reporting
- Location drill down
- Reports by area & circuit

Increases Grid Intelligence Reducing Triage and Response Times

Inside the Utility Pole Atom

Sensors & Control Board

Cellular Modem Board &
LTE-M SIM Card

- Sealed enclosure with no maintenance
- Self-calibrating
- Bluetooth Low Energy communication to mobile devices and other Atoms
- LTE-M cellular communication to the cloud
- GPS location
- Circuit designed to work between -40 and +150°F
- 10 year battery life with low battery level alerting

Simple Field Installation

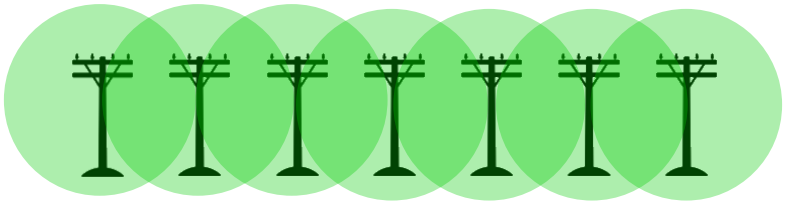
"As we calibrate the unit, going through the steps of calibration are simple. With one push of the button, the Atom is calibrated."

Allan Branstetter
Director, Risk Management & Training

- Can be mounted at any height (recommend 10-12' from ground)
- Self-calibrating: no need for level or plumb installation
- Configurable pole description database
- Automated connection and registration

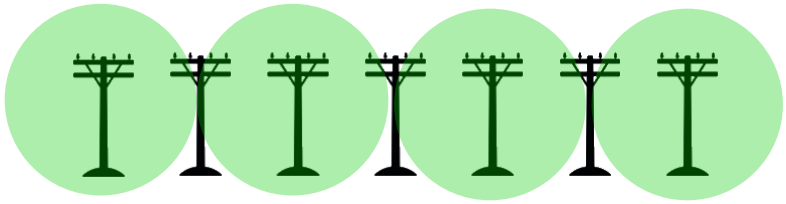
Flexible Deployment Scenarios

1 Atom on Every Pole



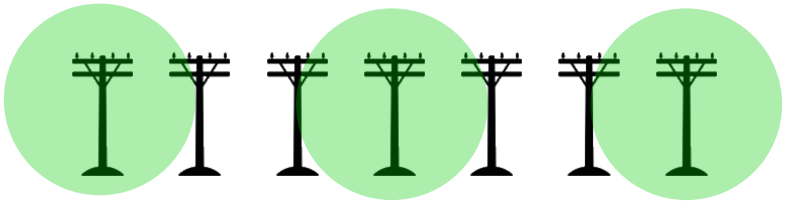
- Most complete coverage
- All failures detected for every pole
- Best for critical infrastructure

1 Atom on Every Other Pole



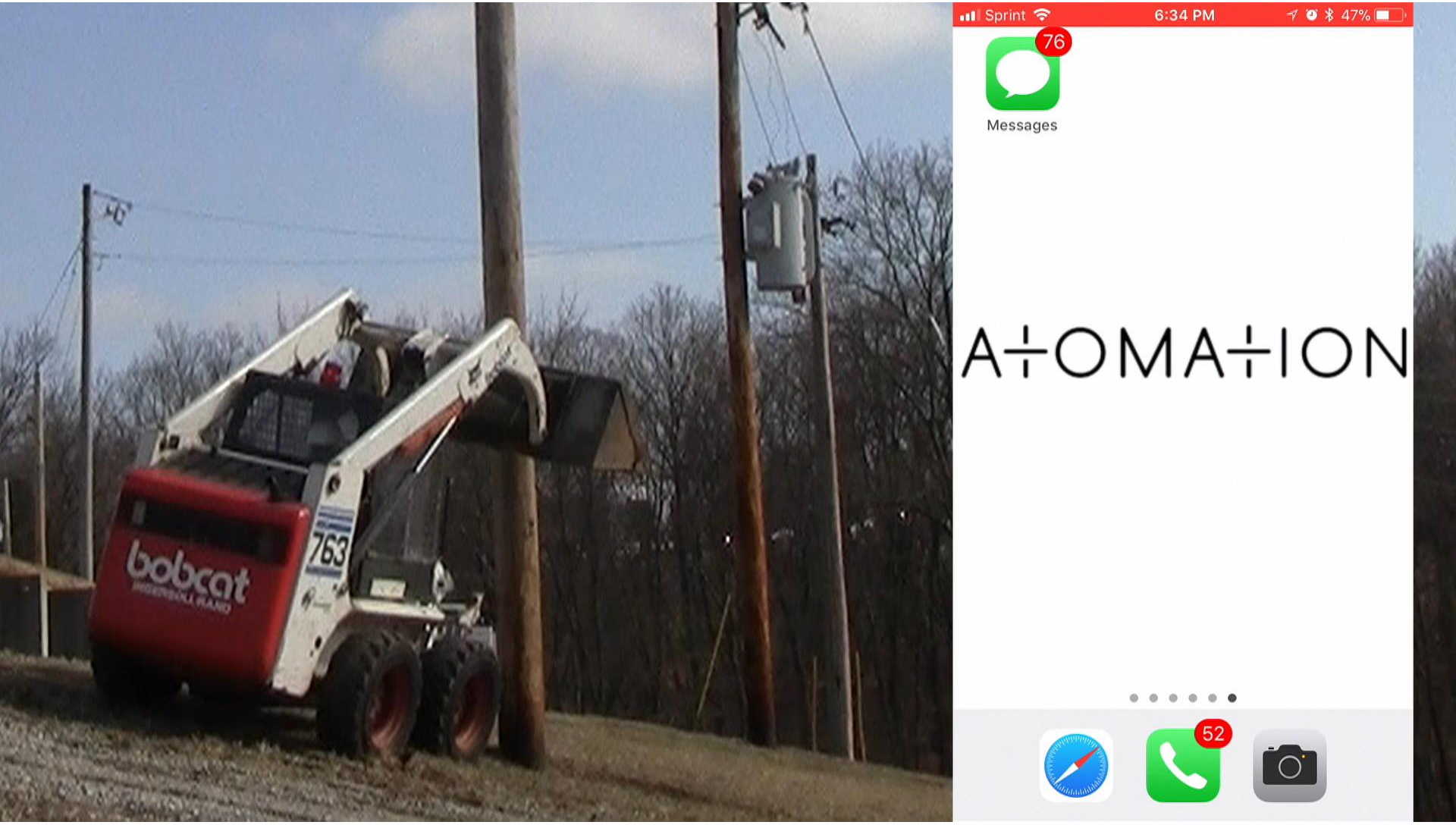
- Impact detected for all poles (imputed for non-Atom poles)
- Tilt/down/power detected every other pole

1 Atom on Every Third Pole



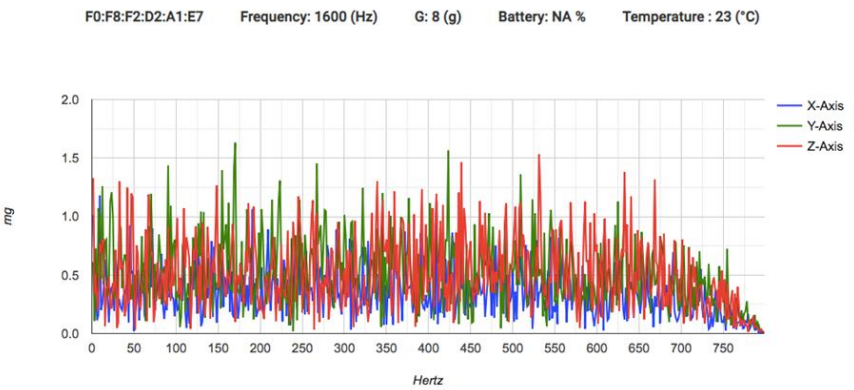
- Impact detected for all poles (imputed for non-Atom poles)
- Tilt/down/power detected every third pole
- Best for low criticality distribution lines

Demonstration: Impact, Tilt and Down

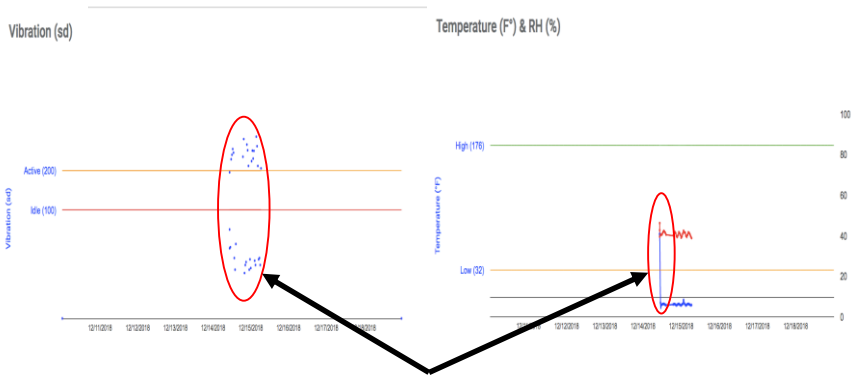


Atomation Machinery Atom Extends Solution

- Sealed enclosure with no maintenance
- Attaches magnetically to equipment
- Uses temperature and vibration “normal” signature to detect issues
- Bluetooth Low Energy communication to Utility Pole Atom/Gateway
- 3 year battery life



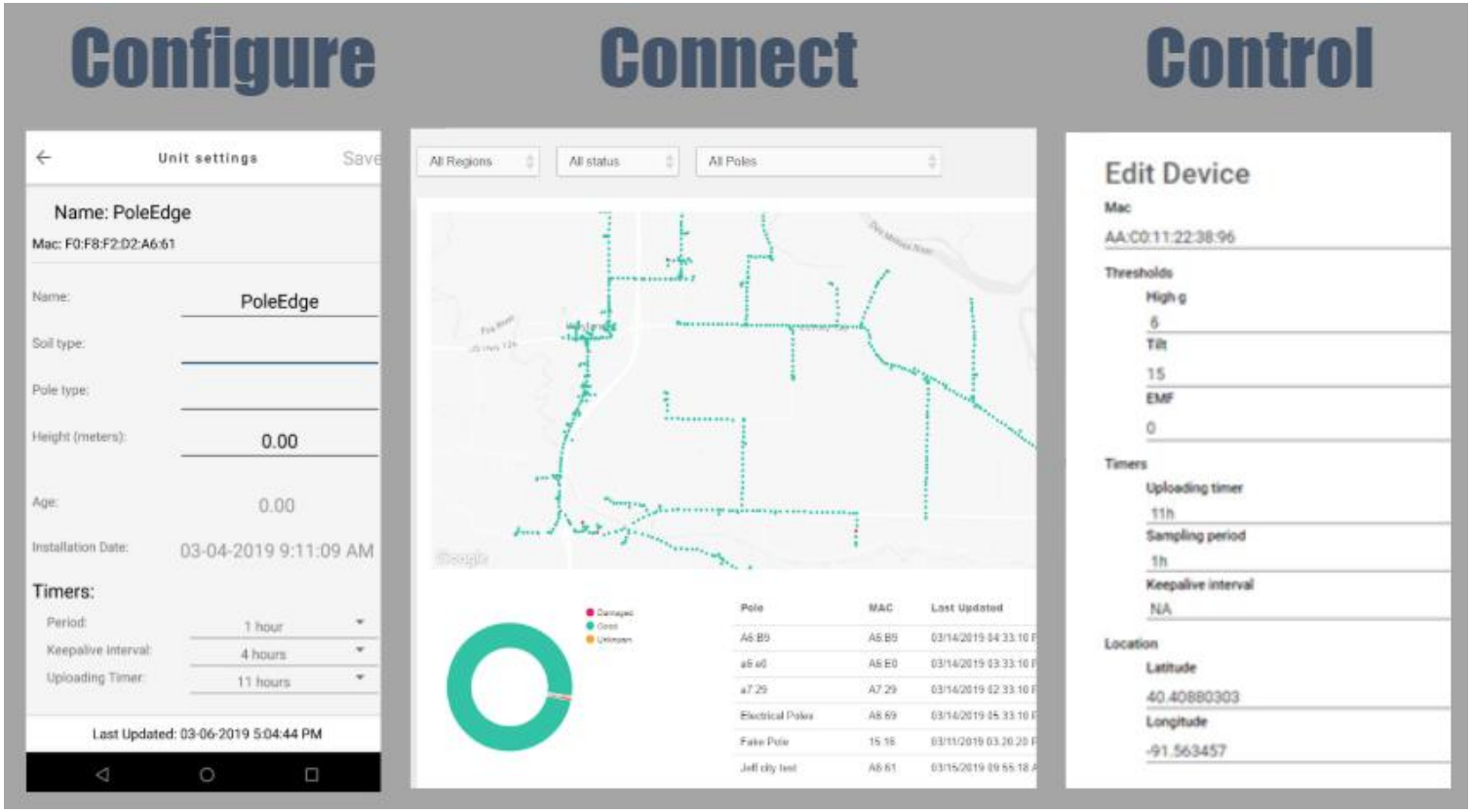
Threshold Based Alerts



Event Correlation

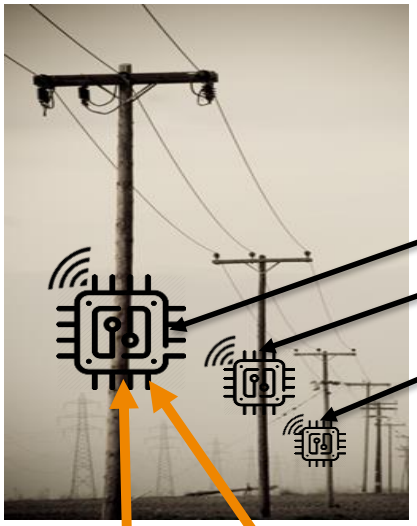
Simple “Early Warning” For Utility Equipment

Central Device Management For Easy Management

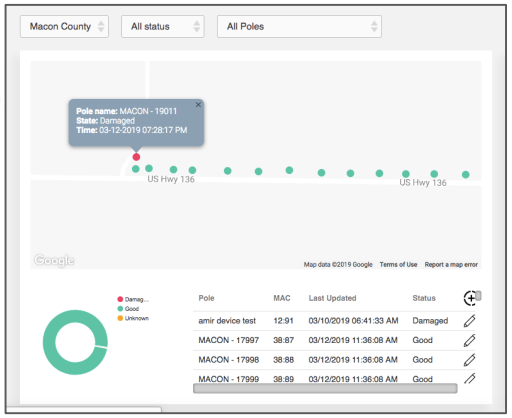


- Configurable thresholds & reporting intervals
- Email and SMS Text Alert System
- Individual or bulk updates

End Result: A Resilient Web of Information



Atomation Cloud Database



Atomation or Customer Dashboard

- No complex architecture or infrastructure required – Start with a single Atom and scale
- Less than $2/month per device at scale (capital model available
- Scalable with no single point of failure

Resilient, Secure and Instant Visibility Across Your Environment

Thank You

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ATOMATION

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