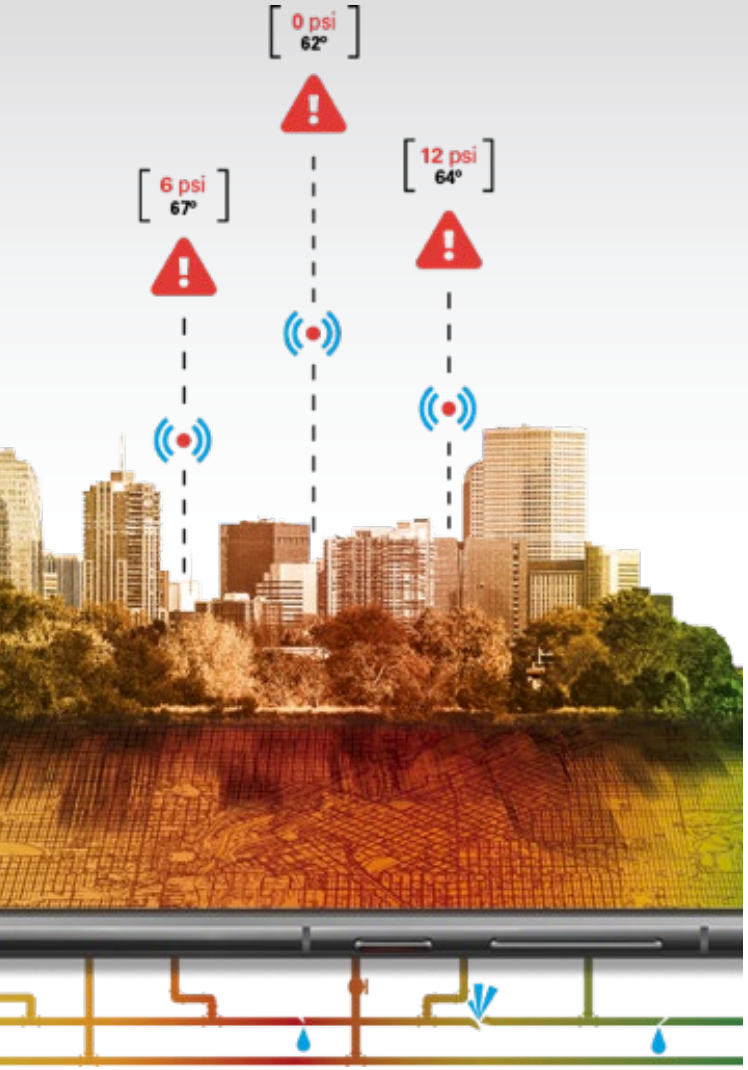
POWERFUL ANALYTICS.
ACTIONABLE INSIGHTS.

Introducing iHydrant®

Powerful Analytics. Actionable Insights.



Why Pressure and Temperature Monitoring is Important

➢ ASCE's 2021 Infrastructure Report Card

- There is a water main break every two minutes, and an estimated 6 billion gallons of treated water lost each day in the U.S.
- That is 2.19 Trillion Gallons Lost Annually
- The U.S. lost an estimated $7.6 Billion of treated water in 2019 due to leaks

➢ AWWA Study

- Minor breaks sit in the ground, on average, for a year and a half.

➢ Writing in the journal Nature Sustainability

- An international team of researchers says thieves steal between 30% and 50% of the planet's water supply every year

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About the Technology

- Remote Pressure and Temperature Monitoring
  - Wet and Dry Barrel Hydrants
- Robust Hosted Interface
  - Detailed Records
  - Alerts
  - Mapping of Remote Hydrant Monitors
- iHydrant Return on Investment
  - Prevents and/or Alerts of Water Loss Events in Real Time
  - Operational Optimization

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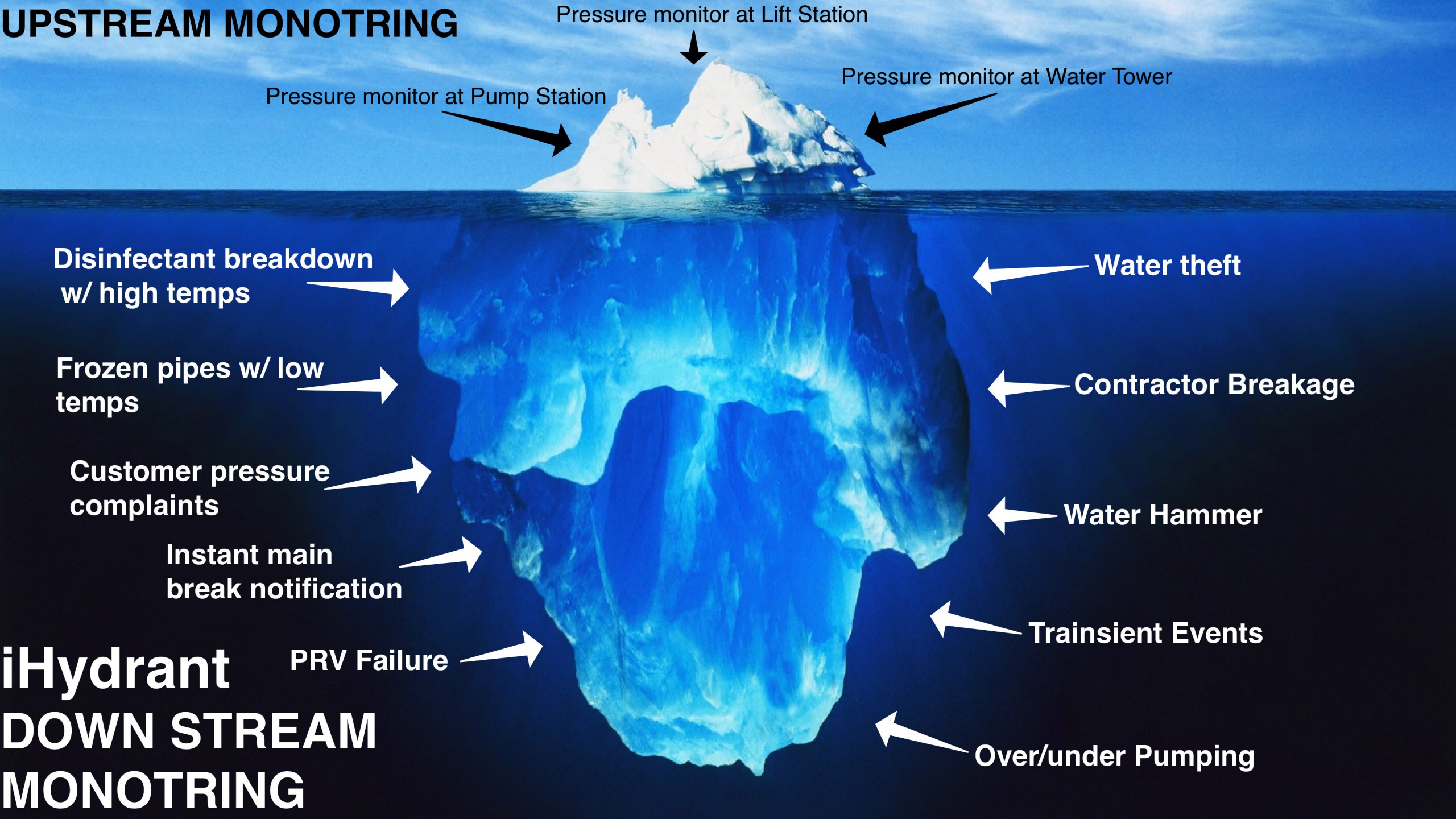
UPSTREAM MONOTRING
Pressure monitor at Lift Station
Pressure monitor at Water Tower
Pressure monitor at Pump Station
Disinfectant breakdown w/ high temps
Frozen pipes w/ low temps
Customer pressure complaints
Instant main break notification
PRV Failure
Water theft
Contractor Breakage
Water Hammer
Trainsient Events
Over/under Pumping
iHydrant
DOWN STREAM MONOTRING

Benefits & Solutions

- Reduce Non-Revenue Water and Water Loss
  - Nighttime main breaks
  - Water theft
  - Contractor breakage
  - 24/7 alerts and alarms
- Operational Optimization
  - Pump patterns
  - Energy cost savings
  - Line stress and transient – extended life

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Installation, NY

Benefits & Solutions

- Identify and repair/replace malfunctioning valves/components
  - Actuators
  - Throttled/broken valves
  - PRVs
- Improved customer service
  - Decrease response time
  - Water-loss reduction
  - Reliability of repairs
- Decrease liability
  - Road and property damage
  - Flooding

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Benefits & Solutions

- Hydraulic modeling
  - Increased accuracy with calibration
  - Data availability
- Temperature monitoring
  - Water source optimization
  - Reduce necessary flushing due to water quality
- Fire events
  - Pressure availability confirmation
  - Operational performance

iHydrant® impact for LADWP in first 9 months:

- Over 3.5 million pressure samples
- 4,210 pressure alarm events (LADWP defined thresholds)
- 725 alarm events over 200 PSI; 432 alarm events below 30 PSI

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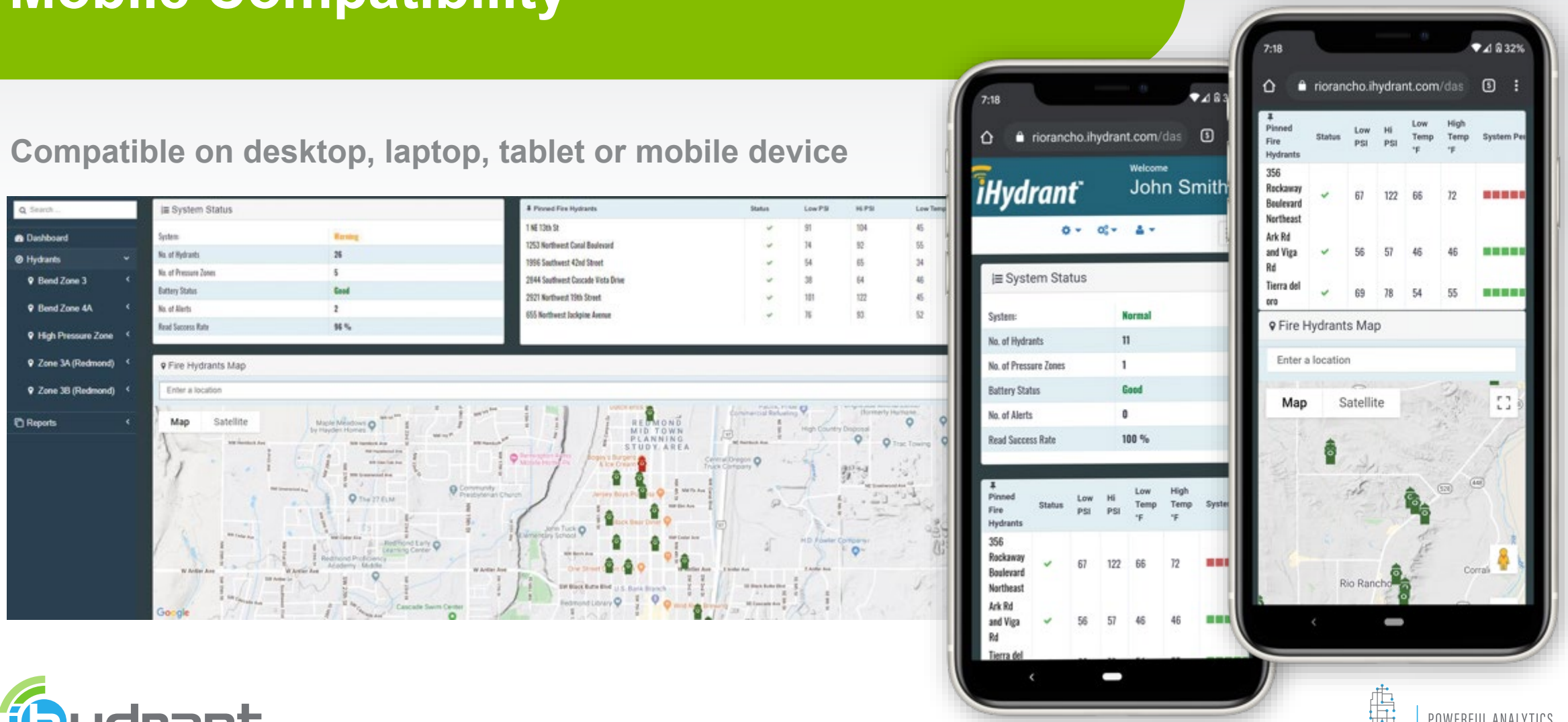
Mobile Compatibility

Compatible on desktop, laptop, tablet or mobile device



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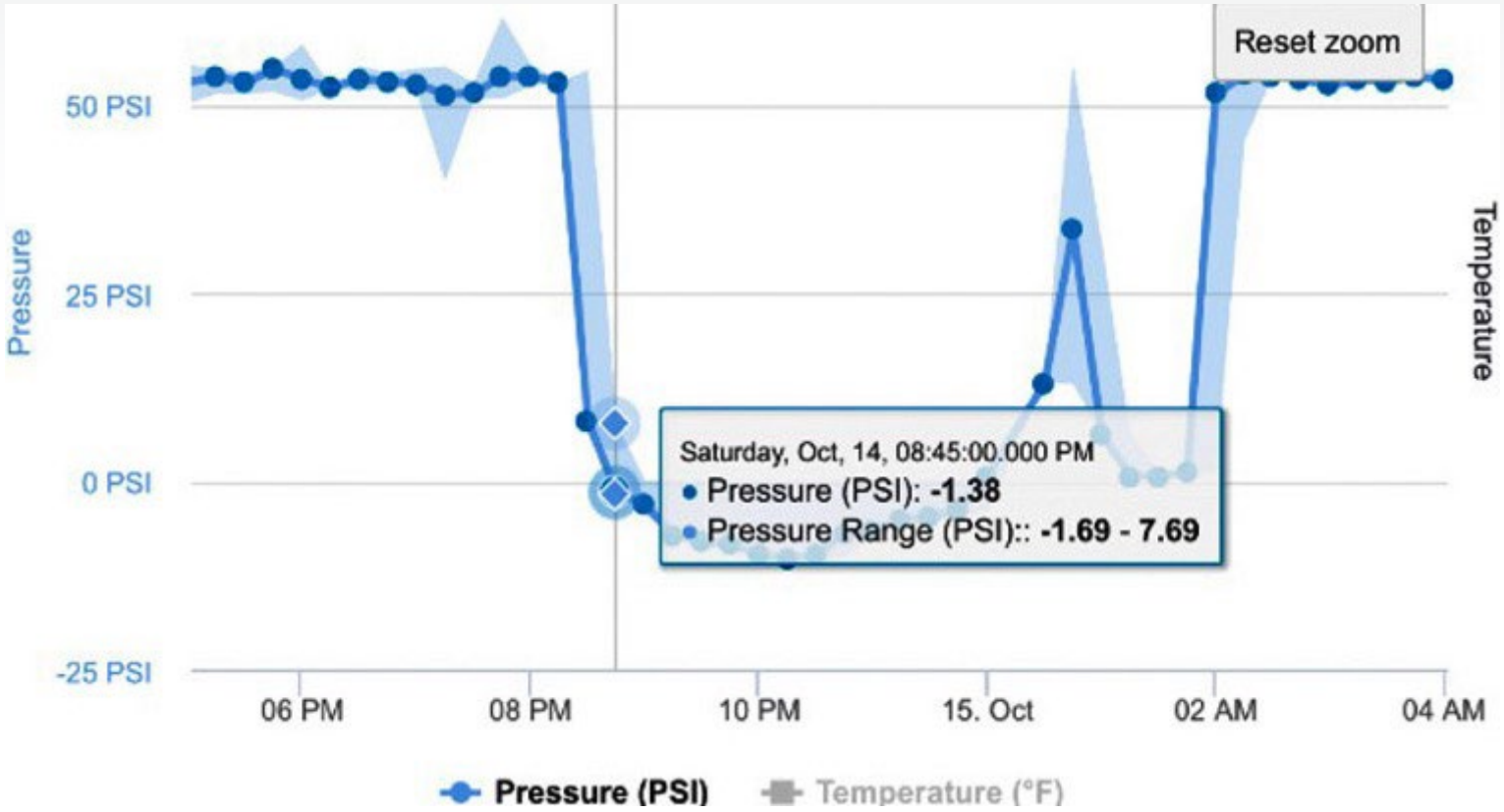
San Francisco Main Break



San Francisco, CA
Main Break

Oct 14, 2017, with negative pressure

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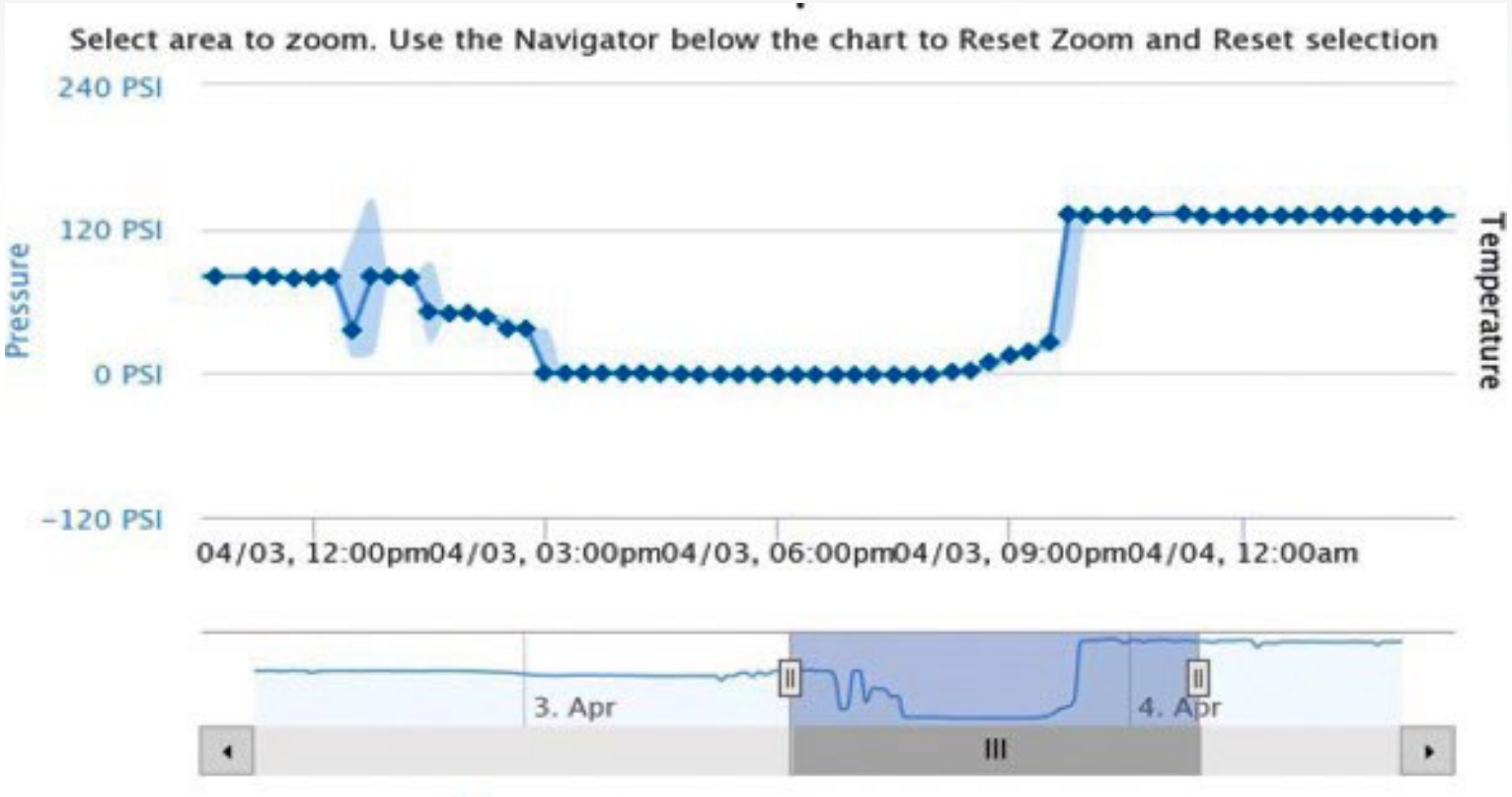
West Springfield Case Study



West Springfield PRV Failure

April 03, 2020,
PRV failure

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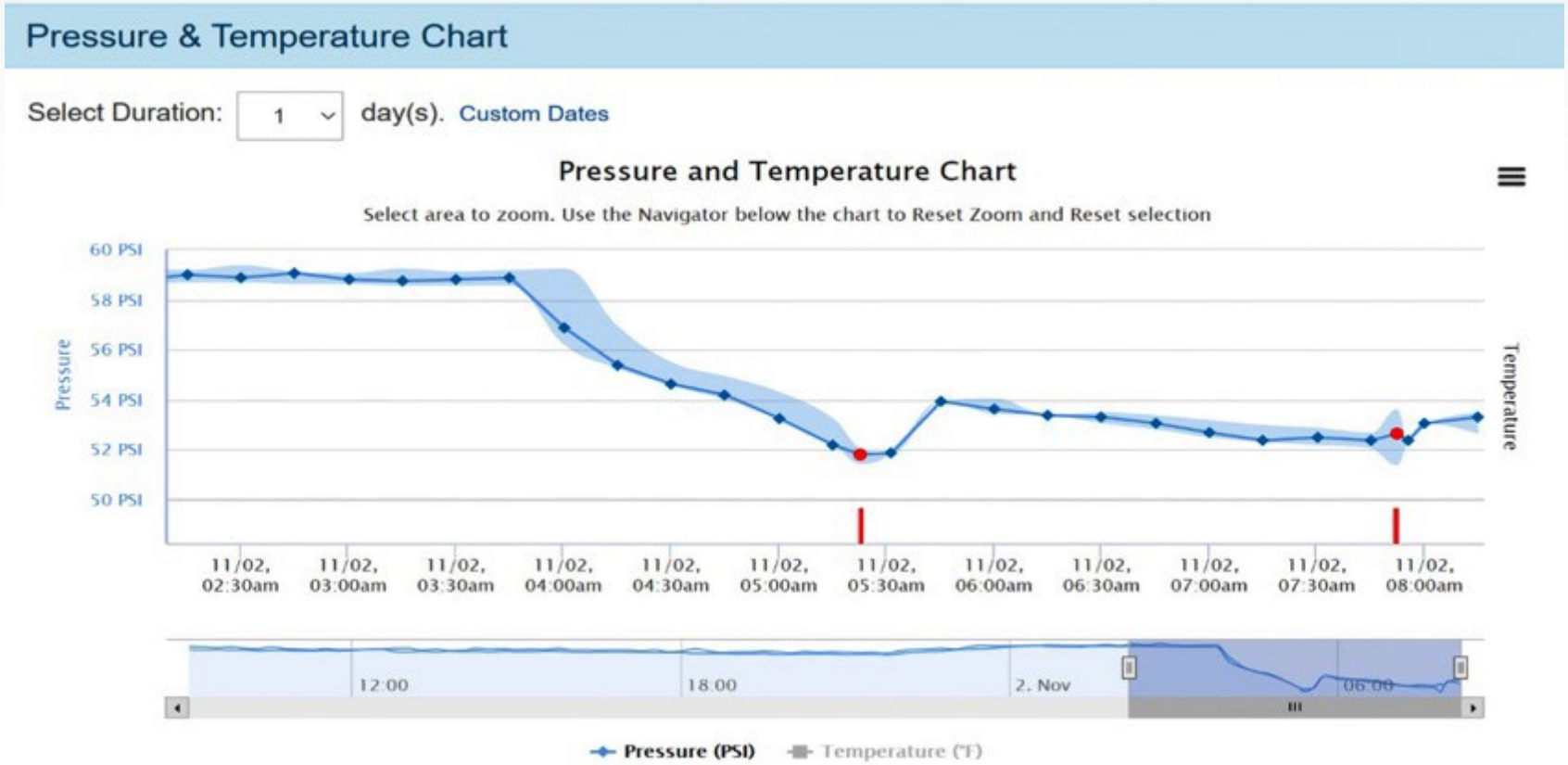
Indiana Main Break



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About the Technology

- Maintenance
  - Battery access
- Access Points
  - No digging or tapping
  - No depth limitation
  - Utilizes distribution system components
    - Existing hydrants – retrofit kits
    - New hydrant – complete factory kits
- Mechanical
  - Sensors located in lower valve plate (dry barrel)
    - Patented OEM design
  - Normal hydrant operation
    - No impact to fire department or operations
    - No reduction in flow

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POWERFUL ANALYTICS. ACTIONABLE INSIGHTS.

The iHydrant® Difference

- Accuracy
  - iHydrant +/- 1%
- Certifications
  - ULFM and NSF
- Alerts
  - 24/7 alerts via text or email
- Transient Detection
  - Samples multiple times per second
  - Data captured pre- and post-event
- Data Backhaul
  - Zero infrastructure required
  - iHydrant CAT M1
    - Verizon & AT&T
- Expandability
  - Additional batteries
  - Future technology

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About the Solution

- Normal hydrant operation
- iHydrant installation
  - No pipeline taps required
  - Wet barrel – 15 minutes
  - Dry barrel – 45 minutes

iHYDRANT® | INSTALLATION, LADWP

iHYDRANT® | INSTALLATION, VERMONT

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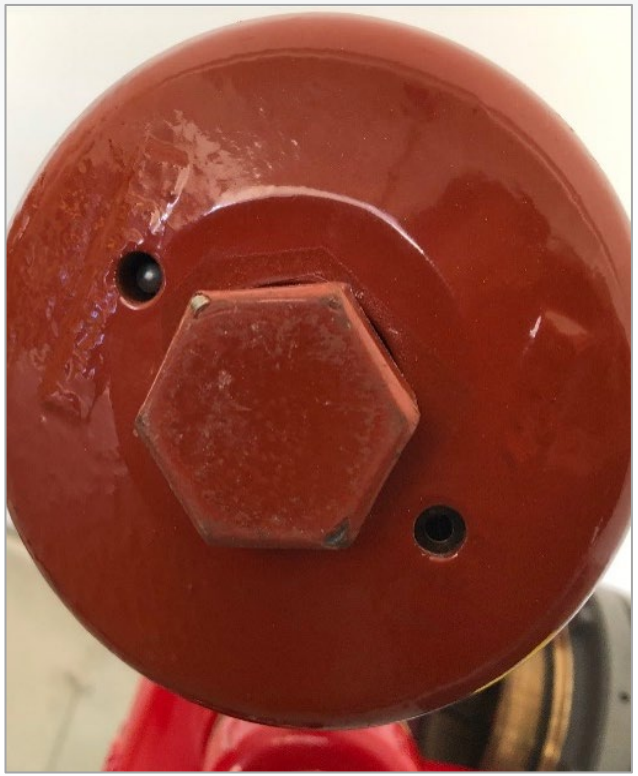

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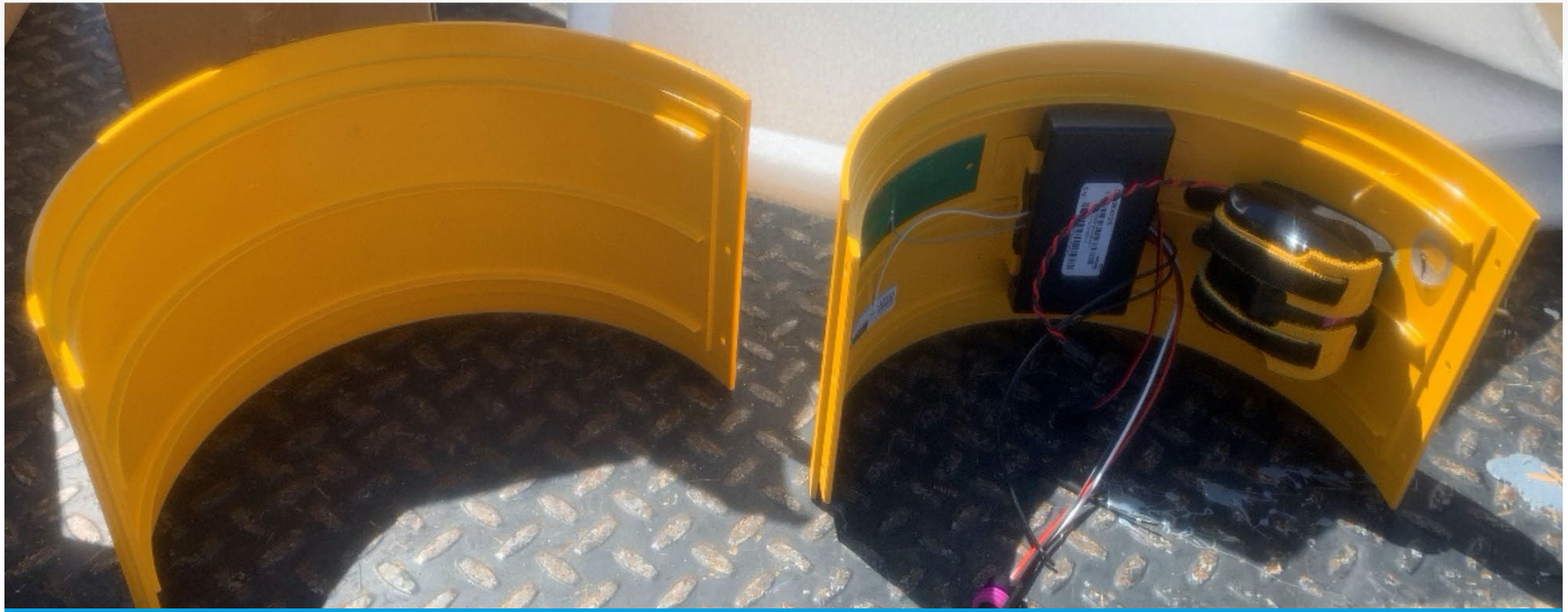
Interior View



iHYDRANT® | INSIDE SHELL VIEW

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Data Availability

- Desktop and Mobile User Interface
- API
  - Import into SCADA
- FTP
  - Flat file upload

Advanced Software Analytics

Event Detection and Identification

- Triangulation and pinpointing
  - Transient detection
  - Pressure data
  - Leak detection
- Leak and pressure data
  - Shading on map post-event
  - System troubleshooting for customers
- Propagation map of system

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Heat Map

- How does the Heat Map work?
  - Requires minimum of 3 alarming iHydrants in close proximity to each other to detect an event (full system coverage)
  - Uses time synchronization between the alarming hydrants to triangulate and formulate an approximate area for origination of event

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Thank you.

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