# Prometheus APM – Closing the Maintenance Loop

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**April 23rd, 2024**

PROMETHEUS GROUP 17TH ANNUAL | USER CONFERENCE NORTH AMERICA

# APM Background

# Identify Early – Drive Resolution

Connect

Detect

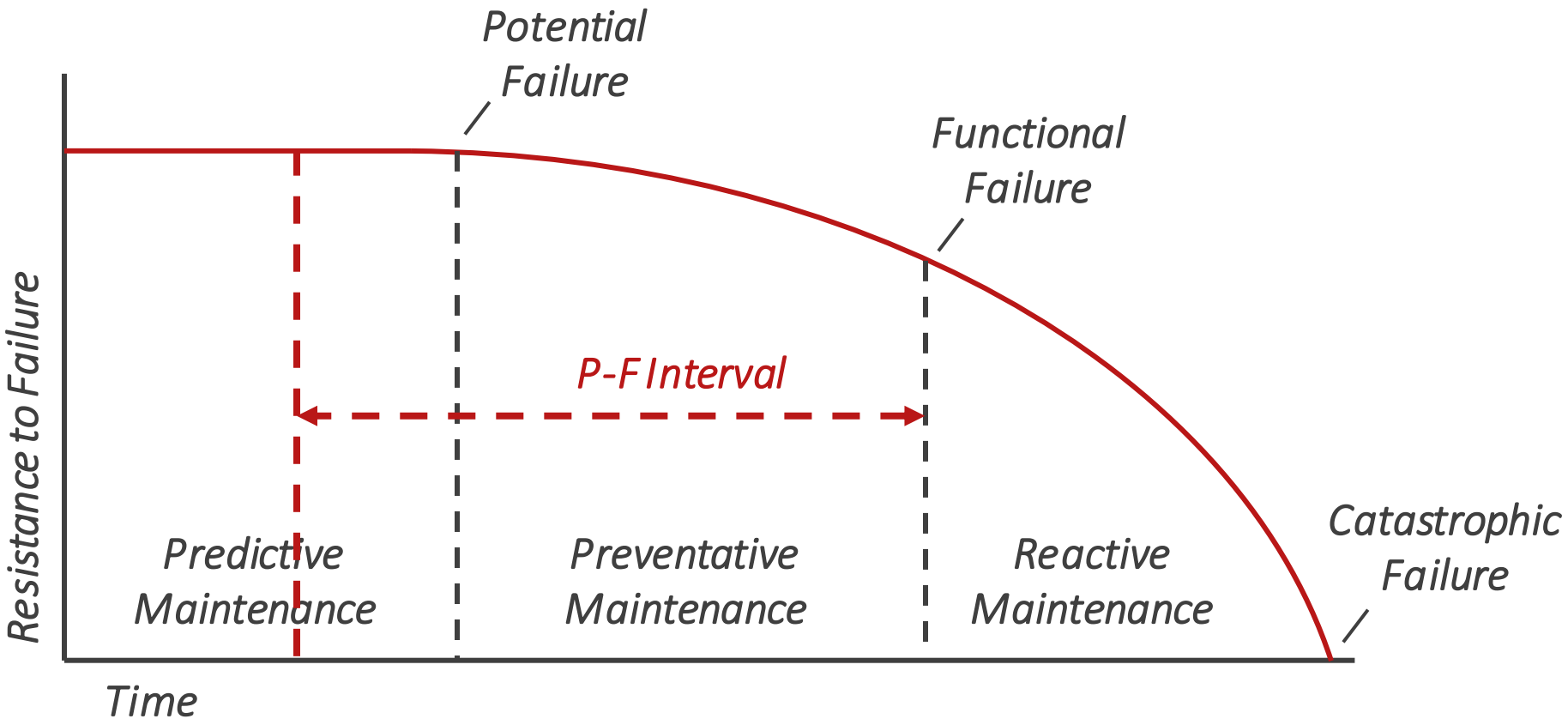
Diagnose

Resolve

100,000s of Measured Data Points

10-20 Actionable Issues

# The P-F Interval



# Identify Early

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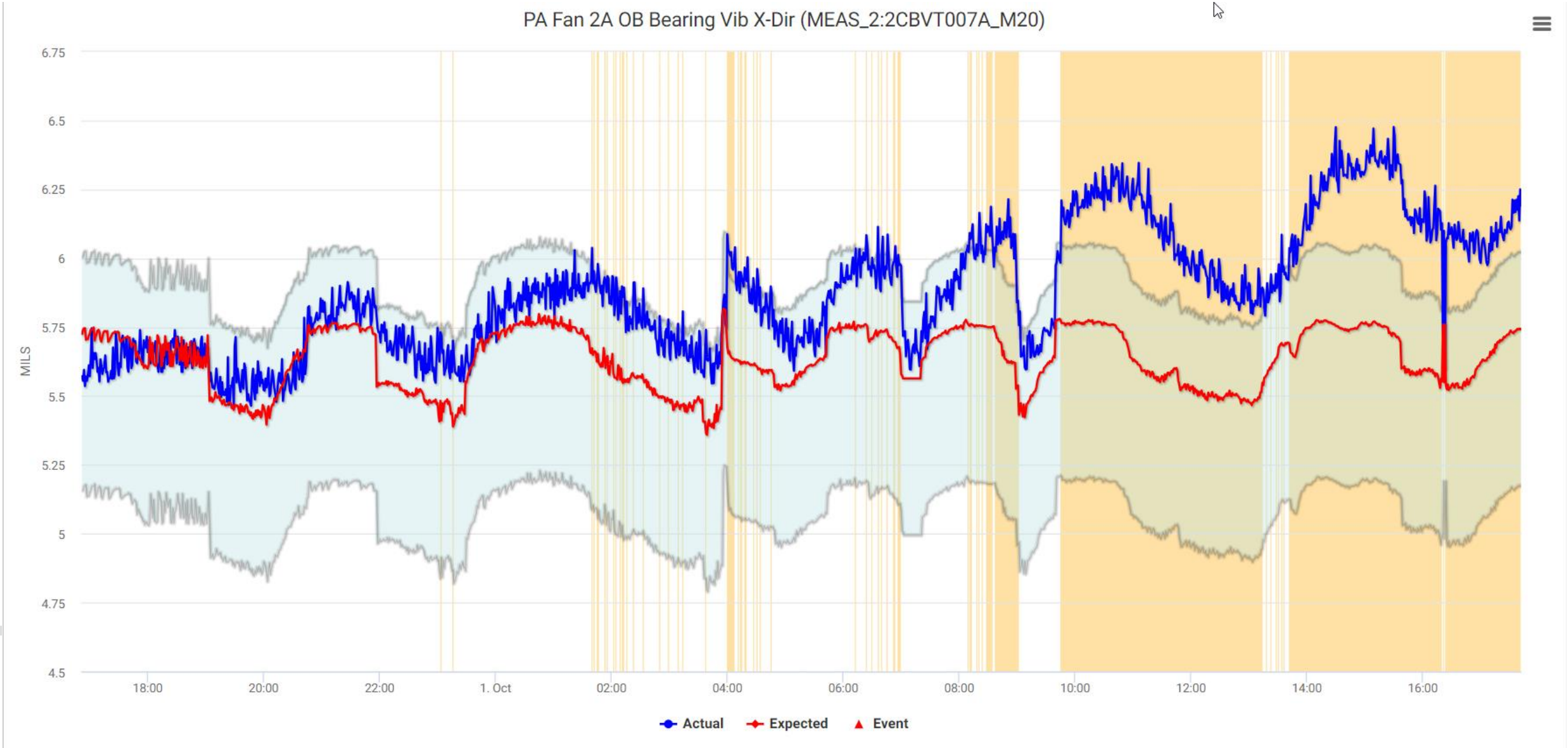


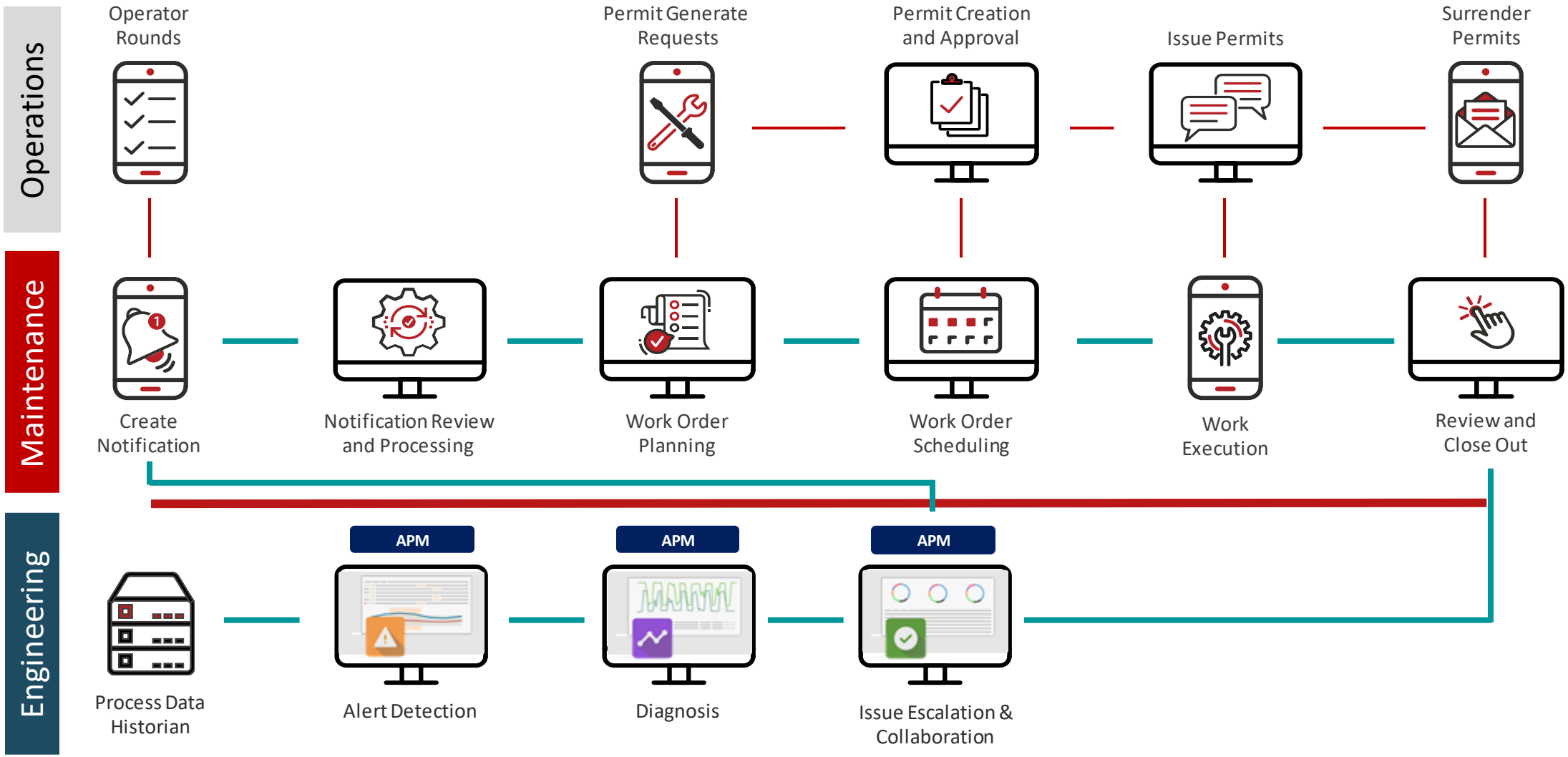
# Templatize and Automate

| Modeling Process | Identify the Problem | Collect the Data | Clean the Data | Select the Features | Select the Model Type | Deploy and Alert |
|---|---|---|---|---|---|---|
| Traditional Approach | Only critical assets and critical failure modes | Op expert determines inputs | Visual inspection of long-term trends | Correlation matrices and scatter plots | Experiment | Manually determine sensitivity |
| Automated Approach | Library of Failure Modes for all assets and systems | Templates select appropriate inputs | Use Rules to Clean the Data | Correlation scoring of all combinations of inputs | Scoring algorithm to determine best math type | Relative Alerting Logic with multiple time horizons |

*Project Start to full site analytics coverage in 1 month!*

# Closing the Loop

# Connected Tools and Processes



# SAP Integration

View open Notifications/WOs

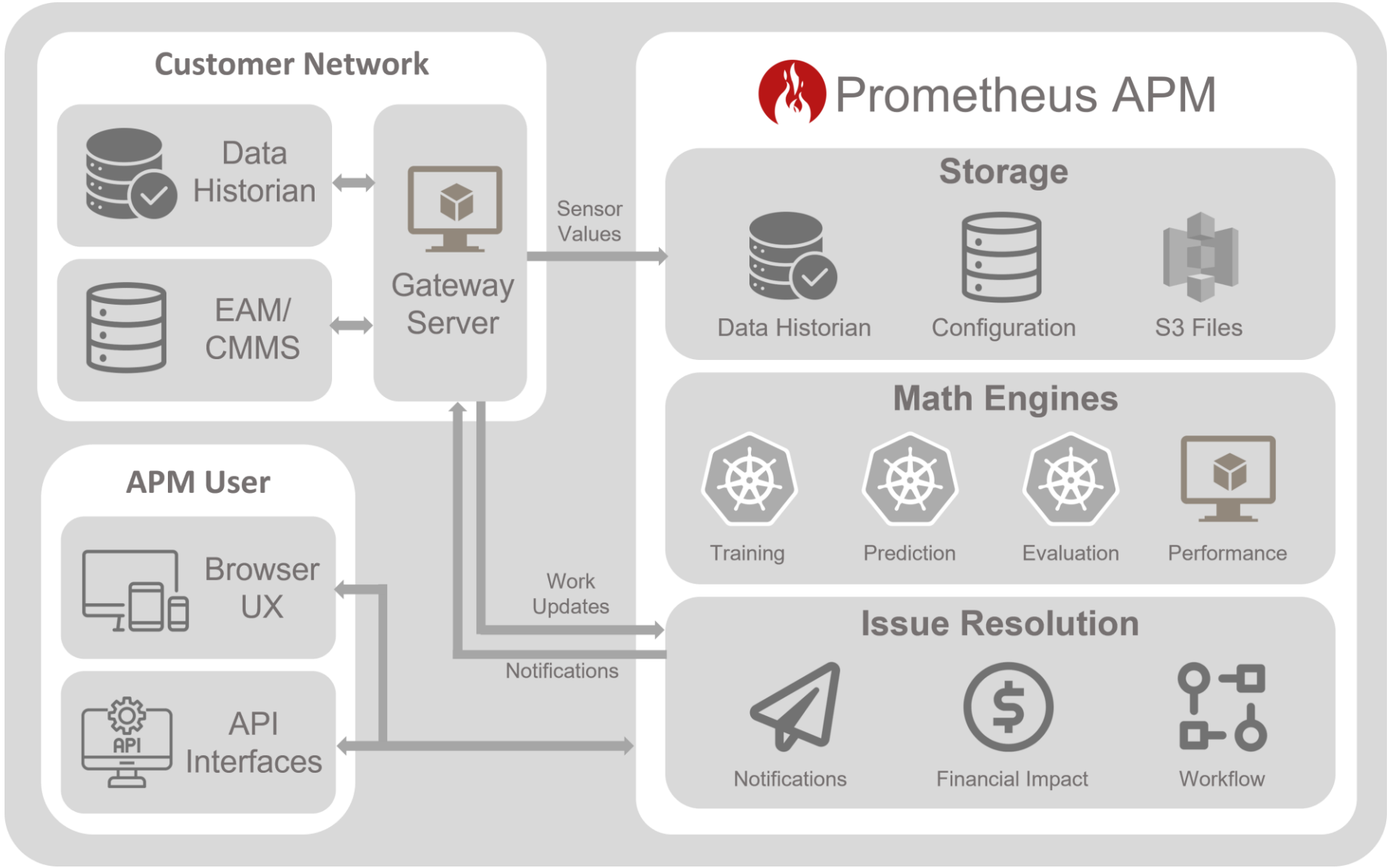
Create Notification

Notification Updates

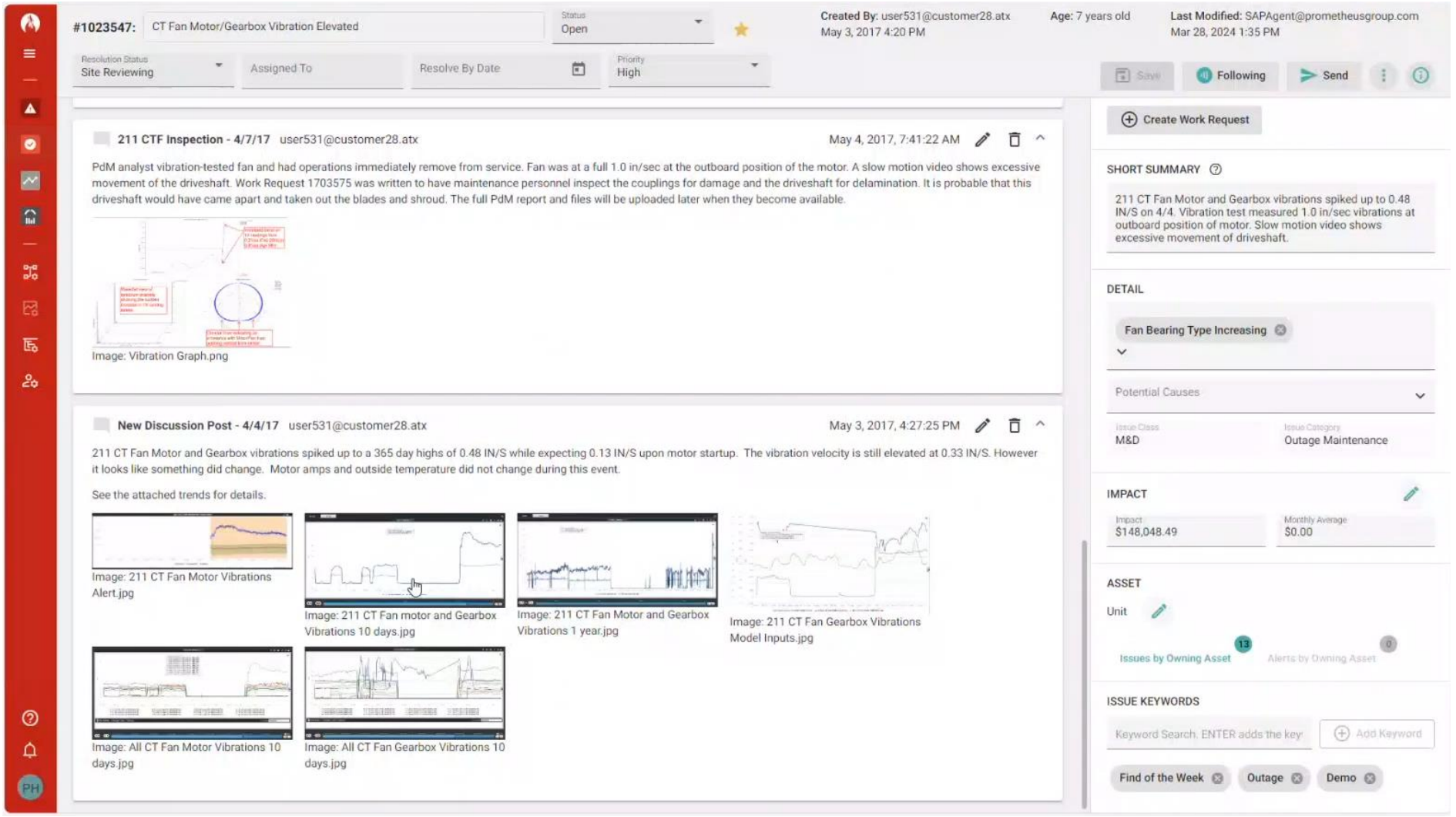
Issue Updates

Related Work Orders & Statuses

# SAP Integration



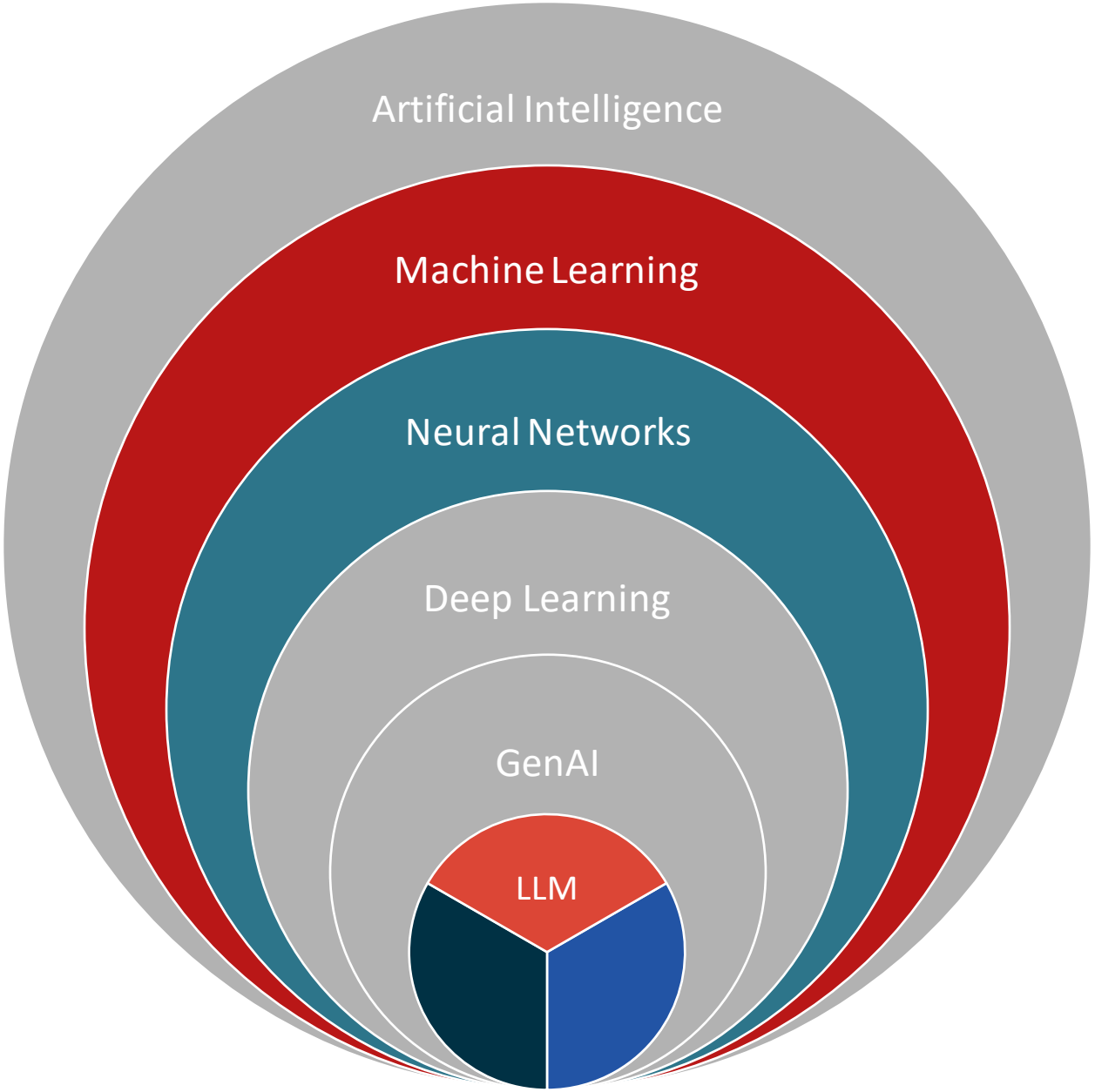
# APM - SAP Integration Demo



# APM and AI

# Prometheus AI

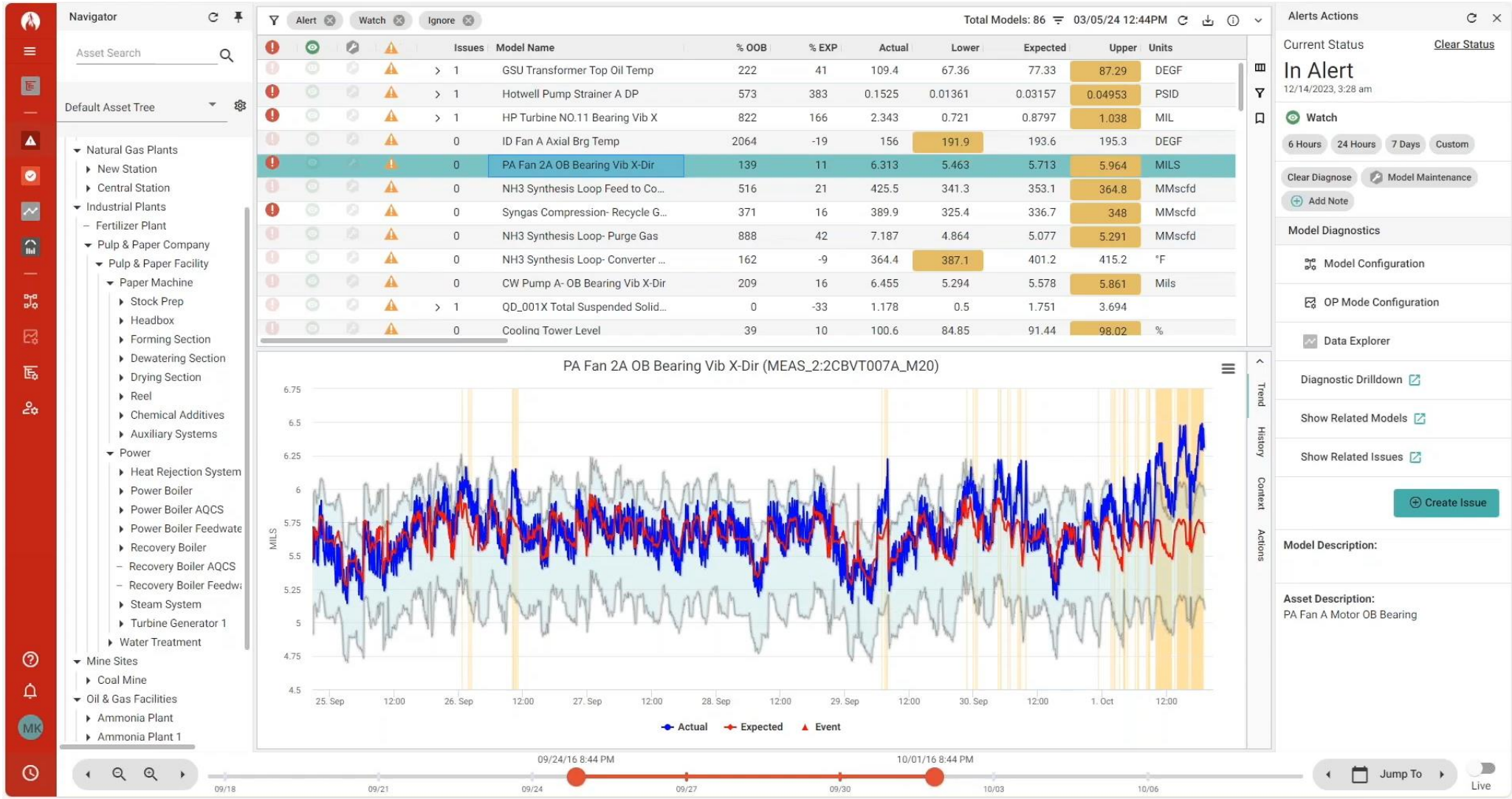
- APM Recommended Actions
- APM Predictive Analytics
- APM Diagnostics
- MDaaS BOM Analysis
- MDaaS Material Cleanse/Enrich



# Prometheus AI

- **APM Predictive Analytics**
  - Learn Historical Operating Behavior
  - Alert on Process or Reliability Issues
- **APM Recommended Actions**
  - What should I do with this Alert?
  - Snooze, Escalate, Retrain Model?
- **APM Diagnostics**
  - What's causing this Alert and What should I do about it?
  - Possible Causes, Diagnostic Actions, Historical Issues, and Maintenance

# APM AI Demo – Predictive Analytics



# APM AI Demo – Suggested Actions

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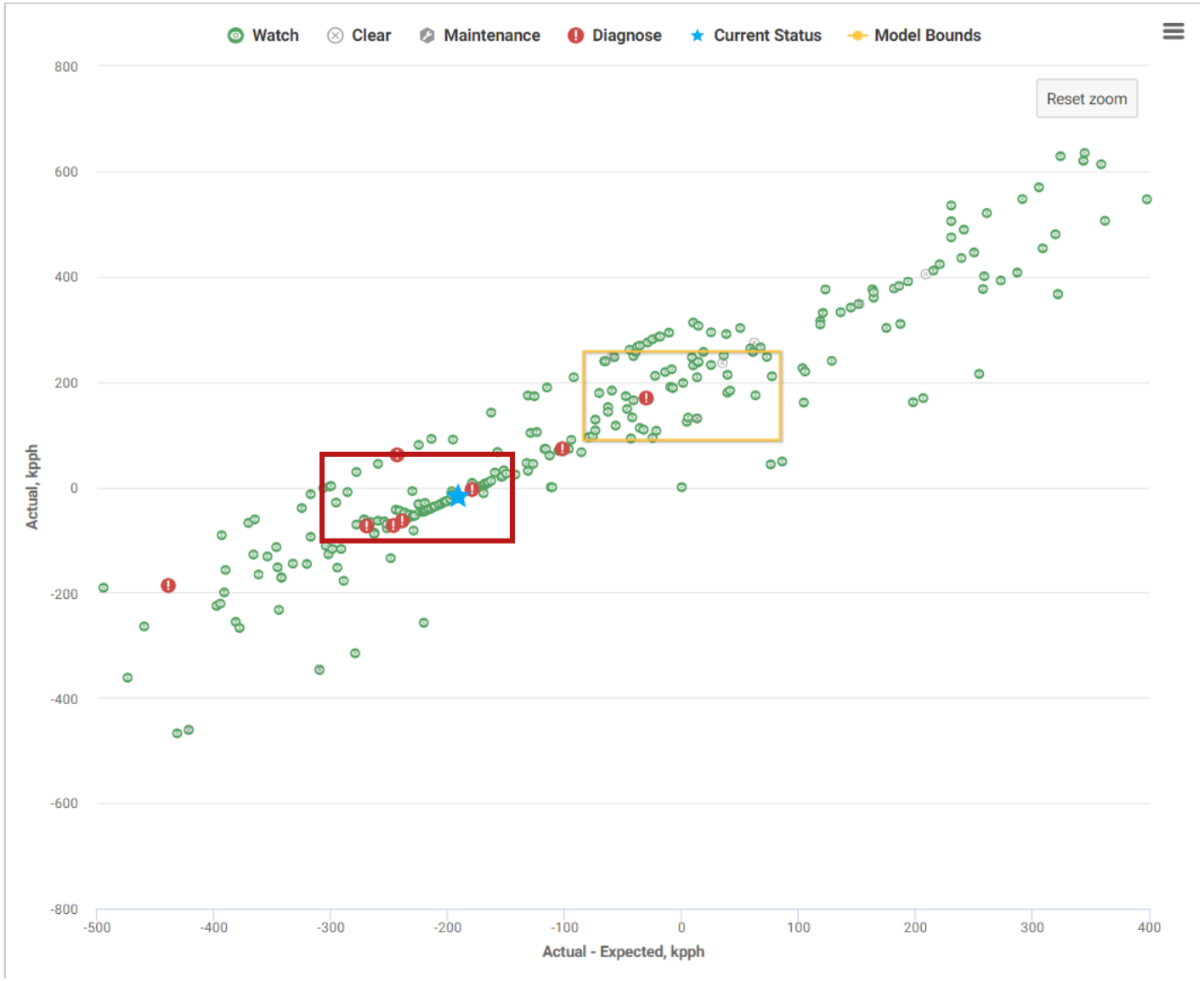
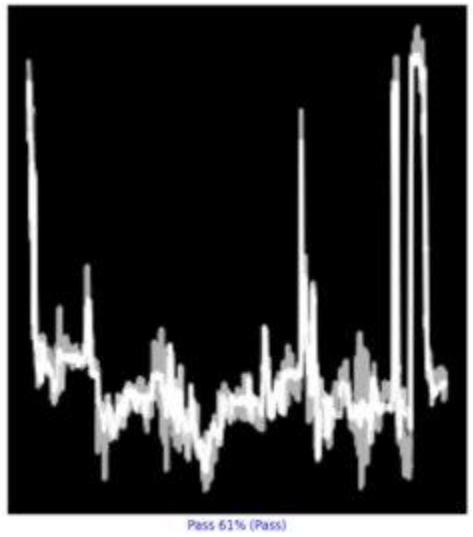
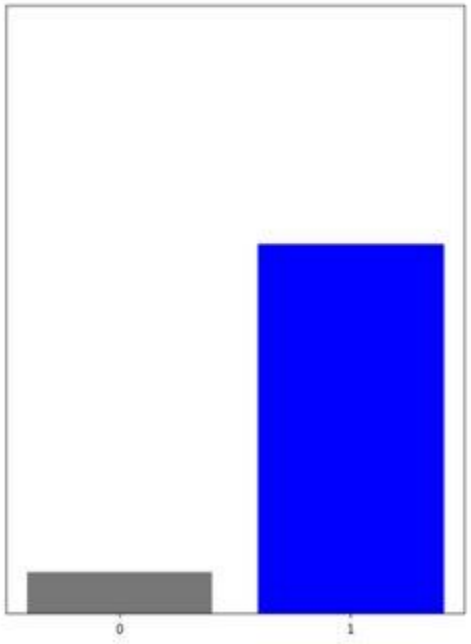
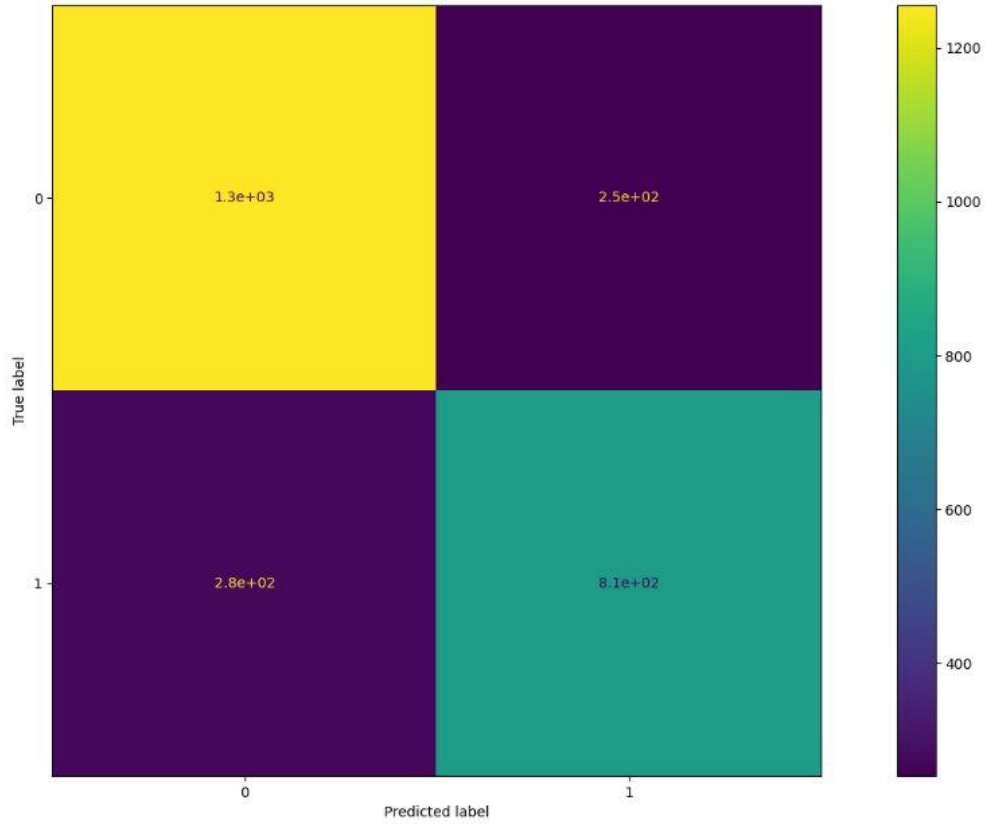


# APM AI Demo – Suggested Actions



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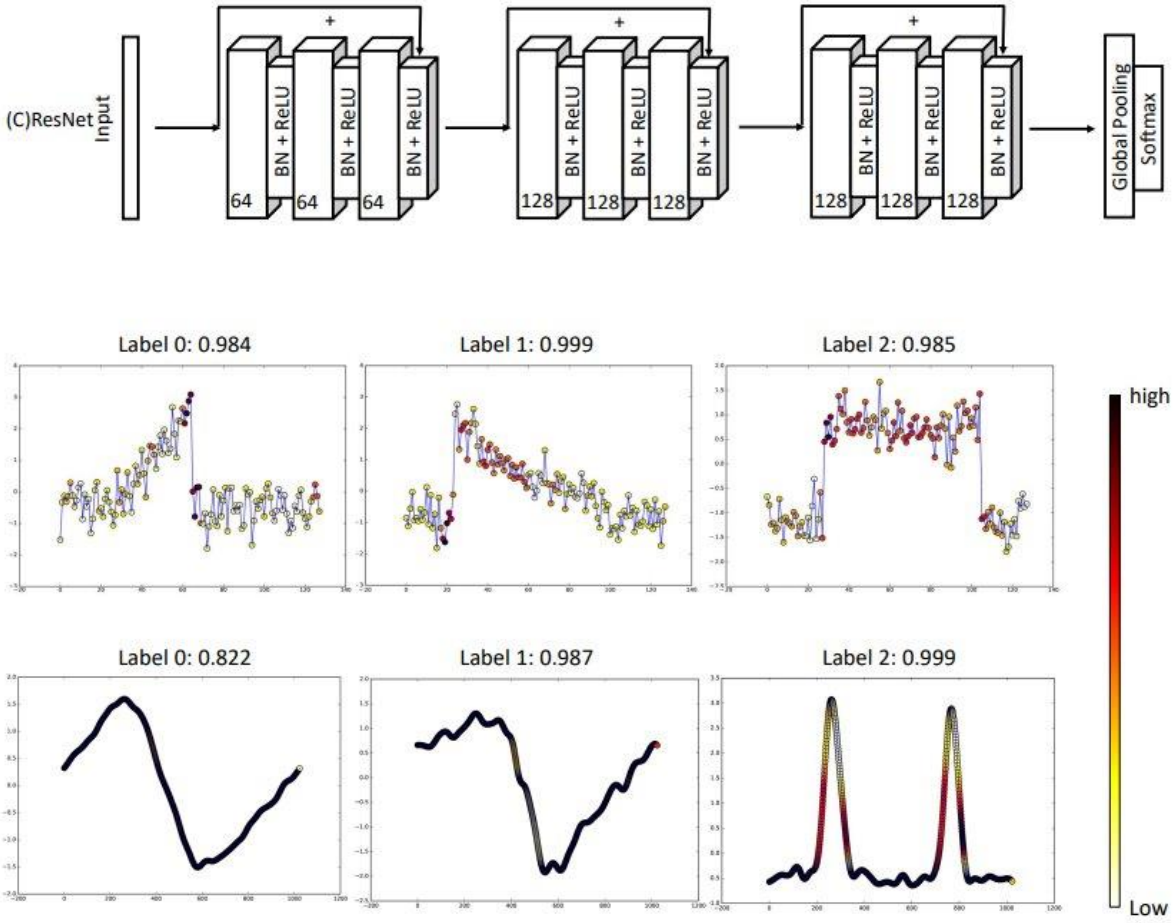


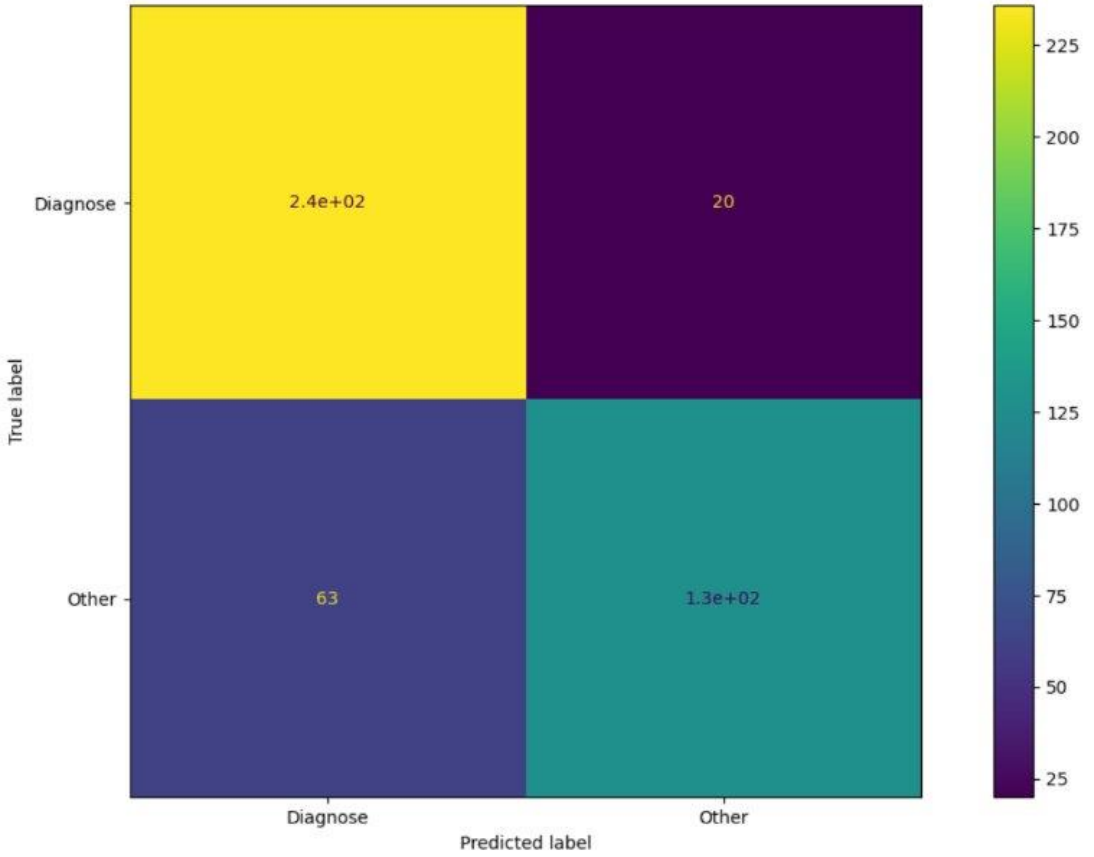


Fig. 3. The class activation mapping (CAM) technique allows the classification-trained FCN to both classify the time series and localize class-specific regions in a single forward-pass. The plots give examples of the contributing regions of the ground truth label in the raw data on the 'CBF' (above) and 'StarLightCurve' (below) dataset. The number indicates the likelihood of the corresponding label.

# APM AI Demo – Generative AI (LLM)

# APM Roadmap

# Prometheus APM Roadmap

## 2024

### AI Diagnostics
- Possible Causes
- Diagnostic and Mitigative Actions
- Historical Issues and Maintenance

### Issue Management
- AI Issue Creation
- Maximo, HexEAM Integration

### Implementation Enhancements
- Bad Status Awareness
- Suggested Alert Actions
- Updated Standards and Templates
- Import Op Modes
- Multi-model Creation

### Calculated Tag Editing
- Build Simple and Complex Calculations

## 2025

### AI/Smart Tools
- AI Trending Assistant
- AI-Assisted Trend Analysis
  *(What's interesting about this trend?)*

### Deeper Diagnostics
- Symptom Based Cause Identification
- Action Recommendation

### Issues Management
- Process Data association
- HexEAM Integration

### Standards Editing
- UI for creation/edit of standards and templates

## BEYOND

### Asset Reliability
- Asset Criticality
- Root Cause Analysis
- Failure Mode Effects Analysis

### Predictive Analytics Enhancements
- Process Data + Maintenance Records + Inspections + Lab

*Roadmap items reflect current plans at the time of original distribution of this document. Items or timelines are not promised and are subject to change without notice. Recipient agrees not to share this slide or its content in any form beyond the originally intended audience.*

# Thank You!

# Questions?