SCADA Data: Getting Past the Trends

10/18/2017
Agenda

- Existing Data Usage
  - LGH Files (HMI) Optimization
  - Historian

- What Next? and Why?
  - Reporting
  - Cloud
  - Multiple Databases
  - Real-Time Analytics
HMI – my data at this exact moment
How do we put that data into Context?

Which visualization style gives the best understanding how FIT123 is performing?

- **Perception**
  - FIT123: 53.15 GPM

- **Comprehension**
  - FIT123

- **Projection**
  - FIT123

  - Is it close to setpoint?
  - Is it outside operational limits?
  - Is it nearing an alarm limit?
  - How well is it being controlled?
  - Does the operator need to intervene?
  - What will happen if no action is taken?
Traditional Color Usage
But My Operators Want Color!
SCADA Playback
Reporting – Key Considerations

Open Data Retrieval

Compliance

Workstation Hardware

Ownership

Scalability

Standards
Reporting Solutions: You’ve got Options

• Database Reporting Software

• Web-Based Software

• Custom (Excel, SSRS, etc)
REPORTING SOLUTIONS – EXCEL

ADVANTAGES

• FREE
• CUSTOMIZABLE
• SMALL LEARNING CURVE

DISADVANTAGES

• SHELF LIFE
• TECHNICAL SUPPORT? YOYO
• BASIC SECURITY
• CUMBERSOME
• DIFFICULTY BRINGING DATA FROM OTHER SOURCES
• GENERIC
REPORTING SOLUTIONS – DATABASE REPORTING SOFTWARE

ADVANTAGES
• VERY CUSTOMIZABLE
• EASILY DISTRIBUTE REPORTS
• PULL FROM ALL YOUR DATA SOURCES
• SCALABLE
• ONE TIME PURCHASE

DISADVANTAGES
• REGULATORY REPORT SUBMITTAL (EMOR)
• NOT DESIGNED SPECIFICALLY FOR WATER/WASTEWATER INDUSTRY
• MANUAL DATA ENTRY MAY BE TRICKY
• CAN IT STORE DATA?
REPORTING SOLUTIONS – WEB BASED SOFTWARE

ADVANTAGES

• HARDWARE NEUTRAL
• ACCESS ANYWHERE
• INDUSTRY SPECIFIC
• SUBSCRIPTION BASED
• DEDICATED SUPPORT STAFF

DISADVANTAGES

• SUBSCRIPTION BASED
• WHO OWNS THE DATA?
• SCADA INTEGRATION DIFFICULTY
• WHAT HAPPENS IF THEIR SERVER GOES DOWN?
Your Data – Viewable Anywhere, Anytime
intelligent search
data anomaly newsfeed
### Acme Foods Energy States

<table>
<thead>
<tr>
<th>Tag</th>
<th>Type</th>
<th>Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>State</td>
<td>Discrete</td>
<td>64</td>
</tr>
<tr>
<td>Unwinder Motor Film State</td>
<td>Discrete</td>
<td>64</td>
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### Energy Consumption

<table>
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<tr>
<th>Tag</th>
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<tbody>
<tr>
<td>Infeed Motor Current</td>
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<tr>
<td>Machine1.Main Motor Current</td>
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<td>64</td>
</tr>
<tr>
<td>Motor Wrapper Current</td>
<td>Analog</td>
<td>64</td>
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### Sesame Snack-State

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### Wonderbar State

<table>
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<tr>
<td>State</td>
<td>2 transitions 40.18%</td>
</tr>
<tr>
<td></td>
<td>Stopped, 59.81% Running, 0.01% NULL</td>
</tr>
<tr>
<td>State</td>
<td>2 transitions 40.18%</td>
</tr>
<tr>
<td></td>
<td>Stopped, 59.81% Running, 0.01% NULL</td>
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</tbody>
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Valley Water Quality

Demo Water Treatment

<table>
<thead>
<tr>
<th>TAG</th>
<th>LATEST READ</th>
<th>TREND</th>
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</thead>
<tbody>
<tr>
<td>BOD</td>
<td>4.24</td>
<td></td>
</tr>
<tr>
<td>COD</td>
<td>8.01</td>
<td></td>
</tr>
<tr>
<td>Turbidity</td>
<td>0.15</td>
<td></td>
</tr>
</tbody>
</table>

Add Alert

Notify me when Turbidity is greater or equal to 0.5
Configurable push notifications

single location to view all active alerts across reports
Equipment

Energy Costs

Energy Consumption Trend

Total Energy Costs

Total Energy Consumption
Questions?
Dan.Finn@wonderwaremidwest.com
414-303-4745
Evolve Maintenance Practices to Become Predictive

Failure Patterns

- Age-related failure
- Random failure

18% Reactive and Preventive Programs

82% Predictive Technology for Early Warnings

ARC studies show only 18% of asset failure is age-related. Based on these data, preventive maintenance provides a benefit for just 18 percent of assets, and monitoring for predictive maintenance is a recommended option for the rest.

www.arcweb.com/Lists/Posts/Post.aspx?id=260

It’s a Journey

- Requires a comprehensive maintenance infrastructure
- APR and diagnostics to predict impending failure
- Rules-based logic using sensor data
- Planned based on time or usage statistics
- Run to failure

Life Is On
Architecture

Desktop Clients

Browsers

Mobile & Wearables

All Schneider Electric and Wonderware software*