Visualizing & Analyzing Historian Data using Proficy Operations Hub

February 24, 2022

Presented by:

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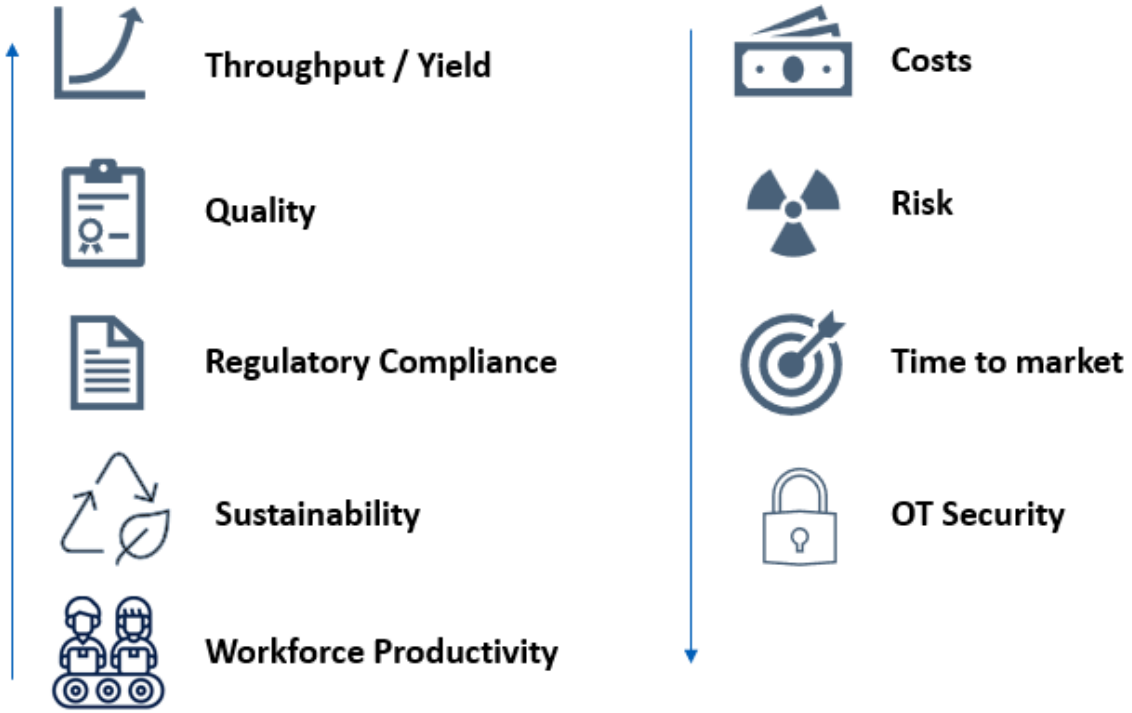
Topics

- About Us
- Challenges
- Historian & Ops Hub Updates
- Use Cases for Decision Support
- Questions & Wrap Up
- Wine tasting with Rachel DeAmbrose

About Us

Steve Szamocki
VP & General Manager
AutomaTech

Solving Tough Problems



If you drove to work, used a computer, drank a glass of water or coffee, ate a cranberry, changed a diaper, ate a bowl of ice cream, bought composite wood, used something made of plastic, received a covid 19 vaccine, used perfume, drank cola, applied makeup, seen a solar panel, visited a hospital, flushed a toilet, ate a chocolate bar, turned a light switch on, or used a 5G phone thenyou, your families, & communitieshave benefitted from a AutomaTech Solution.

Have a positive community impact… every time all the time

Solutions We Provide

Controls & SCADA Automation

- PLCs
- HMI/SCADA
- Mobility & Remote Connectivity
- Automated Data Collection & Reporting
- Alarm Notification
- Enterprise SCADA Consulting

Manufacturing & Information Systems

- Manufacturing Execution Systems (MES) & Consulting
- Enterprise Data Collection, Reporting & Visualization
- Advanced Analytics & AI

Industrial Internet (IoT) & Cloud Solutions

- IoT EDGE Connectivity
- Remote Monitoring & Diagnostics
- Equipment Optimization
- Asset Performance Management (APM)

Systems & Network Infrastructure

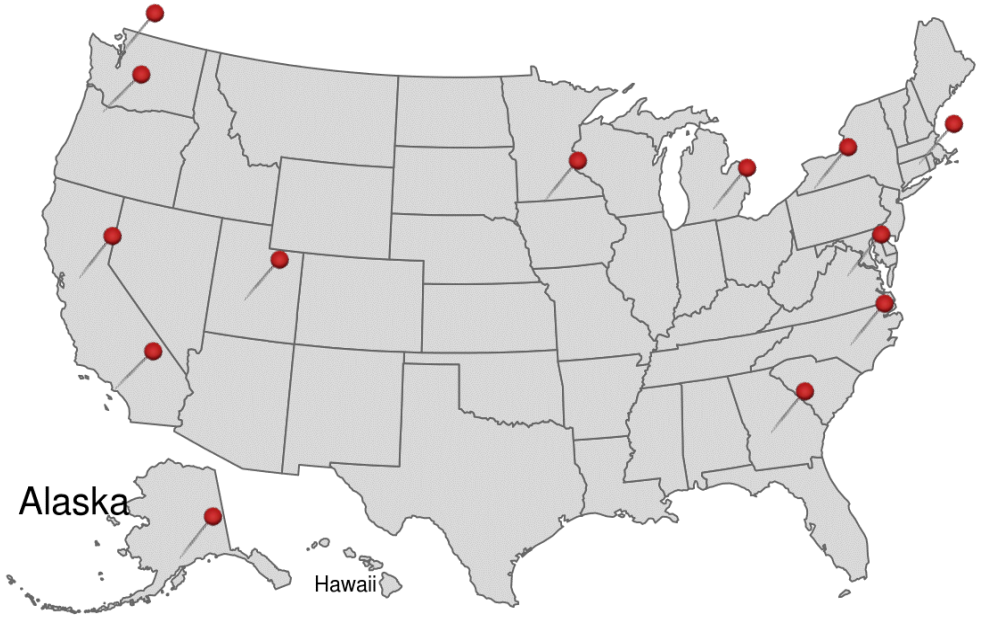
- High Availability & Fault Tolerant Servers,
- Virtualization, & Disaster Recovery
- Thin Client Infrastructure
- Industrial Networking

OT Cyber Security

- Cyber Security Assessments
- Intelligent Security Appliances
- Identify Defined Networking
- Industrial Firewalls & VPNs

Securely we help…connect | control | visualize | analyze | optimize

Supporting Customers



- CB Pacific & AutomaTech are part of Flow Control Group Automation spanning North America
- Part of KKR – 3rd largest private equity group – 665B of enterprise value
- 25 year + partner with GE – **GE's largest license supplier** of SCADA solutions globally.
- Comprehensive support services with **the most experienced SCADA Solution Architects** and Engineering support team in N.A.
- Well-established network of Cimplicity Solution Providers to deliver a complete solution including design, installation and commissioning
- Certified training services, seminars & webinars, user conferences & workshops, value added services

Challenge: Right Information for Decision Support

Poll Question #1

A more connected workforce improves problem solving times!

- Operators
- Maintenance
- Engineering
- Quality
- Plant Management

Extending GE SCADA information to all teams

CBPacific AutomaTech® Optimizing Industrial Operations

Operators

- Respond to issues
- Equipment status monitoring
- Out of process notifications

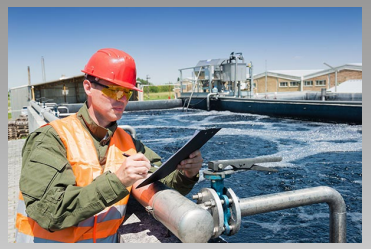
Maintenance

- Pareto equipment breakdowns daily
- Improve MTBF / MTTR
- Be alerted to critical breakdowns
- Predict breakdowns before they happen

Engineering

- Trend process data
- Design solutions for team members
- Predict and prevent downtime
- Drive plant efficiencies

Quality

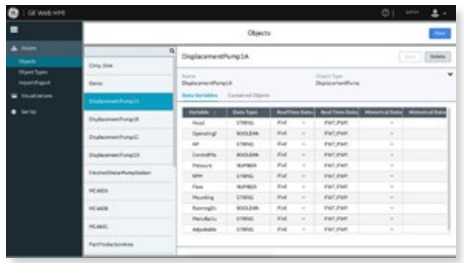


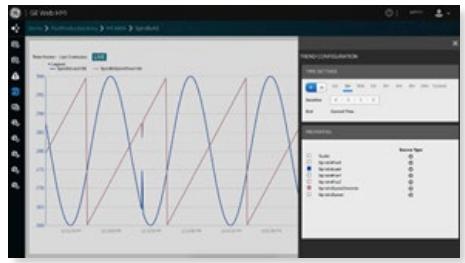
- Paperless Water Quality Checks
- Historical Data to drive 5 Why / CI process
- Trend large amounts of data with digital playback

Plant Management

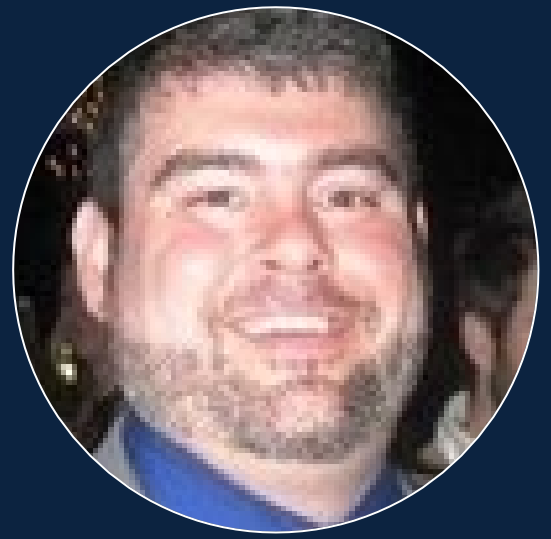
- Exception based management
- Team collaboration
- Electronic reports & process status in near real-time

GE Historian & Ops Hub





Historian



Hayes Pierce
Senior Solutions Architect
AutomaTech

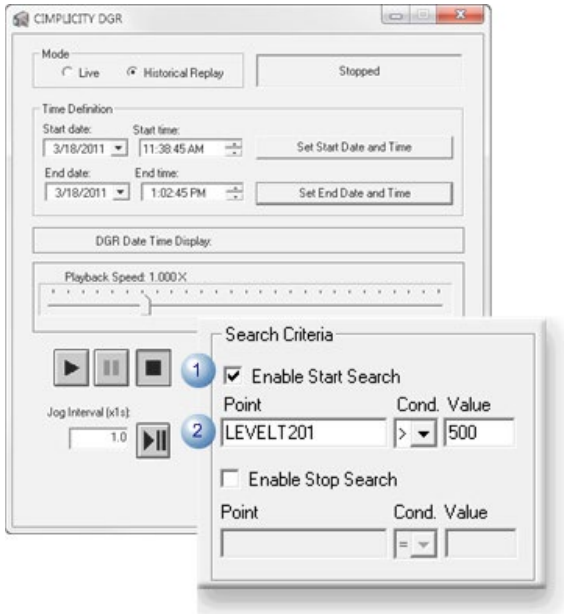
Scalable**Historian** for iFix & CIMPLICITY Customers

Why Proficy Historian 2022

Reasons for a Historian

1. Log, Store, and Retrieve **large volumes** of process and equipment information
2. The Historian is your "source" for plant and process information
3. If you trend information (real-time or historical) you need a Historian
4. Strong Integration between GE SCADA and Historian Product – save deployment and use costs.

Poll Question #2



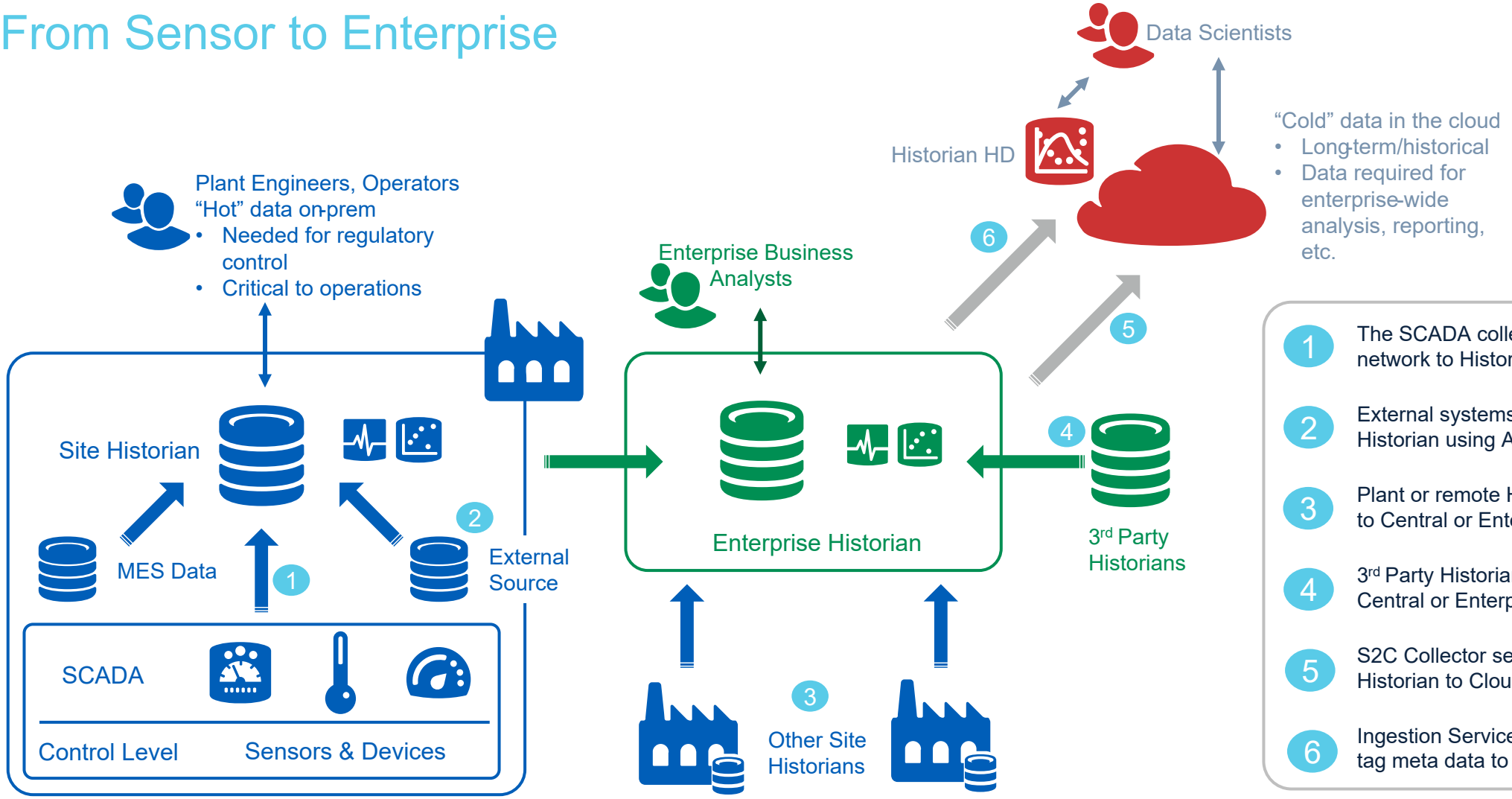
Proficy Historian– Enterprise Data Management

On Prem, Cloud Native and Hybrid

Key Themes				
Enhanced System Management & Connectivity	Modern UX, IoT connectivity	Portfolio wide HTML5 based System Administration of widely distributed systems and high scale deployments	• System Health Management • Best in class distributed systems with modern adr tools, remote server management • Rich Python support	• MQTT and Kafka support • Kubernetes management delivers zero downtime upgrades and High Availability deployments
Enhance data value extraction	Model context and open interfaces	Federated Asset Model Across the portfolio	• OPGUA Model Context • Model synchronization • Model context exposed via rest	• Hi performance interfaces to BI and analytics platforms
Bridging the plant floor to the cloud –at enterprise scale	On Prem, Cloud Native and Hybrid	Expand on current on-prem to 3rd part cloud leadership to deliver complete deployment model flexibility and adaptability	• Cloud native Historian (AWS and Azure) w/cloud autoscaling, availability, and data replication • Identical client interfaces on-prem vs cloud • Cloud service integrations (data lakes, analytic platforms)	• On prem with cloud storage to full on cloud • Easy migration from on-prem to cloud

Lower Cost Flexible & Scalable Architecture

From Sensor to Enterprise

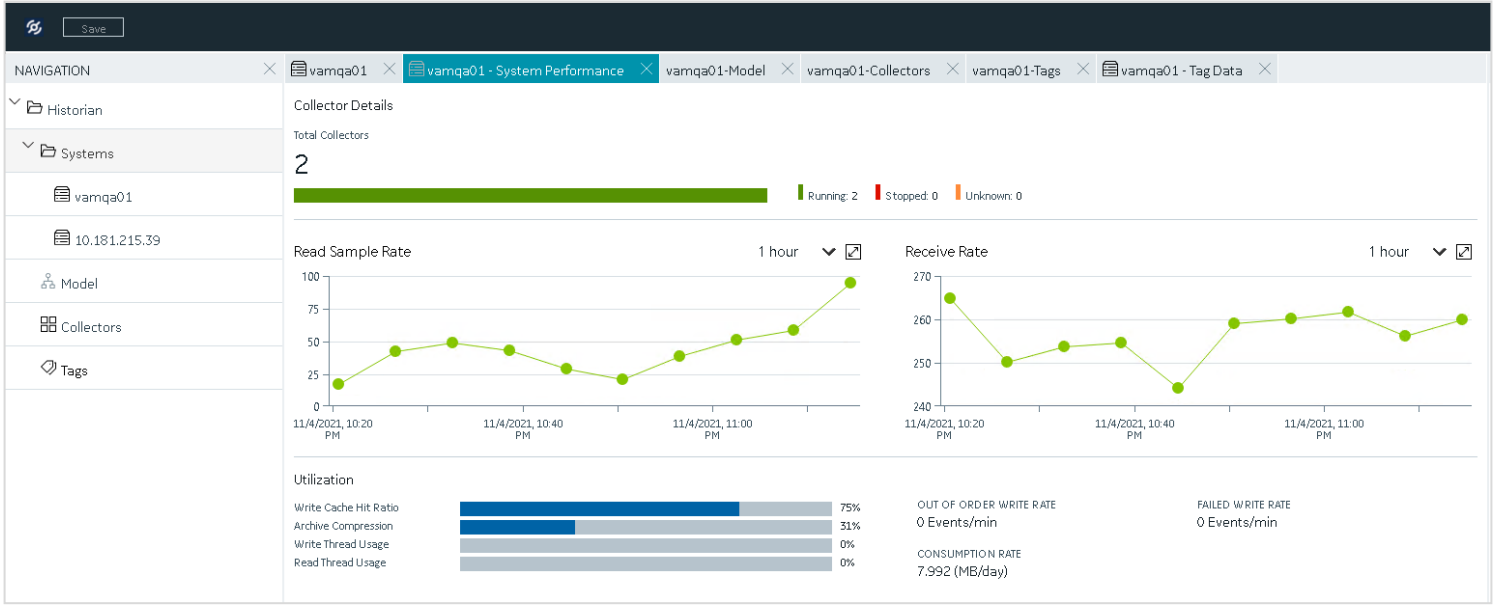


1. The SCADA collector sending data over the network to Historian
2. External systems reading and writing data to Historian using API
3. Plant or remote Historians using S2S to write to Central or Enterprise Historian
4. 3rd Party Historians using Collector to write to Central or Enterprise Historian
5. S2C Collector sending data from Central Historian to Cloud
6. Ingestion Service sending batch archives and tag meta data to Historian HD/HDFS System

Scalable **Historian** for GE SCADA Customers

Proficy Historian 2022

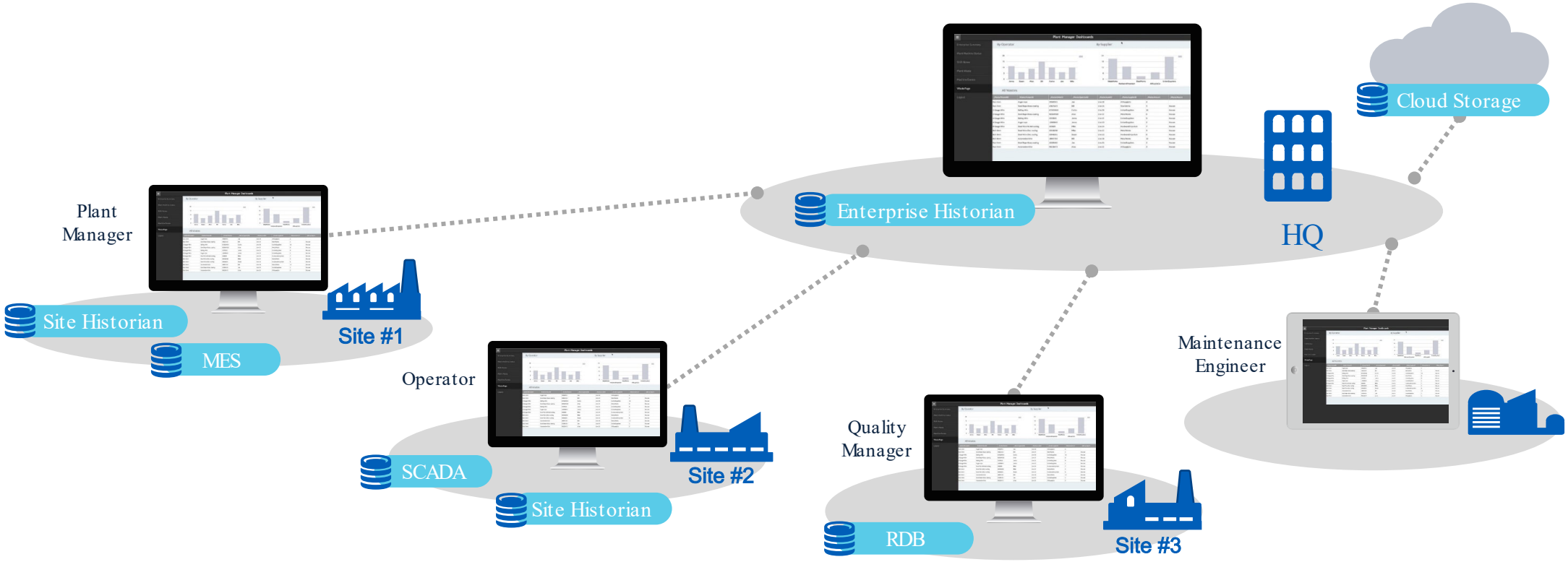
- Best in class management of enterprise scale systems (up to **100MM** tags) and widely distributed applications with 1000's of data sources.
- Historian is **33x more efficient** on disk than other vendors
- **Improved Integration:** Web based Administrator (Configuration Hub), Proficy Installer, Proficy Authentication
- **Significant improvement** in Collector throughput (Multithreaded - CIMPLICITY collector performance150K/s)
- New Python based Calculation Collector
- Asset Model Service enables creation of model context associated with Historian data



Operations Hub

Amy Wooten
Senior Product Manager
GE Digital

What's the Big Idea?



"I don't have to worry about where the information is as long as I can access it when I need it!"

Proficy Operations Hub

A centralized environment to rapidly build industrial applications,
enabling plant operations, analysis, and decision making for plant personnel across the enterprise.

- Accessibility to information – Access your data any time, anywhere
- Enable creation of high-performance displays
- Centrally manage visualization layer across your enterprise
- Get additional value out of existing investment in GE Proficy products
- Operations Hub built leveraging domain expertise from Proficy products

Industrial Applications – Out of the box or build your own!

Monitor & Control
Dashboards & KPIs
Analysis
Reporting
Digital Andon

ProficyOperations Hub

Designer (Development Environment)

OPC UA | MQTT | REST | SQL

Industrial Automation

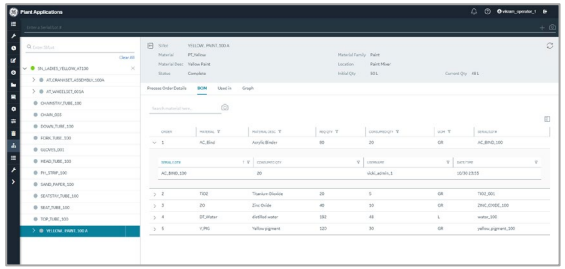
iFIX/CIMPLICITY

Manufacturing Operations Management

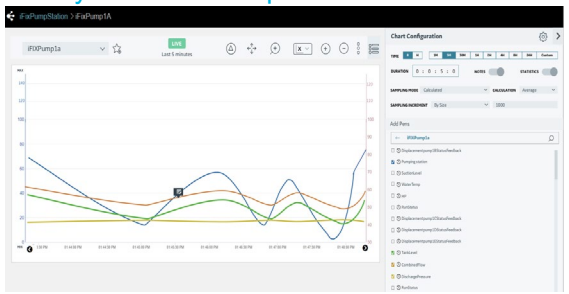
Plant Applications	Batch	SQL DBs
MDC	Tracker	CMMS
Workflow	Historian	Other Systems

Reduce Time to Value with Out of the Box Apps

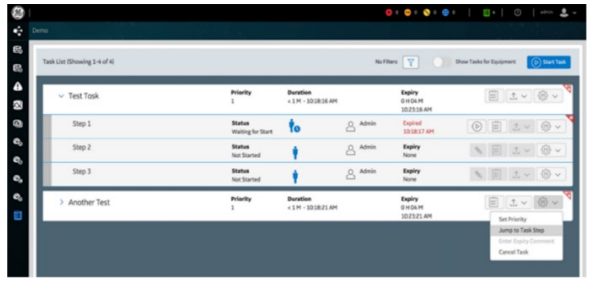
Proficy Plant Applications in Operations Hub



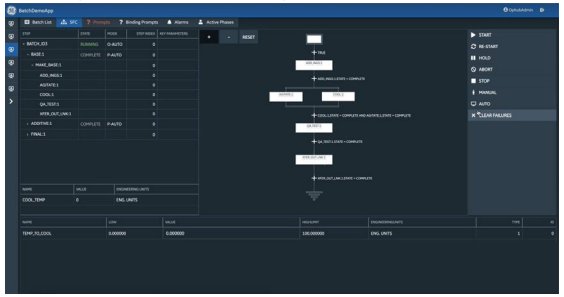
Proficy Historian in Operations Hub



Proficy Workflow in Operations Hub



Proficy Batch in Proficy Operations Hub



Custom

Plus your custom content

Development Environment

Data Management

Modelling: Entities and Pivot Tables

Queries, Events and notifications

WYSIWYG App Builder

Responsive layouts (web, mobile, tablet)

Visual Widget library with Drag and Drop configuration

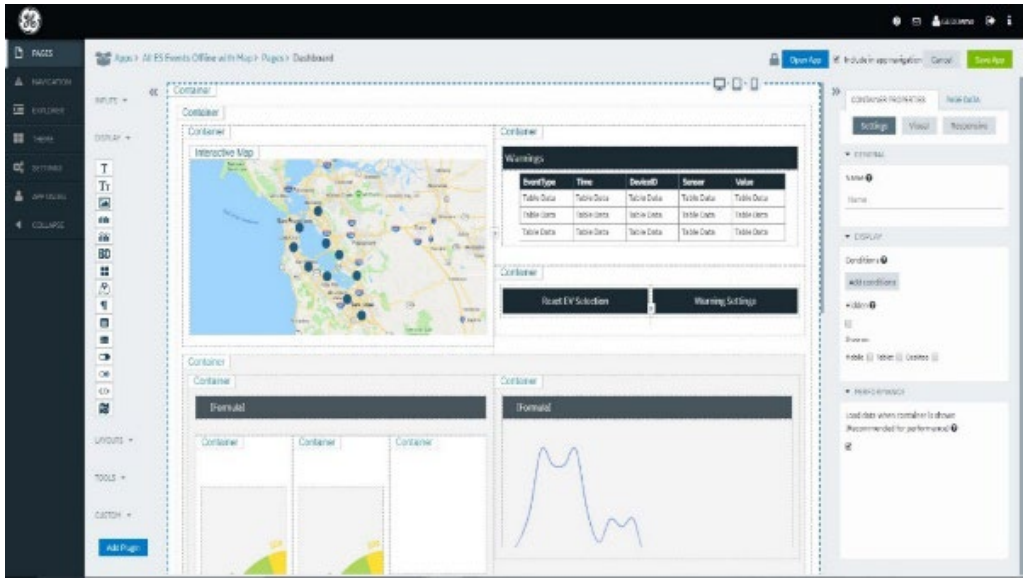
Actions: Store user selections, navigate, etc

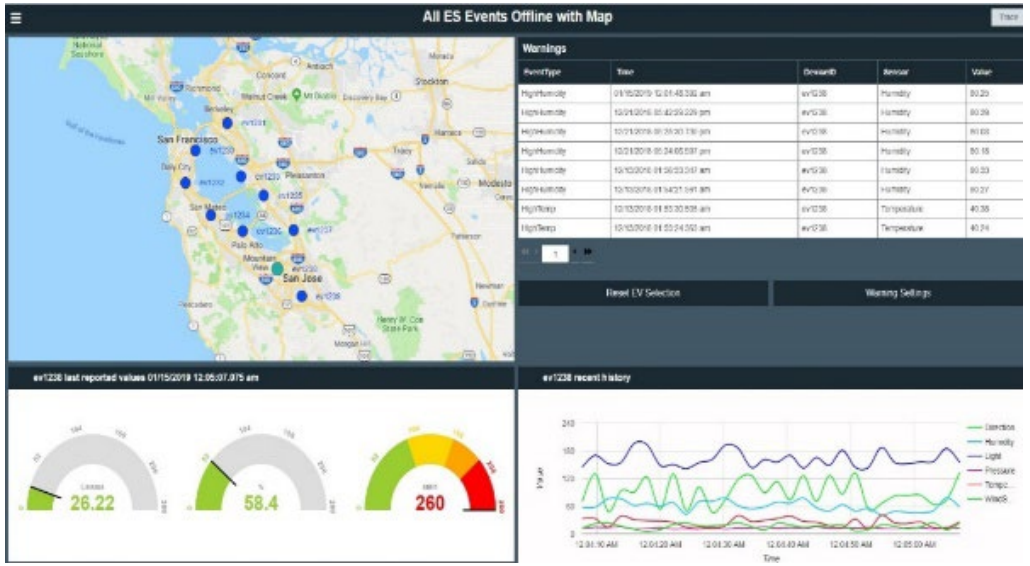
Conditions: Show/hide widgets

Formulas: Format data, build URLs for widgets

Role based permissions

SDK: Custom Widgets & Entities REST API





Providing Visibility For Decision Making Outside the Control Network

Dashboards (OTBI)

Design your screens with our suite of widgets

Big Data	Gauge	Radio Button
Button	Header	Repeater
Camera	HTML	Separator
Check Box	Image	Slider
Container	Input	Table
Dropdown	Interactive Map	Text
Event Settings	List	Text Area
Graph	Map	Toggle
Grid	New Line	Trend Chart

+ More each release!

Mimic Card	Gauge	Pareto Chart	Drop Down
Alarm Card	Timeline Chart	Value	Multi timeline
Bullet	Indicator	Sparkline	Spider
Time display	Data Grid	iFrame	Variwide

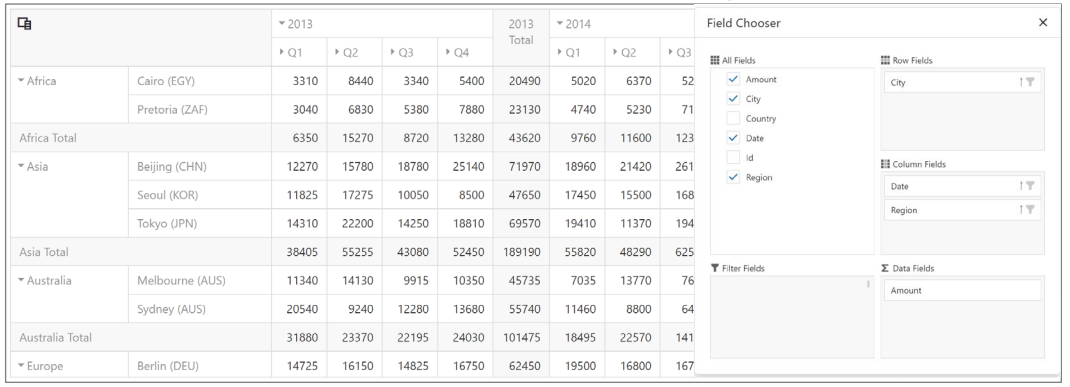
Enhance Value Extraction from Data

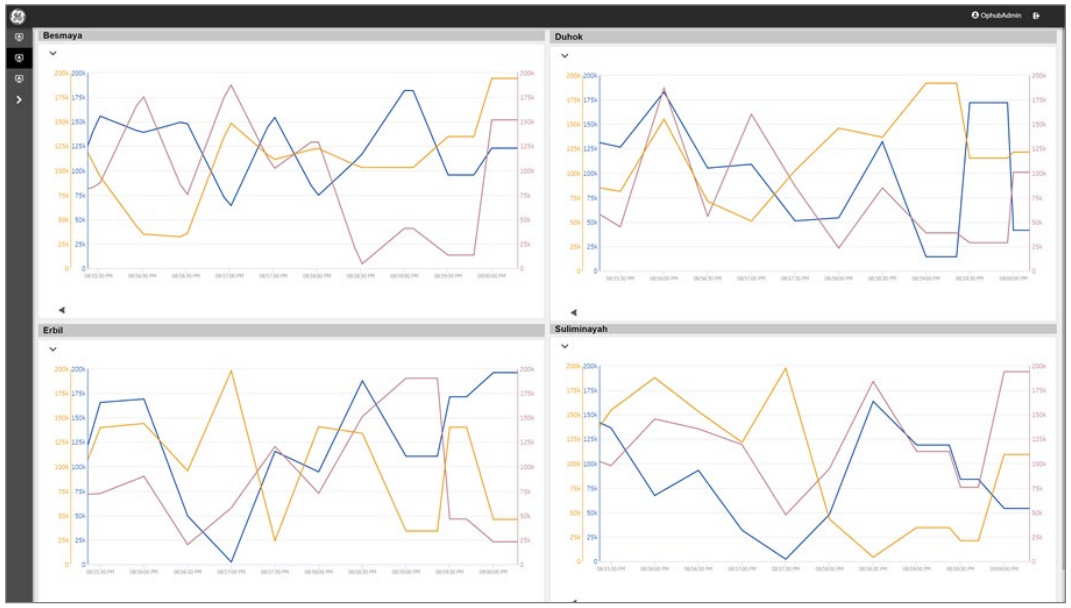
Historian Analysis (OTBI)

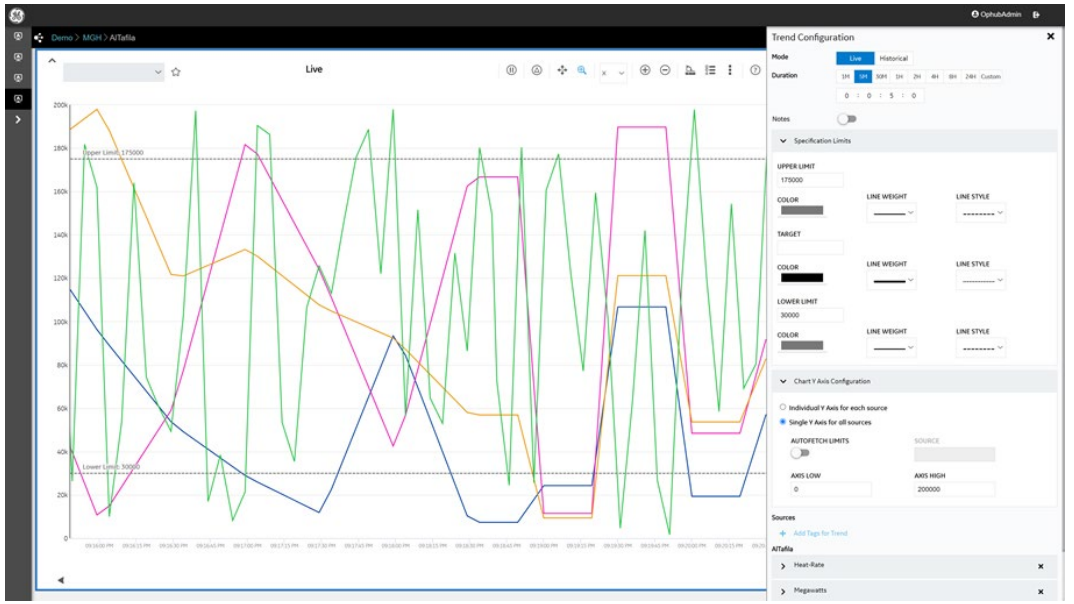
Trend Widget

- Designer Configurations
- Real Time and Historical Data
- Time presets
- Annotations
- Statistics and Delta mode for quick comparison
- Saved views – Favorites

New Pivot Grid for Data Analysis







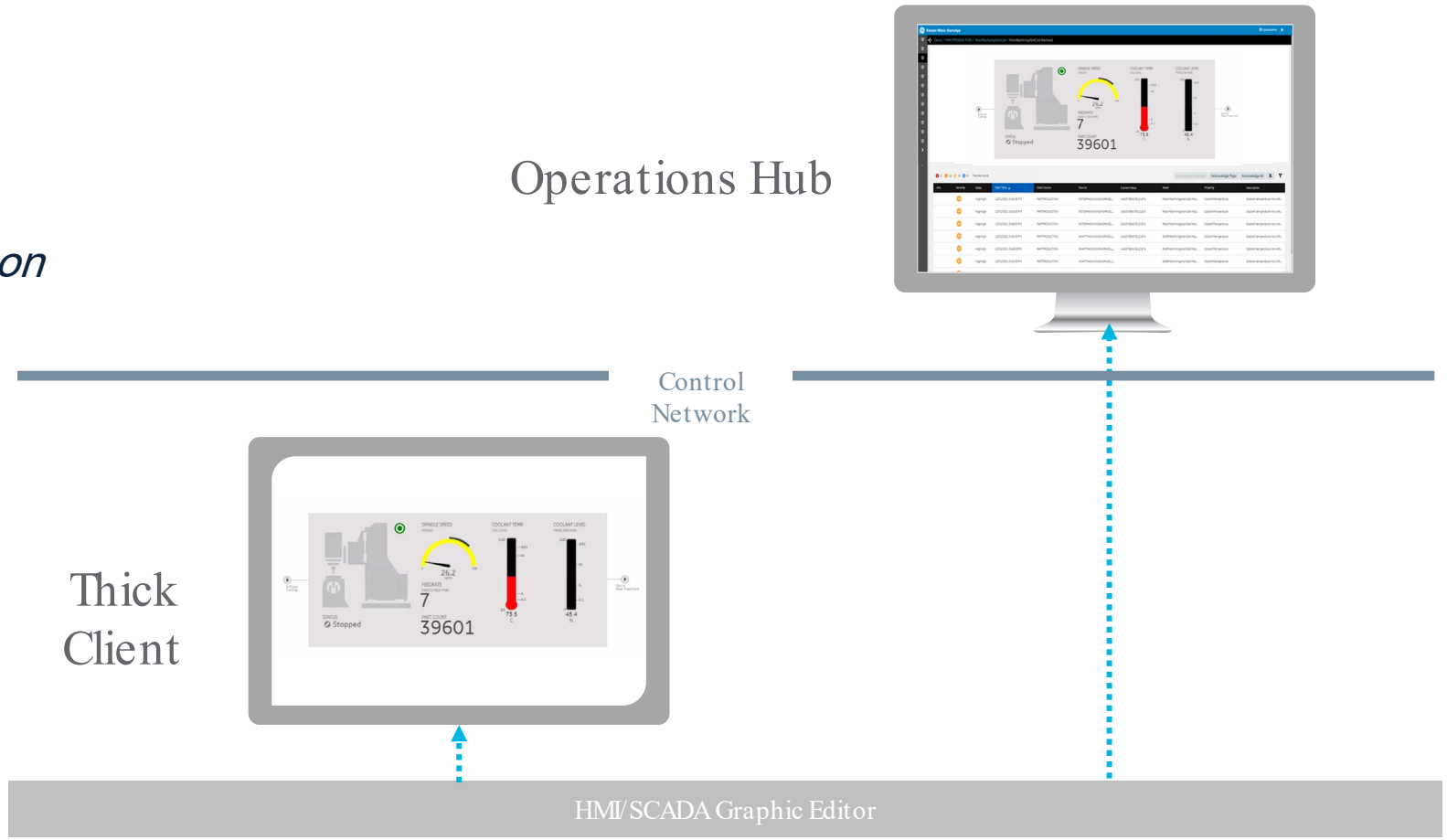
HMI For Plant Personnel

HMI Widgets

Mimic & Alarm
GE Proficy Cimplicity and iFix

Webspace
GE Proficy Cimplicity, iFix coming soon

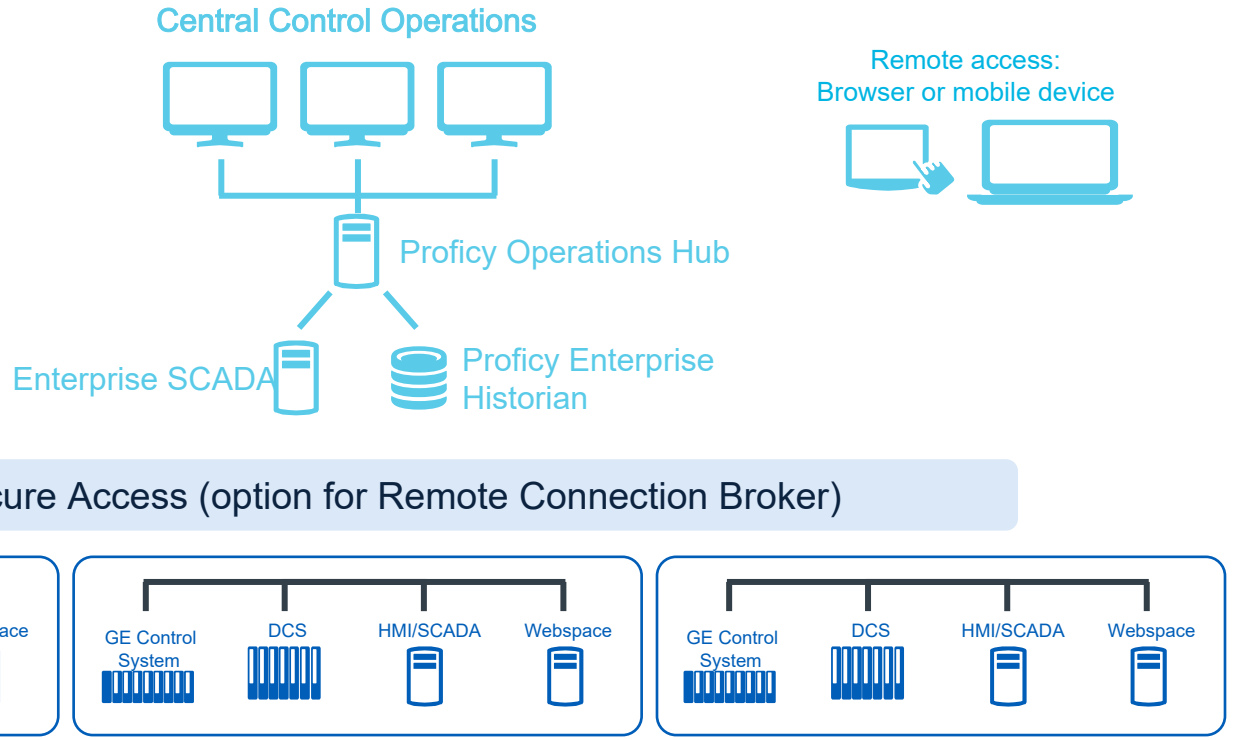
Batch Widgets
GE Proficy Batch



Centralized & Remote Operations

A single access point for SCADA & other plant applications toreduce operational costs and enable remote access

- Reduced hardware costs through cloud infrastructure (**Azure VM, AWS VM and hybrid cloud**)
- Provide multi-site or multi-application views for Lean operations
- Reduced training through consistent operator experience



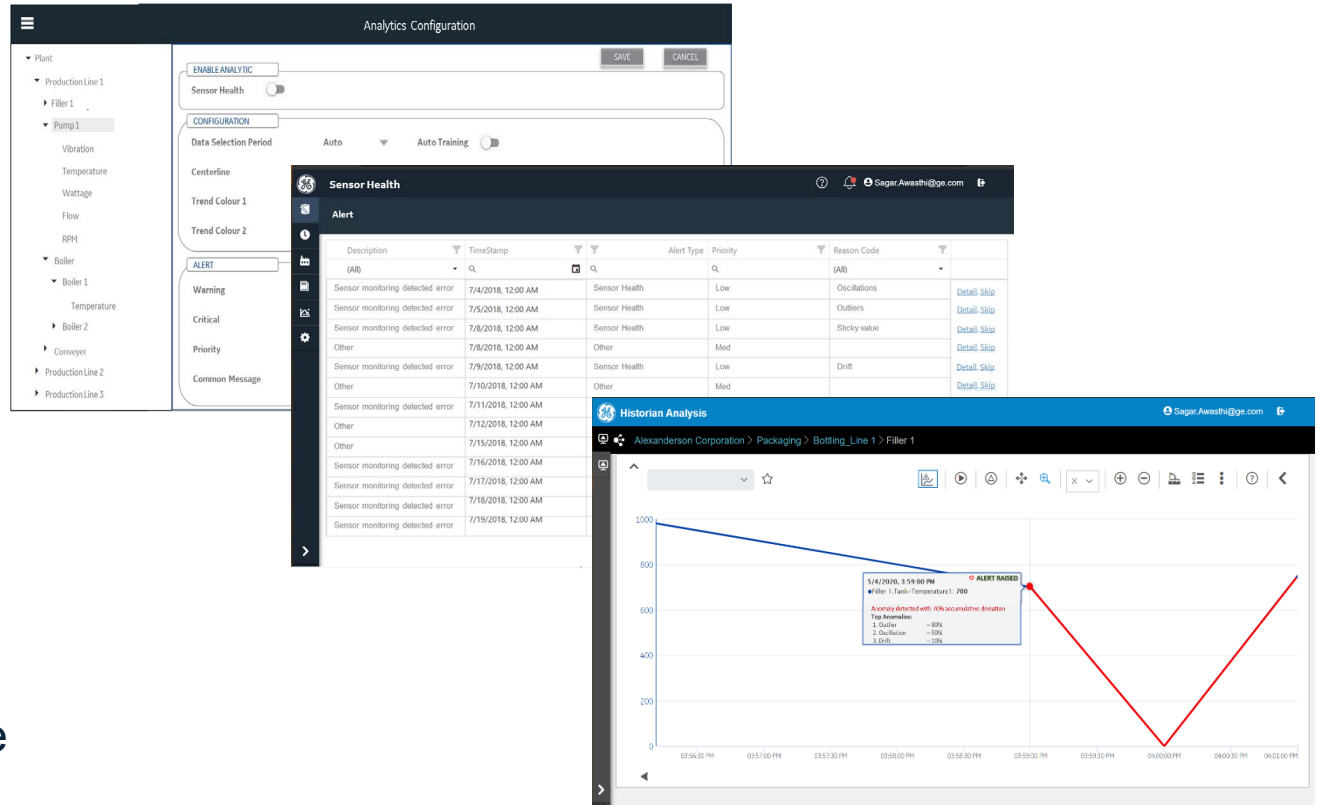
Proficy Operations Hub and Proficy Historian provide centralized web access and centralized data storage

Operations Hub Use Cases

Hayes Pierce
Senior Solutions Architect
AutomaTech

Operations Hub is flexible and Powerful enough to provide immediate value– Just a few applications

- Single Pane Of glass Dashboarding for SCADA Site and managers
- Empowered Operator – Right Data to the Right Person at the Right time
- Production Downtime/OEE Information
- Multi-Site Monitoring
- Process Analysis Applications
- Inventory Dashboards
- Chemical Feed System Monitoring
- Lab System Monitoring
- Historical Data Trending and Analysis
- Manual Data Entry / Operator or Maintenance Rounds
- Mobile Device Access out of the box – Bring You Own Device

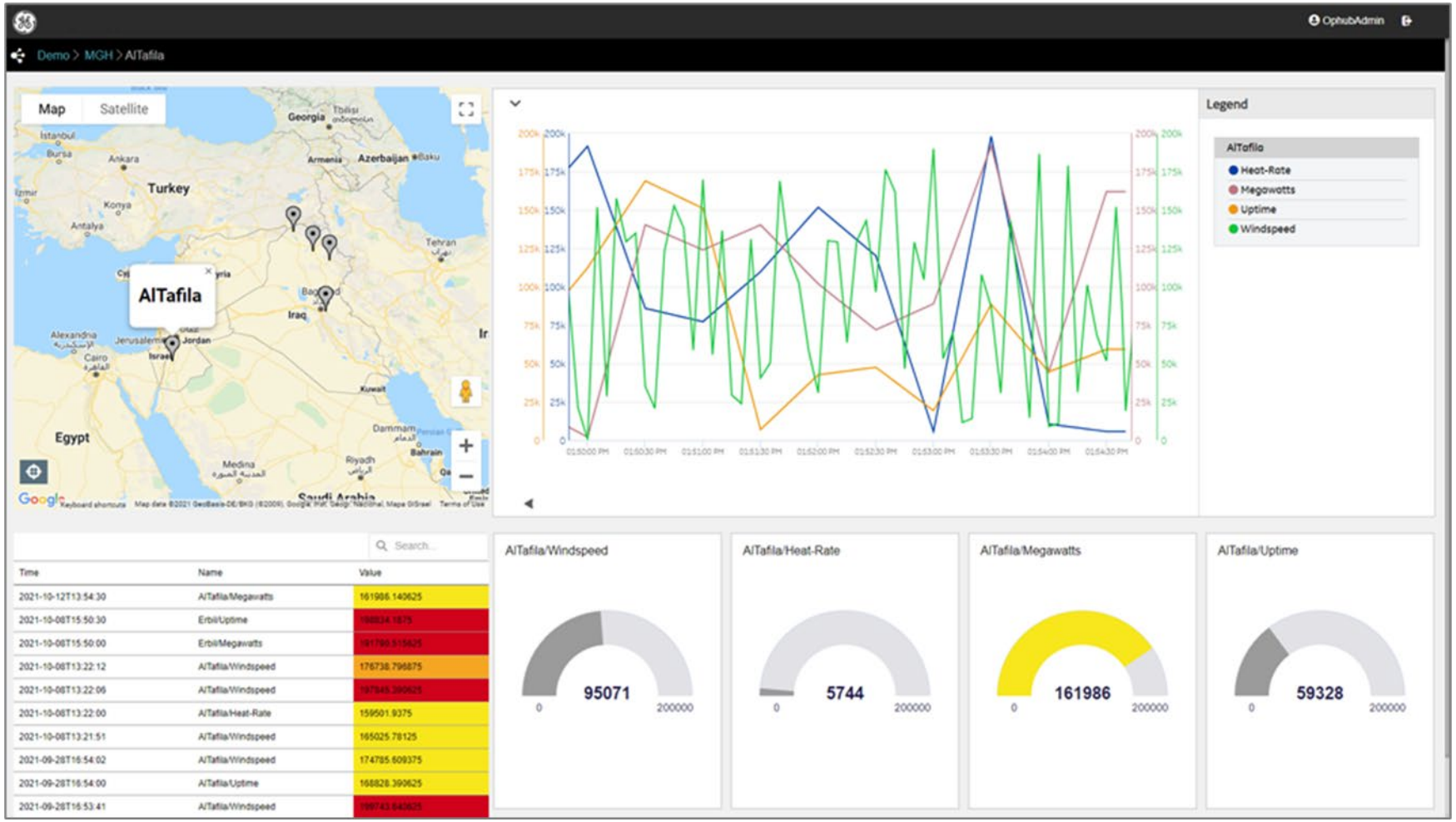


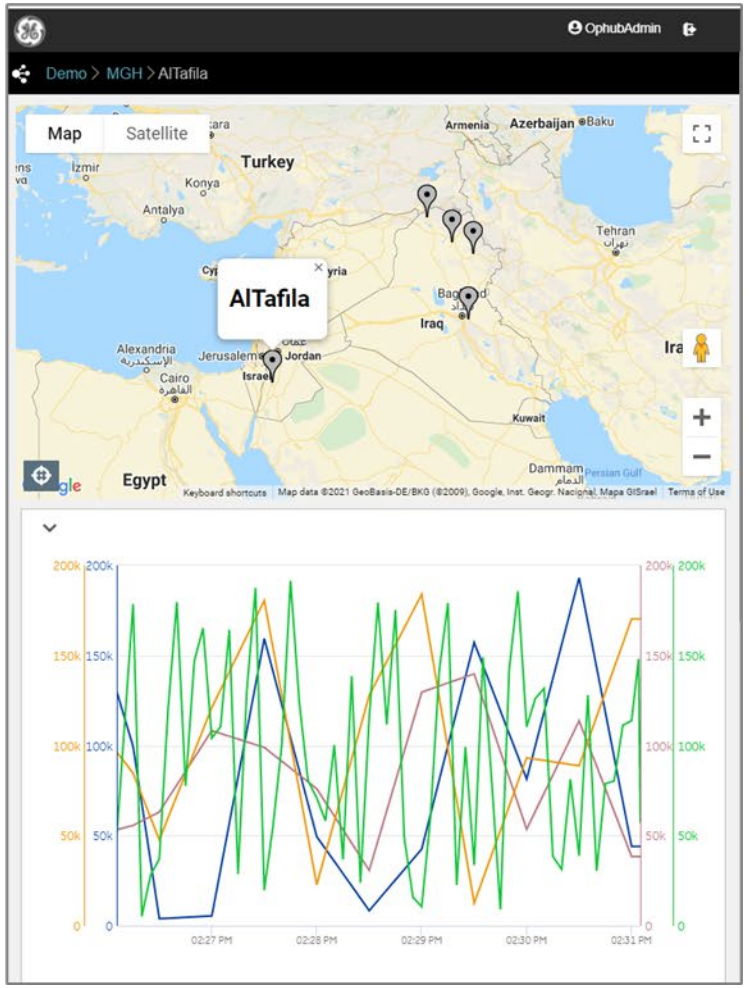
Example: Monitoring Across Sites

Plant Manager – How is my plant performing?

Plant Level focus on
Safety, Labor, On Time Delivery, Throughput, Efficiency, Quality

Tablet View





Example – Monitoring Performance of Presses on Plant Floor

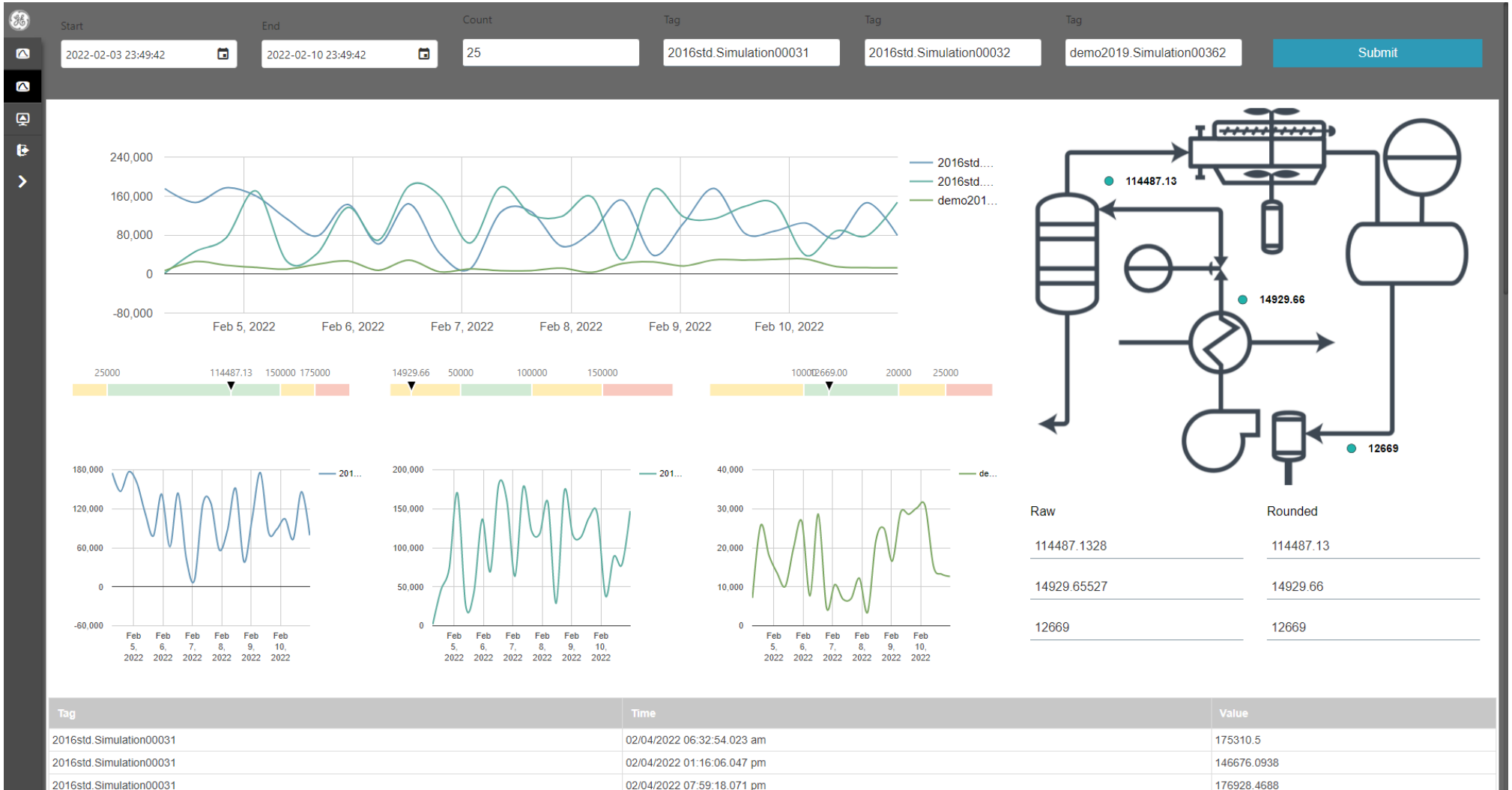
Operator – How are my machines running?

Equipment status monitoring, responding to issues

Example– Process Analysis

Process Engineer – How can I fine tune system performance?

Drive plant efficiencies, predict and prevent downtime, trend process data



Example– Downtime Fault Report

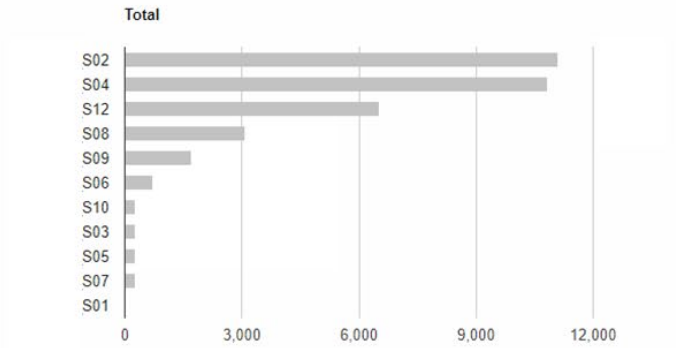
Process Engineer – How can I fine tune system performance?

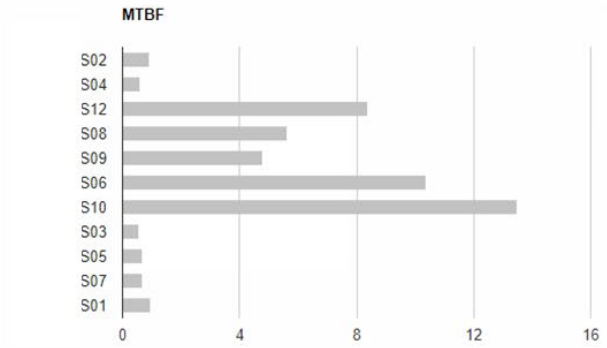
Be alerted to critical breakdowns, predict breakdowns before they happen, improve MTBF / MTTR

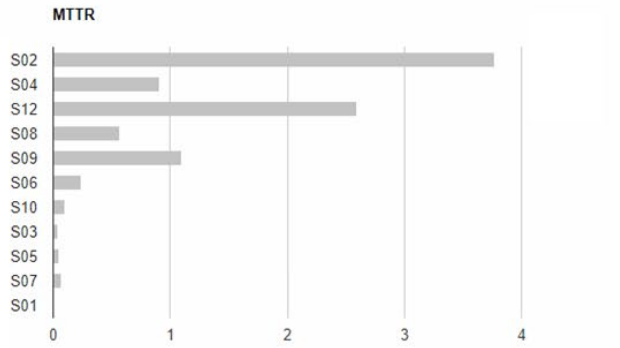
mesadmin

Level				Department	Line	Shift	NPT	Start	End	
Line	Station	Equipment	Fault			2nd shift	Include	2022-01-11 15:...	2022-02-10 15:...	Submit

By Station Hide Details







Station	Total
S02	11092.633315999998
S04	10843.349980999998
S12	6510.9166570000025
S08	3079.166644000001
S09	1711.6999929999995
S06	705.2999859999998
S10	267.96664399999986
S03	264.116652
S05	260.0999809999999
S07	254.94998299999995

Station	MTBF
S02	00:54:49 hrs
S04	00:34:35 hrs
S12	08:22:32 hrs
S08	05:36:53 hrs
S09	04:47:51 hrs
S06	10:21:41 hrs
S10	13:30:13 hrs
S03	00:32:50 hrs
S05	00:39:40 hrs
S07	00:40:26 hrs

Station	MTTR
S02	03:46:23 hrs
S04	00:54:20 hrs
S12	02:35:10 hrs
S08	00:34:27 hrs
S09	01:05:50 hrs
S06	00:14:07 hrs
S10	00:05:42 hrs
S03	00:02:10 hrs
S05	00:02:58 hrs
S07	00:04:10 hrs

PHARMACEUTICAL | HISTORIAN | NORTH AMERICA

Increased Visibility for all areas of the operation.

CBPacific AutomaTech®

Pharma Company, OH

Challenge

Provide data visibly to a broader audience above the SCADA and control layer - outside of the firewalled manufacturing network.

Action

Replicated Historian and SQL data to a server in Corporate network layer. Used Operation Hub to create and Enterprise Application used at many levels of the organization.

Result

- Data was contextualized in an asset model to make things easy to find.
- High performance web pages any browser can use with no user limits
- The app is used enterprise wide at many levels.
- Informative Dashboards Increased Operational Efficiency.

ELECTRIC UTILITY | HMI/SCADA | BELGIUM

Improved operations scheduling and maintenance compliance.

CBPacific AutomaTech®

Engie, Belgium

Challenge

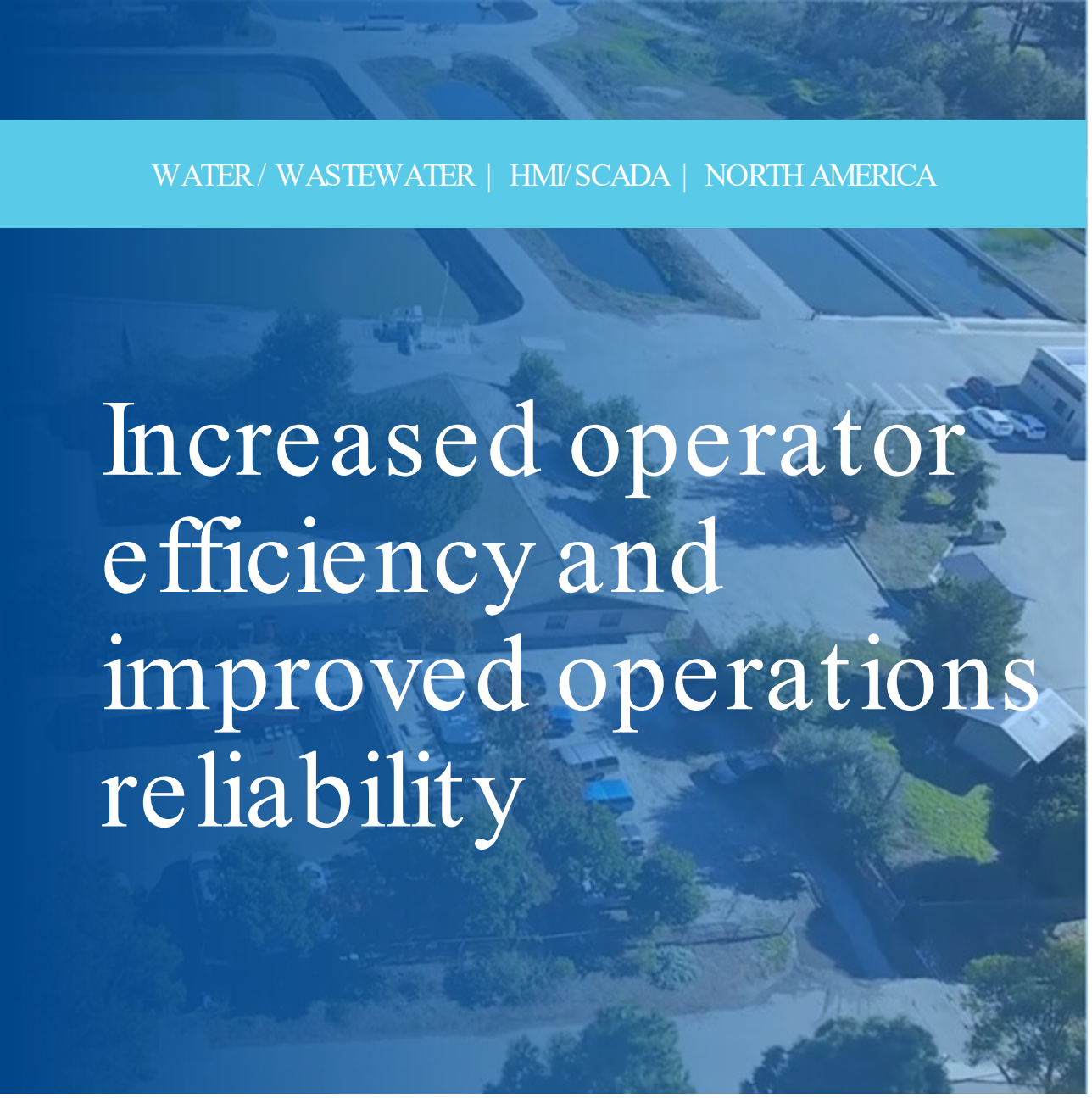
Data from 70+ Cogeneration sites in different formats. Needed low-cost aggregation method with High security access and unlimited users.

Action

The system was designed using IoT concepts with Historian, SCADA and Web Displays to perform central alarm and data logging allowing ENGIE to perform detailed energy reporting.

Result

- Ability to guide maintenance of third-party suppliers and to control the energy injection at the most favorable time of the day.
- Allow OAUTH access to many users, vendors, and contractors.



WATER / WASTEWATER | HMI/SCADA | NORTH AMERICA

Increased operator efficiency and improved operations reliability

CB Pacific AutomaTech®

City of San Luis Obispo, CA

Challenge

Provide a modern and efficient UX for operations personnel at five different locations, all with different control systems.

Action

With the help of CB pacific, existing iFIX installations were upgraded. A Web UX was created to remotely monitor, supervise, manage their five facilities.

Result

- New HMI design increases operator performance, enables faster problem identification, and reduces reaction time
- Increased visibility and control using mobile devices – information delivered anywhere, any time
- Ability to create their own views without asking IT
- Increased compliance to local standards

What's Next

Steve Szamocki
VP & General Manager
AutomaTech

What's Next

Poll Question #3

What would you like next?

- Technical lunch and learn with your team.
- Immediate need - please call me.
- Onsite assessment so we can get started.
- More details on getting a demo software to evaluate.
- Do Nothing

Upcoming Events

- Plants Apps: 3/17/22
- Local Field Event~~s~~ To Be Announced

ANY
QUESTIONS
?

Wine Tasting

Rachel DeAmbrose
Certified Sommelier