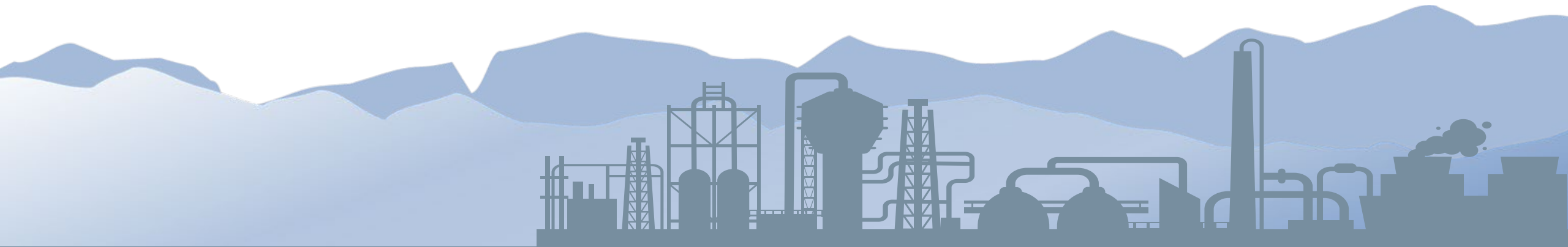


# What's New in CIMPLICITY with Historian in High Availability Environments

January 27, 2022



Presented by:



**Gimmi Filice**  
*Senior Manager,  
Automation Software*  
**GE Digital**



**Doug Stewart**  
*Senior Software  
Architect*  
**GE Digital**



**Tom Jensen**  
*Senior Solution  
Architect*  
**AutomaTech**

**This is the most experienced team of  
CIMPLICITY SME's in the World!**

**Thank you for your business!**

# Topics

- About Us
- CIMPLICITY & Historian Updates
- High Availability Primer
- OT Security Primer
- Questions & Wrap Up
- Wine tasting w/ Rachel DeAmbrose

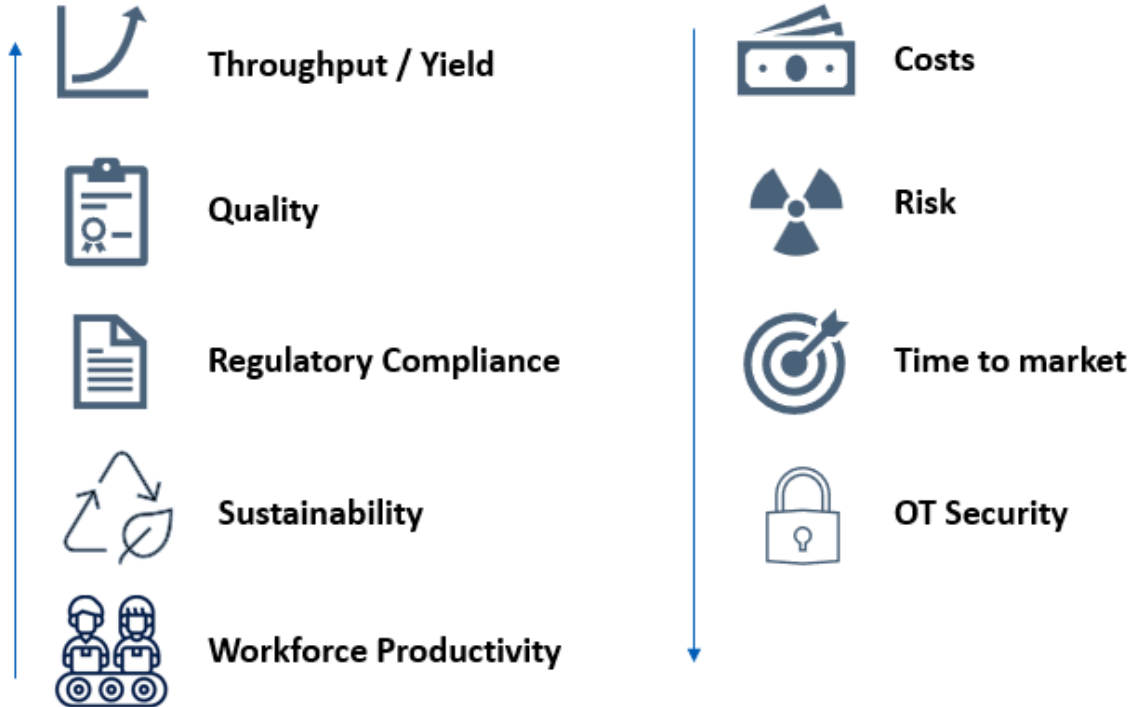
AutomaTech™



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# About Us

# 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 then **you, your families, & communities** have 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

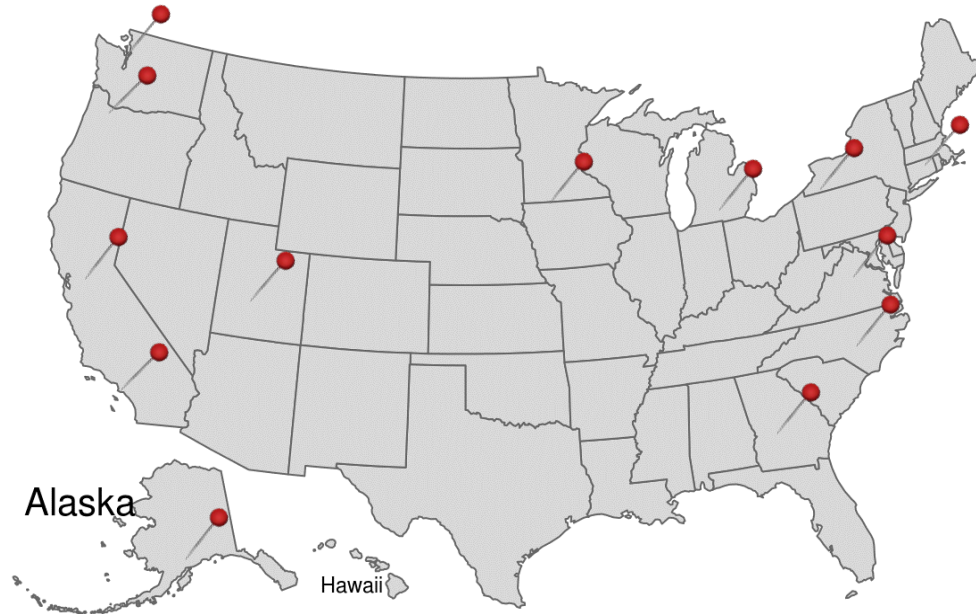


**OT Cyber Security**

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



# Supporting Customers



- CB Pacific & AutomaTech are part of Flow Control Group Automation spanning North America
- Part of KKR- 3<sup>rd</sup> 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

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# CIMPLICITY & Historian Strategy & Roadmap



**Gimmi Filice**  
*Senior Manager,  
Automation Software*  
**GE Digital**



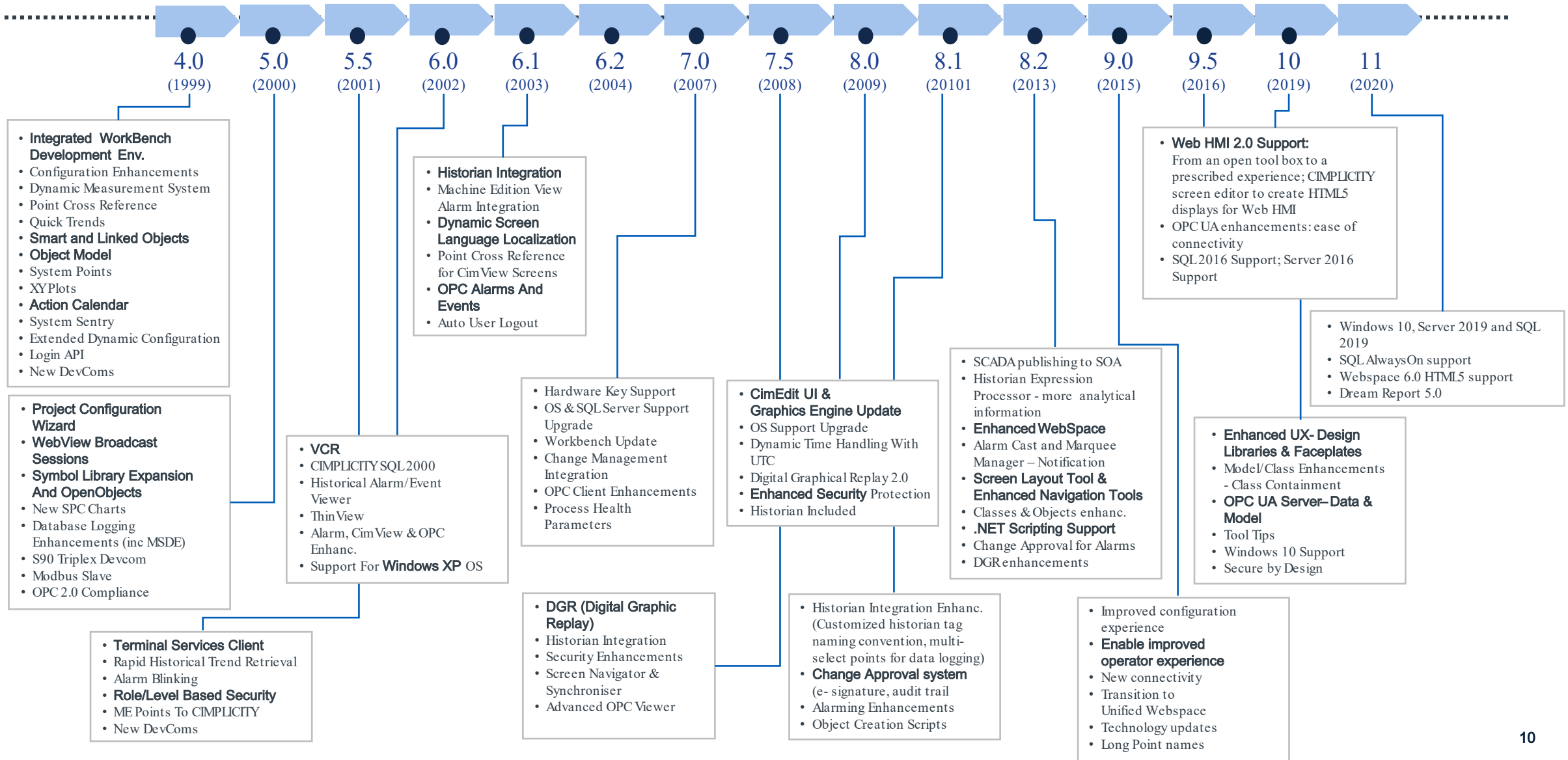
# Safe Harbor Disclaimer:

The information presented is intended to be an outline of general product direction and it should not be relied on in making a purchasing decision. The information on the roadmap is for information purposes only and may not be incorporated into any contract and is not a commitment, promise or legal obligation to deliver any material, code, or functionality. The development, release, and timing of any features or functionality described for our products remains at our sole discretion.

This contains GE proprietary information, and the recipient is not authorized to disclose such information to third parties

# CIMPLICITY timeline

## Poll Question #1



# What we delivered in the past 24 months (11/11.1)

## Reduce Time to solution/High Scale SCADA

- Reduce database building time - OPC UA discover and build
- Improved SCADA performance – Threadpooling enable optimization

## Reduce Time to Build/HMI

- Reduced build time for HMI from classes/objects – browse and build
- Reduce Proficy Operations Hub configuration with model synchronization
- Improve operator response through updated alarm filtering capability
- Reduced screen scripting – created standard capabilities for common use case

## Increase Productivity/ Central Management

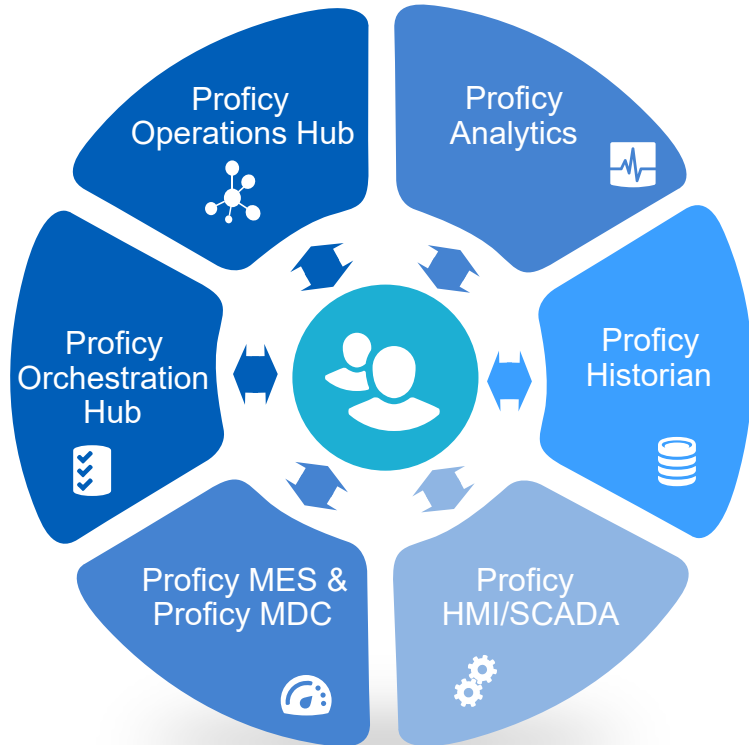
- Multi-development support for tracker
- Increased Availability with SQL Always On support
- Reduce troubleshooting time - Store system logs in central database

## Empower Connected Worker/ Central Operations

- Enable remote operations with HMI card and webspace widget in Proficy Operations Hub

**If you have not updated to the latest version of CIMPLICITY, call AutomaTech for assistance!**

# Proficiency 2022–Unified Portfolio Launch



- Continued significant investment and innovation
- Major enhancements to all existing products & introducing brand new products spanning to cloud MES, analytics & orchestration
- Standardized Release Cadence<sup>nd</sup> (2 year)
- Combined Releases
- Validated Interoperability with unified support
- Low code data flow engine across Proficiency portfolio
- Moving toward a common installation tool (Proficiency Installer) and other tools

- Proficiency Smart Factory- Cloud OEE
- Proficiency Orchestration Hub 2022
- **Proficiency Operations Hub 2022 (Jan)**
- **Proficiency Historian 2022 (Jan)**
- Proficiency Plant Applications 2022
- iFIX 2022
- **CIMPLICITY 2022**
- Proficiency Analytics:
  - Proficiency CSense
  - Proficiency Operations Analytics

# CIMPLICITY: Providing a Holistic HMI/SCADA Solution

## HMI/SCADA CIMPLICITY

- High performance User Interface
- Realtime and historical trends
- Powerful alarming strategies
- Full data collection, TCP/IP & OPC communication
- Supervisory Control
- Open, extensible, and scalable client-server architecture

### HMI/SCADA Extended Capabilities

Reporting

Dream Report

Connectivity

IGS Drivers

Alarm Notification

WIN-911/Alarm Cast

Work process mgt

Workflow

Remote

Webspace

Local data storage

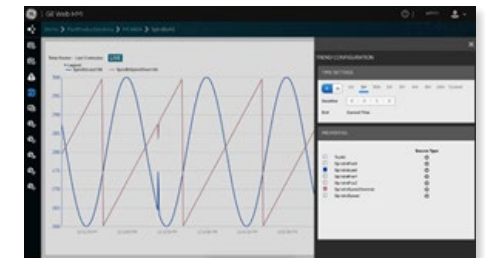
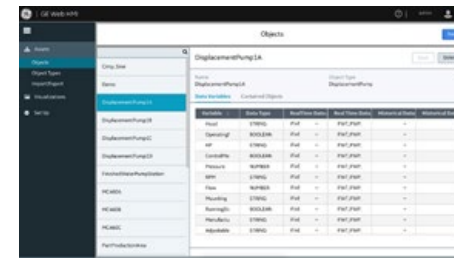
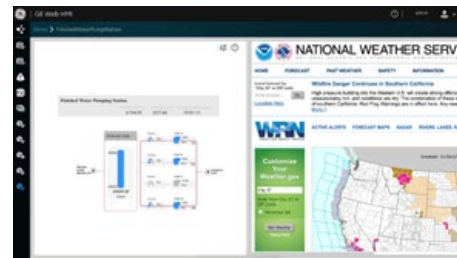
Historian

IoT HMI

Operations Hub

Batch management

Batch



# CIMPLICITY

## Proven multi-purpose, multi-industry HMI/SCADA

### Efficient Operations

- Alarm Management and escalation
- Work Process Management
- Production Tracking
- SPC, Reciprocating Playback (DGR)
- Device Connectivity
- High Availability

### Powerful Development Tools

- Design Library
- Database Model based design (Classes/Objects)
- Extensibility (Python, VB .NET, Rich APIs)
- Open Standards (ISA, IEC, OPC)

### Highly Scalable

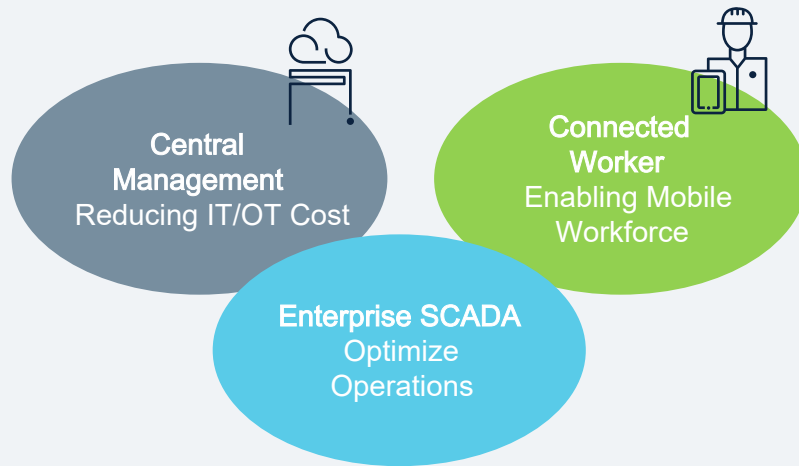
- Small systems to large (>500K) point count, enterprise server
- True Client/Server architecture



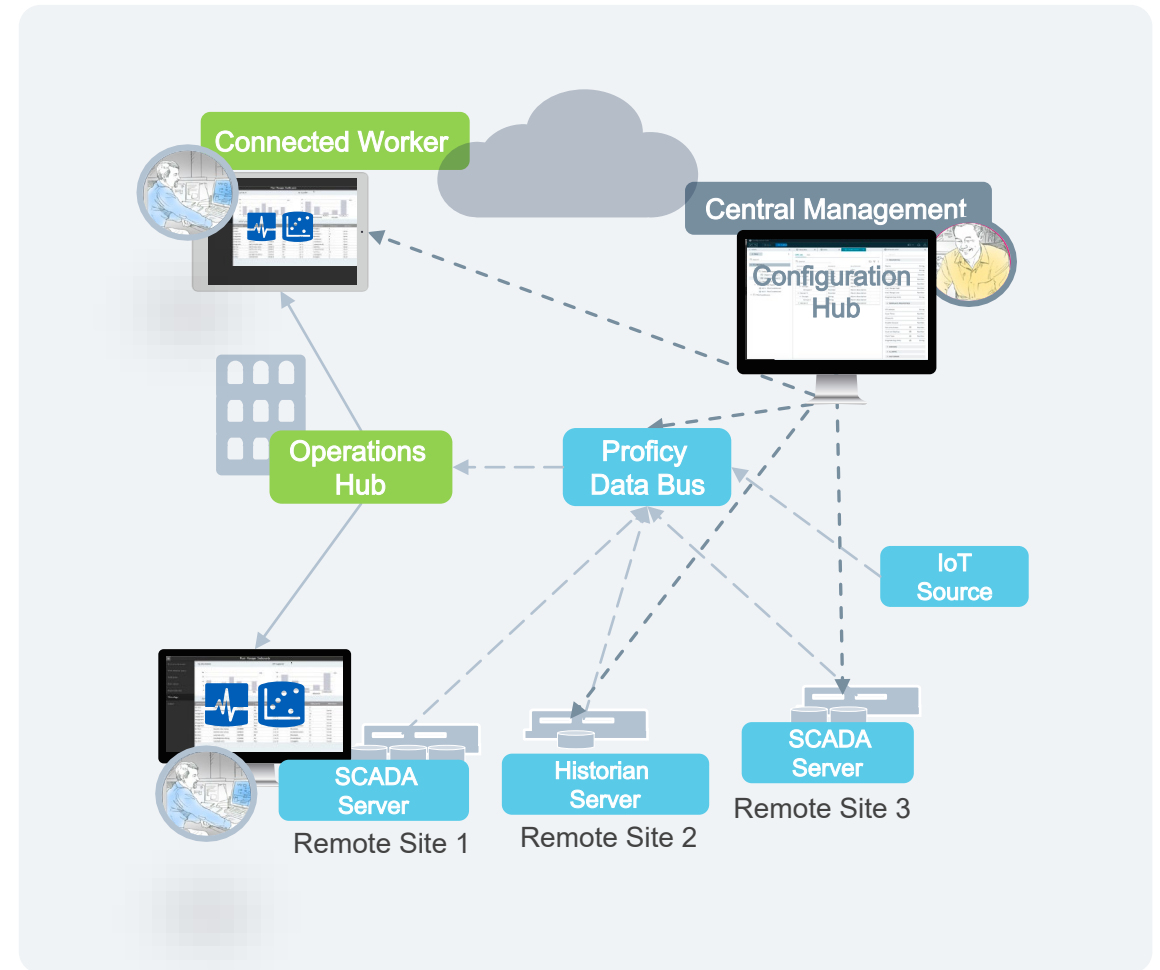
**The most secure, most scalable, enterprise SCADA system in the world!**

# Strategy

## Secure & Scale Automation for the Enterprise



Create best in class HMI/SCADA for the Enterprise by providing turnkey solutions for **Central Management** & **Connected Worker** that enable customers to realize change management with security, scale & speed, intelligently support and connect personnel & provide **modularity in deployment** (on-prem, cloud, hybrid) to reduce cost.





# Our Automation Roadmap: Our Investment Strategy

Reduce Time  
to Solution

High Scale SCADA

Reduce build & infrastructure cost:

- leverage a data model
- improved interoperability
- server scalability

Reduce time  
to Build

RAD + Proficy  
Operations Hub

Increasing efficiencies via mobile workforce, analytics, reporting & continuous improvements with a RAD\* platform

Increase  
Productivity

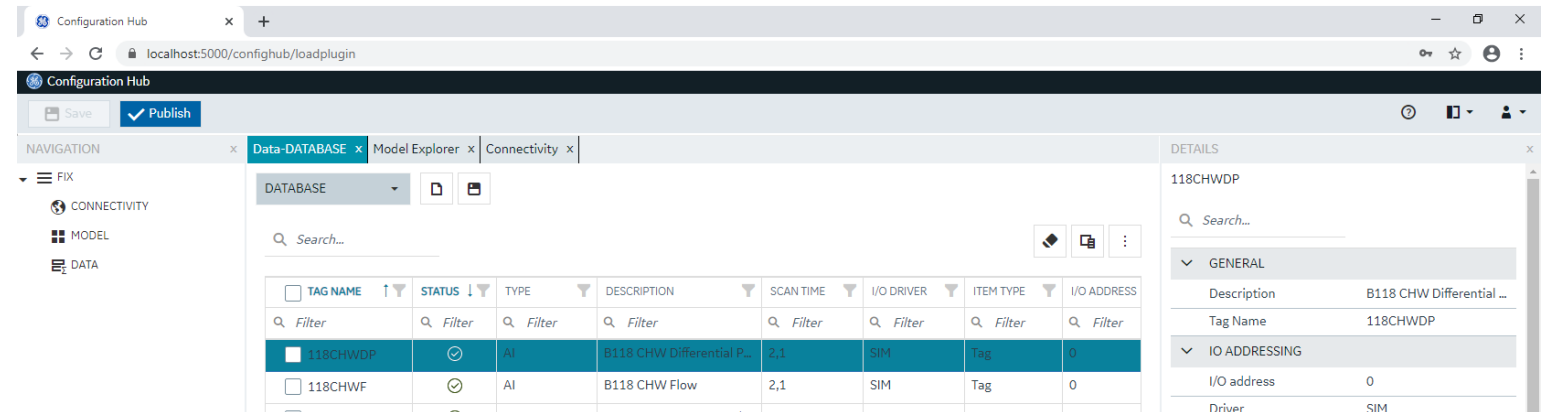
Central Management

Increase productivity at scale of managing multi-server, multi-plant deployments & product changes.

Empower  
the Connected Worker

Central & Remote  
Operations

Leverage skilled staff optimally & optimize through analytics. On ramp to analytics



\* RAD: Rapid Application Development

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# Continued Innovation— What's New



**Gimmi Filice**  
*Senior Manager,  
Automation Software*  
GE Digital



**Doug Stewart**  
*Senior Software Architect*  
GE Digital

## ① Reduce Time To Solution

- #1 ask from customers: Python scripting, improving extensibility and ease of use for new SIs
- Enable analytics through SCADA data & Python libraries (e.g. Pandas)
- Leverage larger development community with Python Scripting

## ② Reduce Total Cost of Ownership (TCO)

- Reduced hardware costs through cloud infrastructure (Azure VM, AWS VM and hybrid cloud) & improved single server scale
- Centralize operations and facilitate remote access using cloud infrastructure

“Python allows me to reduce complexity and have much shorter and more maintainable scripts”

## ③ Empower the Connected Worker

- Improved alarm visualization for earlier detection and resolution:
  - Early detection of problem areas in the plant through alarm counters by areas, devices, etc.
  - Faster resolutions of abnormal situations through collaboration via a real-time comment feed

# Reduce Time to Solution

## Python Scripting



### What is Python?

- High-level, general purpose programming language
- Used for analytics, mobile apps, web development, machine learning, block chain, Data science and visualization, communications and much more

### Why are we adding Python to CIMPLICITY event manager?

- Customers asked for it most requested enhancement in the GE Idea Portal
- Customer and integrator feedback new hires don't know basic. Universities teach python as a first language. "I could accomplish the same tasks in many other languages, but I find Python to be the easiest"
- Rich set of available libraries and tools – provides integrators and system developers **extensibility** to solve many complex problems and interface to many IT and OT systems
- Large community of developers – Sample code, Open-Source libraries, data sciences
- Tool of choice for analyzing large data sets by Data Scientists

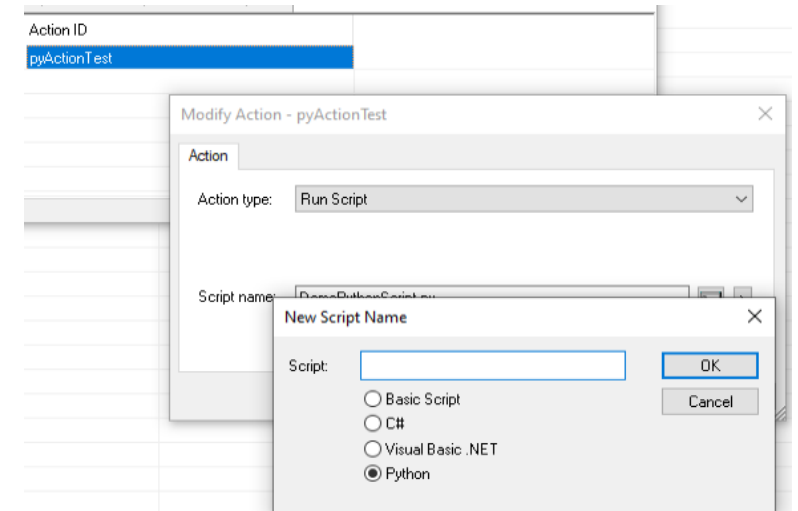
# CIMPLICITY and Python

## CIMPLICITY Integration

- Faster script development IntelliSense editor
- Access to CIMPLICITY APIs: Server Object for points, alarm generation and much more
- Can be tied to the Model (Classes/Objects)
- Default event handlers for common configurations
- Includes common Python libraries (communications, analytics, and more)

## Use Cases

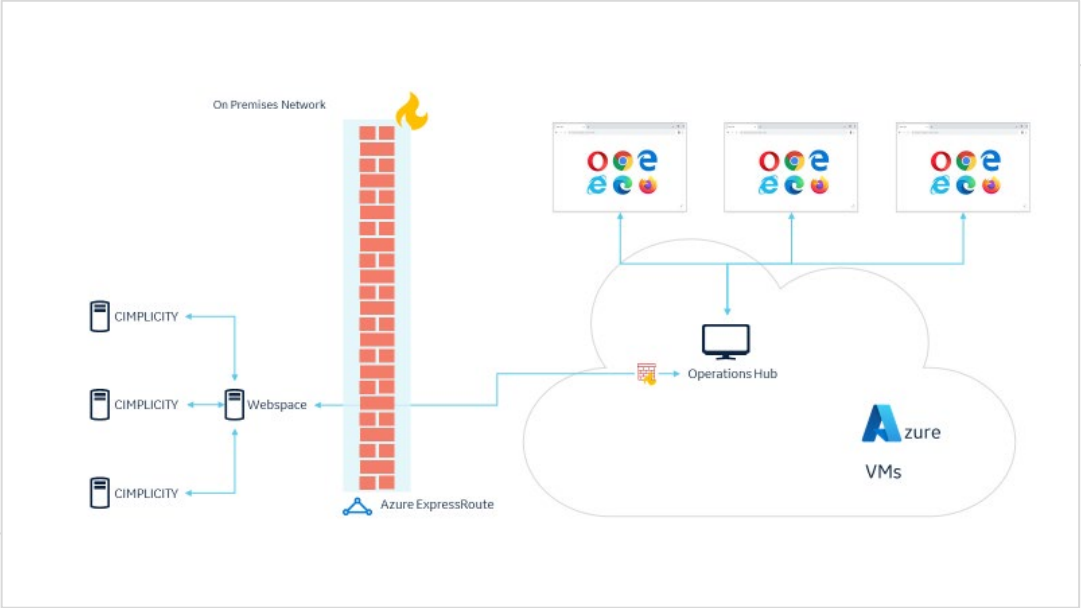
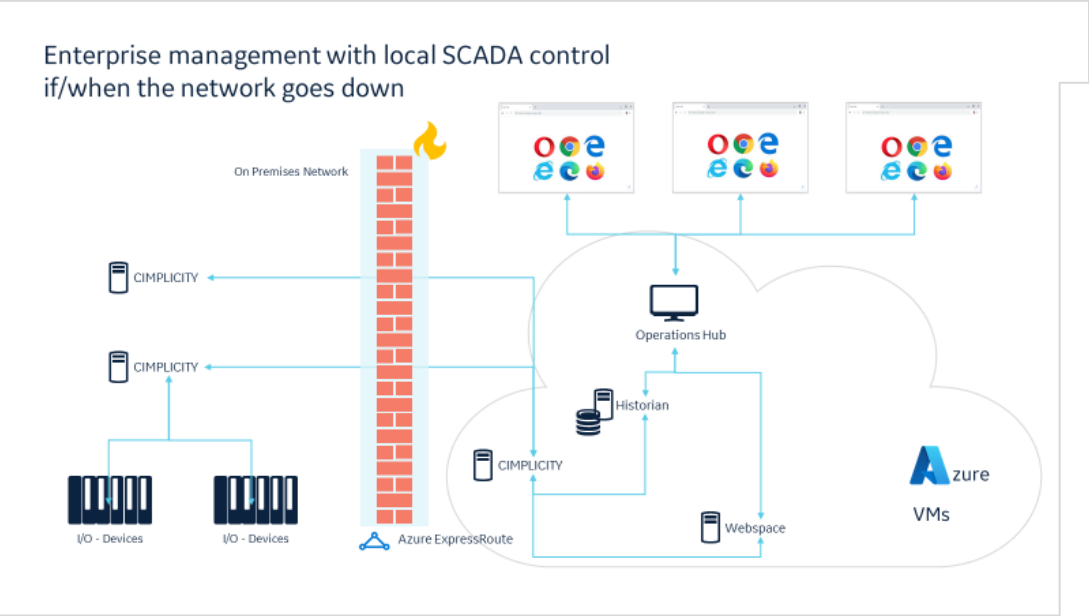
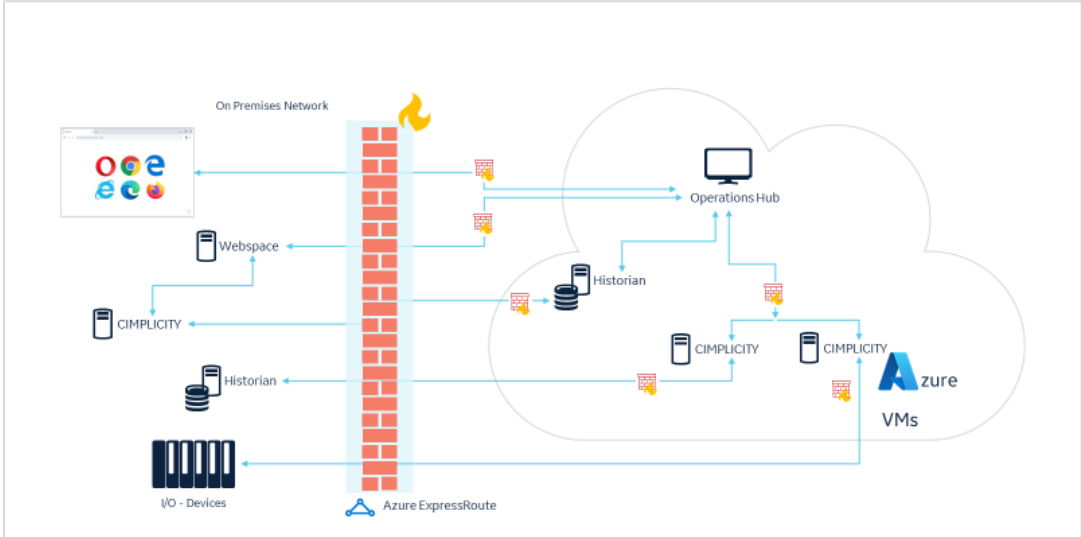
- Analytics within SCADA
- Custom Alarm handling
- Exposing CIMPLICITY data via MQTT
- Interfacing with IT Data sources (CMMS, relational databases, MES)
- Interfacing with non-PLC equipment—bar code readers
- Data manipulation—complex calculations



# Reduce IT system and maintenance costs

## Cloud Infrastructure

Infrastructure as a Service (IaaS)  
Flexible hybrid architecture



# CIMPLICITY Performance and Scale

## Performance Benchmarking

- Tested against **1MM** points on a single server
- System designed to limit resource utilization unless necessary
- Viewers only receive updates if the data has changed hundreds of clients per server
- Small systems to large (>500K) point count applications

# of tags	1,000	5,000	30,000	50,000	100,000	500,000	1,000,000
Project startup time	12 sec	14 sec	22 sec	26 sec	51 sec	2 min 30 sec	3 min 37 sec
Project stopping time	14 sec	15 sec	17 sec	19 sec	22 sec	38 sec	64 sec
RAM usage of running projects (% of 8 Gb)	2%	3%	4%	5%	9%	27%	33%
CPU usage of running project (%)	~0%	0% - 1%	10% - 20%	12% - 20%	25% - 38%	24% - 55%	24% - 36%



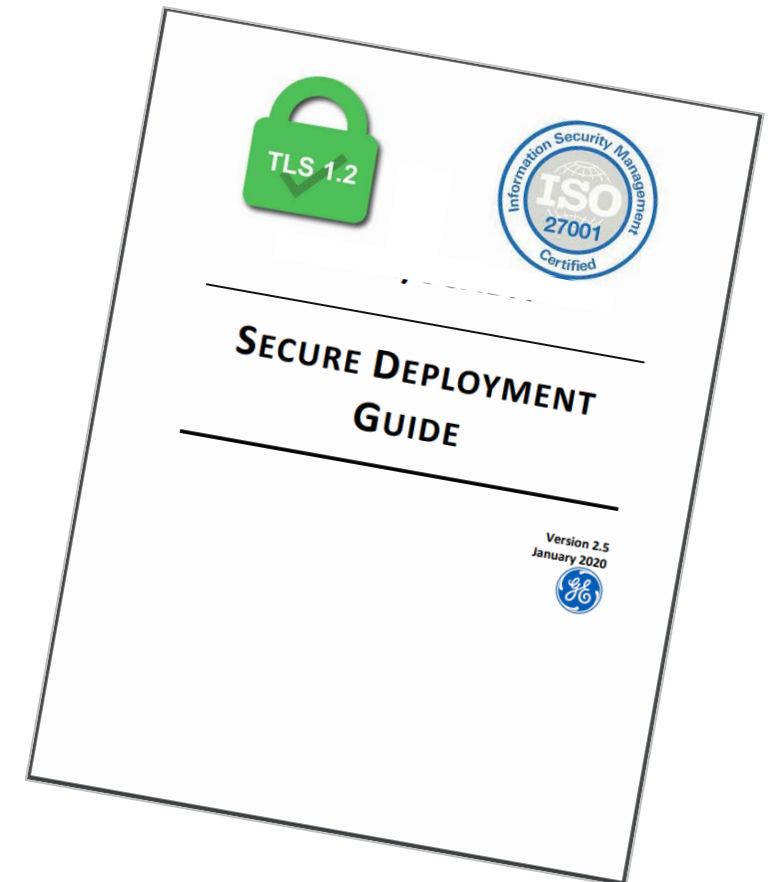
# Secure By Design... Its Intentional!

## Comprehensive Standards and Practices

- Defense in depth study to identify and close risks
- Certificate Management for secure OPC UA Connectivity
- Secure Deployment Guide available
- Supports Transport Layer Security TLS 1.2
- ISO / IEC 27001 (information Security Management), IEC 62443

*Note: Additionally.....an independent internal team validates security vulnerabilities of each release.*

**Who Benefits:** any CIMPLICITY or Historian customer!



# Embrace and Extend Your Investment

## Thick Client

- Dedicated applications
- Small deployments
- Performance

## Terminal Services

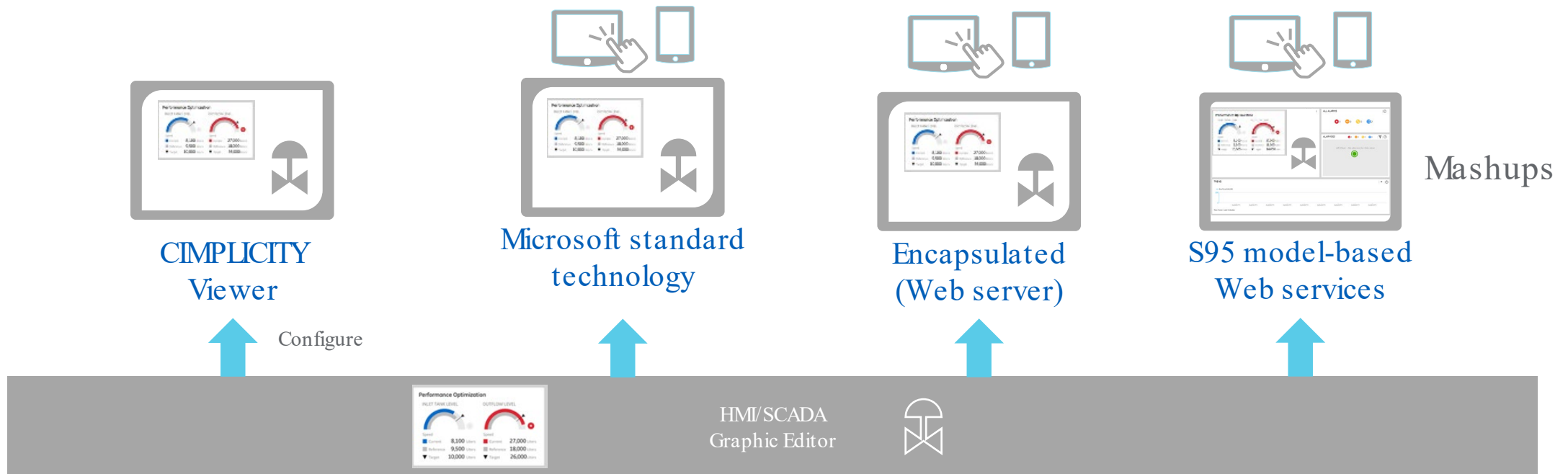
- Dedicated or thin
- Good for larger deployments
- Multi-OS RDP Clients

## Webspace

- Dedicated or casual users
- (Browser + iOS & ANDROID App)

## Operations Hub (IoT)

- (HTML5 Web App)
- Complementary use, Dashboards, Remote operations
- Multi-OS browser based



# Make more informed decisions

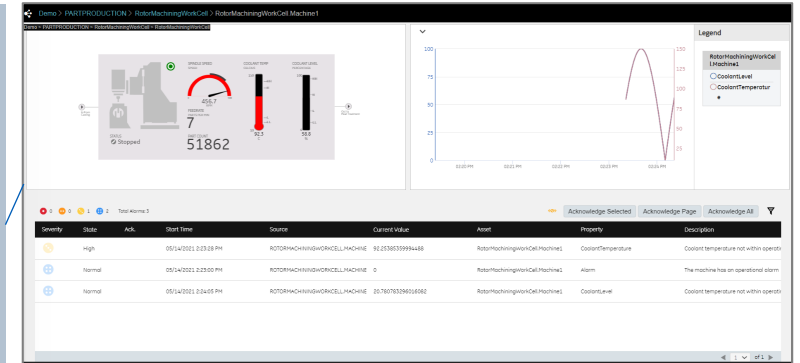
## Proficiency Operations Hub 2022

### Poll Question #2

## Core Capabilities for Rapid Application Development (RAD)

- Use cloud infrastructure (Azure & AWS VM)
- Expanded Widget Library for dashboards outside control network and analysis
- 3<sup>rd</sup> party systems integration- OPC UA write support

- Gauge
- Timeline Chart
- Indicator
- Grid
- Pareto Chart
- Value
- Sparkline
- iFrame
- Drop Down
- Multi timeline
- Spider
- Variwide
- Bullet
- Time display



### Historical Analysis

- Enable preconfigured plant analysis displays
- Improved retrieval mode, time settings and y-axis configurator

### HMI Dashboards

- Native HMI builder integration - Mimic widget, Alarm widget
- Improve operator experience for Life Sciences customers – **new customizable Proficiency Batch App** for operators



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# Historian



**Tom Jensen**  
*Senior Solution Architect*  
AutomaTech

# Proficiency Historian For CIMPLICITY

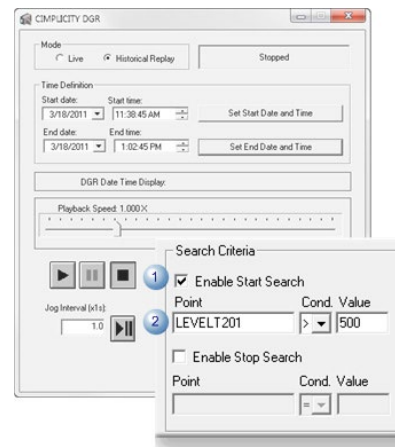
## Poll Question #3

- Historical Data is a basis for Analytics and Digital Transformation
- High Efficiency Data Storage reduces infrastructure and maintenance costs
- Flexible architecture adapts to local SCADA historian and enterprise needs
- Get to value quickly through integrated configuration from CIMPLICITY
- Alarm & Event Data Combined with Time Series Data
- Rich analysis tools with Operations Hub
- Visualization in CIMPLICITY or Operations Hub

# Scalable Historian for CIMPLICITY Customers

## Proficy Historian 2022

- Integrated configuration for logging
- Configurable tag level security to limit access to critical or proprietary information
- Can leverage with Python for analytics
- Does not require dedicated maintenance compared to relational databases
- Enables reporting – e.g. Ops Hub dashboards, advanced trending
- Can log to both
- DGR – Records and plays back data
- Keep local records and distribute to remote



# Scalable Historian for CIMPLICITY 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 performance 150K/s )
- New Python based Calculation Collector
- Asset Model Service enables creation of model context associated with Historian data





# Proficiency Historian 2022

## Enhancing Large Scale Deployment Performance and Management

### ① Enhanced System Management and Connectivity

- Best in class management of enterprise scale systems (up to 100MM tags) and widely distributed applications with 1000's of data sources.
- Modernized, Portfolio -wide HTML5 based Administrator
- Proficiency Authentication Option for Historian Local Security

### ② Enhance Value Extraction from Data

- **Asset Model Service enables creation of model context associated with Historian data**
  - Data exposed in context via OPC-UA and REST
- New Python based Calculation Collector
- 10x OLEDB performance increase and improved BI connectivity
- Delta query mode

### ③ Performance Enhancements Supporting Large Scale Deployments

- Significant improvement in Collector throughput
- Multithreaded Calculation Collector
- Encryption over the wire



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# High Availability for SCADA

When zero-downtime is the norm



**Tom Jensen**  
*Senior Solution Architect*  
AutomaTech



**Steve Szamocki**  
*VP & General Manager*  
AutomaTech

# Only ftServer prevents downtime

Best



Better



Good



The Norm



	ftServer	Standalone Server	HA Clustering	Virtualization
	Delivers continuous availability out-of-the-box	Not designed for HA	Management complexity adds risk and expense	Not optimized for availability
	No custom software or special training	Single points of failure cause downtime and data loss	Failover scripts must be executed	Cannot vMotion from a failed server
	True failure prevention	1-4 hour service response to fix	Recovery from failure – not failure prevention	Recovery from failure – not failure prevention

# Use ftServer to improve application availability

## INDUSTRIES



Oil & Gas



Food & Bev



Water Wastewater



Transportation



Retail



Financial Services

## SOLUTIONS



SCADA



MES



APM




SCM




From the data center to the edge



# Solutions can be deployed in multiple industrial zones

Enterprise security zone	Level 5	Enterprise network	Archives, file servers		Data center
	Level 4	Site business planning and logistics network	ERP, finance, messaging		Data center

## Industrial demilitarized zone

Manufacturing security zone	Level 3	Site operations	Multi-line SCADA, historian, engineering workstation			Local data center, control room
						Control room, plant floor, production line
	Level 2	Area supervisor control	Single line SCADA, operator interface		Production line	
					Production line	
Cell / Area zone	Level 1	Basic control	Batch, discrete, drive, process, and safety control			Production line
	Level 0	Process	Sensors, drives, actuators, robots			Production line

# Trust Stratus

## Around the globe



**\$8.6T**  
transactions

4 of the 5 largest global credit card networks use Stratus solutions

**FORTUNE**  
**100**

Half of the Global Fortune 100 are current Stratus customers



**\$843B**  
revenues

Half of the world's 10 largest retailers are Stratus customers



**200M**  
tons

5 of the world's 10 largest beverage companies use Stratus solutions

## And at the edge



**Treat**  
**197 billion**  
**gallons**  
of water annually



**Transport**  
**1.5 billion**  
**passengers**  
by air annually



**Serve**  
**45 million**  
**passengers**  
by rail daily

## Today and tomorrow



**40**  
years in  
business



**18**  
years average  
availability  
experience

ANY  
QUESTIONS  
?



# Key Takeaways: Support & Historian Promotion

## Support for CIMPLICITY:

- Training, Tech Support, Migration Consultation, High Availability, Interfacing to other Systems, Architectural Design, etc.

Call AutomaTech: **(508) 830-0088**

Email AutomaTech:

[cimplicitysupport@automatech.com](mailto:cimplicitysupport@automatech.com)

## Exclusive Offer:

- Exclusive Discounts on New Historian Systems
- Discounted Tags to add to Existing Systems
- Easy Entry to Operations Hub

Complete the form here:

<https://automatech.com/cimplicity-historian>

or contact:

[cimplicitysupport@automatech.com](mailto:cimplicitysupport@automatech.com)

# Upcoming Events

- Ops Hub & Historian 2/17/22
- Plants Apps: 3/17/22
- Cyber Security– March
- Think Big– May / Jun

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# Wine Tasting



**Rachel DeAmbrose**  
*Certified Sommelier*

