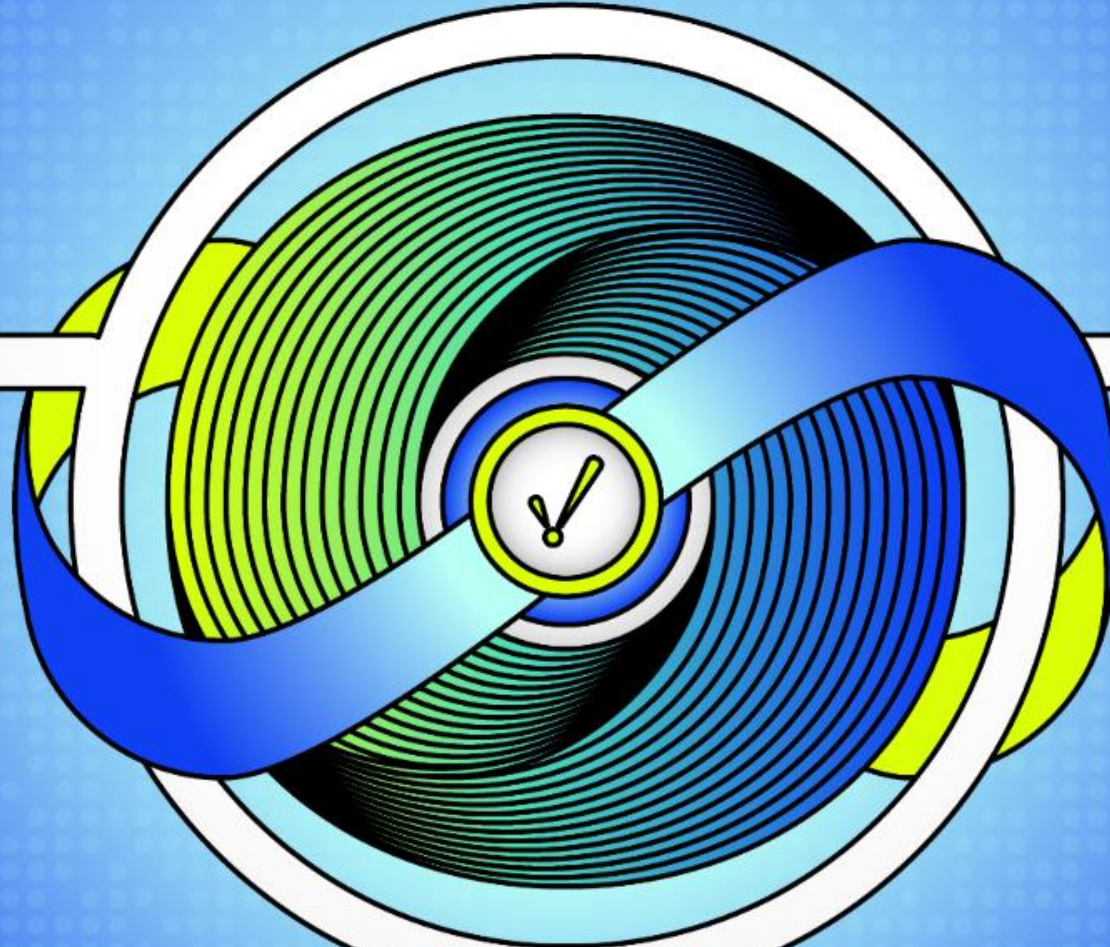
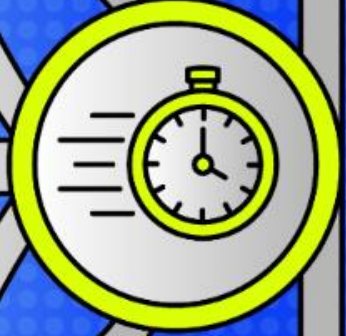


Empower Innovation With Unlimited Licensing



Moderator



Reese Tyson

Sales Engineer III
Inductive Automation

Guest Presenters



Jan Madsen

Founder
Enuda AB



Greg Schneider

Senior Engineer and
Project Manager
*Multi-Dimensional
Integration*



Brandon Lockee

SCADA Department
Manager
CITI Inc.

Ignition!

by inductive automation

**The Unlimited Platform for
SCADA and So Much More**

- **Connect, Design, Deploy Without Limits:**
 - One central hub for everything on the plant floor
 - Create any kind of industrial application
 - Web-deploy clients to desktops, industrial displays & mobile devices
- **Unlimited licensing**
- **Industrial-strength security and stability**
- **Trusted by thousands of companies worldwide**

Agenda

- The Importance of Unlimited Licensing
- Conventional Licensing Pain Points
- Novafos Water/Wastewater Project by Enuda AB
- JLG Industries Project by MDI
- The Unlimited Effect by CITI Inc.
- Group Discussion
- Audience Q&A

The Importance of Unlimited Licensing

History

- Ignition's unlimited licensing model was created in response to the pain points of conventional licensing.
- This new licensing model is one of the pillars Inductive Automation is founded on.

The Importance of Unlimited Licensing

What Is Unlimited Licensing?

- Server-based
- No restrictions on the number of tags, clients, devices, designers, reports, and more.
- One affordable price to connect your whole facility

The Importance of Unlimited Licensing

Why Unlimited Licensing Is Important

- Supports innovation
- Makes projects affordable
- Speeds up projects
- Enables easy scalability

Pain Point #1: High Cost

Conventional Licensing

Expensive

- Additional charges when you exceed limits on tags, clients, screens, and more
- Prohibitive costs
- Uses up most of a project's budget

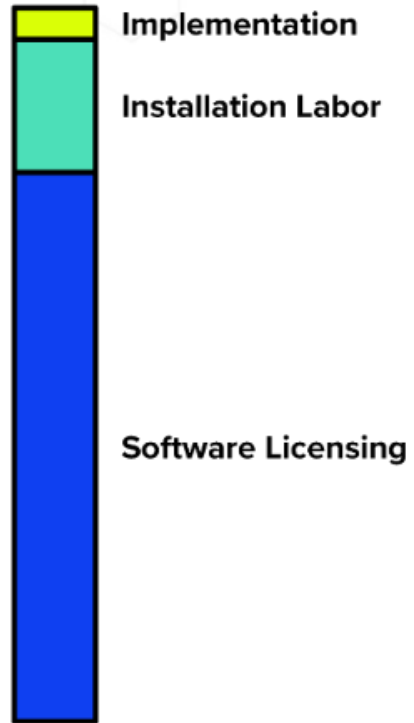
Ignition's Unlimited Licensing

Affordable

- Unlimited tags, clients, screens, and more for a single price
- A fraction of the cost of conventional licensing
- Uses only a small portion of a project's budget

Pain Point #1: High Cost

Integrator Budget Allocation



Budget Allocation Using
Traditional SCADA Software



Budget Allocation
Using Ignition

Pain Point #1: High Cost

Example Competitor Pricing

Item	Quantity	Price	Notes
Development License	1	\$8,970	60k Tag Developer
Redundant Nodes	2	\$13,740	60k Tag
Runtime clients	10	\$21,050	Installed at each station
Remote Control Nodes	5	\$26,975	60k Tag
Historian	1	\$6,500	5000 Tag Historian
Custom Trends	15	\$18,225	Adds trends and tables
Custom Reports	15	\$1,750	Adds reports
Annual Support Contract	1	\$16,526	17%, Includes free upgrades
	Total	\$113,736	

Ignition Price

\$20k one time cost

\$4k per year support

~5x less

Pain Point #2: Time & Labor Intensive

Conventional Licensing

Time & Labor Intensive

- Waste time and effort on installations and activating new licenses

Ignition's Unlimited Licensing

Fast & Easy

- Easily add new tags, devices, clients, and more
- Save valuable time not needing to add new licenses

Pain Point #3: Hard to Scale

Conventional Licensing

Systems Are Hard to Scale

- Difficult or impossible to add sensors or devices after the fact

Ignition's Unlimited Licensing

Systems Are Future-Proofed

- Expand systems without constraint
- Easily add additional sensors or devices when an organization grows

Pain Point #4: Hinders Innovation

Conventional Licensing

Hinders Innovation

- Difficult to deliver many customer requests
- Often unable to incorporate great ideas due to budgetary constraints

Ignition's Unlimited Licensing

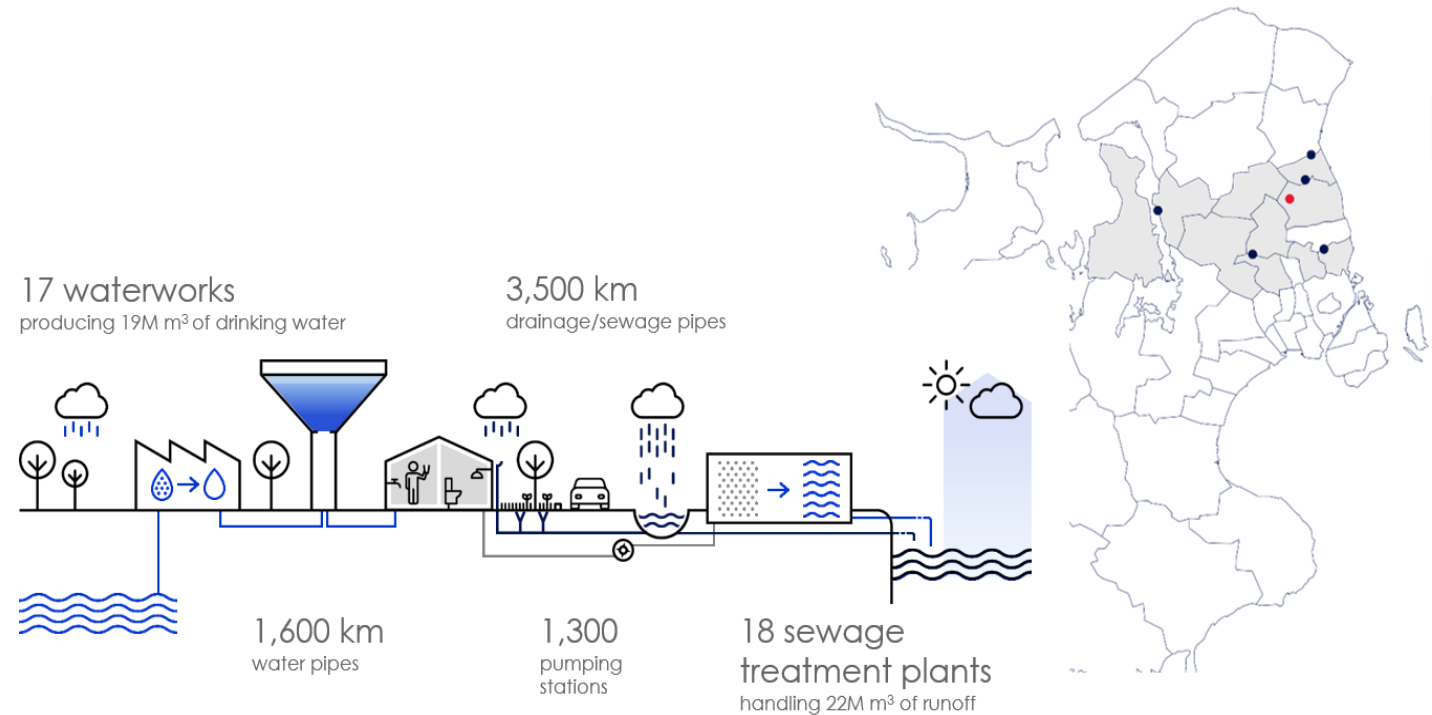
Empowers Innovation

- Say “yes” to nearly anything a customer asks for
- No need to justify the ROI for your innovative ideas

Novafos Water/Wastewater Project

Overview

- Novafos A/S is a water and wastewater company in Denmark.
- 18 treatment plants, 17 waterworks, and 1,300 pumping stations.
- Handles wastewater for 430,000 citizens and supplies drinking water to 300,000 consumers.
- Enuda started working with Novafos in 2019.
- Novafos is currently rolling out the solution to all facilities.



Novafos Water/Wastewater Project

Problem

- Different SCADA systems: iFIX (GE) and IGSS (Schneider Electric)
- Several different versions
- Running on different servers
- No common approach to usage and programming of PLCs
- No unified way of naming and identifying plants, buildings, components, signal etc.
- High maintenance costs

Novafos Water/Wastewater Project

Business Needs

- Scalable architecture
- Procedures for cybersecurity
- Transparent design principles
- Comprehensive documentation
- Simpler maintenance with significantly reduced costs
- Consistent and practical roll-out

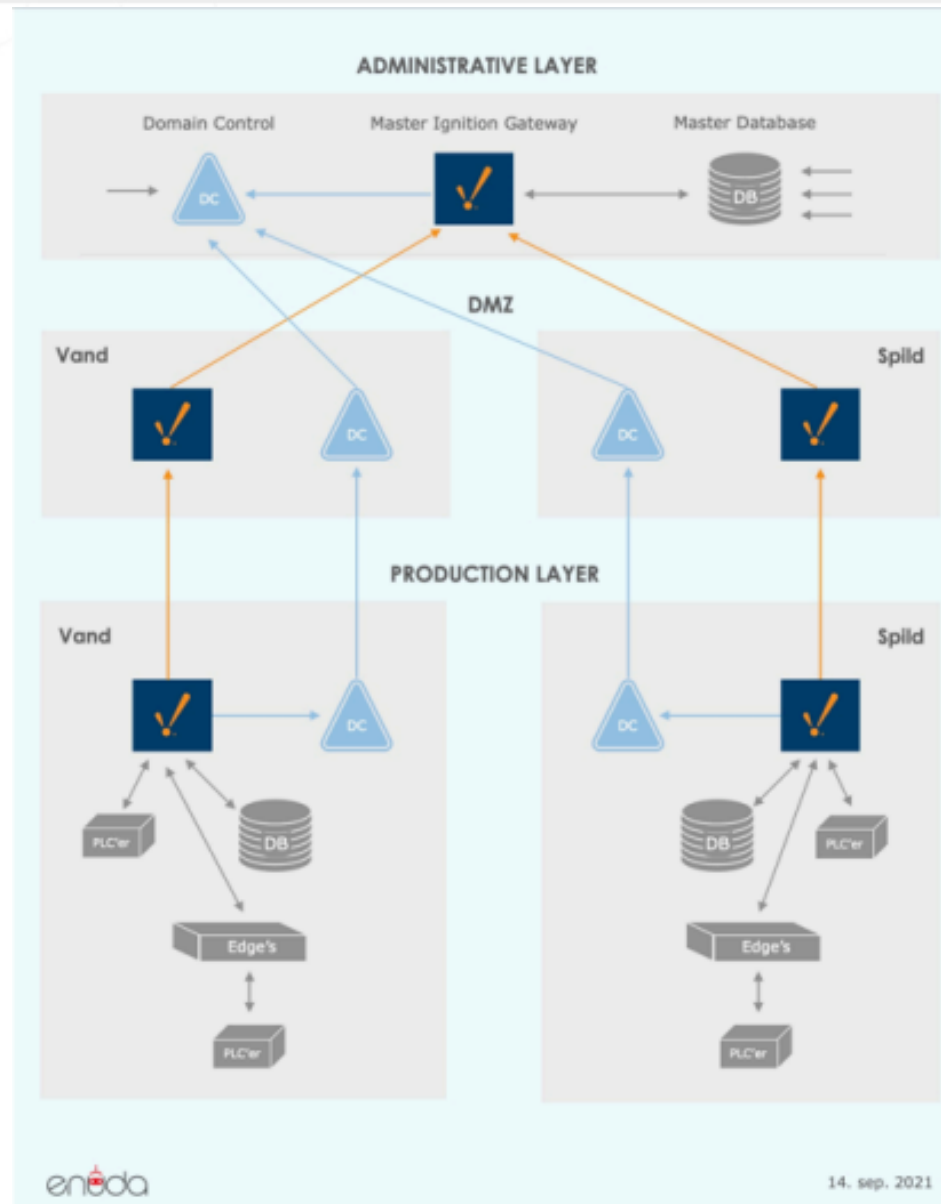
Novafos Water/Wastewater Project

Solution

One SCADA system based on Ignition, scalable throughout all of Novafos' facilities.

- Alarm management
- Control of mechanical and electrical components - manual and automated
- Trends for decision-making
- Intuitive high-performance HMIs with uniform design
- Export data to central data warehouse for standard reporting as well as ad hoc analysis

Novafos Water/Wastewater Project

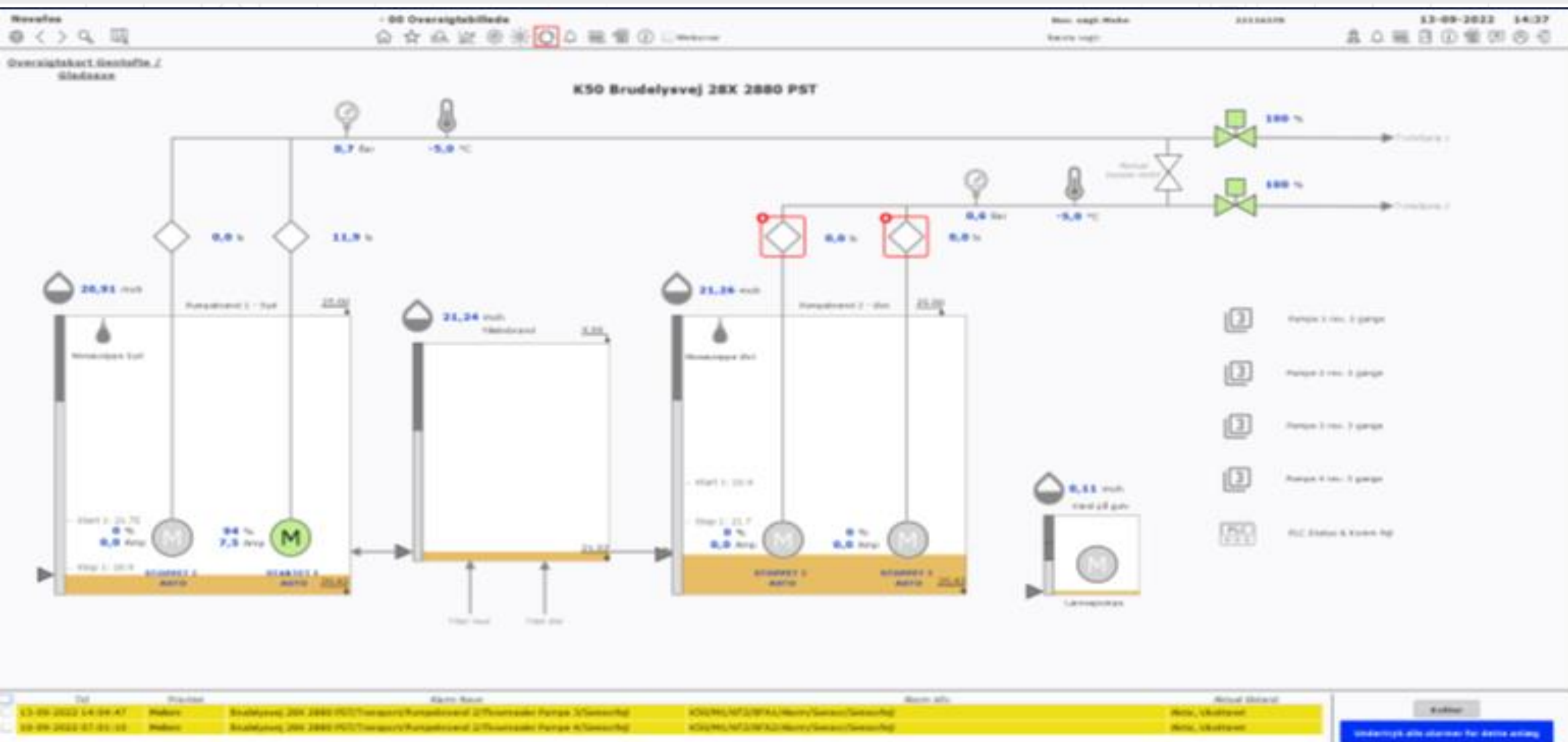


Novafos Water/Wastewater Project

Results

- The staff remains informed at all times because they get notified about (abnormal) situations that may require intervention
- Efficient and effective remote controlling
- Effective short- and long-term decision-making based on relevant, unified data.
- Better compliance with regulations thanks to available data
- Reduced costs

Novafos Water/Wastewater Project



Novafos Water/Wastewater Project

How Ignition's Unlimited Licensing Enables Success

Our point of view: Clients only care about solving business and operational problems, not SCADA and MES.

Our mantra: Start small and be use-case driven. Always have something to show.

How Ignition ties those together: Thanks to the licensing model, clients don't fear that the solution may result in sky-high license costs, no matter how much it increases in complexity along the way.

They already have unlimited tags, devices, and database connections. If they need more functionality at some point, they just add new modules, but it's still much more affordable than other platforms.

Multi-Dimensional Integration

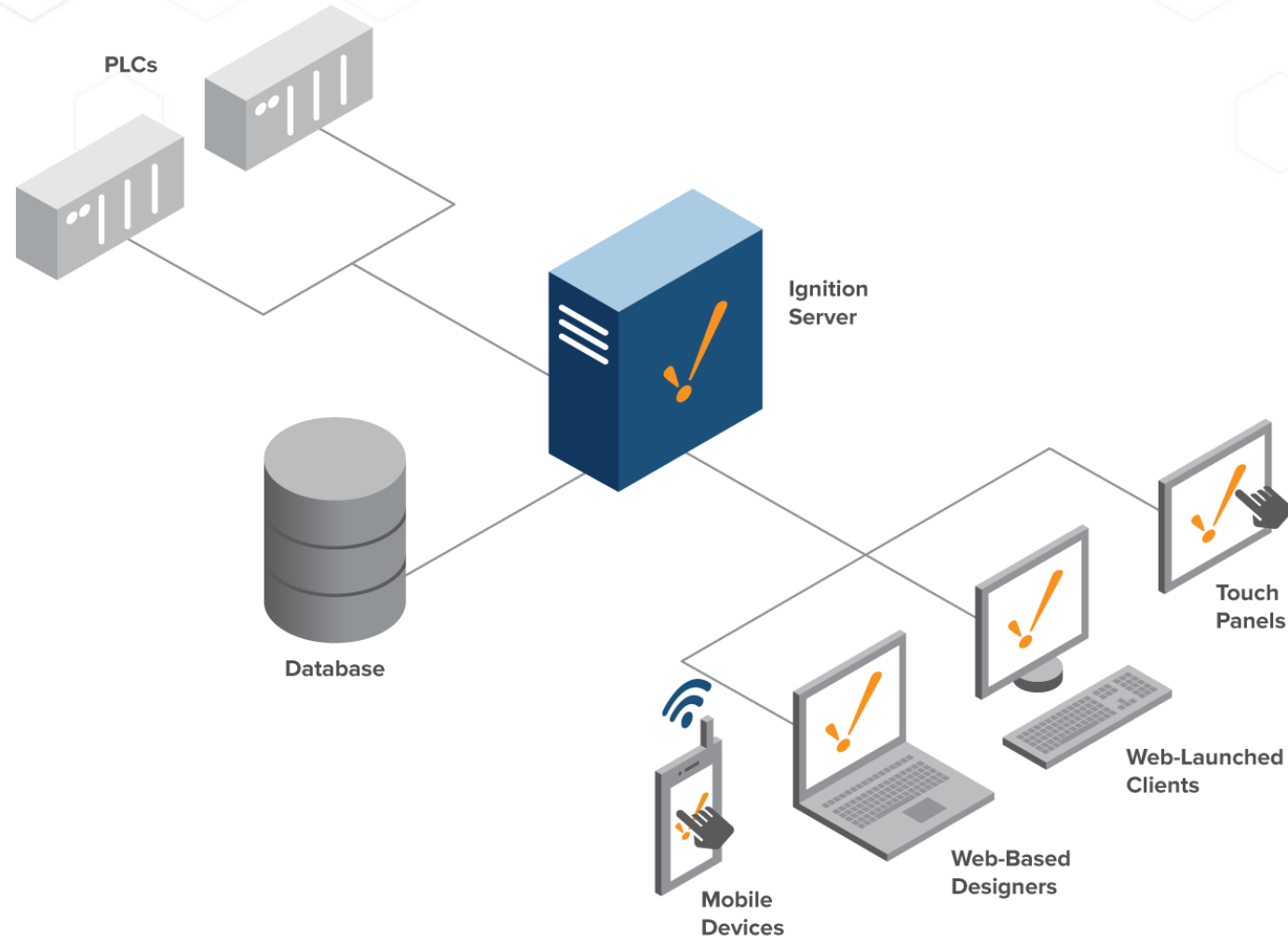
Problem

- The Maintenance Department of JLG Industries was bogged down with countless hours of downtime with no real way to speed up the process
- MDI recommended the Ignition platform because it provided the ability to:
 - Gain visibility across multiple PLC platforms
 - Allowed for plant-wide visibility in a central location
 - No limits on the number of devices, tags, screens, etc. so that the customer could add processes into SCADA at their own pace



Multi-Dimensional Integration

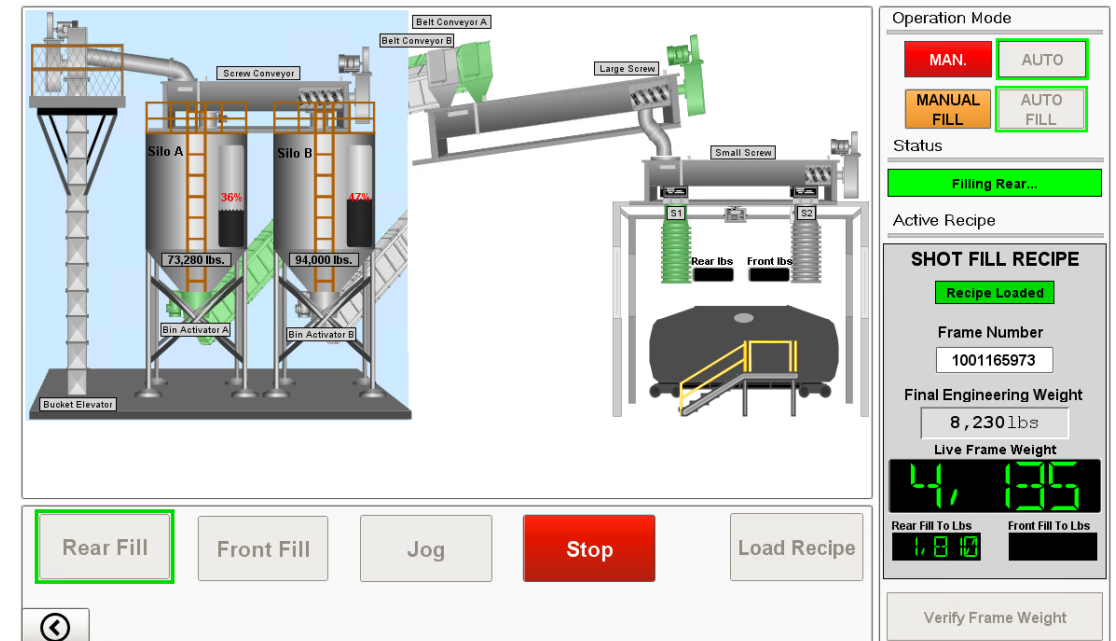
Architecture



Multi-Dimensional Integration

Shot Fill Area

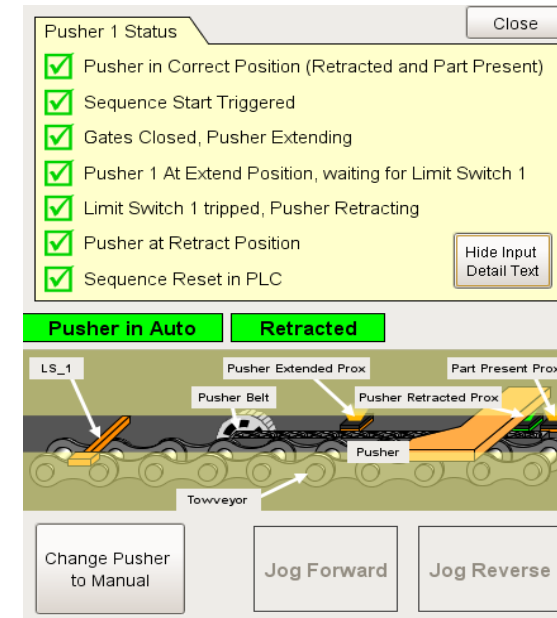
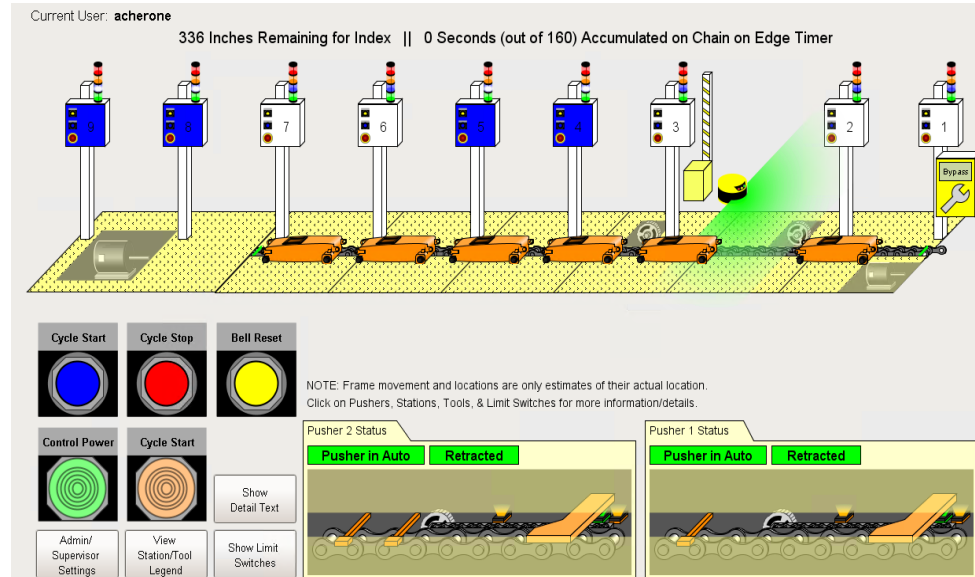
- Original process involved writing the frame weight on the part with sharpie and dumping material in until it looked full
- New solution involved weighing the frame in fabrication via a new digital run schedule that would later be used with a Recipe Management system at the fill area
- Operators now scan the barcode of the specific part and the machine automatically fills it to the correct weight based on current weight and the recipe of that part



Multi-Dimensional Integration

Final Assembly

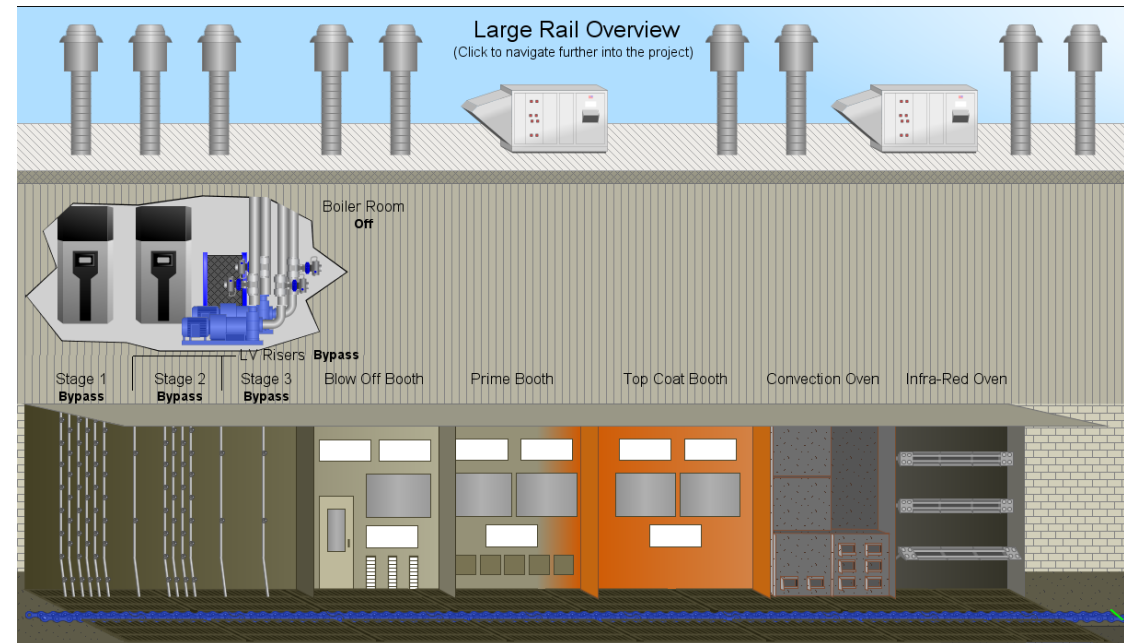
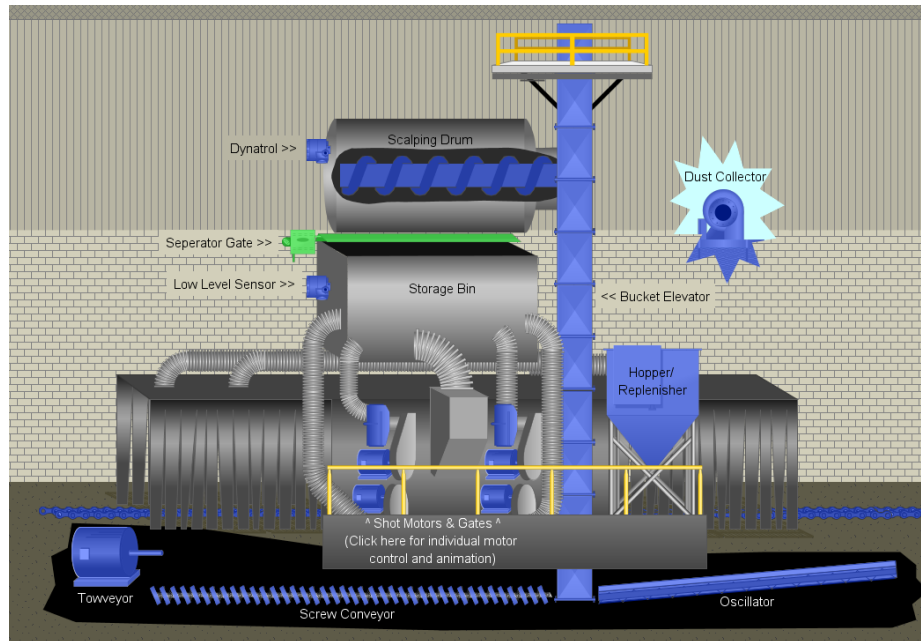
- OEM Equipment in this area came with no HMI or visual indicators of any kind which caused countless hours of downtime when the process went out of sequence
- MDI added full visibility to all inputs and outputs as well as a tracking system to determine where faults occurred in the process
- Maintenance went from multiple calls a week to one call a week, then one call a month, now down to virtually no calls a year



Multi-Dimensional Integration

Paint Line

- The original system was made up of multiple, disconnected control panels with no visualization
- MDI retrofit and connected all control panels to make a unified system with a central control system
- Customer found tremendous value in making screens as realistic as possible to minimize the time it took to train new technicians



Multi-Dimensional Integration

Paint Line (continued)

Towveyor Auto Run Permissives

Washer Permissives

Stage 1 Pit Level OK
Stage 1 Pit High Float OK
Stage 1 Pit Autofill Not Active
Stage 1 Pit Drain Not Active
Stage 1 Tank Level OK
Stage 1 Tank Fill Not Active
Stage 1 Tank Drain Active
Stage 2 Pit Level OK
Stage 2 Pit High Float OK
Stage 2 Pit Autofill Not Active
Stage 2 Pit Drain Not Active
Stage 1 Return Pump not Faulted
Stage 1 Wash Pump not Faulted
Stage 2 Spray Pump not Faulted

Towveyor Permissives

Towveyor E-Stop Safety Relay OK
No Towveyor E-Stops Present
OverTravel LS OK
Autofill Safety Relay NOT OK
Autofill is Present
TGD Four Present
Towveyor Disconnect is Closed
Towveyor Switch is Run Position
Stage 1 Chemical Pump Running
Stage 2 Chemical Pump Running

Towveyor Start Delay: 1 sec

Auto Stop: 0 min

Washer Off Delay: 0 min

Cooldown Temp: 135 °F

Towveyor is Not Running

Device Statuses

All Boiler Devices are in Auto Mode
All Stage 1 Devices are in Auto Mode
All Stage 2 Devices are in Auto Mode
All Other Washer Devices are in Auto Mode
Stage 1 Chemical Pump 1 Communicating
Stage 2 Chemical Pump 2 Communicating
Stage 3 Chemical Pump 3 Communicating

Other Safeties

No Master E-Stop Present
Boiler E-Stop Safety Relay OK
No Boiler E-Stops Present

General Area Statuses

Boilers Enabled
Load Boiler Return Pump Running
Boiler Temp at 178.0 °F
SC-200's not Enabled
SC-200's not Enabled

Auto Start

Descalate Start: 130 °F

Descalate Autofill Time: 0 sec

Descalate Stage 1 Pit Autofill Setpoint: 0 in

Descalate Return Pump Speed: 100 %

Descalate Stop: 100 %

Descalate Off Delay Time: 5 sec

Overview

Initiate Auto Start

Initiate Auto Stop

Start Stage 1 Descalate

Stage 1 Descalate Stopped

Pause Auto Sequence

Towveyor Auto Run Started

Towveyor Auto Run Stop

Bypass Towveyor

Bypass Washer

Auto Start Complete

1 Boiler Return Pump Running

2 Wash System Enabled

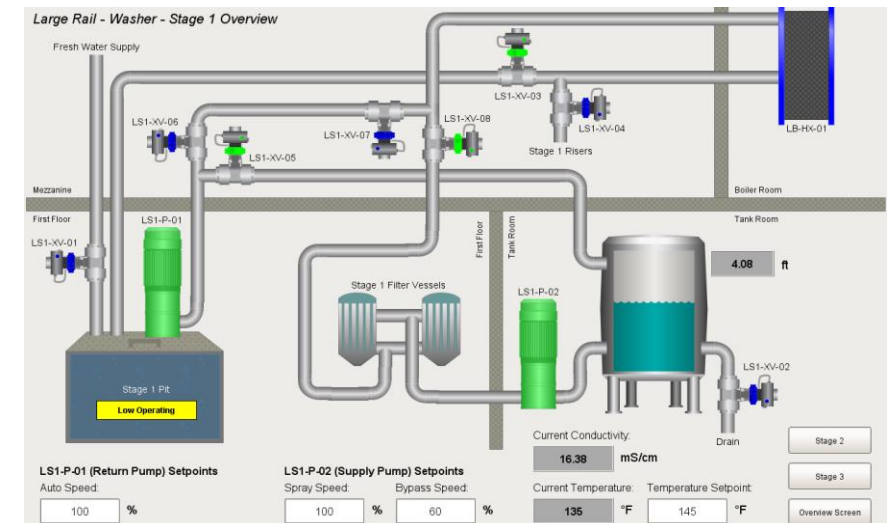
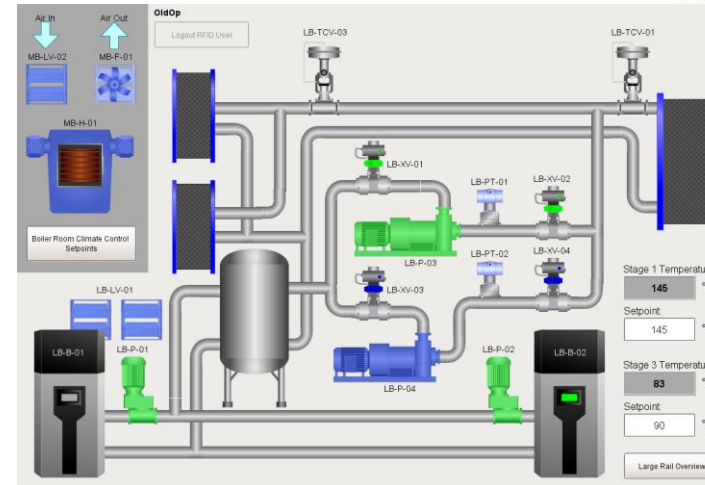
3 Towveyor Not OK to Auto Run

Boiler Water being Cycled

Boiler Run Feedback Received or Temperature Reached

Washer Permissives OK

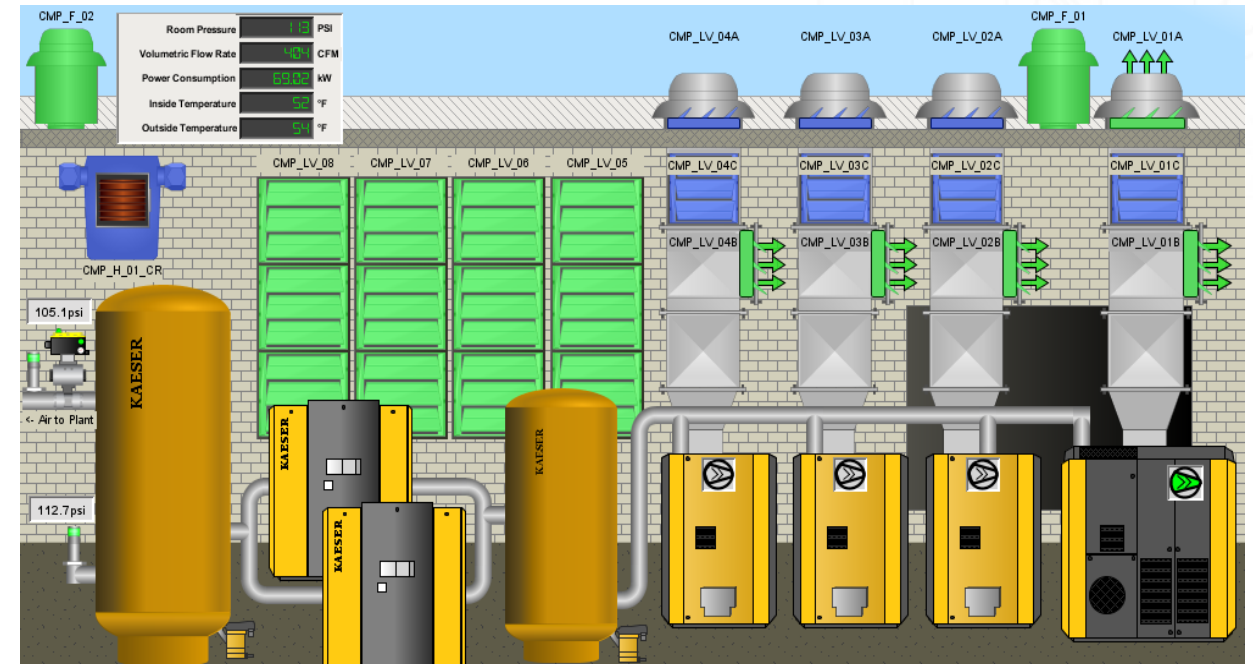
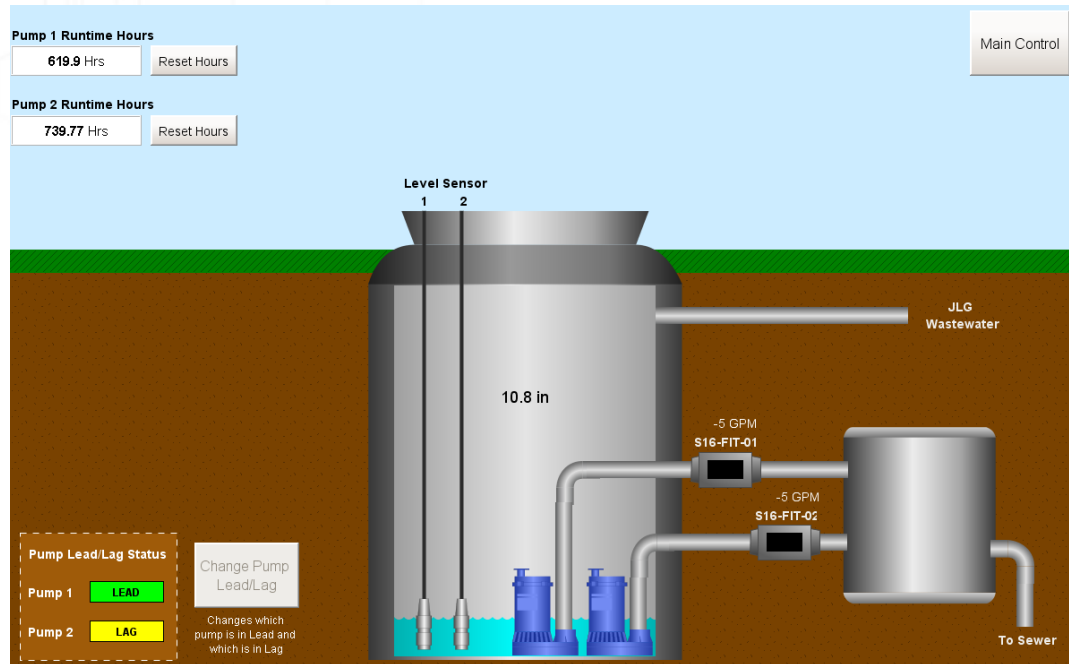
Towveyor Auto Run Permissives NOT OK



Multi-Dimensional Integration

Facility Utilities

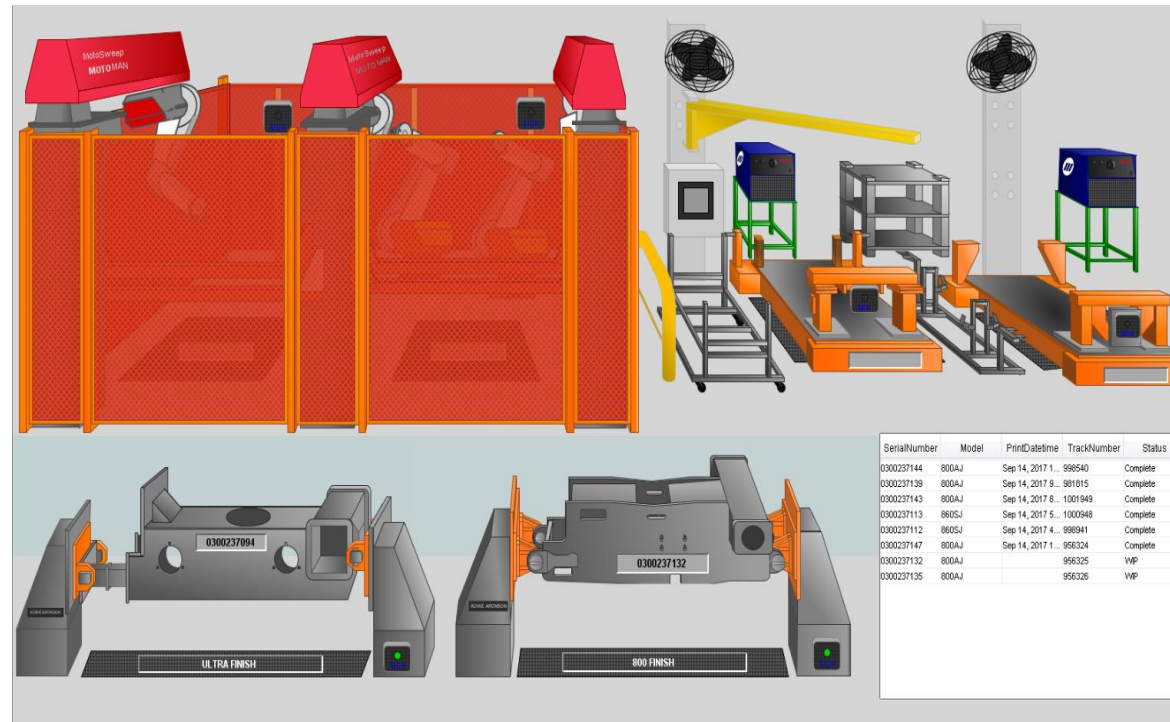
- Implemented PLC control and remote visibility to previously inaccessible areas
- Provided alarming and notifications to enable operations to be proactive in response



Multi-Dimensional Integration

Tracking Fabricated Parts

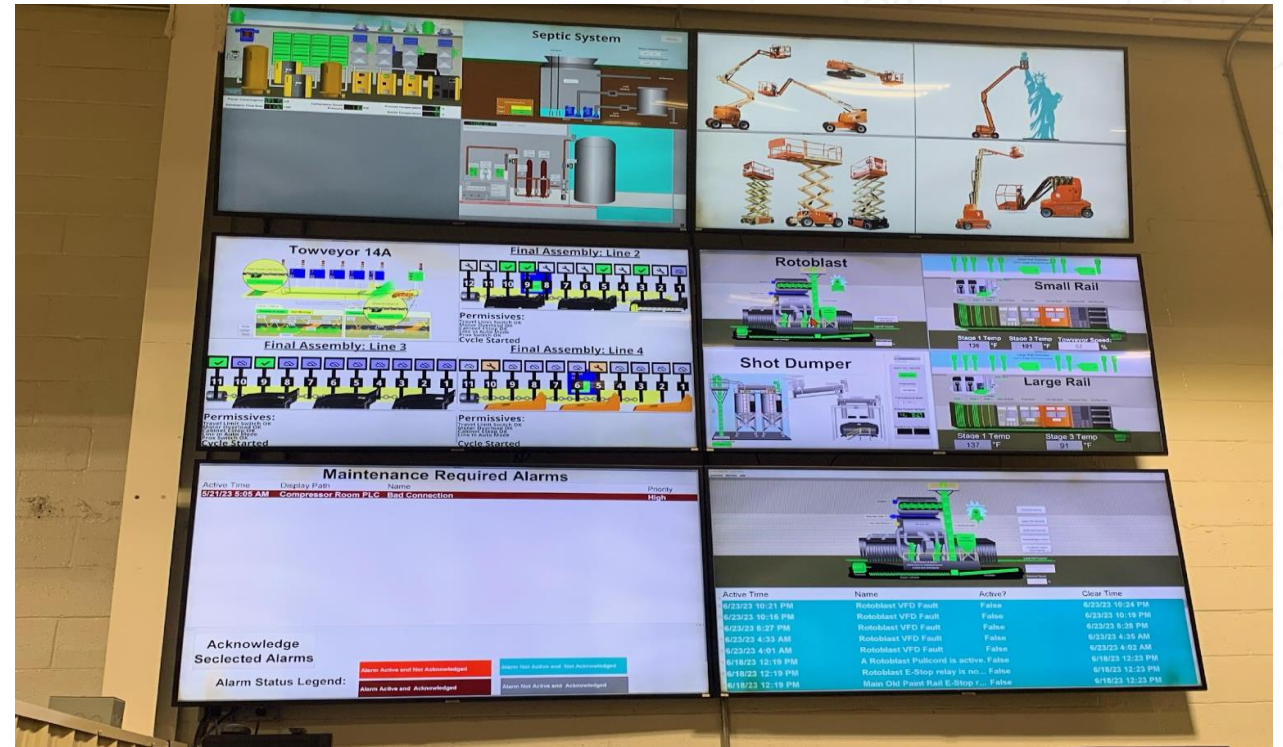
- Digitized the run schedule to eliminate paper recordkeeping
- Integrated RFID tags and strategically placed RFID scanners to track parts through multiple buildings and processes throughout the facility



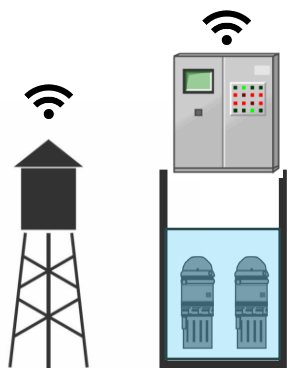
Multi-Dimensional Integration

Results

- Ignition provided a single platform for all plant visualization
- Unlimited licensing gave the customer flexibility and empowerment to expand at their own pace without worrying about hidden costs
- Now the maintenance department has a single place to view every process in the facility to minimize the time it takes to get things back up and running



Experience Summary



18 x



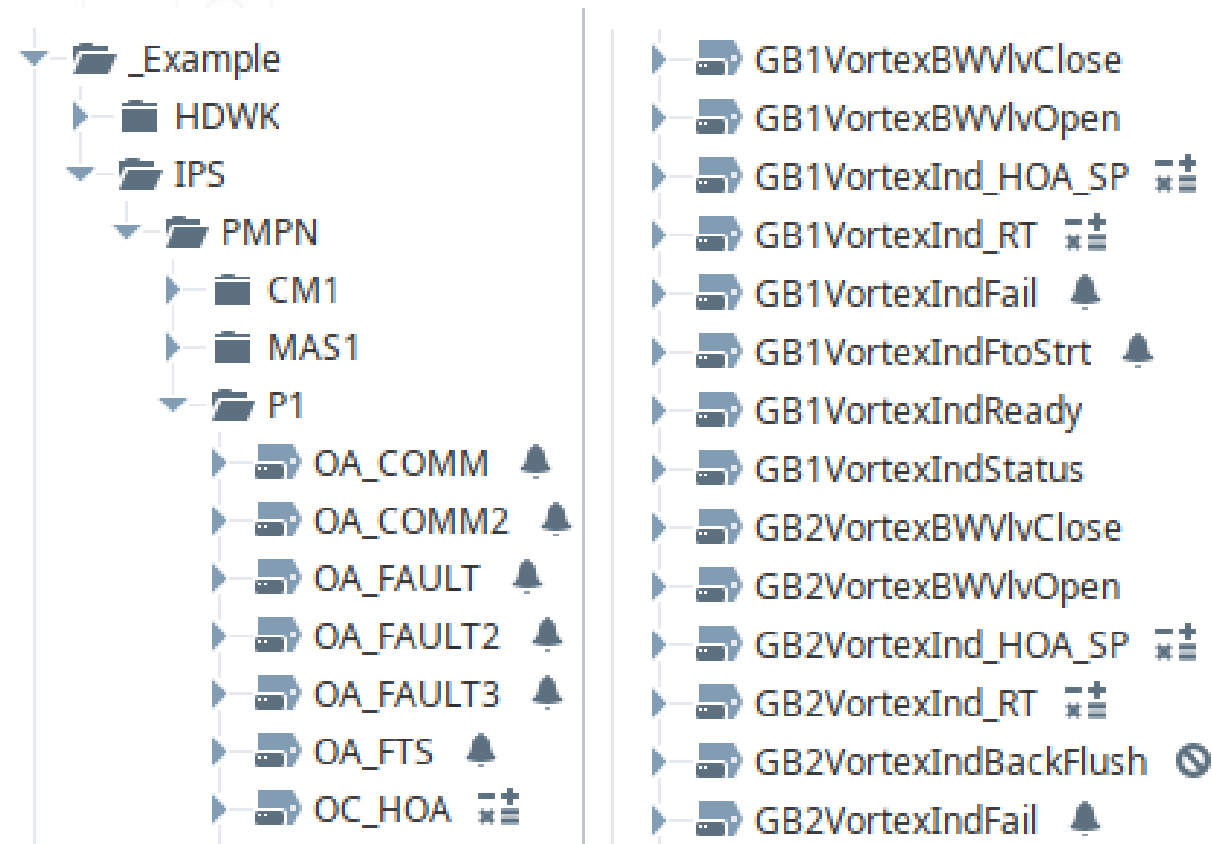
~300k



The Unlimited Effect

Tags

Folder Structure > Flat Tag Structure



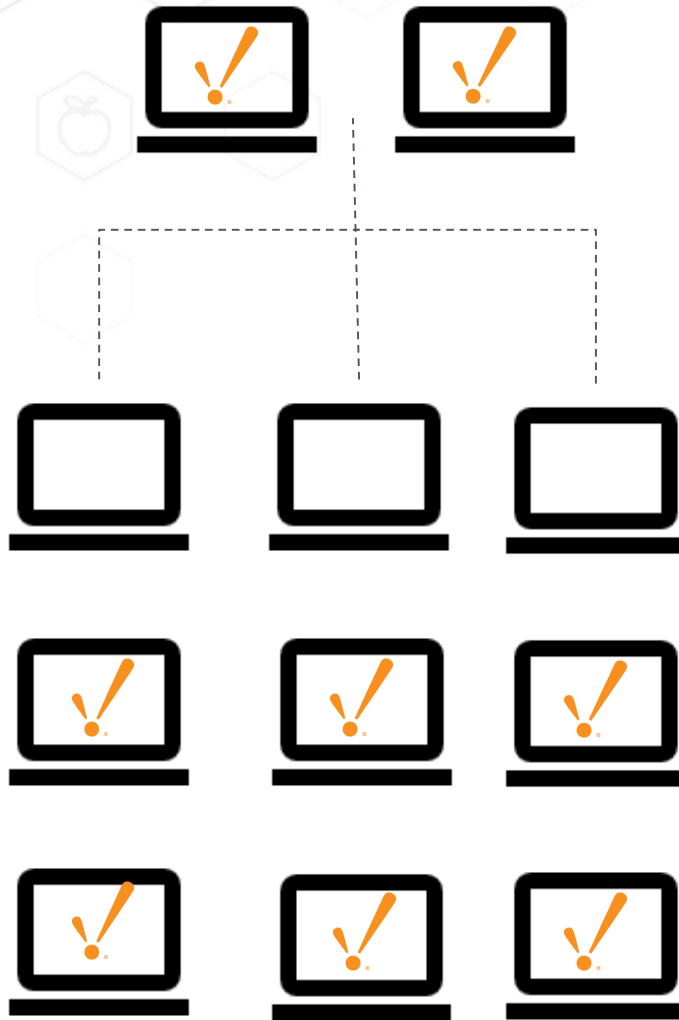
Future Opportunities

1 Pilot → 9 additional conversions

The Unlimited Effect

Clients

Expansion of
number of
clients after
project
conversion

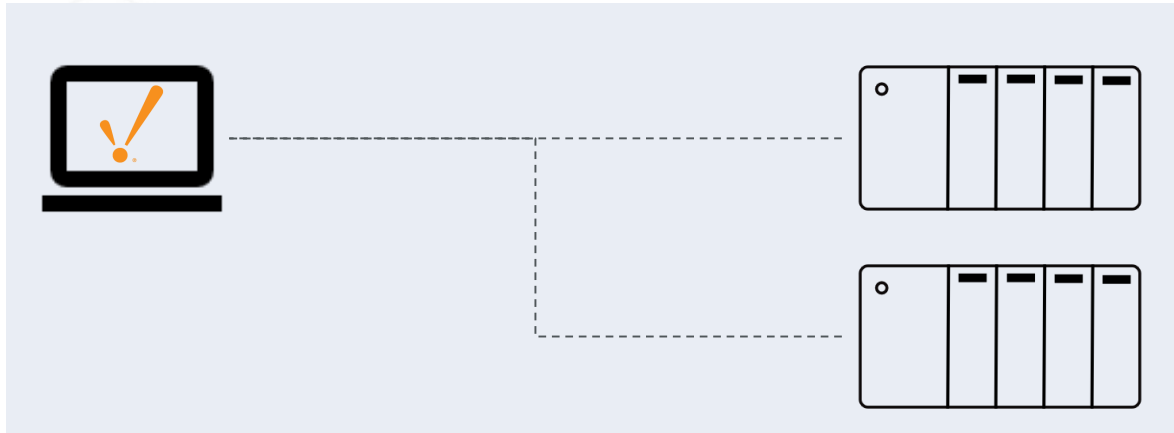


Using Vision
clients at the
edge instead
of traditional
local control
interfaces

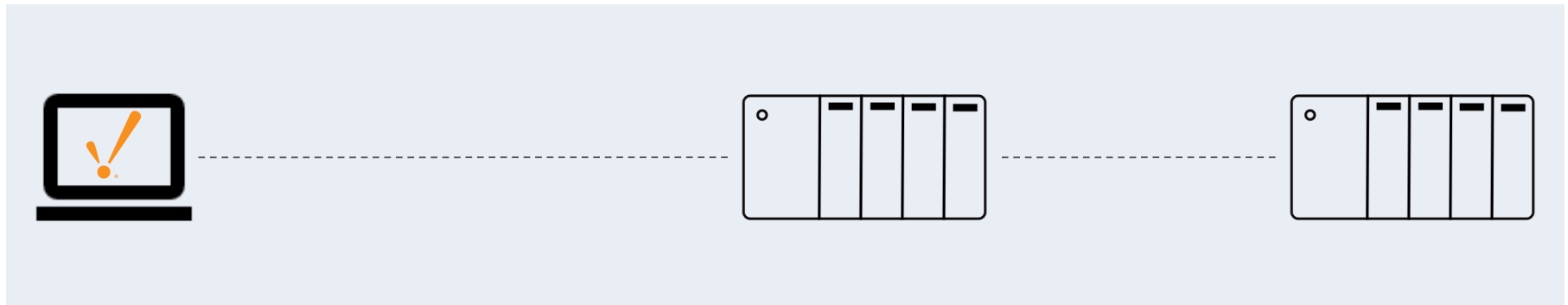


The Unlimited Effect

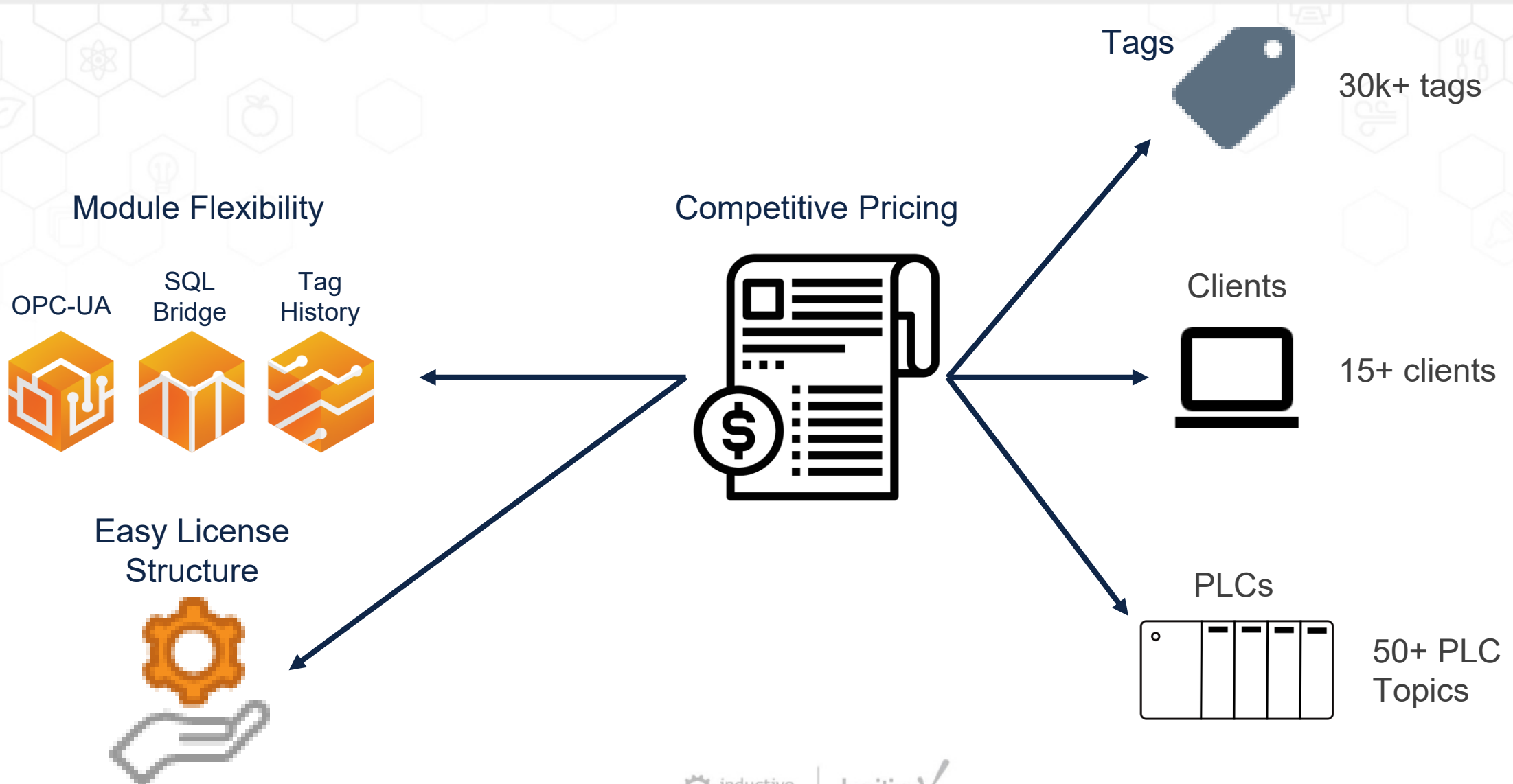
PLCs



Instead of



The Unlimited Effect



Group Discussion

What future opportunities are you excited about that unlimited licensing will make possible?

Ignition!

Ready to Try Ignition for Yourself?

Download the full version for free at:
inductiveautomation.com



inductiveuniversity.com

*Ignition User Manual also available at:
docs.inductiveautomation.com*

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