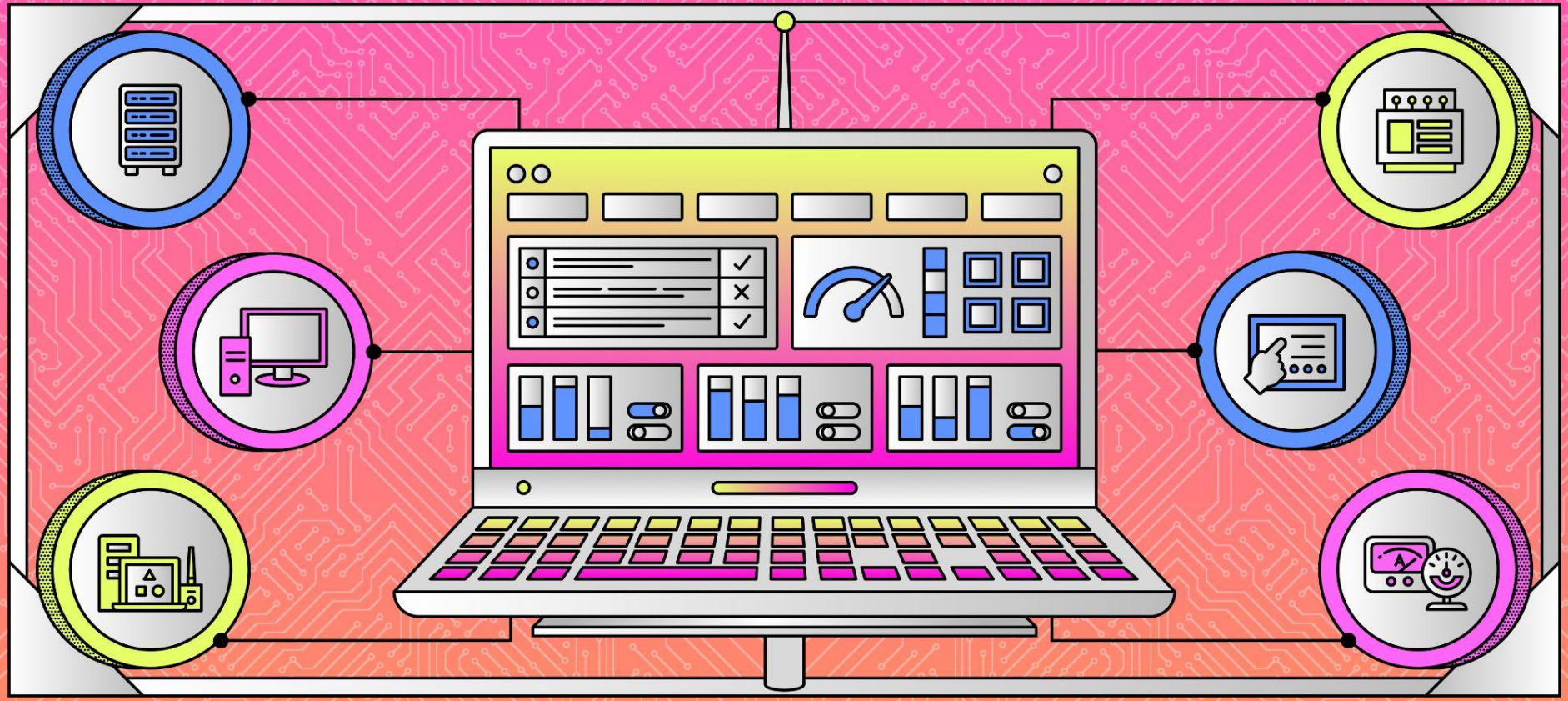
Building Modern SCADA Solutions in the Real World



Moderator



Paul Scott

Sr. Technical Marketing Engineer II

Inductive Automation

inductive automation | Ignition by inductive automation

Guest Speakers



Scott Brown
Director of Digital Innovation
Polaris Automation



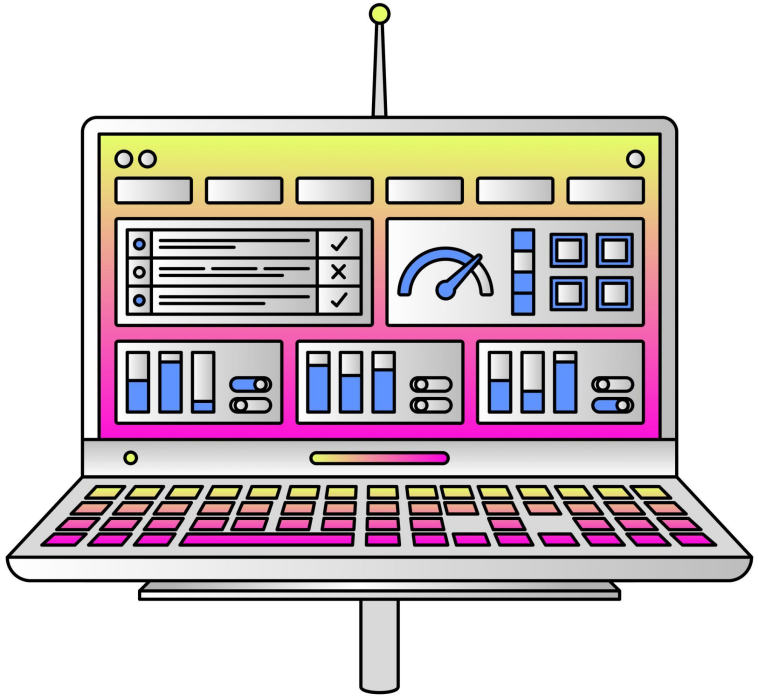
Daniel Wainberg
Product Manager
Contel Smart Energy



John Mullins
Senior Software Engineer
Automation NTH

Agenda

- Introduction to Inductive Automation & Ignition
- Modern SCADA
- Project by Polaris Automation
- Project by Contel Smart Energy
- Project by Automation NTH
- Questions & Answers



About Inductive Automation









































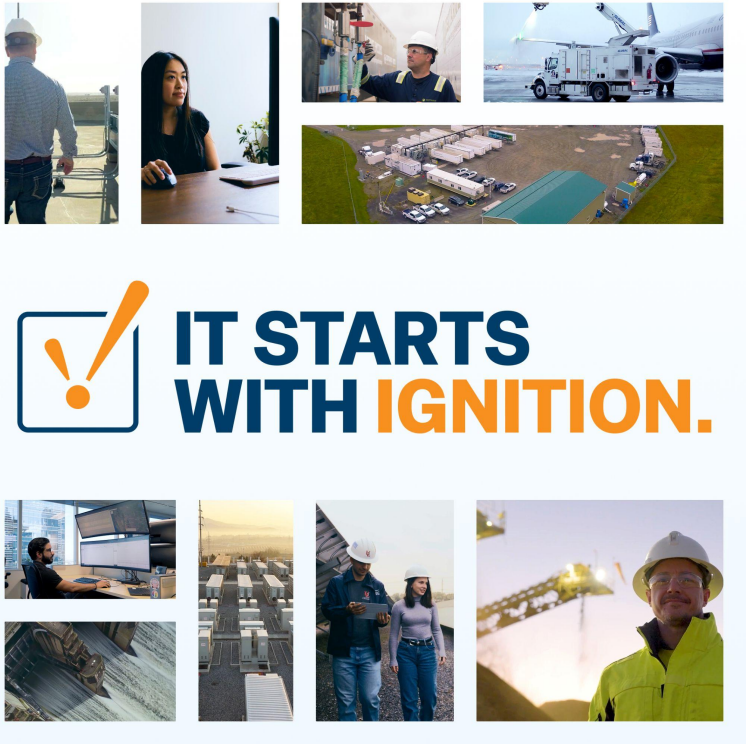




Introducing Ignition

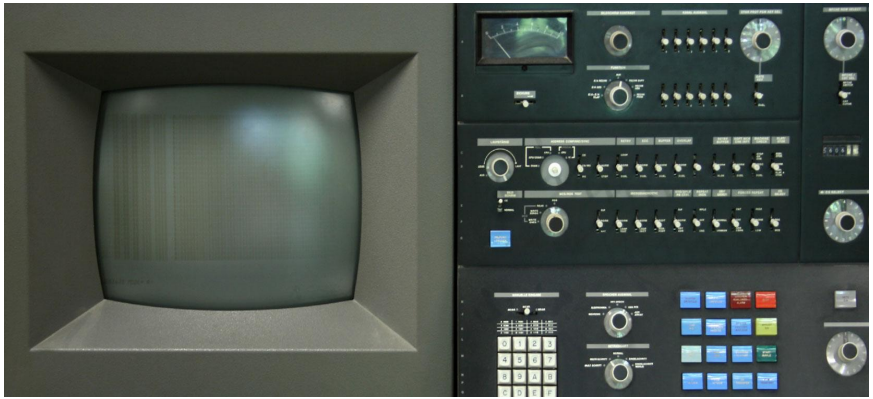
The Unlimited Platform for Enterprise Integration, Industrial Applications, and More:

- One central hub for the plant floor and beyond
- Web-deploy to desktops, industrial displays & mobile devices
- Unlimited licensing
- Cross-platform compatibility
- Industrial-strength security & stability
- Build any kind of industrial application



Traditional SCADA

- Vital to 20th-Century manufacturing
- Controls and monitors industrial processes
- Plant-floor-based
- Improved efficiency and decision-making
- Helped decrease downtime



Why SCADA Should Evolve

- 90’s technology cannot meet today’s demands
- Beyond the plant floor: SCADA today should connect with mobile, cloud, edge
- Licensing that makes innovation practical



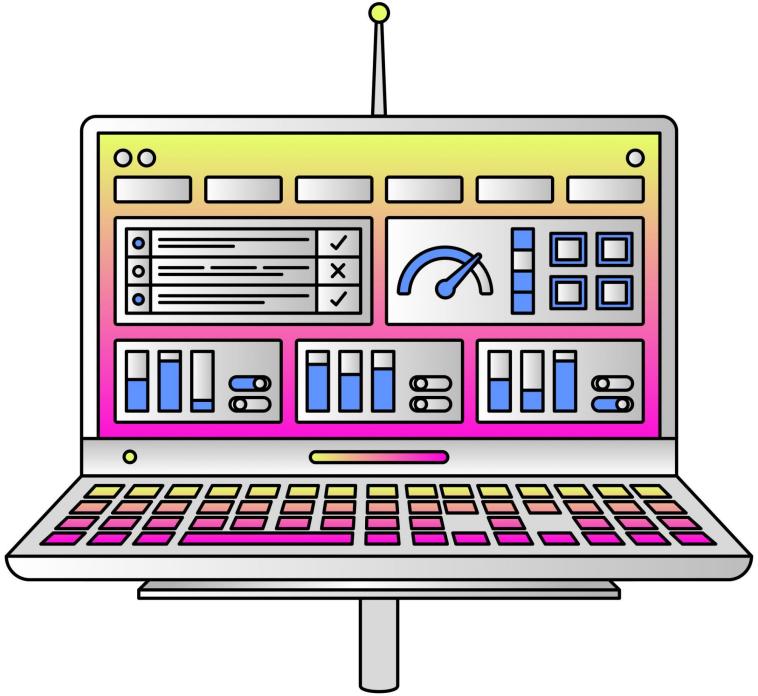
Ignition SCADA

Ignition provides a web-based, unlimited, cross-platform solution for modern industrial automation.

Key features include:

- Comprehensive data acquisition (built-in OPC UA connectivity, SQL database integration)
- Rapid application development tools
- Advanced monitoring and visualization capabilities
- Exceptional scalability and mobility





POLARIS AUTOMATION × INDUCTIVE AUTOMATION

The Foundation IS the work.

How Lightera built for scale on Ignition — and earned the dividends.

Scott Brown
Director, Digital Innovation · Polaris Automation, Inc.
Building Modern SCADA Solutions in the Real World · June 25, 2026

Ignition
Premier Integrator

Lightera

Lightera is a global leader in optical fiber and connectivity solutions. Built on a legacy of expertise in optical science, we provide high-performance solutions that enable faster, more reliable, and sustainable connections for businesses, communities, and industries worldwide. With operational headquarters in Norcross, Georgia, U.S.A., Lightera serves customers across telecommunications, enterprise, industrial, generative AI, data centers, 5G/6G, utilities, medical, aerospace, defense, and sensing markets. Lightera is part of Furukawa Electric Group, a pioneer in advancing the next generation of infrastructure through integrated solutions in connectivity, information, energy, and mobility, to create a safe, peaceful, and sustainable world.

Meet Lightera (Avon, CT)

A leading manufacturer of specialty optical fiber and fiber optic cable products, operating purpose-built production lines that they design, integrate, and program in-house.

That homegrown, every-line-is-different reality is exactly what made the foundational data work both harder and more valuable.

High-mix, low-volume

Many products, short runs — what's running matters more than raw uptime.

Homegrown lines

Equipment assembled and programmed in-house — no off-the-shelf line state.

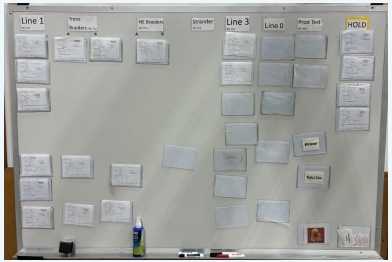
Cable · FiberDraw · Machining Center

Multiple departments rolling onto one shared architecture.

THE STARTING POINT

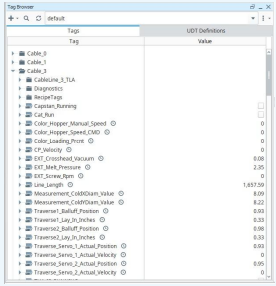
Running blind on the floor

Data everywhere — context nowhere.



Manual magnet board

Work orders scheduled by hand on the floor, by the leads, as they went.



Ignition, but unstructured

In place since ~2018 — but flat tags with no model and no hierarchy.

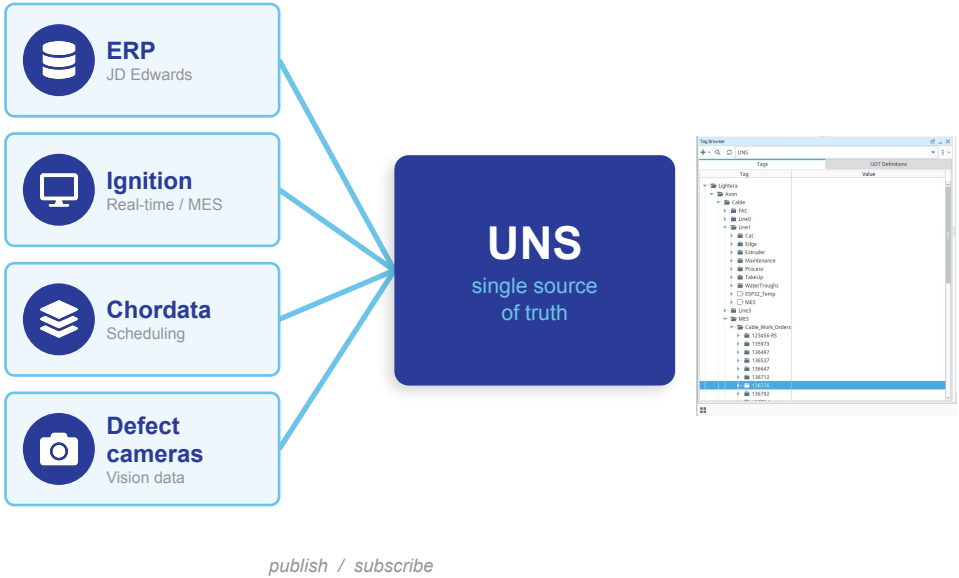
No context

Machine data couldn't be tied to the work order, part, lot, or conditions running at that moment.

Collecting data — but making engineering decisions in the dark.

Build the foundation first: a Unified Namespace

One source of truth — producers and consumers decoupled, publish/subscribe.



Everybody wants the dashboard.

Lightera built the bedrock first — the namespace, the models, the line states.

The Foundation IS the work.

SEQUENCING

Scheduling first — not OEE

In a high-mix shop, knowing what's running beats chasing uptime.

WHAT MOST TEAMS CHASE

OEE & maximum uptime

- Optimizes for machines that run the same job for long stretches
- Less useful when every run is different

WHAT LIGHTERA NEEDED FIRST

The schedule + downtime

- What's running, what's late, what's next
- Real-time digital schedule on the floor — paper retired
- Daily stand-ups now run off live data

Sequence by business value — not by buzzword.

Defining the foundation: line state & data models

The unglamorous engineering everything else stands on.

Line state from scratch

Homegrown equipment had no single "line state" signal. It had to be defined from multiple machine signals:

- **Extruder on + temps up + line moving > 1 m/min → Setup**
- **Take-up spooling good product → Running**

Clear states make downtime, run-time, and OEE trustworthy.

Modeling the data

- Line-level UDTs now drive the MES functions — replacing years of flat, structureless tags
- Reusable blocks are limited: nearly every line is a one-off (e.g. deep vs. shallow thermocouples)
- Exploring CESMII Smart Manufacturing Profiles for standardized models

Event-based microservices — the scalability unlock

Stop polling everything. Publish only what changed.

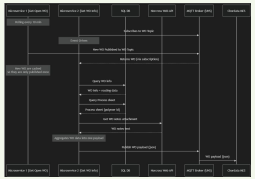
BEFORE

Constant polling inside Ignition

- Re-queried ALL work orders every 10 minutes
- ~10-second thread; a single work-order-notes lookup alone took ~2s
- Bandwidth-heavy and a scaling dead-end

AFTER

Docker microservices



- Publish only on change → ~5–6 work-order updates per day
- MQTT transport decouples who builds from what owns it
- Defect cameras publish to the UNS — testable from a desk, no PLC

SCALE

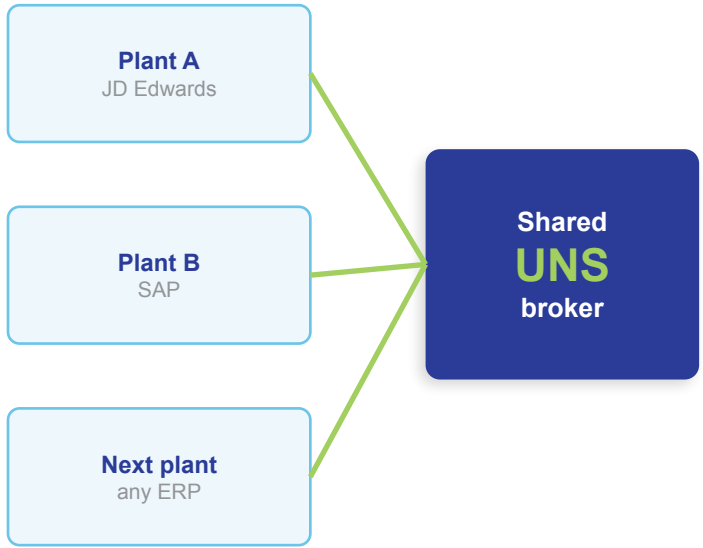
Built to scale past one plant

Work orders and routings are universal. The integration shouldn't have to be.

Without a UNS, every new site is a long, custom ERP integration — one plant runs JD Edwards, the next runs SAP.

With a UNS, another plant in the system comes online by **publishing its work orders and routings** to a shared broker — not by rebuilding the stack.

Faster onboarding outside the plant — and inside it, as FiberDraw and Machining Center roll on.



The payoff



They did the work — now the foundation pays them back.

THE DIVIDENDS

The payoff

Directional, year-over-year — not luck.

~2×

throughput

Roughly doubled output over a comparable six-month window.

Real-time

floor visibility

Live view of what's running, what stopped, and what's next.

New

OEE & downtime data

Trustworthy metrics they simply didn't have before.

They did the work — now the foundation pays them back.

WHAT'S NEXT

The foundation compounds

The second department is easier because the first one did the work.

Roll-on, faster each time

- FiberDraw & Machining Center onboard quickly — ~90% of the data models already defined
- Automated SPC next: flag drift by comparing a run to the last runs of the same product
- Better KPIs & leadership dashboards (throughput, on-time delivery, capacity)

The lesson that travels

- Own your data — keep it accessible, avoid lock-in
- Find the true source of truth: trust equipment data over hand-entered numbers
- Momentum builds department by department once the value is visible

THE PARTNERSHIP

Buy a partner, not a product

The foundational work isn't a thing you purchase — it's something you build together.

A PRODUCT SALE

Take the tool as-is

- Fixed screens, fixed columns — "that's how it works"
- You bend your process to fit the software
- Hard to change as you learn what you actually need

HOW POLARIS SHOWED UP

A partner in the work

- Figured out what was actually useful — together
- Built and iterated on the screens and logic Lightera needed
- Took the steps with them — "you don't know what you don't know"

Polaris showed up as a partner — not a product sale.

TAKEAWAYS

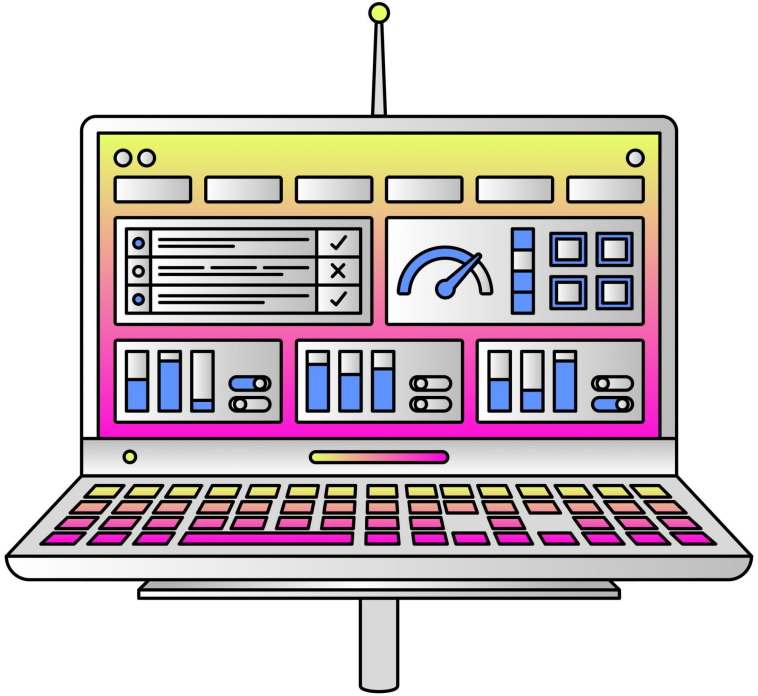
- ✓ Sequence by business value — scheduling before OEE
- ✓ A Unified Namespace adds context and decouples for scale
- ✓ Event-based, report-by-exception beats constant polling
- ✓ Own your data — accessible, contextualized, yours

> **Lightera did the work.**
>
> **The foundation is now doing the work for them.**

The Foundation IS the work. *— Scott Brown*

polarisautomation.com · linkedin.com/in/scottabrown · Thank you, Inductive Automation

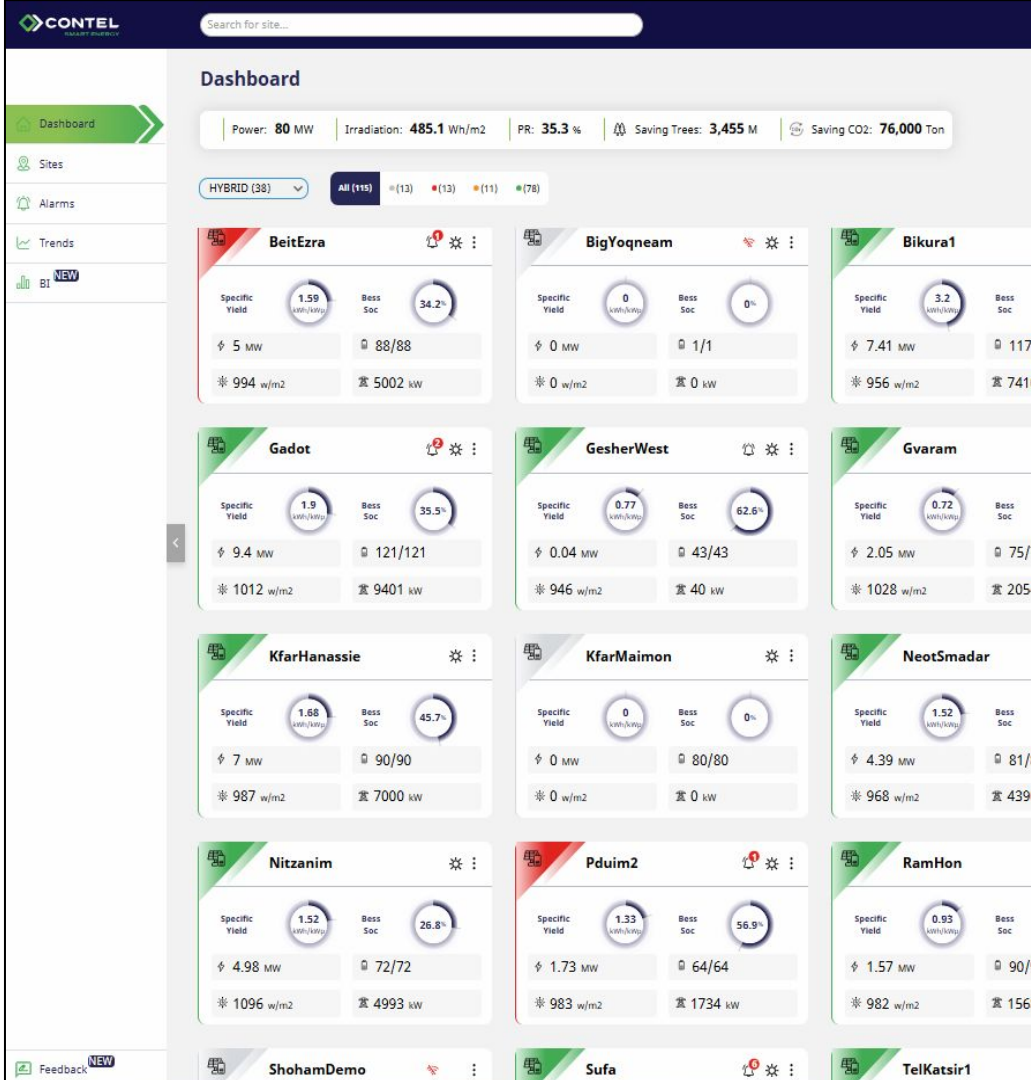
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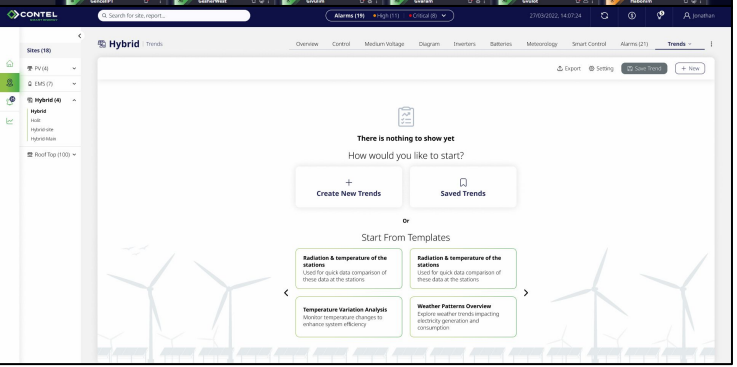
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SMART ENERGY

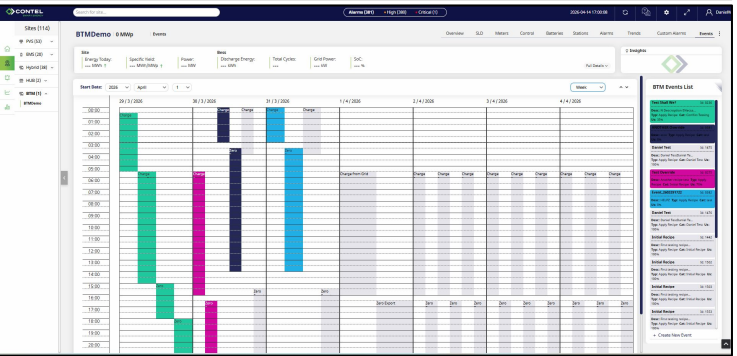
Modern SCADA: A Role-Based Operational Environment

Transforming operational data into role-specific insight and action









Modern SCADA: A Role-Based Operational Environment

Presenter

Daniel Wainberg
Product Manager, Contel Smart Energy

Today's Focus

- Why traditional SCADA views are no longer enough
- How different roles consume the same operational data
- How SCADA becomes an operational decision-support environment
- What product architecture is required to scale it

Modern SCADA platforms are evolving beyond device connectivity and data display — into structured, role-based operational environments that serve real users making real decisions.

About Contel Smart Energy

Contel Smart Energy is part of the Contel Group, with over 60 years of experience in industrial automation, electrical systems, control systems, and complex operational projects.

Our Focus: Renewable Energy Operations – Energynie

PV Sites

Photovoltaic generation monitoring and control

Battery Storage

BESS integration and optimization

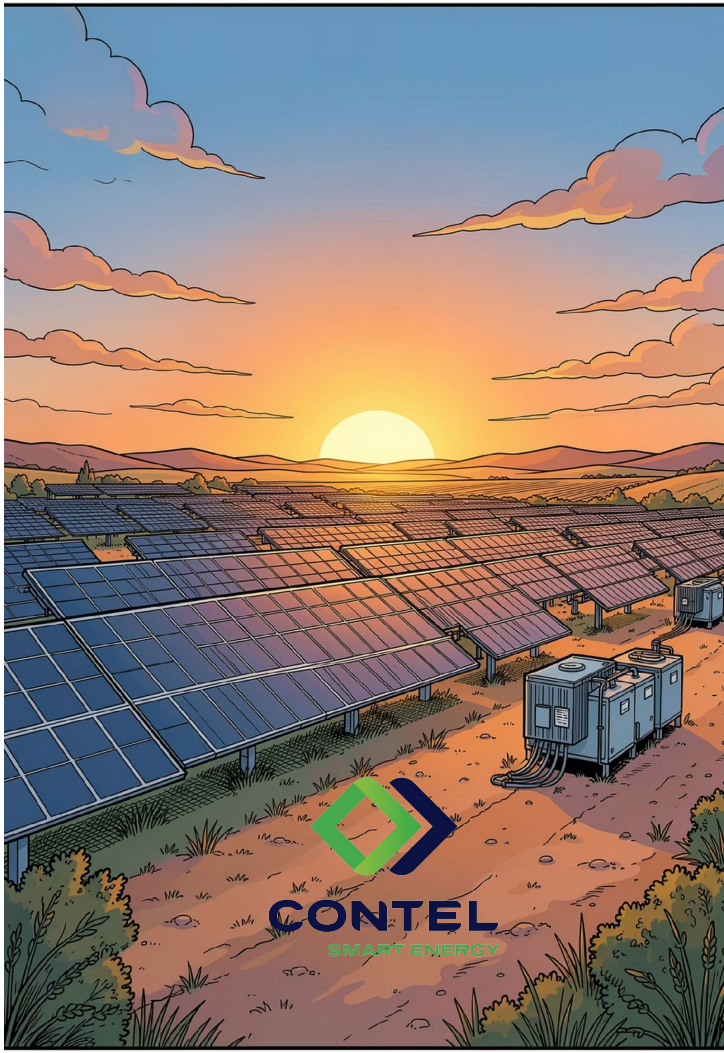
Grid Connection

Meters, inverters, controllers, and grid interface

Distributed Assets

Monitoring, control, and optimization across sites

> SCADA is not just software — it is a practical operational system built for real users, real assets, and real decisions.



The Core Problem

The Same Data Does Not Create the Same Value for Every User

In modern renewable energy operations, many users work with the same sites and the same operational data — but each user needs something fundamentally different.

Operators

Need **immediate visibility** into site status and active faults

Technicians

Need **fault context and actions** to resolve issues efficiently

Engineers

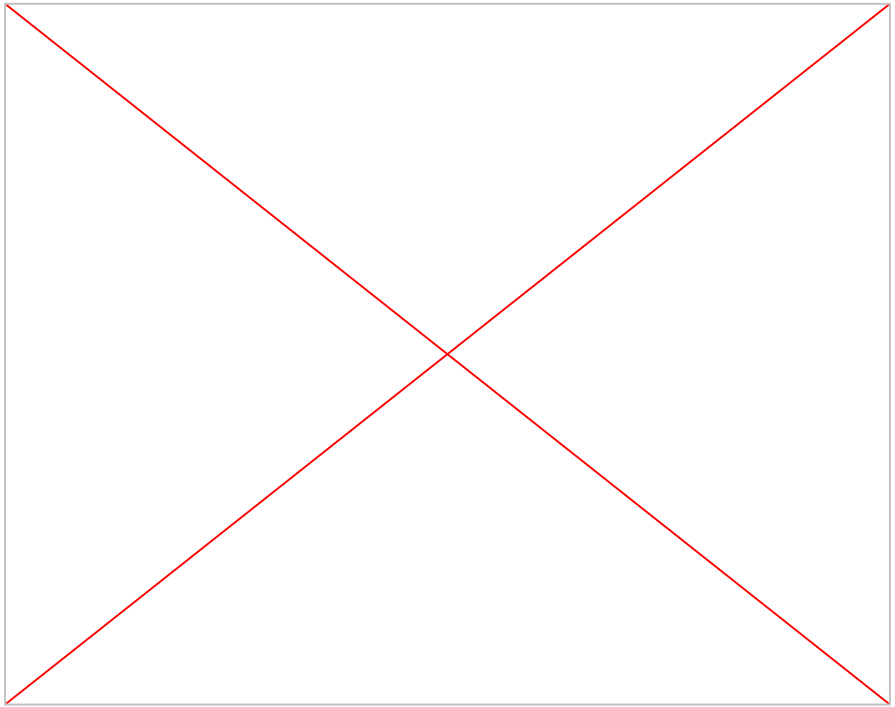
Need **trends and system behavior** for analysis and optimization

Site Managers

Need **performance and availability** metrics for their sites

Management

Need **KPIs, risk, and business impact** at portfolio level

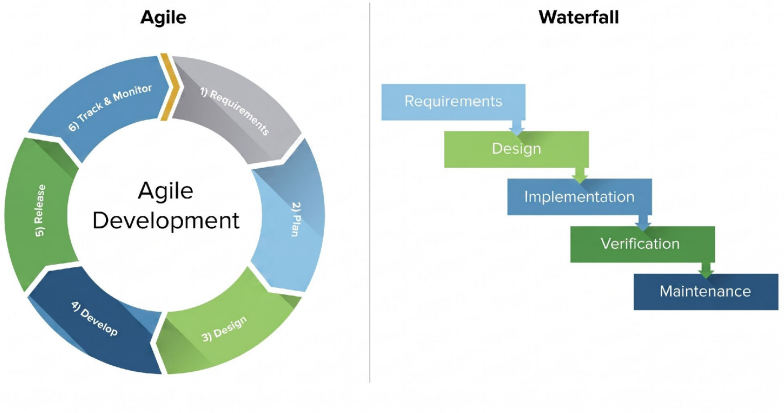


Example: An inverter fault means different things to different users:

Operator: Is the site safe and stable?
Technician: What should I fix?
Engineer: What caused it?
Site Manager: What is the availability impact?
Management: What is the business risk?

Designing the Right SCADA: From Project Delivery to Product Evolution

As renewable energy operations became more distributed and complex, the difference between a project mindset and a product mindset became critical.



Waterfall follows a fixed sequence from start to finish, while Agile is built around continuous learning, feedback, and improvement.

Agile – Product Model

- Fast, iterative delivery
- Continuous feedback loops
- Early testing and adaptation
- Empowered teams
- Scalable and flexible

Waterfall – Project Model

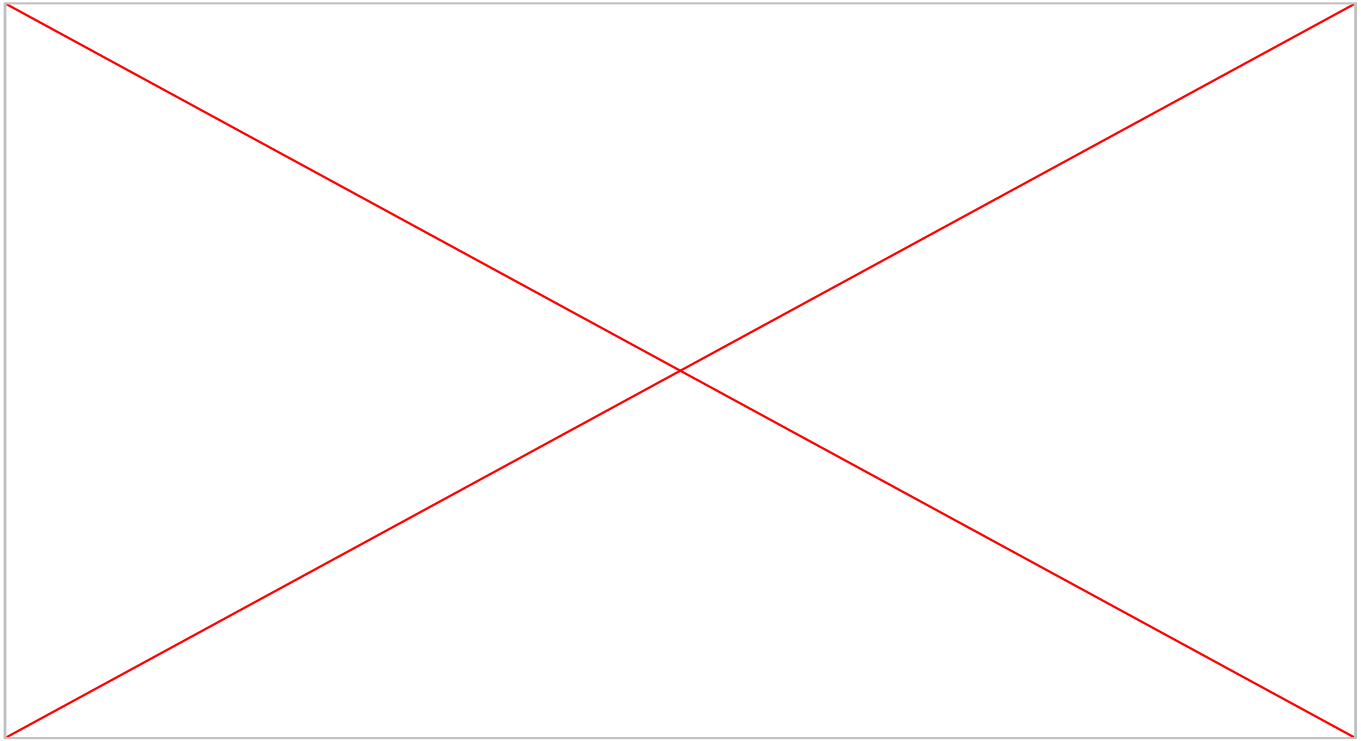
- Long delivery cycles
- Rigid, sequential phases
- Late feedback and testing
- High engineering dependency
- Difficult to scale

CONTEL

Immediate Monitoring

Understanding What Is Happening Now

The first need is immediate visibility. These dashboard views help users quickly understand site status, equipment availability, active faults, actual production, and portfolio health.



Dashboard Views

1. **X1 Dashboard**
   Site-level status and equipment availability
2. **X2 Dashboard**
   Active faults and abnormal behavior
3. **X3 Dashboard**
   Actual production and performance metrics
4. **Map Dashboard**
   Portfolio status and location of problems across sites

> The goal is not to show everything. The goal is to show **what matters now.**

Visualization and Personalization

The Right View for the Right User

Different users need different ways to consume and analyze the same operational data. Modern SCADA should allow each user to consume data according to their role, workflow, and decision-making needs.

Widgets

Configurable real-time data components for operational views

Reports

Structured performance and availability summaries

Trends

Time-series analysis of system behavior and signals

Saved Trends

Reusable trend configurations for recurring analysis

BI

Business intelligence dashboards for KPIs and management views

Role-to-Tool Mapping

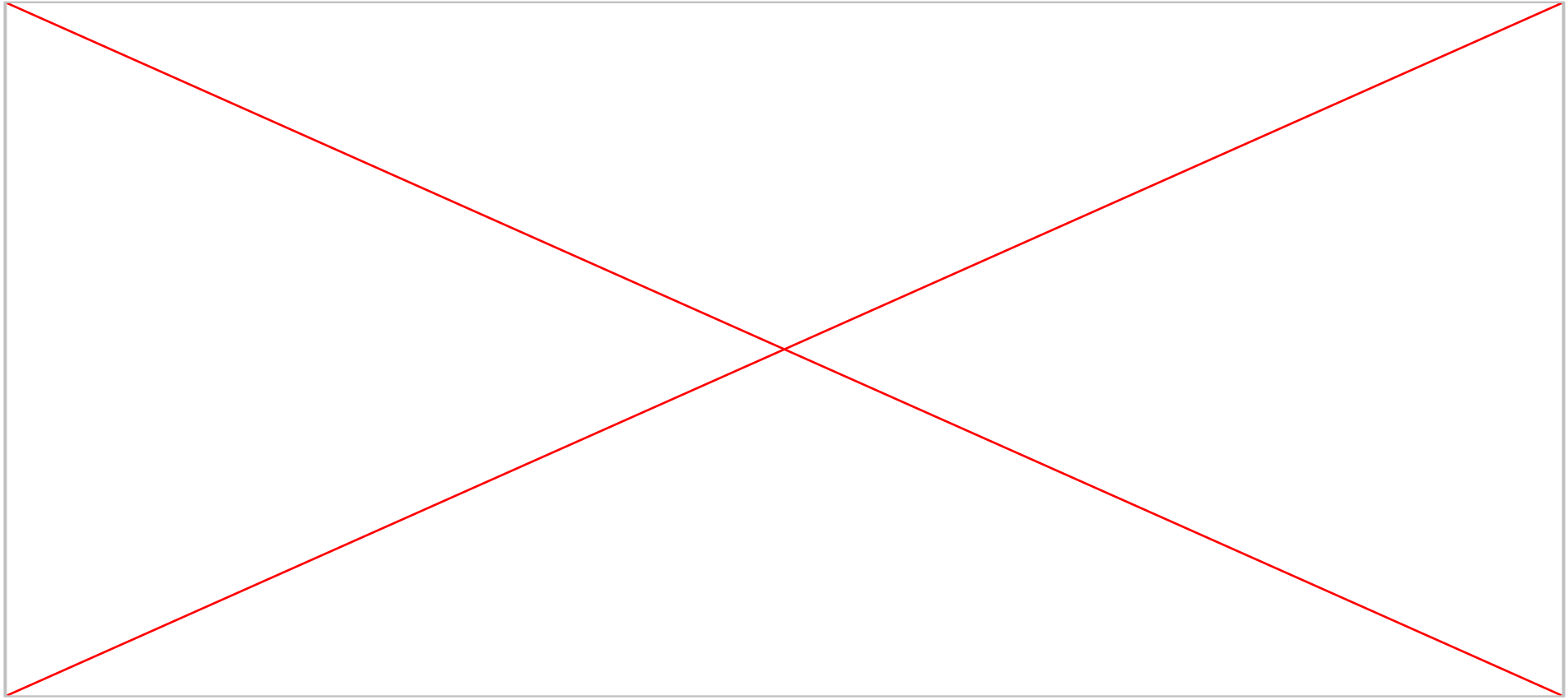
Role	Primary Tool
Operators	Clear operational views & widgets
Engineers	Trends & historical analysis
Site Managers	Reports & performance views
Management	BI dashboards & KPIs
Maintenance	Focused fault information

Each user consumes data according to their role, workflow, and decision-making needs — not a one-size-fits-all interface.

CONTEL
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Visualization and Personalization

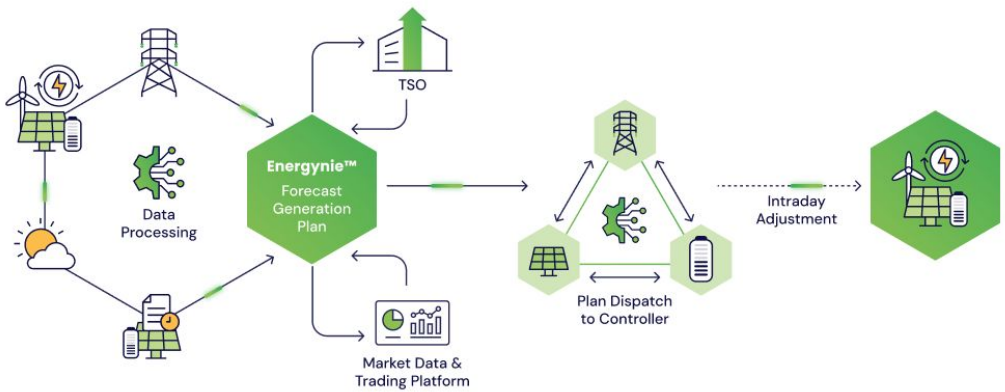
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Site Operation Capabilities

From Visibility to Action

Modern SCADA should not only show what is happening. It should also support **how the site is operated** — enabling users to plan, compare, and manage site behavior in a structured way.



Smart Scheduler

Plan operational actions and define time-based site behavior

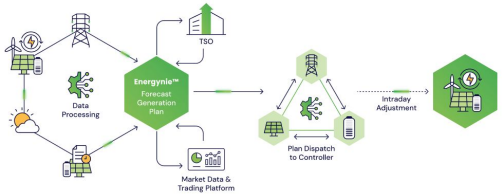
Forecast Mode

Compare forecast, plan, and actual performance to support short-term decisions

Recipe Wizard

Define operational scenarios and manage site behavior in a structured, repeatable way

This is the transition from **monitoring** to **operational decision support** — empowering users to act, not just observe.



CONTEL
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From One-Off Projects to Repeatable Product Delivery

Three Principles from a Product Management Perspective

Building modern SCADA as a scalable product requires a fundamental shift in how we think about design, development, and delivery.



Platform Before Customization

Build a scalable foundation, then adapt it to each site and customer.



Workflows Before Features

Design around operational workflows — features should support real decisions.



Users Before Screens

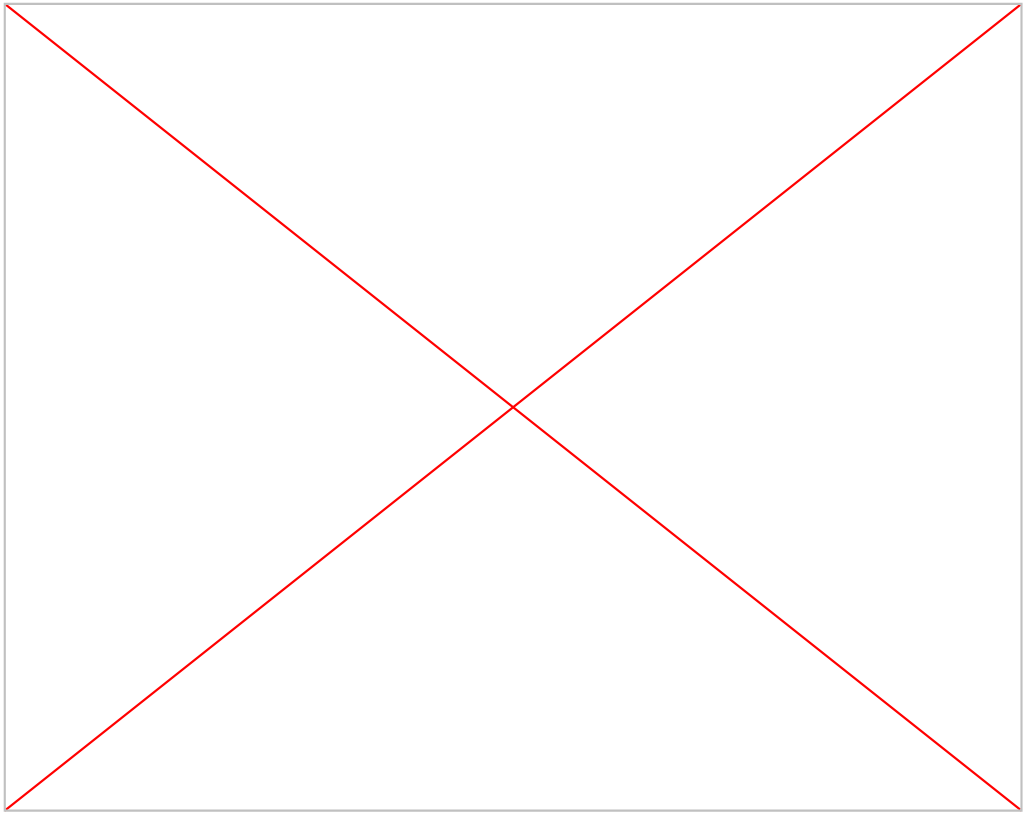
Start with the user, the role, and the decision they need to make — then design the screen that serves that need

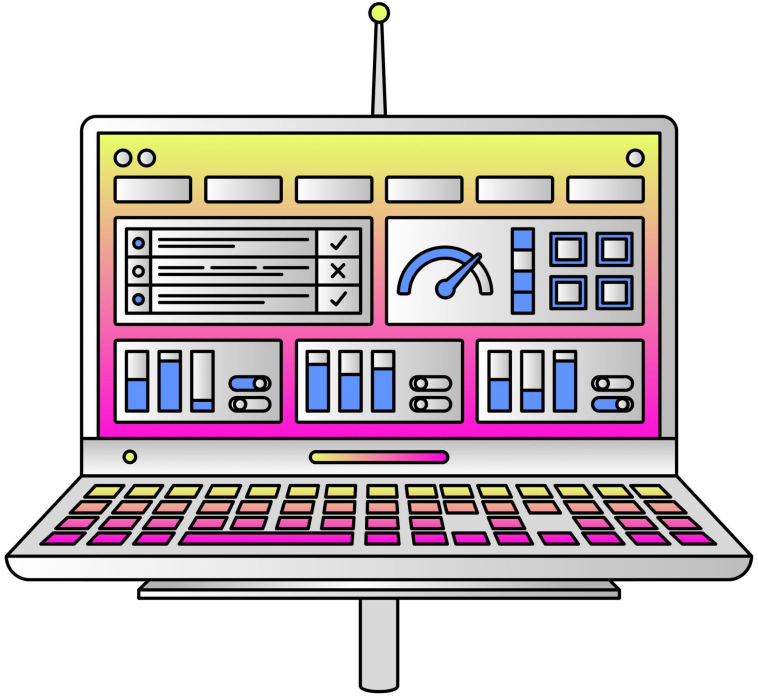
> Modern SCADA is about creating an operational environment that transforms trusted real-time data into the **right insight and the right action** for every user.

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Modern SCADA as a Role-Based Operational Environment

Daniel Wainberg, Product Manager





AUTOMATION nth

Webinar – Building Modern SCADA Solutions in the Real World



Modern SCADA Solution – Life Sciences

Presented By: John Mullins

Date: June 25, 2026

Project Background

THE CUSTOMER



Global Life Sciences Manufacturer

Produces high volumes of intraocular lenses (IOLs) for cataract correction, among the most widely used vision-correction solutions in the world. These are precision medical implants built under strict quality requirements.

THE STARTING POINT

A Manual, Paper-Based Process

In addition to minimal automation, Operators tracked product through the facility on a physical paper trail and manually keyed results into the ERP system at each step. The goal was to not only automate the physical manufacturing process, but also electronically capture production data and autonomously reconcile batches at each step.

Challenges

Regulatory Compliance

21 CFR Part 11 compliance required for Electronic Records within SCADA.

Complete Audit Trail:

- CTQ Recipe/Configuration Parameter Tracking
- Batch Reconciliation
- Operator Actions

Hybrid Manufacturing

New equipment introduced a mixed production environment where some processes became fully automated while others remained semi-automated or manual.

- Physical batch records will remain in select production areas, while manual ERP entry is to be eliminated or significantly reduced.

Diverse Equipment

Connect incoming equipment from integrators worldwide, including systems running Allen-Bradley, Beckhoff, Siemens, and other controllers.

- Develop equipment interfaces alongside each machine build while coordinating with global teams.
- Ensure all equipment shares a common core data architecture.

Data at Scale

Reliably capture high-throughput part birth certificate and process data across production..

- Cycle times as low as 0.7s
- Complete production history per serialized product (machine/station records, process data, parameter history, material tracking, etc.)

Our Strategy

Regulatory Compliance

> Ignition + SQL Server

SCADA built on Ignition 8.1 and SQL Server, fully conformant to 21 CFR Part 11.

> Reusable APIs

Shared APIs per machine to reduce risk and speed deployment.

Hybrid Manufacturing

> Operator Kiosk

Plant floor Ignition Vision application for operator interaction and data analytics.

> Scalable Physical/Data Architecture

A shared core data architecture across a scale-out physical architecture.

Diverse Equipment

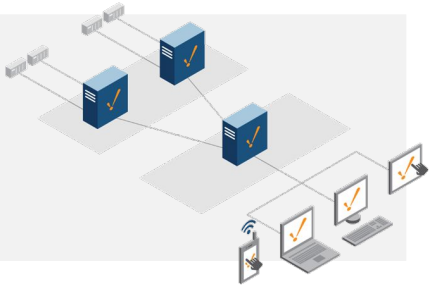
> Common Tag Model

Common OPC tag structure for visualizing live equipment data through a shared UI.

Data at Scale

> Lightweight Data Handshake

A single Tag Event based handshake UDT per transaction to reduce OPC overhead and ensure data integrity during API calls.



Why Ignition?

Unlimited Licensing

Server-based licensing supports unlimited clients, tags, and connections.

Database Native

Direct SQL integration supports structured production records and ERP workflows.

Security

SAML and LDAP compatibility to integrate with Identity Providers and Active Directories

Built-In Auditability

Audit profiles track user actions, data changes, and system events.

Gateway Scalability

Distributed gateways separate equipment, history, and client workloads.

Open Integration

OPC UA, scripting, APIs, and database tools support diverse equipment platforms.

Our Solution

Compliant by Design

Ignition 8.1 on SQL Server meet 21 CFR Part 11 with native audit trails, Active Directory sign-in, and database-backed records.

One Model, Every Machine

A common tag model and reusable per-machine APIs let one shared Ignition Gateway and UI run diverse equipment, so new lines come online fast and at low risk.

Data at Scale to ERP

Database-native Ignition with distributed gateways streams every transaction into SQL and auto-submits batch records to ERP, holding data integrity at plant scale with low OPC overhead.

Operator Kiosk at the Line

Touchscreen kiosks in each equipment room give operators AD sign-in, access to live and historical data, CTQ parameter management, and simple batch reconciliation to ERP. Additionally, the application is launchable from desks for remote production visibility.

Excellence In Automation

Customer Value Delivered

01

Faster, More Reliable ERP Logging

Automated data capture and batch reconciliation reduced operator error across connected processes while eliminating or significantly reducing manual entry, previously requiring 20–30 seconds per batch.

02

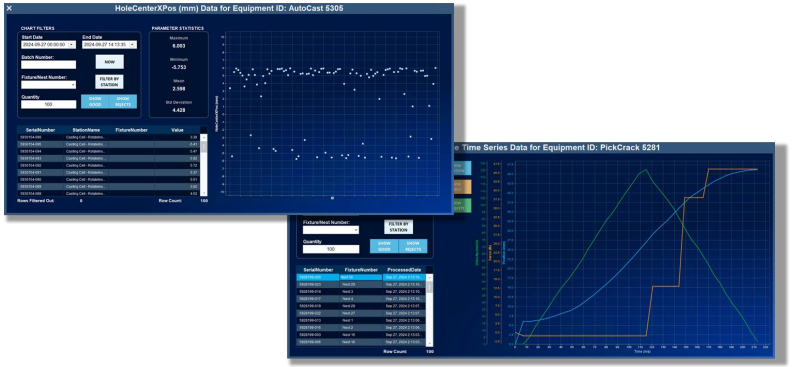
Electronic Records

Reduced paper-based record keeping with improved traceability, production visibility, and access to OEE, alarm, and part/process data.

03

Future Scalability

Simplified future equipment onboarding through reusable software, configuration-based setup, and scalable gateway architecture.





READY TO SEE IT IN ACTION

Automation Built for High Precision Manufacturing



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inductiveautomation.com



inductiveuniversity.com

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



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Scandinavia	Autic System	www.autic.com
Sub-Saharan Africa	Element8	https://element8.co.za
Switzerland	MPI Technologies	https://mpi.ch
Austria & Germany	Relatech S.p.A.	https://relatech.com

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Questions & Answers

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