



Life Is On



# Automation Trends—and Tips—from Wonderware LIVE!

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challenge · disrupt · embrace · improve

## Table of Contents

- 04. The Value of the Digital Age Lies Within the Apps
- 07. Schneider Electric's Software Vision
- 10. Prometheus: From Process Requirements to Code in One Tool
- 12. Wonderware Online InStudio: Automation Infrastructure-as-a-Service
- 14. Putting Data Into Context
- 16. The Right Recipe for Regulatory and Market Conditions
- 18. IIoT in Action
- 20. Industry 4.0 and The New World of Work
- 22. Reacting to the Right "Situation"
- 24. Enhanced OEE for Packaging Line Management
- 26. Predictive Analysis for Water/Wastewater
- 28. Serialization for Life Sciences
- 30. Compliance-by-Design
- 32. Energizing Industry with Predictive Asset Analytics







Wonderware LIVE! provides an opportunity for attendees to learn about industry trends and discover how peers are overcoming common challenges. But with so much happening over just a few days, it can be hard to take in everything at the conference. With this in mind, we hope you enjoy the following conference highlights.


As Schneider Electric Fellow Tim Sowell notes, “Businesses need strategies to transform the enterprise. This transformation journey will require manufacturers to move from data to information, from information to knowledge, and from knowledge to wisdom.” At the Wonderware LIVE! 2016 user conference, Schneider Electric shared many insights and tools to aid in this journey.

In addition to 80 educational sessions, this year’s show featured case studies and practical discussions around bridging the IT/OT divide and leveraging the convergence of big data, mobility and connectivity. Some of the best of these stories follow. We hope they help you in your organization’s own efforts to become more effective, productive and agile.

Thanks again to our users for such a successful show this year. We look forward to continued idea sharing and identification of best practices in 2017.

Sincerely,

Aravind Yarlagadda  
Vice President, Portfolio Strategy & Marketing  
Software Business  
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NEXT ARTICLE 

**The Value of the Digital Age Lies Within the Apps**

Digitalization

## The Value Of the Digital Age Lies Within the Apps

Schneider Electric expands its portfolio with [cloud-based collaborative software](#), [closed-loop IIoT offerings](#), [industry-specific apps](#), and a [universal automation configuration tool](#).

Executives from Schneider Electric kicked off the [Wonderware LIVE! user conference in Orlando](#) with a flurry of facts about the company, the economy and the emerging technology trends. All of this set the stage for a number of new product and service announcements that will shape the way manufacturers manage operations and buy technology in the future.

To start, Dr. Ravi Gopinath, Executive Vice President of Schneider Electric, reminded the audience in the opening session that the company's software business maintains its leadership position in the areas of operations control information management, operations management and process engineering because it adheres to a hardware agnostic model.

With that as a base, Schneider Electric continues to evaluate how its product portfolio can evolve to help customers, paying particular attention to fundamental shifts that shape business decisions. Specifically, manufacturers face challenges around commodity prices, they must also deal with global competition

and consolidation, as well as regulations around product quality and safety. In addition, a new generation of workers are forcing their employers to reevaluate how enterprise and plant floor technology can be used and consumed.

Then, of course, there are the technology trends that are not passing fads, including: the cloud, the Industrial Internet of Things (IIoT), mobility and Big Data and analytics.

Wonderware's technology covers a wide range of industries, but the real value-add comes in the specialized applications, Gopinath said. To that end, he is always asking: What does this mean in terms of the new digital age?

"It is incumbent on us to do the work and translate the value of the product portfolio into specific industry segments," Gopinath explained, noting that the company's Industry Solutions group supports life sciences, food and beverage, power generation, metals, mining, water, wastewater and oil and gas. This industry-specific strategy is using new application templates

that are easy to deploy for faster time to value, he said. In addition, Schneider Electric products will plug in to more connection points to leverage IIoT as well as to the cloud as a way to deliver subscription-based models for flexible consumption.

From an IIoT standpoint, Schneider Electric is taking its con-



NEXT ARTICLE 

[Schneider Electric's Software Vision](#)



nectivity to RTUs, PLCs, and DCSs, which it has been doing for decades, and adding support for devices that talk directly to the cloud through MQTT. More importantly, it can take that data and close the loop to improve overall asset performance.

For example, as a proof point, Schneider Electric is digitally connecting the electromagnetic equipment it makes to a historian and predictive analytics software in order to manage and monitor fault information, diagnostics and performance for its customers. The information captured can tie into business planning systems to see when something may fail. It can also provide feedback to the engineering teams to tweak how products behave.

Of course, at the heart of the portfolio is [HMI/SCADA](#), which admittedly, became confusing when Schneider Electric acquired Invensys a few years ago. So the company set out to design a framework that unifies the common core capabilities, which include device integration, interoperability protocols and alarms and analytics. These sit on a converged platform while continuing to capitalize on the strengths of each offering.

“The approach is to make sure HMI/SCADA and real-time control address the needs of different markets,” Gopinath said.

It also has to address technology shifts, including the acceptance of the public cloud—which analysts say has increased by 43.3% since 2011. Customers are moving from buying technology to “renting” it. Schneider Electric is cloud-ready when you are.



An example of a new Schneider Electric cloud solution is [Wonderware Online InSight](#) which provides access to any of the organization’s production and performance data from anywhere on a mobile device. By typing in the information you are looking for, much like a Google search window, content is automatically

generated with screens that look at time series data, bar charts, and even notifies operators when things go beyond certain conditions.

In addition, the introduction of InStudio, a cloud-based, menu-driven collaboration platform, allows an organization to make all of the engineering tools and editors for design, build and test, accessible to a global community of users.

“You will no longer go to a job site and not have the software version or corporate standards available because it is always available via the cloud,” said Norm Thorlakson, Schneider Electric’s Vice President of HMI and Supervisory.

There were many more announcements, including enhancements to the company’s Enterprise Asset Performance Management (APM) software and [Manufacturing Operations Management \(MOM\)](#)—now referred to as Manufacturing Operations Transformation (MOT) for the convergence of IT/OT. A preview was offered of InTouch Omni, the next-generation of HMI/SCADA management with multi-site management.

But perhaps the biggest news coming out of the conference is Prometheus, a [universal automation configuration tool that works across virtually any PLC, RTU or HMI in real-time](#). “Others have



NEXT ARTICLE 

[Schneider Electric’s Software Vision](#)





tried to do this and write directly to firmware, but Prometheus uses the native editors of any PLC platform,”Thorlakson said.

In addition, Auto Build adds a way to extract data from a PLC program in a defined template and pull it back into [Wonderware System Platform](#) to create configuration elements that correspond with user-defined templates. This can harmonize and manage a whole infrastructure in tight alignment with the HMI.

Collectively, the announcements unveiled at Wonderware LIVE! address the challenges customers face in the future. “We are in the midst of an incredibly transformative time,”Gopinath said. “What we are setting out to do is part of our vision to deliver value in the digital age.” ■



NEXT ARTICLE 

[Schneider Electric’s Software Vision](#)

Software Updates

## Schneider Electric’s Software Vision

A key session on the opening day of Wonderware LIVE! 2016 featured two panels showcasing the company’s vision for its [HMI/Supervisory, Information, Operations and Asset Management Portfolios](#).

In his opening session comments, Rob McGreevy, Vice President of Schneider Electric Software’s Information, Operations and Asset Management, spotlighted three business trends the company is watching closely. The

trends are: the shift by businesses across industries toward public cloud services, a continued tightening of capital expenditures, and an increased reliance on short cycle return on investment. The following “Vision Session”

showcased, in detail, how the company is aligning itself around these trends to position itself today and for the future.

Kicking off the session, John Krajewski, director of product management, HMI/supervisory, pointed out that Schneider Electric’s strategic initiatives to address these market issues revolve around technology differentiation and industry-specific orientation. Ranging from long-standing products such as Wonderware’s [InTouch](#), [InBatch](#), [Historian](#), [Ampla](#), and [Avantis](#) to new offerings such as [Wonderware Online InStudio](#) and [Prometheus](#)—all the updates clearly showcased capabilities around mobile enablement, cloud hosting, ease of configuration, and coordination of system information with operator tasks.

Following are key highlights from the session:

- Platform independence and ease of integration were highlighted for [Wonderware’s InTouch Machine Edition](#), the company’s embedded HMI product. InTouch Machine Edition can work with Microsoft’s Windows 10, Windows Embedded, and Embedded Compact platforms as well as Linux. It is also HTML5 enabled for web browser access from any device. In terms of interoperability beyond basic configuration with controllers, it features native drivers to more than 200 protocols for connection with multiple device types as well as native communication to the cloud via MQTT. Because data is transmitted only on exception, InTouch Machine Edition does not negatively impact network traffic—a key aspect for Internet of



NEXT ARTICLE 

**Prometheus: From Process Requirements to Code in One Tool**

Things applications.

- [The Wonderware InTouch HMI](#) will offer InTouch Application Templates in 2017. These can be used to create apps from base application templates, ranging from the simple to the complex. In addition to numerous standard templates available out of the box, users can also create custom templates within the application for reuse.

- [Wonderware Online InStudio](#) is all about taking Wonderware software tools into the cloud. Up to 50 applications can be installed and configured in this cloud offering for collaboration between sites, system integrators and supply chain partners. The platform is highly customizable—even down to the ability to reassign seat licenses—to enable management of your operations software infrastructure on the fly.

- To connect different applications in the cloud or in separate data centers, [Wonder-](#)

[ware Operations Integration \(OI\) Servers](#) are designed to handle the information explosion created by the connectivity of multiple locations, networks, people and devices. All OI servers are Internet of Things ready in terms of MQTT, OPC UA and SNMP enablement, and can also connect with products from numerous suppliers such as Allen-Bradley, GE, Siemens, Modbus, Beckhoff, Mitsubishi, Bosch Rexroth, and Omron. It also features automated project building capabilities that self connects with required devices on the network. In a highlighted demo during the Vision Session, the OI server was able to complete a diverse, system-wide PLC map with nearly 7,000 references in less than five minutes with no configuration required.

- [Prometheus](#) is a new Wonderware product. It is a high level, visual language for programming controllers that can connect to any platform. It features five ontology engines to guide

users through the process. The software can be used to create and connect everything in a control system from communication specifics and I/O configuration to tags. It can also tell if someone has tampered with a device.

- [Wonderware System Platform](#) will be renamed [InTouch Omni](#) to reflect its evolution into an IT/OT convergence platform. InTouch Omni is designed to facilitate access to all the information across a company and supply chain by simply clicking on a device on the map and drilling down into its details. It features simplification upgrades—via new Object Wizards in addition to System Platform’s existing Symbol Wizards—made by Schneider Electric in response to customer requests to make the platform even easier for technicians when instantiating new devices. Using InTouch Omni, users can just drag and drop a device from the library onto the screen and it self-creates the device on the platform for configuration.

InTouch Omni is also more flexible as it can work on any device and supports multi-touch interaction, such as swiping, pinch and zoom.

- A model-driven approach is being brought to Wonderware MES, InBatch, Ampla and Recipe Manager Plus, as well as third party apps managed via [Wonderware Skelta BPM](#). This move to a model-driven platform allows for Skelta BPM business rules to maintain a library of best practices for applications across sites. The model-driven process guides users through specific process steps based on the company’s established best practices.

- [Wonderware Online InSight](#) is a new HTML5 enabled software as a service offer that brings industrial data to virtually any device, anywhere, anytime. The product’s new features reflect industry’s interest in moving away from heavy customization and toward easier deployment regardless of whether the data will be viewed on a desktop or mobile device.



NEXT ARTICLE 

**Prometheus: From Process Requirements to Code in One Tool**





This move makes implementation seamless for online, on-premises or hybrid installations. Users can see, for example, the current operating status of pumps and drill down to identify potential problems. They can even see the impact of the current operating status on energy consumption. Via connections through InTouch, Historian SDK, OI Server or even OPC UA or MQTT, Historian InSight can connect plant sites to corporate offices as well as to suppliers and/or partners.

- Schneider Electric's vision for asset management is [EAPM \(Enterprise Asset Performance Management\)](#) based on the five themes of: Generate—connect plants to enterprise-wide systems and sources; Collect—capture high fidelity processes production and equipment data on-premise or in the cloud; Analyze—apply machine learning, advanced pattern recognition and rules-based logic for asset monitoring; Visualize—uncover hidden opportunities using reports dashboards and KPIs on mobile devices; and Act—enable the workforce to make decisions based on timely access to data via mobile and in-enterprise collaboration. All of the company's asset management products, such as PRISM and AvantisPro, are being modernizing for web-based maintenance capabilities, as well as for inventory and procurement monitoring on desktop and mobile devices. ■



NEXT ARTICLE 

**Prometheus: From Process Requirements to Code in One Tool**

# Prometheus: From Process Requirements to Code in One Tool

A new software release from Schneider Electric gathers production asset information so that users can outline process specific requirements and auto-generate code for PLCs, HMIs, RTUs and more.

Knowing the requirements of a process is one thing. Communicating those requirements in a way that a control engineer clearly understands them and can use them to program PLCs, HMIs and other automation technologies to manage that process—even as it changes over time—is quite another.

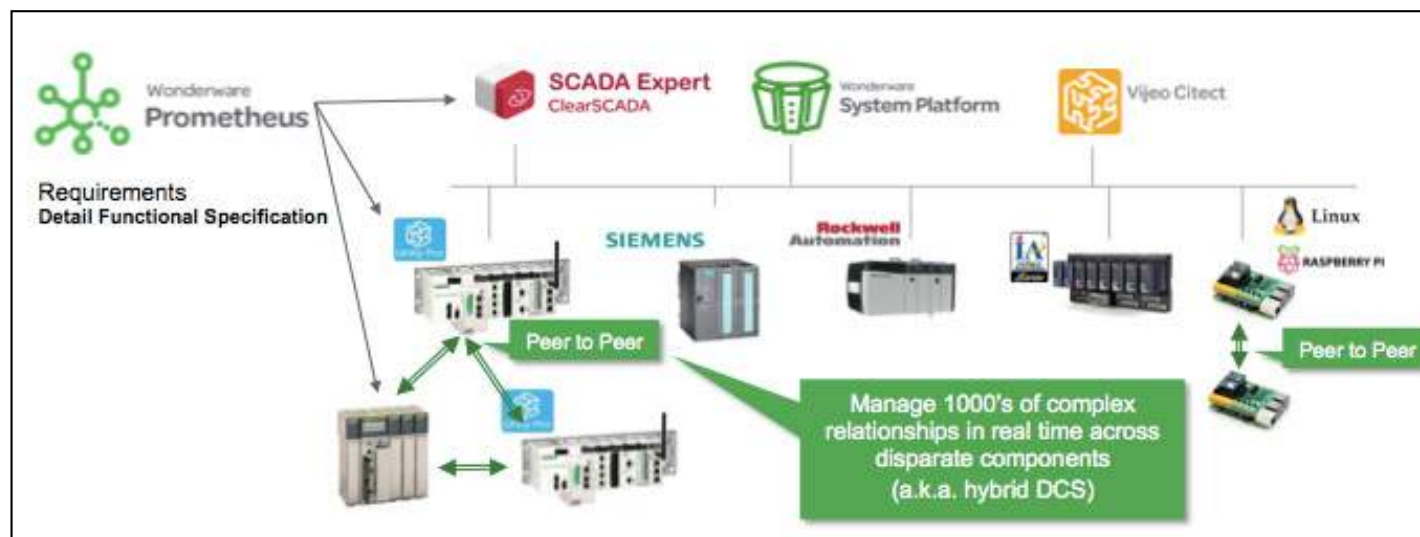
To address this long-standing industry issue and provide a tool not only for translating process requirements into automation code, but also for creating a standardized process for program re-use and adaptability to changes in the process environment, Schneider Electric is releasing Prometheus.

As Scott Clark, Director of Control Configuration and Management, Global Solutions, Schneider Electric, explains it: “Engineers need a tool that can gather the process requirements and create PLC code to help keep the engineering and operations focused on what the process needs to do. Prometheus is a requirements

gathering environment where you can create detailed specifications and auto-generate PLC code and HMI configurations from it.”

And it can gather those requirements extremely fast. According to Clark, Prometheus can import data on up to 105,000 assets in eight minutes. That data includes all configurations, wiring, and relevant parameters for connection and operation in a complex automation environment.

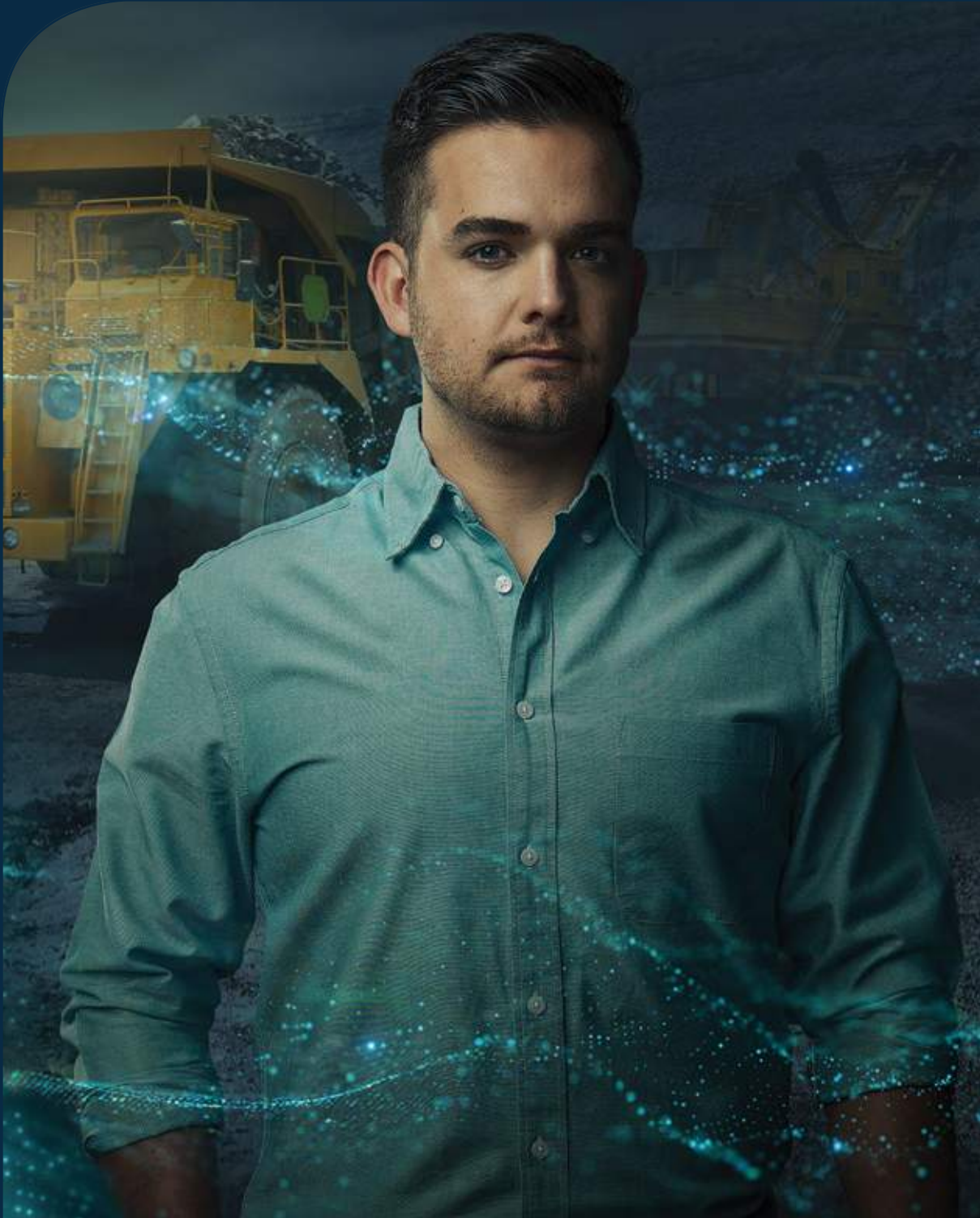
Prometheus can “seamlessly communicate with any number of automation devices regardless of the supplier platform, whether it be Siemens, Rockwell, Schneider Electric or even Linux,” Clark says. Key to Prometheus’ interoperability is its communication via XML. “All the information for what the controller, HMI or MES needs is packaged up in Prometheus and output to XML where we can apply a post process loader written in any language,” he



NEXT ARTICLE ►

**Wonderware Online InStudio:  
Automation Infrastructure-as-a-Service**





explains. “The loader uses whatever API is available in the target platform to load the XML from Prometheus into it. For example, there’s a UnityPro Loader for Schneider Electric products, an S7 Loader for Siemens Simatic Manager, an RS Loader for Rockwell RSLogix5000, an ArcestrA Loader for the Wonderware System Platform, a ClearSCADA Loader for Schneider Electric’s ClearSCADA, and a C Loader for Raspberry Pi and Linux.”

Clark emphasizes that Prometheus “does not deploy directly to the device. Instead, Prometheus creates a configuration file that’s loaded into the vendor’s software, which then downloads it to the device. Using this process, we can put everything you want to do when deploying code to a device—from archiving to impact analysis—and test it all offline first before injecting it into the device online.”

In terms of standardizing access to a complete automation environment, Clark notes that, with Prometheus, there is no longer just a version of the environment on a disc “in someone’s desk or on a server and you don’t know which is the right version for which PLC. With Prometheus it’s in a corporate repository where you can see all projects, up to date, in one environment and in one common language.”

Beyond Prometheus’ ability to communicate with multiple automation brands, another important facet is Prometheus’ ability to reuse of code when expanding operations or replacing equipment. “Engineers typically rely on function blocks for this, but the problem is when you have 100 motors and you want to change one of them,” Clark says. “You can’t just go back and change that base function block without changing all 100 of them. With Prometheus, we can break free of those constraints through the standard reuse capability available in any controller. Prometheus requires only the device code necessary based on each feature and function of that asset. That information can then be formatted in a template in Prometheus, and can then be reused as often as needed.” ■



NEXT ARTICLE 

**Wonderware Online InStudio:  
Automation Infrastructure-as-a-Service**



Testing & Deployment

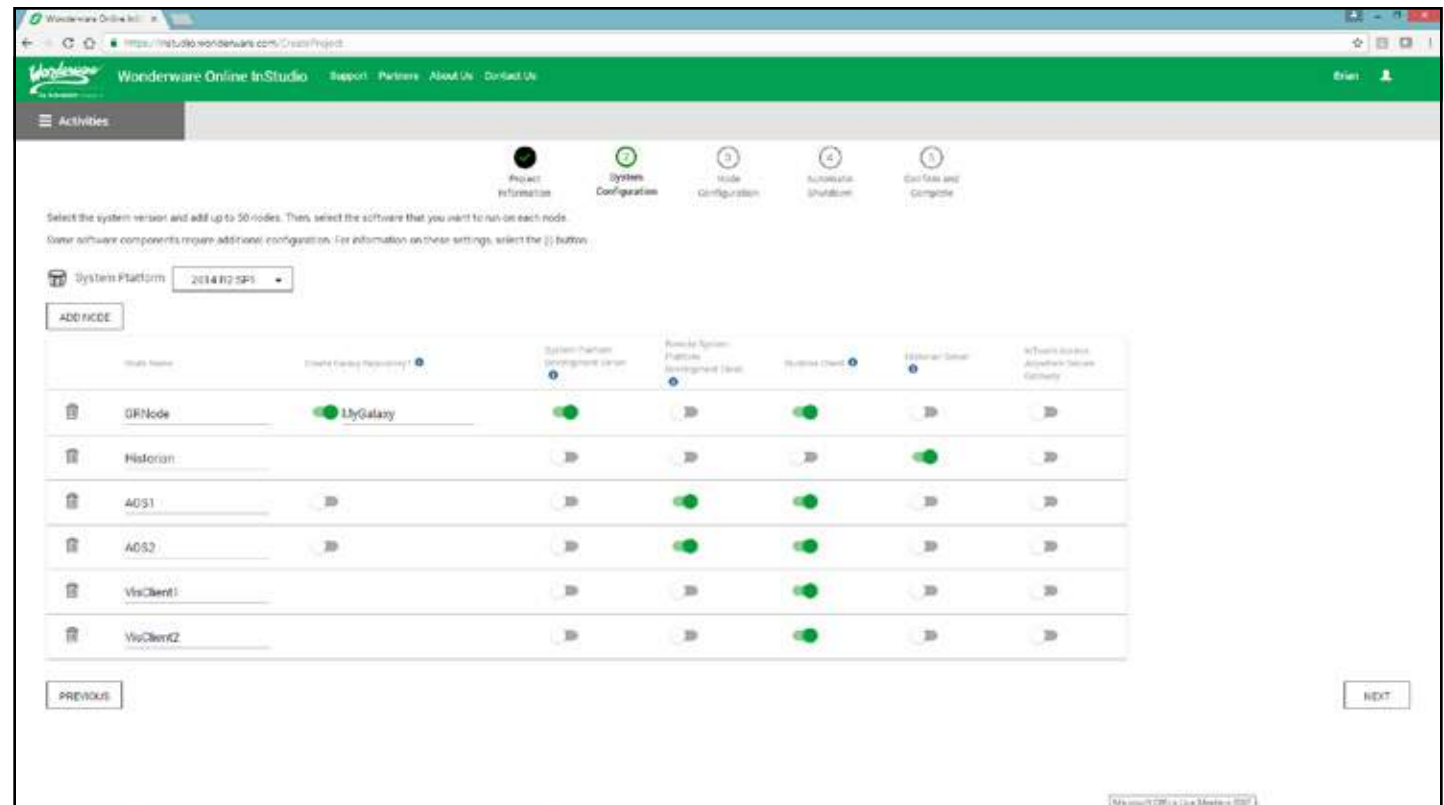
## Wonderware Online InStudio: Automation Infrastructure-as-a-Service

Schneider Electric announces a [new online service](#) where users can create automation projects, add machines to the project and select from a variety of software versions to test and run applications.

Having worked with a variety of industrial companies on numerous automation projects, John Krajewski, Director of Product Management, HMI/Supervisory, Schneider Electric, knows that one of industry’s biggest concerns about new software applications is that the first time they get to experience it fully in action is when it goes live as part of their production system.

“Most manufacturers do not have a parallel system that mirrors their production system where they can test new applications, because their production systems are often just too big,” Krajewski said. “This means that the first time manufacturers get to see new software in action is when it’s deployed full scale in their production system.”

This industry reality is behind Schneider Electric’s development of Wonderware Online InStudio. Built on Microsoft’s Azure cloud computing platform, Wonderware Online InStudio allows users



NEXT ARTICLE

**Putting Data Into Context**

to revision production resources in the cloud and then apply them on the plant floor. Designed to streamline the testing, deployment and use of Wonderware software, the initial release of the product will feature Wonderware's HMI and supervisory software. All Wonderware software will eventually be able to be used within Wonderware Online InStudio.

"In essence, Wonderware Online InStudio is a web front end where you can create projects, add machines to the project and select from a variety of versions of our software," said Krajewski, explaining that all versions of Wonderware software currently supported will be compatible with this new service.

Providing use case examples for Wonderware Online InStudio, Krajewski said users could configure a machine in the service to be "in historian mode, and another machine to be a configuration repository, and another to be an object server, or an HMI

server. They can provision a large number of machines with this service so that they can have a list of machines at their disposal whenever they may need them and pay for them on a per-use basis. So when they need the machine, the software will already be installed, the applications they need will be installed, and it will be ready to use."

Wonderware Online InStudio is not restricted to Wonderware software applications. Because the service hosts virtual machines, "you can put in anything you want, not just Wonderware software," said Krajewski. "You can put PLC emulation software or VPN software so that you can connect to actual assets on the plant floor. If you have an OPC server or one of our Operations Integration Servers on the plant floor, you could set up a VPN and tunnel into your network and access them directly. Wonderware Online InStudio is a full Microsoft operating system running

virtualized in a cloud environment."

Krajewski notes that direct connections from Wonderware Online InStudio to plant floor assets will likely be a less common use for the service in the near term. "What we expect to be a more common use is when users are considering a new automation project and want to create a proof of concept for how the system will look and how the data flows will happen. From this design stage, users can then develop and test where the full development suite of software will be in the system. Users can build out their entire system in Wonderware Online InStudio and transfer things to and from the virtual machines and the on-premise devices as needed. They can loop and reiterate their development design as they learn what works best and then even conduct FAT (factory acceptance testing) in Wonderware Online InStudio before running anything on site. ■



NEXT ARTICLE 

[Putting Data Into Context](#)

Data Analysis

## Putting Data Into Context

Updates to [Wonderware Historian InSight](#) and [Wonderware Intelligence](#) bring new capabilities to the [Wonderware Information Management Portfolio](#) to make data more actionable by operators and executives.

[Wonderware Online InSight](#) turns industrial data into powerful insights accessible anywhere, anytime. It allows users to take data from on-premise solutions such as [Wonderware Historian](#) or Wonderware InTouch () and makes it available via a web-browser with no configuration required. This is key in bridging the IT/OT gap and puts critical operations data in the hands of users across

the enterprise who do not have (or need) full access to the control system or Wonderware Historian.

Having access to an abundance of data is one thing - it's the ability to view that data in context which makes it valuable to a wide enterprise audience of decision makers. As presented at Wonderware LIVE!, the new capabilities of Wonderware Online InSight will do just that.

Elliott Middleton, Senior Product Manager, Schneider Electric, said, "To understand all the real-time process data you collect, you need to put it into context with everything else that's happening. You need to take those isolated, current values from a device and put them into a historical and operational context."

Noting that SQL queries (as a

means to extract data from database) are "fine for some people, InSight was created to provide simple, browser-based access to process data," said Middleton. Furthermore, users don't have to be familiar with tag names to use it. InSight also allows users to display data in many different ways, such as column charts or line charts, and the data can be parsed in daily or hourly segmentations, or in any collection quantity the user prefers.

New scenario guides in Wonderware Online InSight make tasks, such as tracking downtime, easier too. User can "historize downtime tags to create a simple downtime tracker that accurately records micro-stops and provides a pareto chart of downtime," said Middleton.

Referencing a customer example involving a high-speed filling application that was creating throughput issues, Middleton said that, by using Wonderware Online InSight, the customer was able to identify which aspect of the application to focus on. After determining and fixing the limiting factor that was affecting



NEXT ARTICLE 

[The Right Recipe for Regulatory and Market Conditions](#)





throughput, this customer achieved its return on investment on the historian product within two hours.

To use Wonderware Online InSight to bring contextualized data to the enterprise, Middleton said the safest way to do that is to place another historian on the network and use the software's replication facility to connect data between the two instances. In this way, by not requiring enterprise users to cross the plant floor firewall, the connection meets NERC CIP cybersecurity requirements, as Wonderware Online InSight data communications are single port and out-bound only with well-defined endpoints. And for those customers who prefer the traditional on-premise approach, there is the Wonderware Historian InSight browser client. This provides the same easy access to information and contextual data, but without the associated mobile and intelligent newsfeed capabilities which can only be delivered via the secure cloud.

Also introduced at Wonderware LIVE! 2016 was a Wonderware intelligence time slicing capability, which uses tags to create intelligence reports rather than requiring the creation of custom queries. According to Christian-Marc Pouyez, product manager, Intelligence and Energy Management at Schneider Electric, intelligence time slicing "slices data by batch and computes metrics for each batch produced, such as volume in and out for each batch."

The output of the software—which can span multiple types of data—is a Gantt chart of each production line that highlights yield (or other objectives) for each line in a graphically, comparable way. ■



NEXT ARTICLE 

**The Right Recipe for Regulatory  
and Market Conditions**

# The Right Recipe for Regulatory and Market Conditions

Wonderware rolls out [Recipe Manager Plus vs. 3.5](#) with support for electronic signatures, audit trails and reports, and an easy way to recreate the “golden batch.”

When it comes to effectively managing a batch recipe, there’s no such thing as having too many cooks in the industrial kitchen.

Whether it is a food and beverage, pharmaceutical or chemical company, each department within the organization needs to understand the dynamics of every recipe in order to meet specific needs. From finance (understanding costs) to purchasing (managing materials) to quality control (meeting specifications) to maintenance (taking care of equipment), and, of course, production (making the product), everyone must have access to the basics of the batch.

To that end, batch management is a critical application for managing orders and the execution of recipes across plant floor equipment when variations in the material usage and settings change between products. And full-blown batch management products, like Schneider Electric’s Wonderware’s InBatch software, are designed to manage flexible batching processes—from recipe modeling to simulation to batch scheduling and reliable execution with sophisticated equipment and material management.

Tied directly into the control architecture to interact with the process, batch management systems are effective for multi stream and multi product plants. It can be overkill, however, in a single stream production environment or when formula management is all an organization needs.

“Many production processes do not require large flexibility,



particularly when it comes to packaging,” said Michael Schwarz, MOM & EMI Marketing Manager, Global Software, Schneider Electric. “Food and beverage and life sciences customers want recipe management systems to safeguard consistent quality and reduce cost of regulatory compliance without the overhead of sophisticated batch management.”

To accommodate single batch and production line processes, Schneider Electric developed Wonderware Recipe Manager Plus, which simplifies the recipe deployment and execution within manufacturing operations.

[Recipe Manager Plus](#) is control system-neutral software designed specifically for formula management and download. It is scalable in adding procedural execution management functionality, using state interface functionality in line with the ISA 88.01 standard on batch control.

Integration with OPC UA and Wonderware System



NEXT ARTICLE ►

[IIoT in Action](#)

Platform enables formula and procedure parameters to be downloaded to almost any automation system. The product includes a role-based Web interface that can be shared across the work team, embedded within an existing HMI or in browsers on panels, workstations or any mobile device that is HTML5 compatible. And, security is maintained with SSL encryption via Wonderware ArcestrA Security Token Service.

### Recipe for Life Science

Recipe Manager Plus version 3.5, unveiled this week at Wonderware LIVE!, adds functionality to support life science regulatory guidelines, as well as enhancements for importing a “golden batch” formula from execution history.

New “done by/check by” electronic signature settings document every user action. Electronic signatures, audit trails and reports are included to help companies comply with U.S. Food and Drug Administration (FDA) regulations and good manufacturing practices (GMP).

Separately, the “golden batch” set up—which is an industry term used to describe a recipe that provides the best quality under the most effective conditions—can be now turned into a new formula version or new formula template for future use. Automatic electronic records of recipe versions and execution details help to fine tune recipes and lead quickly to the golden batch, which then can be enforced to maximize production output.

“There is need for more documentation and governance due to

regulations, but there is also a need for more agility to take product variations to the market for a competitive advantage,” Schwarz said. “We believe having a focused approach to recipe management, with no specific PLC orientation, is unique in the market.”

And back to all those cooks in the industrial kitchen, a key aspect of Recipe Manager Plus is its Web-based user interface, which can be leveraged across a company network. It can be accessed by individuals in the enterprise, in R&D, in central engineering and in the local plant, and includes built-in governance functionality configurable to each individual’s role in the organization. That’s a recipe for success. ■



NEXT ARTICLE 

[IIoT in Action](#)



Real World Applications

## IloT in Action

Despite all the hype around the [Industrial Internet of Things](#), it is a very practical and achievable goal for industrial companies of all sizes through the use of existing—and increasingly inexpensive—technologies.

The [Industrial Internet of Things \(IIoT\)](#) is likely the most widely discussed and promoted new technology advance since the initial buzz around the Internet two decades ago. For industrial companies, most new technology advances are viewed some-



**Schneider Electric's Alvaro Martinez, Elliott Middleton and Fabio Terezinho in the "IIoT in Action" session at Wonderware LIVE.**



what skeptically at first until they are proven suitable for use in industry applications.

With IIoT, however, industrial companies are at the forefront of the movement because the required infrastructure of sensors, data collection devices, and networks are largely already in place. What's needed is a better way to connect, analyze and visualize the collected data in a way that's useful to decision support by operators, engineers and management.

And that's exactly what the "IIoT in Action" session at Wonderware LIVE 2016 focused on — how to implement a working industrial IIoT scenario, based on actual customer use cases.

Elliott Middleton, Wonderware Senior Product Manager, pointed out that one key for industrial companies to unlock greater value from IIoT is to focus on improving visibility to actionable intelligence, such as what can be gained from additional instrumentation. He gave an example of a food and beverage manufacturer that had not instrumented its remote raw material silos because of the cost of doing so with traditional sensing and networking options. The company wanted to instrument these remote silos

because monitoring and controlling such factors as temperature and humidity could have a beneficial bottom line effect.

Now, low-cost sensing devices, powered by products such as the System on Chip ESP8266, can give any microcontroller—such as those in an instrument—the ability to connect to a Wi-Fi network. Products like the ESP8266 can be obtained for as little as \$3, Middleton said. "Such low-cost sensors essentially cut the price of instrumenting remote systems in half," he noted.

Users can also get a Raspberry Pi, which is basically a full PC running Linux, for about \$30. These can be used as edge computing devices in an IIoT application.

"The price for the additional infrastructure needed for IIoT is getting really low," Middleton said, "so we focus on providing the tools to save money on the engineering processes required to get all this data to the cloud or on-premises server for analysis and decision making."

Fabio Terezinho, vice president of consulting at InduSoft, a Schneider Electric company, explained that [InTouch Machine Edition](#) (for embedded HMI applications) can be used to transmit

NEXT ARTICLE 

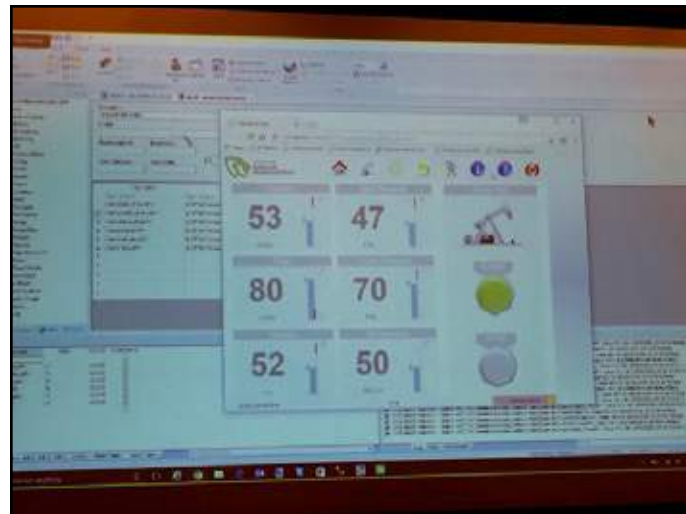
**Industry 4.0 and The New World of Work**

aggregated sensor data for analysis. It also includes data acquisition capabilities and works with Linux and VxWorks, which is key to interoperability with the low-cost sensing and computing options described above.

“Of course, many new sensors can send their data directly to the cloud,” he said, “but that’s not practical and not the best idea because of the volume of data they generate. That’s why it’s better to have an embedded device on site to collect all the raw sensor data and consolidate it before pushing to the cloud. Wonderware’s IoTView, which features native drivers for multiple protocols and provides connectivity to the cloud, can also be used to push sensor or controller data to Wonderware System Platform, or directly to the cloud. There is no programming required to do this, a PLC engineer can manipulate the data as needed.”

Terezinho demonstrated how, in just a few minutes, a user can publish data to an MQTT broker. “Then, whenever a value changes in the tag, data will be sent to the broker,” he said.

Other applications, such as for visualization ([InTouch](#)) or



**Live data from a pump located in a Texas oil field shown in the “IIoT in Action” session at Wonderware LIVE.**

analysis ([Intelligence](#)), can connect to the broker to get all the data they need.

“The platform for this is very small,” said Terezinho, “you can do it on a phone or any device with a web browser and see all the data in real-time.”

As part of his demonstration, Terezinho also connected to a remote PLC on a pump in an oil well in Texas to view its real time data—such a flow and pressure rates.

“For an IIoT application, the process of connecting the pieces is essentially just like connecting to any device in the field. The only difference is having the broker in the middle” to help manage all the data, Middleton said. He added that Schneider Electric’s Wonderware has a test broker so users can assess their IIoT applications before deployment to streamline the deployment process.

With the cost of IIoT technologies coming down so dramatically and the potential benefits so high, Middleton encouraged industrial users to look beyond their control network and workstations—the sources of most current data collection—and consider instrumenting remote equipment and raw material supplies. “You can do this by leveraging IoTView for edge and embedded applications and extend your HMI-only applications with [Wonderware Online InSight](#),” he said. ■



NEXT ARTICLE 

**Industry 4.0 and The New World of Work**

Digital Evolution

## Industry 4.0 and The New World of Work

True operational transformation will require technology to support new ways of thinking about jobs, the way people who do them, and the information they need to do it.

[The digitization of processes and systems](#), inherent in concepts like [Industry 4.0](#) and [the Industrial Internet of Things](#), is enabling the greater collection and analysis of data, potentially allowing companies to make better decisions faster. But more companies are beginning to realize that the growing speed at which business and technology change is necessitating not just new ways of thinking about technology, but about the nature of work itself.

At Wonderware LIVE! 2016, Tim Sowell, Schneider Electric Fellow and Vice President of System Strategy, said, “Businesses need strategies to transform the enterprise; to transform data to information to knowledge to wisdom. Most businesses have lots of data, but not a lot of wisdom—and the two need to be proportional.”

According to Sowell, the key to this transition means thinking differently about how people should work in continuously adapting environments and how technology should support them and enable them to do so effectively.

The biggest factor in this change is recognizing that people should be viewed as rotational, Sowell said. Running a company is no longer about “attracting people and keeping them. You have to assume they’ll rotate and your systems need to support that,” he said. “So you need to embed the knowledge necessary to do the job into system, and then augment it with humans” and their decision-making capabilities.

Key to this is recognizing the difference in training requirements for Baby Boomers/Gen Xers and Millennials—also known as digital

immigrants and digital natives, respectively. For starters, digital natives multitask naturally. “They start work on something, move to something else, and then come back,” said Sowell. “Your systems need to be able to support that,”

rather than a linear way of working.

He adds that it was once thought that the average tenure of a Millennial in a given position would be 2.4 years by 2020, but he’s seeing even that low figure coming down. “So



**Tim Sowell (left) and Sree Hameed (right)**



NEXT ARTICLE ►

**Reacting to the Right “Situation”**



you can't design plants based on experience and process knowledge gained over time as we have in the past. You have to be able to rotate staff often and not lose productivity. That requires a fundamental shift in design."

And though it has been increasingly popular the past several years to say it's impossible to develop a five-year plan for a company due to the rate of business and technology change, Sree Hameed, Schneider Electric's Software Marketing Manager for North America, contends that smart companies are focusing on 10- and 20-year plans.

"That may seem like a long way off, but when you think about corporate inertia and how long it takes to change things, this is the right

way to look at it—especially with automation technology life spans of at least 10 years," said Hameed. "You have to think about whether your automation decisions will enable agility and adaptation moving forward or create inertia."

"You need to free up the mind of the operator to adapt to change by automating as much as possible to transform processes and policies in a way that shifts more sophisticated business rules closer to the edge of execution for real-time response," added Sowell.

"The way people work requires information from HMIs, MESs and Historians," said Sowell. "So you need to capture all this information in a system to enable employees to do their jobs instead of designing these systems separately."

He noted that the evolution of Wonderware System Platform into InTouch Omni, which was announced at [Wonderware LIVE! 2016](#), reflects how Schneider Electric is adapting its products to address the markets' business requirements.

The bottom line is that industrial businesses are not asking technology companies about "mobile, Big Data or IoT," said Sowell. "They look at products, markets and the operations they'll need to run to deliver their products to market."

The digital manufacturing vision of Industry 4.0 and IoT that can help companies deliver on their plans, needs a platform strategy, said Sowell. And, that strategy shouldn't care whose controllers or sensors are used in your machines or plant floor systems. It has to let you con-

nect plant floor systems to the corporate level, interoperate across automation devices and manual operations, record streams of big data, visualize factory operations, contextualize business processes for plant level users, orchestrate production processes and, finally, standardize and scale these processes across the enterprise while supporting continual evolution.

As daunting as it may sound, Sowell contends that it shouldn't be viewed as "a big project, but a journey made one step at a time. Start with the right business processes that will get the right results before focusing on the right technology architecture. By doing that, we have a chance to transform the way we work." ■



NEXT ARTICLE 

[Reacting to the Right "Situation"](#)

Human Machine Interface

## Reacting to the Right “Situation”

Wunderlich-Malec built an intuitive situational awareness system for the City of Las Vegas that blends context and data, helping operators to take action.

There are many reasons why [Wonderware System Platform](#) is the preferred choice for Systems Integrators: Its in-depth visualization,



**Jason Moore, Las Vegas operations manager at Wunderlich-Malec.**

alarm and reporting tools. Its role as a centralized management system for plant controls. And, its ability to be easily customized to fit industry-specific situations.

Take the case of the City of Las Vegas, which turned to Wunderlich-Malec, an engineering and systems integration firm in Nevada, to help operators in its Environmental Division quickly recognize issues in the wastewater operations. The problem was that 52 percent of the “trouble calls” were a result of human error. Sometimes the operator was not reacting to the right data served up on the HMI. And often, there were deviations in implementation, despite organizational standards.

The city wanted to do more with less and capture the tribal knowledge that exists in op-

erators’ heads in order to help everyone make informed decisions about “why” something is happening right now.

“We had to fix this with intuitive operator displays that could bring the right data to the attention of the operator at the right time,” said Jason Moore, Las Vegas operations manager at Wunderlich-Malec. “We had to move the knowledge and perception from the individual to the system.”

To do this, Moore had to program more context into [the system design and add situational awareness](#).

First, he got the SCADA master plan for the city and conducted a gap analysis. Then there was the research of abnormal situation management (ASM) and high performance HMI with proto-

type development. Wonderware System Platform from Schneider Electric was leveraged to integrate both Wunderlich-Malec and [Schneider Electric’s situational awareness libraries](#), which Moore used to create a customized interface that allows the operator to instantly see, understand, make deductions and reason potential outcomes of what is being displayed.

The situational awareness set up is based on a hierarchy for navigation and aggregation that spans five levels of fidelity to enable fast decisions and action. Level 0 addresses concentrated data from multiple sites; level 1 takes single site data; level 2 pulls process data; level 3 uses the process control data; and level 4 looks at all of the devices.

The differing levels of fidelity span from the



NEXT ARTICLE 

**Enhanced OEE for Packaging Line Management**



“big picture” to the small details of perception that provide clear comprehension for the operator, thereby allowing them act.

“We decided if we did something that had more context and value surrounding the data, then it had to include navigation based on tribal experience,” Moore said. “These are the breadcrumbs used to drag the operator to where the trouble is.”

How all of this is displayed is extremely important, as well. Too many lights and alarms—or not enough—can jeopardize the operator’s interpretation.”

“You have to prioritize where you use color and animation,” Moore said.

As a result of the work done with the City of Las Vegas, the Wunderlich-Malec team has a better understanding of how to add value for the operator as well as the business, and, as a result, the team is creating its next-generation of situational awareness tools.

“The road ahead is all about improving on yesterday,” Moore said. ■



NEXT ARTICLE 

**Enhanced OEE for Packaging Line Management**



Best Practices

# Enhanced OEE for Packaging Line Management

How [Line Performance Suite](#) provides a path to continuous improvement of packaging operations based on best practice standardization.

Across industry, the factory is increasingly viewed as an asset to be squeezed. Indicative of this viewpoint, “Key aspects of how to evaluate the performance of food and beverage packaging line operations are reduced inventories, lower end-to-end cycle times, and higher asset utilization,” explained Xavier Marfa, Food & Beverage Business Development Manager, Industry Solutions, at Schneider Electric.

“Add to this increasing customer demands for new packaging materials that require more changeovers and faster replenishment cycles, coupled with a general lack of visibility into market supply and demand risks,” and you see a clear need to move toward a culture of empowerment for operations and engineering personnel.

Key to this empowerment, however, is the automation of mundane or manual data collection paperwork tasks, which are often required of packaging line operators, engineers and managers which hurt efficiency and

operational agility.

“A typical plant runs 24/7 and manages its own production data with Excel. Simple data collection tools are not linked,” said Wen Jian Lee, Food & Beverage Offer Manager, Industry Solu-



tions at Schneider Electric. “Meanwhile, production volumes are steadily increasing, so people must work faster or more efficiently to fulfill demand. Machine operators, for example, have to handle all the reports associated with production, performance, availability and quality details. This paperwork distracts them from their core machine operating tasks, leading to the recorded data quality being questionable.”

Likewise, production supervisors have to get purchase orders from the ERP system, manually assign orders to lines, and then validate completed orders. Engineers, who should be focused on analyzing and eliminating production losses, have to gather production data from the last 24 hours before doing any analyses. Meanwhile, managers are not getting timely or accurate data from operations and engineering, so as a result, make less-than-optimal or even bad decisions.

“To break this cycle, most companies frame the ques-



NEXT ARTICLE 

[Predictive Analysis for Water/Wastewater](#)

tion as: Should we hire more people or invest in more machines?” noted Lee, who pointed out that a more cost-effective answer lies in managing their production data better.

“Manufacturing packaging lines produce high volumes of data, which means that operators and engineers have to swim through massive amounts of data—often in unstandardized reports—to find the information they need,” Lee said. “But if you have a single platform for data entry and reporting so that the data can be presented in the way users need it, anytime and anywhere, then that changes the whole scenario.”

Lee highlighted how [Line Performance Suite](#)—a turnkey OEE solution just launched—is a platform for work order execution and real-time data acquisition that provides visibility into production equipment use as well as enhanced reporting tools for each role in manufacturing packaging line operations.

“Line Performance Suite differs from standard OEE software in that it can drill down into root causes, run reports and analytics on large volumes of data without impacting MES, is model-based driven by operating best practices, and features an open and easy user interface for form creation and modification,” Lee

said. “Plus it’s extensible with other Schneider Electric software products. It’s also easy to install and configure because of its model-driven, wizard-based configuration.”

Lee also noted that, although Line Performance Suite features eight pre-defined, standard reports, these reports can be modified as needed. The pre-defined reports are based on Lean Manufacturing/Total Productive Maintenance practices to highlight utilization by timeline and entity, mean time between failures (MTBF), mean time to repair (MTTR), quality, availability, performance, and event analysis.

With Line Performance Suite’s common platform for data entry—which can be automated—information that has to be keyed in manually can be standardized for ease of operator and data consistency. “All data in the software is time sliced, categorized and consolidated by Wonderware Intelligence so that it is ready to be presented appropriately in a variety reports,” Lee said. “This allows operators to focus on production tasks rather than spending so much time on data gathering, cleanup and input.”

For supervisors, Line Performance Suite features automated purchase order handling for central management of work orders.

“Data can be viewed on dashboards or in detailed reports,” said Lee, so that supervisors can spend more time focusing on shift coordination optimization.

“Now, every morning, the production manager can meet with everyone and have all the data needed ready for review, with no time spent digging through data,” Lee said. “This means that engineers can spend all day on continuous improvement activities and managers can better focus on strategic decisions to improve factory operations.”

With a model-driven, best practices approach, users can achieve sustainable continuous improvement results. “Because Line Performance Suite is workflow-driven to guide users, changes to improve operations can be embedded into processes to stop faulty practices,” said Lee. “In addition, best practices can be easily shared across factories because Line Performance Suite enables process standardization and governance, which is enhanced by its role-based model that clearly defines how everyone participates in the improvement process.” ■



NEXT ARTICLE 

[Predictive Analysis for Water/Wastewater](#)

Simulation & Visualization

## Predictive Analysis for Water/Wastewater

By connecting a simulation engine with SCADA, [Schneider Electric's Water Network Optimization software](#) expands the view of an existing infrastructure while offering up what-if scenarios.

We need water. We are so dependent upon it to live, that, when there is a disruption in water distribution it makes people panic in the community. When there is a crisis—like tainted drinking water—it makes the news.

It is hard to imagine that this critical resource is often flowing



through an archaic infrastructure of pipes. There are SCADA systems to provide real-time data feeds back to the municipality's operations center, but visibility is limited to what is happening now. In a real-time world, if there is a water main break, "now" is already too late.

On top of that, there are many stranded assets, like a pump with no sensor that doesn't send any data back and therefore can't be monitored remotely.

"We all want to optimize the processes and the network, but you can't manage what you can't see," said Rudy Engert, of Schneider Electric's business development infrastructure group in North America. "With a stranded asset we have to wait to see what is going on upstream, or until we get a customer complaint."

Since it's not likely that cities are going to retrofit thousands of miles of water pipes with sensors on all instrumentation, organizations need to tackle the problem in a different way using operational technology to create predictive models.

Schneider Electric's Water Network Optimization (WNO) software, services and support solution helps operations managers and control room operators reduce the risk and cost of managing the water distribution network. Included within WNO are the tools that connect Aquis, a simulation engine, with Wonderware System Platform. By including these systems, WNO can provide predictive analytics and what-if scenarios to leverage real-time data into future forecasts.

The WNO industry solution layers on top of the technology an organization already has, using information collected from the SCADA system that controls flows, pressures, levels, pumps, etc., and the geographical information system (GIS) for visualizing and mapping what belongs where. In addition, WNO also taps into the engineers' hydraulic model used for planning network extensions, as well as customer billing systems.

"We take real time measurements from SCADA, asset management from GIS, additional asset data from the hydraulic model,



NEXT ARTICLE 

[Serialization for Life Sciences](#)





and contacts from the billing system,” said Manuel Parra, business development for Schneider Electric’s Smart Water in the Americas.

Control operators can use WNO to build simulations off of the existing real time models, adding processes and conditions to create scenarios of what could happen if that pump shuts off at 3:00 a.m., for example. And, because the software is looking at the operation, no hydraulic skills are needed.

WNO can show the performance of a network zone—vs. specific data points coming from the SCADA system— and then analyze that behavior, thereby creating a simulation of areas that typically can’t be accessed. Now, rather than waiting for a technician to call back with information from the field, and making a decision without all of the understanding of its impact, operators can click on the interface to see what would happen if they closed a valve.

Because there is a visual of the zones, and WNO has customer contact information, it provides the ability to show the area of the community were people may have a disruption in their water service as a result of that valve closing, to then let operators proactively manage the customer experience in the most positive manner.

“With a couple of clicks you can assess if [your decision] is a viable option,” Engert said. “It is giving context to the data from the whole activity. . . to let you to do what couldn’t do in the past, because you didn’t have sensors or predictive abilities to do so.” ■



NEXT ARTICLE 

[Serialization for Life Sciences](#)

Track & Trace

# Serialization for Life Sciences

The long road toward compliance with the FDA’s Drug Supply Chain Security Act just got shorter with the introduction of Schneider Electric’s turnkey Life Sciences Serialization Suite.

The proliferation of counterfeit drugs is a big challenge for pharmaceutical companies as they struggle to protect the safety of their customers, the integrity of their brand, and, of course their sales. While counterfeit drugs slipping into the supply chain is not new, the illicit practice has become more prevalent due to Internet sales and global markets that make it easy for fake product to find its way into distribution. These conditions also make it difficult for manufacturers to find the point of entry.

For these reasons, the U.S. Food and Drug Administration (FDA) introduced the Drug Supply Chain Security Act (DSCSA), signed into law in 2013. The Act outlines the critical steps required to build an electronic, interoperable system that will be able to identify and trace prescription drugs distributed in the United States. Manufacturers, distributors, repackagers and dispensers will be required to phase in technology, procedures and best practices over the next several years in order to meet the stricter guidelines.

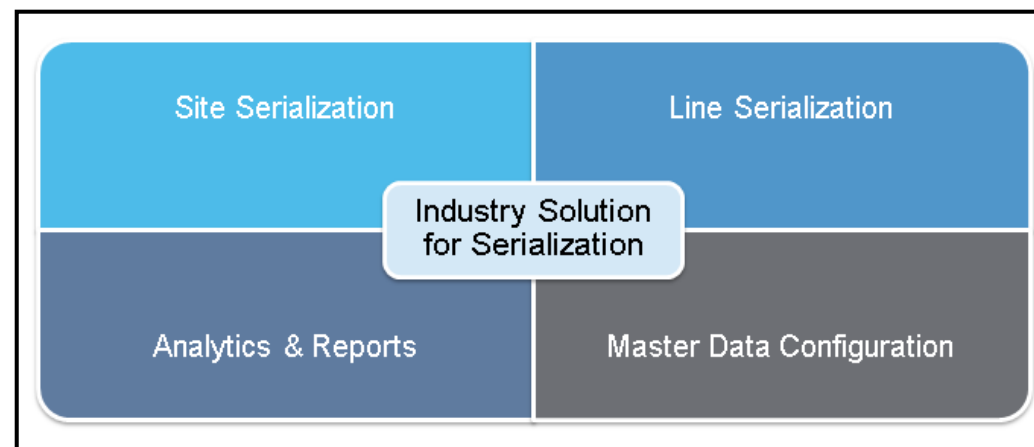
That path to DSCSA compliance starts with serialization—the

assignment of unique, traceable numbers to individual items or saleable units. Serialization, based on GS1 standards for barcodes and electronic product codes (EPC), enables a drug to be tracked and traced electronically as it passes through the supply chain. This means, at any point, government authorities and pharmaceutical companies can not only identify and stop the distribution of counterfeit drugs, but also track phony drugs back to the source, as well as handle product recalls more effectively.

Many manufacturers have started the serialization journey, but they have not been able to meet the track and trace requirements to follow movement of the item across the supply chain. This is due to the lack of a holistic approach to serialization in the

industry. Organizations have been doing “print and apply” for years. But the current serialization products come from packaging equipment providers or vision inspection suppliers with limited understanding of enterprise software and analytics.

Understanding the obstacles pharmaceutical companies face, Schneider Electric created their Industry Solutions group, to develop solutions addressing gaps in current industry offerings. This month,



NEXT ARTICLE 

**Compliance-by-Design**

the company rolled out its [Life Sciences Serialization Suite](#). The turnkey software suite includes Line Serialization, Site Serialization, Master Data Configuration, as well as Analytics and Reports.

Included in the offering is [Schneider Electric's Customer FIRST Software Maintenance and Support Program](#). This program gives access to the latest software upgrades, expert technical assistance and self-help tools, rounding out the turn-key approach to Schneider Electric's solution delivery model.

The Line Serialization software, designed for the packaging line, focuses on the individual products going into boxes then to cartons and to containers and ultimately pallets. A unique identification number and barcode is associated with each of these stages in the packaging line, providing traceability for each step.

Out-of-the-box mandate templates provide aggregation (the process of building relationships between serial numbers) at each point in the packaging hierarchy, as well as serialization at a specific level, and the flexibility to switch between the global trade item number (GTIN) and the serial shipping contain code (SSCC).

The Site Serialization software can be integrated with manufacturing execution systems (MES) for broader visibility across

the plant, as well as an on-premise database that stores all of the product and serial numbers—which helps in the event of a recall or quarantine. In addition, the system provides serialization/OEE comparative analysis and serial number reports for stock overviews, usage analysis, wastage analysis and SKU serialization management.

The biggest value-add of the Life Sciences Serialization Suite is the integrated design, said Maryanne Steidinger, director of industry solutions marketing for Schneider Electric Software. It has been purposely built to solve serialization across multiple packaging and organizational layers.

"There are a few different modules, but the distinction is that it is turnkey, so when a life sciences company buys this, it has all of the software and interfaces available to quickly install and configure," said Steidinger. "There are no other offerings like this on the market now."

It is also designed for collaboration. "We included a model-driven workflow as part of the solution which allows us to provide a standardized method of implementing the system and a standard way to communicate between all stakeholders," she said.

Here's how it works: When an order is received from an Enterprise Resource Planning (ERP) system, the Site Serialization module creates a packaging order, configures the master data, requests, receives and stores the serial numbers from Electronic Product Code Information Services (EPCIS), and dispatches orders to specific lines. The Line Serialization receives the order, starts and completes printing, then uploads the serial number statistics and aggregation data to Site Serialization, which sends commissioning information to EPCIS and generates analytics reports as well as archives the data.

Information is exchanged through database views based on the order status leveraging [Wonderware Skelta business process management \(BPM\) technology](#) and Site DB MS SQL Server.

Due to its native integration with MES, the Schneider Electric Life Sciences Serialization Suite enables end-to-end track and trace from manufacturing through the supply chain. And by adding integrated analytics and real-time visibility, it is safe to say that this is the serialization solution life science companies have been seeking. ■



NEXT ARTICLE 

[Compliance-by-Design](#)



Life Sciences

## Compliance-by-Design

Schneider Electric's Compliance Consulting business has created a practice for the Life Sciences industry that delivers end-to-end validation of manufacturing process.

The life sciences industry is unlike any other in that it is highly regulated and excruciatingly scrutinized for quality control. If an FDA audit uncovers questionable manufacturing practices at a pharmaceutical company, it could lead to fines, plant shut downs, drug recalls or at the very worst, incarceration of corporate executives.

Unfortunately, human error is often the cause of noncompliance. In fact, a primary reason many life science companies are issued an FDA Form 483 (which notifies the company's management of objectionable conditions) is due to workers not following written procedure. Therefore, automated documentation of actions within every step—thereby designing human error out of the overall process—is key to overcoming mistakes that make compliance an issue.

That is exactly what Schneider Electric set out to do with its compliance driven delivery model that uses technology and a new methodology for building validation and quality control into

the system design and manufacturing process.

The group's approach includes awareness (educating key stakeholders about compliance driven delivery); assessment (of best practices at the facility); prioritization of action (risk management and ROI); and domain-focused delivery (based on the



domain knowledge of Schneider Electric's life sciences team.)

"We are bringing risk management, design review and change management all the way back to the requirements/design phase of a project so that the company can leverage everything that's been done all the way through," said Jonathon Thompson, Schneider Electric's director of compliance consulting. "This is important because in the past we've approached [life science] projects the same way as food and beverage or other industries, where you go through the commissioning phase and then toss it over the fence to someone to validate. But they'd have to retest because it has not been done with documentation and compliance in mind."

So Schneider switches this model around and appoints a compliance services manager, instead of a general project manager, to manage the project in order to drive the compliance methodology throughout every stage.

Having a person in charge who has domain expertise and an



NEXT ARTICLE ►

**Energizing Industry with Predictive Asset Analytics**

understanding of regulatory mandates ensures quality is driven throughout the project lifecycle.

“Compliance is often thought of as just validation and documentation. That’s part of it, but it is also about how that system is going to interact with the users and how the users are going to do things like creating electronic signatures and quality checks. These are things that people without domain knowledge may miss when it comes to how users will have to interact with the system. You have to think about this early in the design model,” Thompson said.

In this model there are other experts working under the compliance manager, including the solutions architect, the regula-

tory lead, the technical lead, the IT lead, the process lead and the change management lead. And all of these people become, in essence a virtual Center of Excellence (CoE) where models, process and controls are developed.

The CoE tests, validates and deploys to each site, building upon and adjusting what they’ve created within a central repository of templates that serves as a library of the process being developed. The repository is based on Wonderware System Platform with a layer above that for recipe models. It also utilizes the Skelta Business Process Management (BPM) technology to manage workflows, now an embedded part of the Wonderware solution offering.

According to David Mills, global life sciences solutions archi-

tect at Schneider Electric, workflow is an important piece of the compliance puzzle. An engineer may accidentally export the wrong object to quality assurance. “But workflow can do the heavy lifting. It is all automatic and reduces the possibility of an error,” he said.

In addition, all of the accumulated engineering, testing and validation can be reused when rolling out new manufacturing environments, which reduces the amount of retesting. This saves a drug company time, money—and ultimately alleviates FDA headaches. ■



NEXT ARTICLE 

**Energizing Industry with Predictive Asset Analytics**

Power Generation

# Energizing Industry with Predictive Asset Analytics

As utilities struggle with new sources of power and aging equipment, [Schneider Electric's new predictive software suite](#) solves some inherent problems.

The energy landscape is changing. The move from coal and gas as the primary source of power, to cleaner, more environmentally friendly renewable methods are forcing a shift in the utilities industry to support a mix of offerings.

As wind and solar alternatives start to change the way the industry is moving, power companies must also deal with aging equipment. Meanwhile, there will be a 25 percent increase in energy demands by 2040. This means power companies are in the



mode of having to do a lot of maintenance while contemplating how to switch over equipment without impacting customers.

Balancing the trilemma of equity, security and sustainability, utilities must find ways to reduce outage frequency or outage duration (or both) and keep equipment at a level consistent with minimum generation costs and load management objectives.

What these companies need right now is asset management—and more specifically, it must be predictive, because no one wants to deal with a problem after it has already occurred. Abnormal conditions need to be addressed and actions need to be outlined before there is ever an inkling of an issue.

[Schneider Electric's new Predictive Asset Analytics Suite](#) for the Power Generation sector, which will roll out later this month, provides companies with the ability to have real-time performance monitoring on everything in the equipment infrastructure in order to understand specific patterns without any performance degeneration.

The suite delivers standardization, knowledge management, contextual information and case-based analysis while predicting equipment failures by connecting applications and devices. The software leverages Schneider Electric's Avantis PRISM Predictive Asset Analytics for early warning notification and diagnosis, coupled with connectivity to the PLC, distributed control system (DCS) and historian control layers. Intuitive dashboards offer a view into performance based on integrity levels, as well as detect and alert non-conformity as a result of integrity violations or advanced pattern recognition methodologies.

This turnkey solution, which is part of Schneider Electric's Industry Solutions for Power, builds upon the company's existing product portfolio including model-driven workflows from Skelta business process management (BPM), Avantis condition monitoring and enterprise asset management (EAM), as well as SimSci ROMEo for process optimization.

"We are layering these together for purpose-built functional-







ity,” said Maryanne Steidinger, director of industry solutions marketing for Schneider Electric Software. “The strategy of the Industry Solutions groups is to look at specific sectors, like power generation, and bring together solutions that fill the gaps in the way problems are being addressed in the industry.”

Specifically, operational data management (OPD) provides the ability to federate multiple asset models into a unified model. A key performance indicator (KPI) manager connects to data sources and defines calculated variables and KPIs with boundaries and store. And a decision manager offers the ability to capture cases and manage them through the lifecycle. All of this is captured through a unified operations console.

Using the Schneider Electric integrated applications enables power companies to have a full view of what is going on—and what could happen—in order to remediate problems quickly. The key is to transform the data into decision-making contextual and historical information. ■



Life Is On

*Wonderware*  
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