Increasing process efficiency through consistent information sharing

PlantStruxure™
Operating and Monitoring solutions
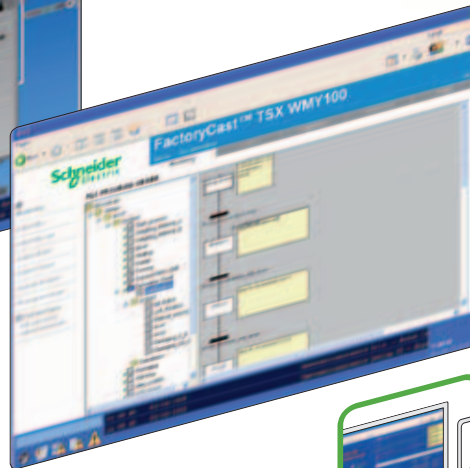for industrial processes

Schneider Electric

Benefit from a shared and consistent data view from anywhere in your plant...

> In a fast-paced world, you need to capture your process information and share it efficiently from the plant level to the control room. That is why we are offering you an integrated data visualization system with powerful graphics that will ensure a clear and consistent view of your data in real time.

> PlantStruxure™ enables you to prioritize, act, and operate processes more efficiently. The enhanced performance of your system that is gained through the monitoring and control features of PlantStruxure means higher productivity, lower costs, and increased profitability for your business.

Magelis iPC range supports information sharing closer to your process.

Make smarter decisions

PlantStruxure provides a comprehensive control and operating interface including Process Analyst to combine alarm and trend data. The integrated alarm display and control provides efficient alarm management throughout your plant.

Optimize production

PlantStruxure allows you to view the program inside the controller from any operator station across the plant to reduce maintenance and downtime costs.

Adapt to new business requirements

Take your control system anywhere you go by choosing the right mobility solution.

A tested and validated integrated system to reduce risk and time in design, commissioning and maintenance.

Anywhere..
from the field level to the SCADA, even in harsh environments

... with PlantStruxure, the control system that makes your process more efficient
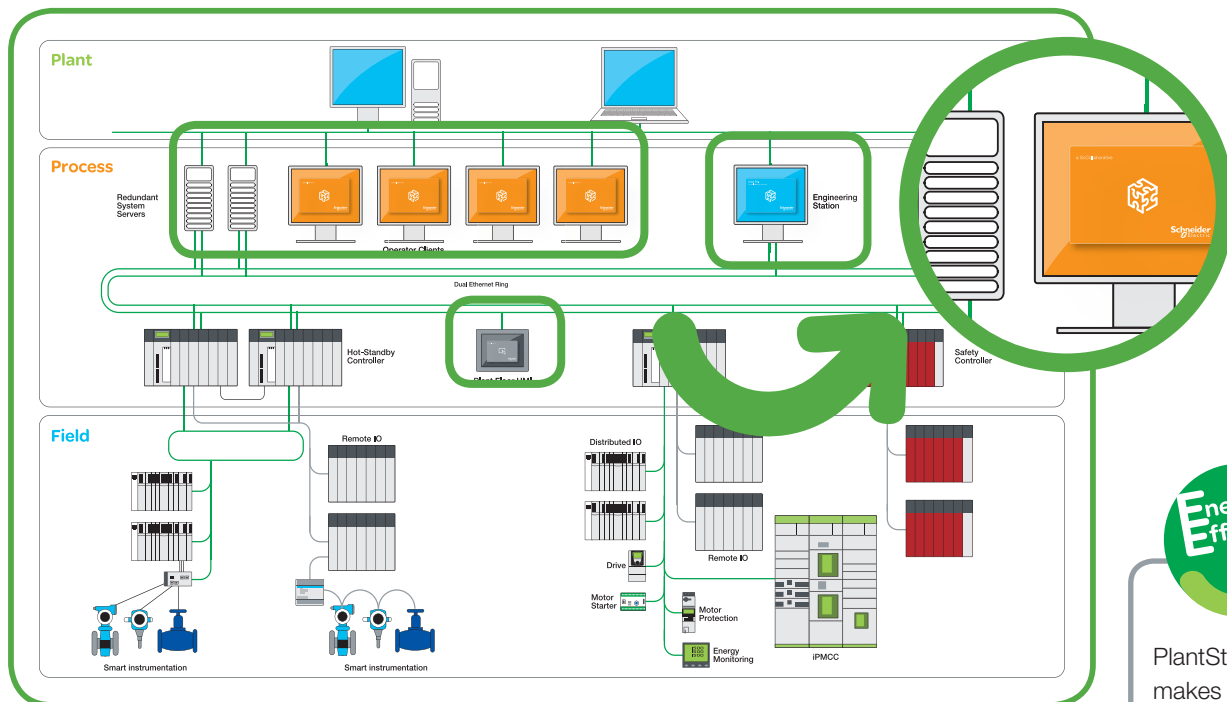
PlantStruxure is the process automation system that allow you to meet your automation needs while delivering on growing energy management requirements.

PlantStruxure provides an integrated operating and monitoring solution by offering a data visualization system accessible from anywhere in your plant, from the plant level to the control room. Through HMI screens, operators can quickly access data from the main SCADA control room, capturing easily the state of the entire plant from any location, which allows them to respond to the process in real time for more effectiveness.

Using the powerful graphic and operational capabilities of Vijeo™ Citect, PlantStruxure architecture delivers actionable insight faster, enabling operators to quickly handle process disturbances for increased productivity.

The graphic display can also be viewed centrally, enabling cost-effective distribution of operator interfaces while providing centralized monitoring.

PlantStruxure makes your energy productive by collecting and analyzing both energy and production data to save up to 10% in energy consumption.

Think PlantStruxure for the automation and management of your process !

> Scalable for changing times
From tens of I/O transfers to hundreds of thousands, it means that you can start out small and grow as your requirements change.

> Flexible because your process is unique
It supports the architectures that you need for your application. Single site, multiple sites, distributed control, local control, discrete, process, safety, batch – all within one system.

> Integrated to reduce risk
From devices to MES, all of the system components are designed to work together with each other and with our chosen technology partners.

> Collaborative to increase efficiency
It's open to exchange of information with other plant and business software, and fosters an environment of collaboration by delivering the process information you need in the way that you like to see it.

PlantStruxure provides a consistent control and operational interface with a real-time view of the process to increase operator efficiency and reduce training needs.

Simple system navigation

> Simplifying system navigation is key to providing operators with the right information at the right time. The layout of the PlantStruxure operational interface is intuitive in order to facilitate fast access to any graphics page within the system. So whether it's alarm, trend, graphics, or system diagnostics information – it's only a few mouse clicks away.

Unauthorized access

The runtime security of PlantStruxure is user-based, meaning that each system user has a unique username and password. This username can be managed in the system's native security model, or integrated with corporate domain-based security, such as Windows® Integrated Security. It creates a single location for the management of all user accounts. Dual signature functionality provides a second level of security for actions.

Screen navigation, access to trends, system status, alarm windows, and more

Context-sensitive system object

Camera integration

Integrating Pelco™ cameras into the PlantStruxure architecture allows live video to be viewed within the system. Users are able to control cameras, thereby enhancing their real-time process visibility or integrating remote security monitoring.
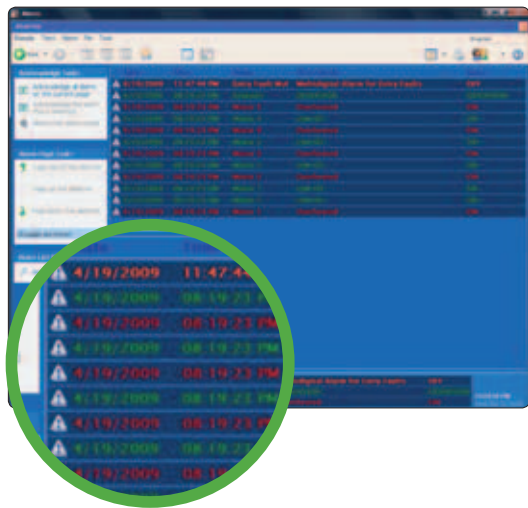
Device faceplate pop-up

Alarm banner showing most recent alarms and events

Operate your process more intelligently

Trending

> Trends are a seamless combination of real-time and historical data. When users display a trend page, they can monitor the current activity as it happens, and simply scroll back through time to view the trend history. The distributed trending system handles large numbers of variables without compromising performance or data integrity. Operators can choose from a selection of pre-configured trend pages that provide clear data representation with customizable views for quick and simple trend analysis.
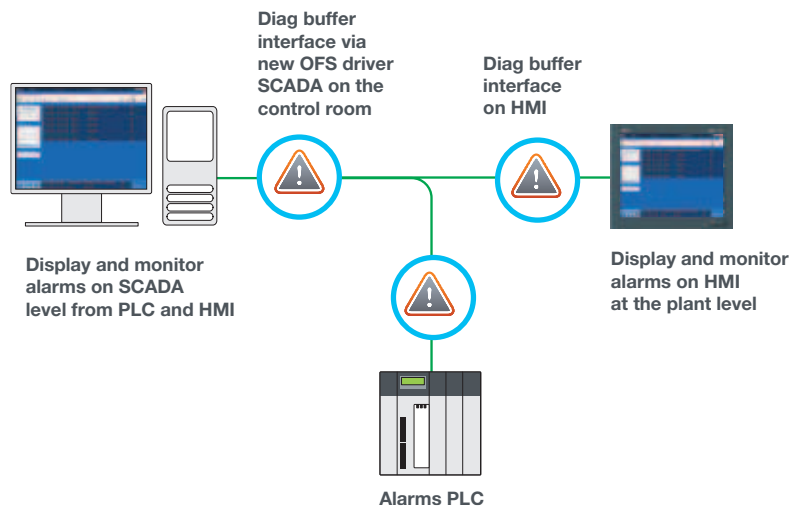
Advanced alarms and events

> An efficient alarm system allows users to quickly isolate and identify faults within the system or process, thereby reducing plant downtime. The PlantStruxure alarm system is fast and reliable, providing them with detailed information about the status of the plant.

> Alarms are displayed on dedicated alarm pages, with the most recent alarms visible at all times in the alarm banner on every page. Working in conjunction with the controller or RTU, alarms are time-stamped with precision to one millisecond where available. This accuracy can be essential when differentiating among alarms that occur in rapid succession.

A sharing alarm system

The shared alarm list display between plant floor and control room is visible at three levels – PLC, HMI and SCADA – and allows better coordination of alarms throughout your plant. Thanks to the diag buffer interface from the OFS driver, alarms are automatically displayed, monitored and acknowledged on both HMI and SCADA, providing reliable alarm management throughout the plant. No more risk of inconsistency in alarm display(s), helping you to achieve regulatory compliance, reliable alarm management, and, most important, efficient plant operation. Moreover, with the shared display and control between SCADA and local HMI, there is no need to recreate PLC alarms into HMI applications.

Diag buffer interface via new OFS driver SCADA on the control room

Diag buffer interface on HMI

Display and monitor alarms on SCADA level from PLC and HMI

Display and monitor alarms on HMI at the plant level

Alarms PLC

In fact, this convenience means that relevant additional alarms can be added if needed and alarm management/synchronization features can be incorporated through an internal alarm buffer.

Analyse the cause of process upsets quickly and easily

Paul Donald
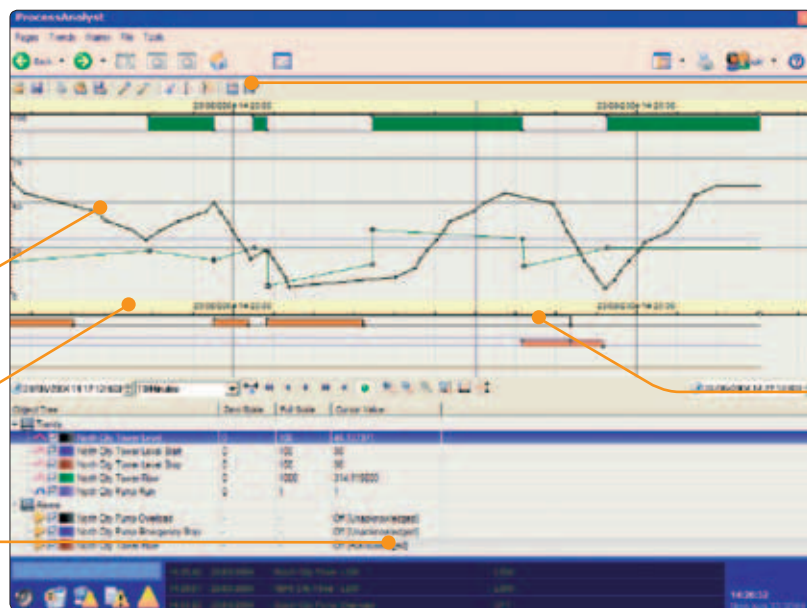Telemetry Officer
Central Highlands Water

"Process Analyst is a vast improvement on existing SCADA systems, and enables processes to be optimized by making it easier for operators to analyse disturbances."

> Process Analyst features within Vijeo Citect allow users to combine alarm and trend data in one integrated display for faster analysis.

> When analyzing the cause of process disturbances or when trying to improve productivity in the process, the comparison of alarm and trend data is essential. While sophisticated analysis tools are available in data historians, Process Analyst is unique because it's an intuitive process analysis tool that sits directly in the system itself. It delivers actionable insight to the users and gives them the ability to immediately modify process conditions to achieve the desired results.

> PlantStruxure allows users to save preconfigured views and 'favourite views' within Process Analyst in order to make it easy for them to access the information they need, greatly improving their efficiency and productivity.

Unlock pens to allow values to be compared over different time periods

Overlay analogue and stacked digital pens on the same pane

The value of all pens are displayed at the current cursor location

Save a snapshot or a favourite in run-time

Alarms display on-time, off-time, acknowledge time and operator comments

Simple and smart security in SCADA

The integration of camera/video surveillance helps enhance process efficiency with a birds-eye view of actual operations as well as providing added security for valuable company assets and equipment.

The ability to seamlessly interface with Pelco cameras is a standard feature of Schneider Electric™ Vijeo Citect, making our security solution simpler, smarter and more secure. It provides operators with:

> Greater flexibility and control over the security and management of company assets

> Rapid detection of potential security events

> Integrated tools to help supervise people and equipment

> Central viewing of remote events, helping them to make more informed decisions.

An integrated solution

Traditional methods of access control and monitoring of your personnel and equipment in hazardous areas are often difficult to manage, prone to human error and neglect, and slow to produce critical information. Regulatory bodies have become involved and are now stepping up demands for site managers to find better ways of addressing these issues. A simple yet highly effective option is the integration of camera/video surveillance on operators' SCADA screens. This additional capability:

> Provides a visual validation of the actual equipment, perimeter, zone or site in question, helping to improve the quality of decision-making

> Visualizes the situation before responding to process or security incidents

> Effectively supervises the security of plant and assets

> Helps minimize risks to field staff in potentially hazardous situations.

Your PLC closer to the Vijeo Citect SCADA

The Web Gate control object within Vijeo Citect allows you to remotely view HMI displays, and read and write data from your Magelis terminals and Schneider Electric PLCs and devices. View all the panels from across your plant at one centralized and truly unified operator interface. By using the Vijeo Designer Web Gate feature, your device acts as a web server that allows you to view, closely monitor, and control it from the Vijeo Citect runtime HMI environment. Thanks to integration, there is no need for two full levels of SCADA in the system. Via the Web Gate feature, the operator can centrally pull up the HMI pages onto the SCADA screen in real time.

Sharing displays anywhere in your plant centrally on SCADA at control room

Network communication via Web Gate
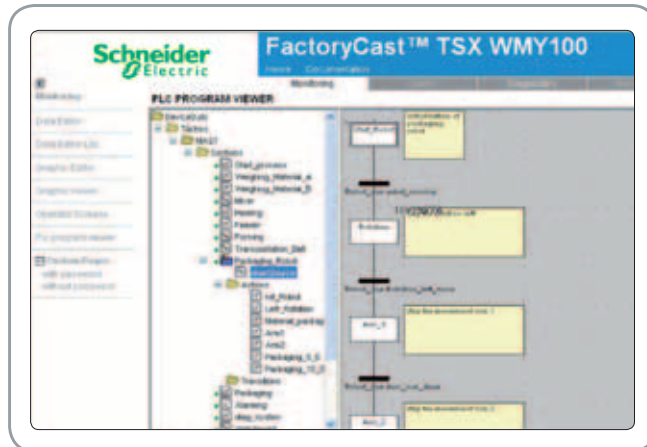
HMI display on plant level with Vijeo Designer

This means that users do not have to redraw screens and so engineering time for design and commissioning is reduced. Being an integrated offering using the same logic across screens makes it easier to learn and operate and less expensive to maintain. This eventually leads to a lower total project cost and operating cost.

View your controller program from anywhere in your plant

> By installing a FactoryCast HMI module in your Modicon™ controller, you can take advantage of its features to help reduce maintenance and downtime costs.

> With this module, PlantStruxure provides direct read-only access to the program inside the controller, allowing users to view all of the code from any operator or maintenance station across the plant.

> It can also be used in conjunction with Process Analyst to help users quickly locate the reasons behind a process disturbance or plant stoppage.

Modicon Quantum
and Modicon Premium

Control and monitor HMIs from anywhere in the world

> Keep connected from a remote computer to your HMI through a simple Internet browser and decrease HMI maintenance costs by enabling a panel operator to perform a level one diagnostic on the HMI without having to be on-site.

> Web Gate is the optimum solution for monitoring and controlling huge automated systems in airports, greenhouses, steel casting, etc.

Your maintenance-free BOX PC in the Compact Flash

Vijeo Citect Web client available in Fanless BOX PC with Compact Flash
> Vijeo Citect Web client .dll on the CF to browse Vijeo Citect server
> Vijeo Citect license at the server level
> Windows embedded, write-protected during normal operations

Increase your process efficiency and performances

The ability to extend plant operations from the control room to the plant floor and ensure access to consistent and valid information is crucial in optimizing process efficiency.

Apart from the benefits of integrated HMI and SCADA, Schneider Electric also has its new BOX PC in rugged terminals, ideal for trouble-free operation in standard, maintenance-free or harsh environments (extreme temperature, from 0 to 50 degrees C, vibration, shock, etc). Fanless units without rotating media ensure that the need for maintenance is virtually eliminated.

This makes it well suited to the extreme operating environments of the mining, oil and gas, and marine sectors, as well as the dust environs of some food and beverage operations (e.g. milling).

This means that you do not have to fit in complex and expensive enclosures and can minimize your replacement needs.

Ruggedized to match your tough applications

> The ability to extend your plant operations from the control room to the plant floor is vital. That's why PlantStruxure supports dedicated plant floor HMIs built to withstand the rigours of industrial environments. The rugged features and flexible options of the Magelis™ range make them perfect for use in plant floor cabinets and other specialized applications. Magelis industrial PCs are certified UL508 for automation in the field.

Magelis iPC range

Vijeo Citect Web client capabilities

Vijeo Citect Lite and full bundles

Selection of iPC configuration catalogued

On-demand with iPC configured service

Schneider-Electric's Operating and Monitoring Solution is the collaboration between Vijeo Citect SCADA and the new HMI, BOX PC.

'Beginning with the end in mind', such a solution offers the benefits of a complete solution, where design and industry-leading components are made to work together seamlessly. This means that you have the advantage of goal-driven design, as opposed to bolt-on applications as an afterthought. With Schneider Electric integrated SCADA and HMI, there does not have to be a trade-off between best-of-breed components and integration.

Magelis BOX PC

Universal BOX PC

> Maintenance free models (no fan, no hard disk) to run in harsh environment with most demanding industrial certificats.

Performance BOX PC

> High performance CPU (Core 2 Duo, 2,26 GHz) and chipset (1 GHz bus, 3 MB cache, DDR3 RAM) associated with Windows 7 - 64 bits, support up to 8 GB of RAM, to speed up the monitoring of your plant in standard industrial environment.

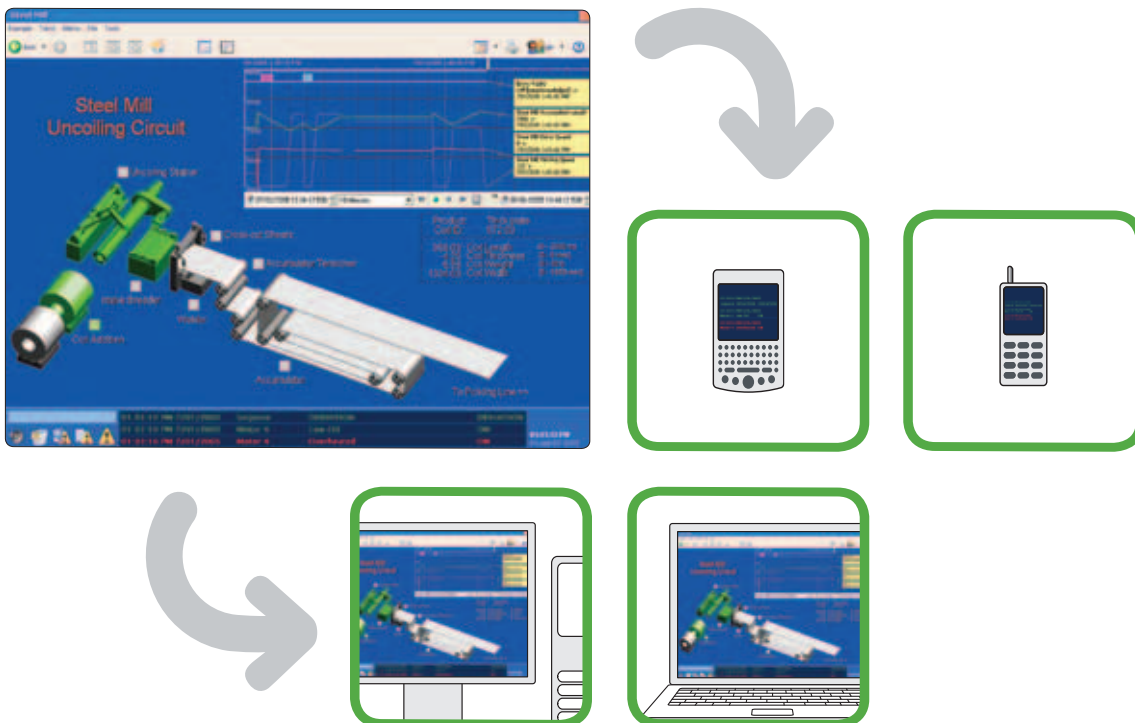| 1 slot PCI	2 slots PCI	5 slots PCI
• Universal	• Performance • Universal	• Performance

Take your control system anywhere you go...

> Our mobility solutions give users the freedom to observe operations first-hand wherever they are. By providing easy access to the process from dedicated Web clients or smart mobile devices such as PDAs or mobile phones, the system provides greater flexibility, decreased downtime, increased plant productivity, and a lower total cost of ownership.

> The increased visibility into real-time processes helps users make more effective decisions, thereby increasing plant productivity.

... by choosing the right mobility solution

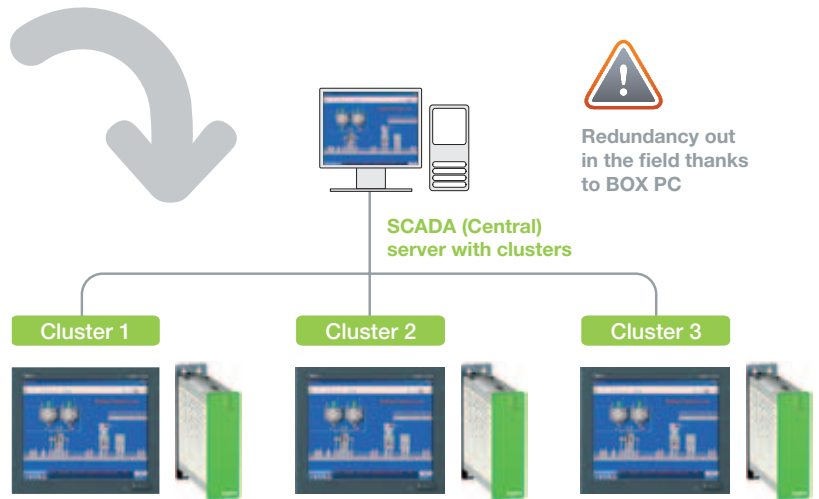# Full system functionality with zero maintenance

The Web Clients allow all users throughout an enterprise to take advantage of real-time information by providing easy access to the system from outside the control room via a standard web browser.

> Impressive runtime performance

> Simple installation

> No emulation

> Zero-maintenance

> No rebuilding of graphics

> Totally secure

Monitor all your plant from a single control location

Unify any number of HMI/BOX PC clients into a single 'clustered' SCADA system providing users with the optimum topology. While each local HMI can view its own control process, global control clients can be implemented to view across the entire control system, complete with unified alarm lists and the ability to compare trended data across the entire plant floor. The ability to monitor all your plant processes from a single control location affords you:

> **Better operational efficiency**
> **Better maintenance efficiency**
> **Better energy efficiency**
> **Less manpower requirements**
> **Reduced operating costs.**

Redundancy out in the field thanks to BOX PC

SCADA (Central) server with clusters

Cluster 1   **Cluster 2**   **Cluster 3**

Bring the servers closer to your process thanks to the ruggedized Magelis industrial PCs. Its allows very large processes to be hosted in the field and share the central redundant server out in the field, with the clustering topology by SCADA. You reduce the risk of network outage and system downtime. You increase process efficiency and performance by maintaining the redundant long-distance process itself on the plant floor.

Open and scalable multi-protocol architecture

The integrated offer can communicate with a large selection of programmable logic controllers (PLC), peripherals, and other equipment, all connected to a single HMI terminal. The equipment can include different models from various manufacturers with different types of connections.

With its multi-protocol architecture, you can adopt it into an existing system without upgrading or modifying existing equipment, or you can design an entirely new automation and control system from scratch.

Support for dynamic clustering means each BOX PC can be monitored and controlled from a central control room at the same time, enjoying the full server functionality and redundancy out in the field.

> To find out more about PlantStruxure, visit
   www.schneider-electric.com/PlantStruxure

Make the most of your energy℠

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