

Enhancing the core

**Improved SCADA
in a collaborative
operations management
environment**

Frost & Sullivan
October 2010

Background

This white paper was commissioned by Schneider Electric with the objective of considering Vijeo Citect's V7.20 release in light of key challenges facing the use of operations management solutions today.

The white paper was written by analysts of the Industrial Automation Practice at Frost & Sullivan.

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For further information on Industrial automation markets and technologies, visit <http://www.industrialautomation.frost.com>

About Schneider Electric

As a global specialist in energy management with operations in more than 100 countries, Schneider Electric offers integrated solutions across multiple market segments, including leadership positions in energy and infrastructure, industrial processes, building automation, and data centres/networks, as well as a broad presence in residential applications. Focused on making energy safe, reliable, and efficient, the company's 100,000+ employees achieved sales of more than 15.8 billion euros in 2009, through an active commitment to help individuals and organisations "Make the most of their energy".

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This White Paper was prepared for submission to Schneider Electric.

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The Paper was completed in October 2010.

Enhancing the core: Improved SCADA in a collaborative operations management environment

Operations Management Solutions: Higher risks drive higher demands

Intensified cost pressures, compliance requirements and competition are raising the level of risk that organizations have to manage today. This in turn increases performance demands on operations staff within these organizations.

Some of the higher demands that they have to address in relation to their operations management solutions include:

Transparency: With competition in process and commodity markets intensifying at a global level, there is a greater sense of urgency to streamline decision-making processes without comprising on the richness of the information needed for decision-making.

To do this, operations staff are looking at how best to leverage SCADA for operation-wide visibility, draw actionable information, link it with business systems and deliver insight in a usable and digestible form to various stakeholders within and outside the organization.

Operational Efficiency: Monitoring and control tools that help raise productivity and lower maintenance and downtime costs¹ have a direct positive impact on profitability of total operations.

The average cost of 24 hours of downtime from a major cyber attack on critical infrastructure is US\$6.3 million.

- Center for Strategic and International Studies, January 2010

Reliability and Openness: Process operations are increasingly looking for open solutions that facilitate seamless integration with different proprietary systems. Reliability is also critical, since at most operations, downtime cost increases exponentially with time (rather than a constant rate) since spillover impacts are wider

¹ Downtime cost estimate in the text box is sourced from the report 'In the Crossfire: Critical Infrastructure in the Age of Cyber War', Survey, conducted in September 2009, of 600 respondents (IT & Security executives in critical infrastructure enterprises globally). This is an indicative estimate only and will vary based on location, scale and type of critical infrastructure.

than immediate productivity and revenue losses. They include penalties, reputation damage, share price impacts, planning disruption etc.

The scale of penalties is underlined by the fact that the North American Electric Reliability Corporation (NERC) requires that SCADA information be measured in milliseconds, and violation of reliability standards can result in fines of up to US\$1 million per day².

Research across Asia-Pacific shows that 61% of operations managers plan to expand the systems that plan, operate, control and report on shop floor activities.

- Manufacturing Enterprise Solutions Association (MESA) Australian Working Group. September 2010

Flexibility: Of increasing importance is the need for scalable systems (so they can be reconfigured depending on changing needs and return on investments).

Engineering Productivity: The process of deploying operations management solutions (either for new / expanded

operations or through modifications or upgrades of systems for existing operations) is time and effort-intensive. Given the fact that these solutions monitor and control entire operations, the efficacy of their deployment impacts the productivity of those operations and consequently of the business itself.

The emphasis today is on reducing programming and installation time to help speed up commissioning or upgrade.

To do this at minimal risk, operations are increasingly looking for standardization and the ability to reuse modules and libraries when configuring or upgrading operations management solutions.

Sustainability: With increased compliance requirements toward greater transparency in all operational aspects (such as financial accounting, safety procedures, audit trails and production traceability), process operations are looking for solutions that meet these expectations cost-effectively.

For example, there is a growing trend of organizations exploring how SCADA can help measure and track carbon footprint of operations.

² Sourced from 'Realizing the Potential of a Smart Grid – Opportunities for CSPs and OSS/BSS Vendors', report from Stratecast (a Division of Frost & Sullivan), March 2010 (referencing North American Electric Reliability Corporation Cyber Security Standards)

Energy Management / Energy Efficiency: Increasing population and expanding cities demand more power, water and infrastructure. In these industries, effective energy management is a tool to significant operational savings.

By using historical data collected by the SCADA system and stored in a Historian, it is possible to predict peaks and troughs in energy demand and adjust process conditions to conserve energy³. Data gathered by the SCADA system can help operations personnel identify, for example, if fans and pumps can be managed better to reduce energy consumption or if soft starts are required on specific motors or if variable speed drives can be adjusted to reduce energy consumption.

Energy efficiency gains required to offset the energy cost impacts from climate policies for energy fuels used for heat and power would range from 14% to 34% by 2020.

- High Road Strategies, LLC & the Millennium Institute

Ease of use: While specific features of operations management solutions can help address the demands discussed above, the maximum benefit is conferred where usability of the system is also improved significantly.

As process complexity increases (driven by organizations seeking competitive advantage through new product development and product line extensions), the number of process variables to be tracked and analysed increases as well. To help prevent being overwhelmed with the depth and breadth of process data, organizations are seeking simplified and easier-to-use interfaces for the operations management systems.

PlantStruxure™

To address all of these challenges, organizations are changing work practices and adopting a much more holistic view of operations management solutions.

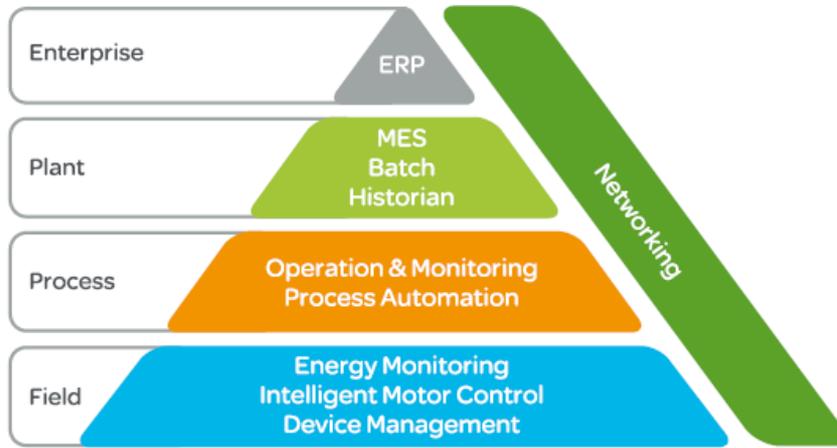
The key questions now are not simply about how best to react to key process events, but more about how to be proactive in leveraging control systems for the health of the total enterprise.

And to help them do that, organizations are increasingly looking for complete, open and integrated solutions that are built from best practice.

One such solution is Schneider Electric's PlantStruxure™.

³ Estimate for required energy efficiency gains in the text box is sourced from the report 'Climate Policy and Energy-Intensive Manufacturing: Impacts and Options', June 2009

PlantStruxure™ is Schneider Electric's collaborative operations and monitoring solution that provides industry and infrastructure organizations actionable insight to optimize operations and improve energy management.



Source: Schneider Electric

Comprising an integrated and standards-based system from field device to manufacturing execution system (MES), PlantStruxure™ has at its heart the SCADA solution - Vijeo Citect that provides operations staff the visibility and control needed to manage processes efficiently while raising productivity and reducing risk.

SCADA is more than just an event-driven process control system. By virtue of its ability to span operations and draw data from device level, its ability to connect with data repositories and its ability to generate actionable insight for business systems, SCADA is the core control solution that facilitates system visibility, stability and optimization.

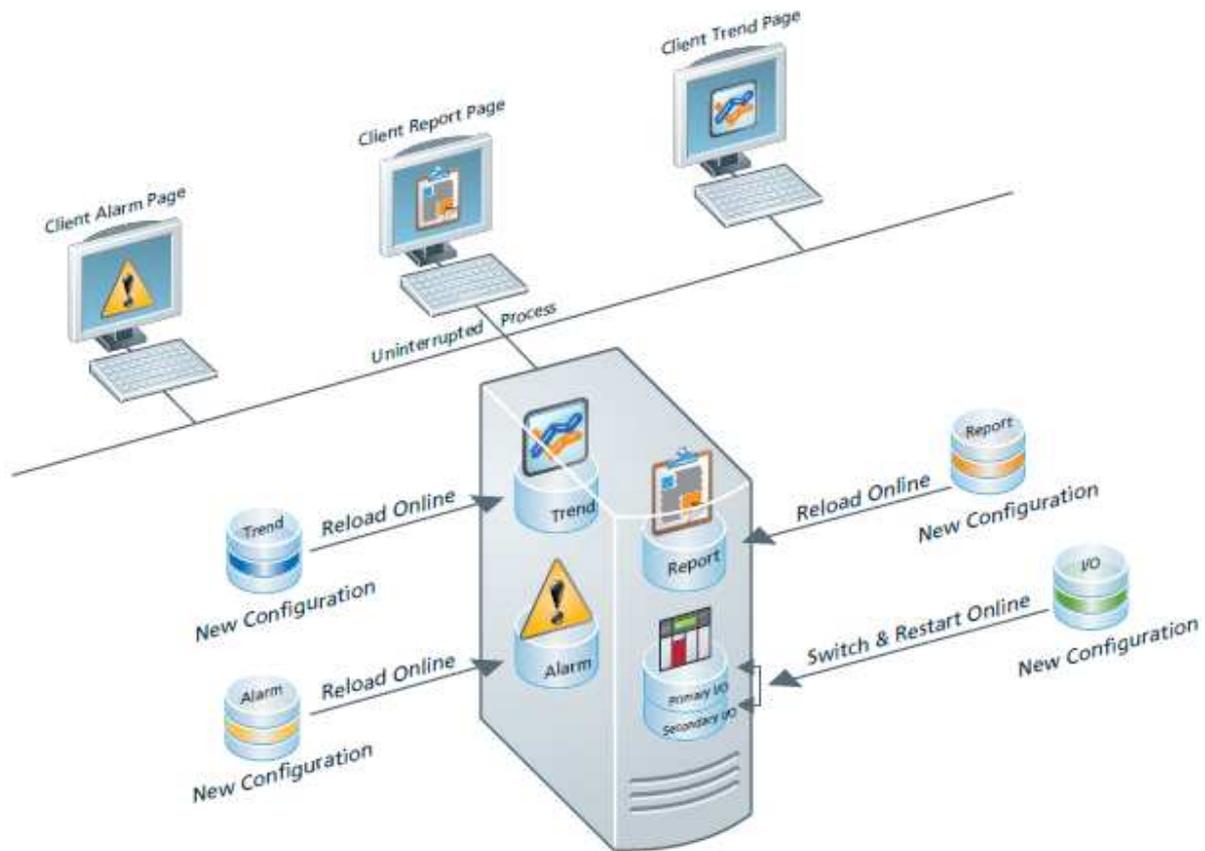
To enhance this core solution, the SCADA solution from Schneider Electric, Vijeo Citect has now been given several new features through the V7.20 release.

VijeoCitect v7.20

New features in the V7.20 release of Vijeo Citect aim to make SCADA simpler to engineer, smarter to use and more secure to maintain.

Simpler to Engineer

With the server-side online changes feature, alarm, trend and report configurations can be changed without having to restart servers. Significantly, while reloading to the appropriate server, only changes are reloaded, thus leaving undisturbed the rest of the alarms, trend and reports, while at the same time reducing system traffic.



Source: Schneider Electric

What does this translate into?

- In current operations scenarios where zero downtime is critical, the ability to seamlessly make changes (especially when it involves large chunks of data) provides operators a significant productivity advantage.
- Since changes can be made offline (i.e. totally independent of the online system), operators will not have to contend with seeing progressively varied versions of changes online. This reduces ambiguity and increases reliability.
- With this ability to make major changes offline, systems integrators and engineers will now have the flexibility of making these changes at their own sites in a more controlled and tested fashion, and then bringing them back to the site of operation to reload.
- In the case where operations are managed by a standalone server (i.e. without redundant systems), offline changes reloaded onto the system ensure that the operator at no point in time loses visibility and control of the processes.

In addition, simpler Super-Genies (through metadata and named page association) ensure that graphics are easier to configure and maintain.

Smarter to Use

Enriched tag information, with value, quality and multiple timestamps for each variable tag in V7.20 means that operators can interpret data with more context and therefore increased accuracy.

Data analysis is also enhanced by the option of using the Process Analyst directly to access historical data over longer time spans from the Historian.

Some of the enhancements to the user experience are new and more intuitive application icons, templates designed to support different screen resolutions, tab-style menus with common user actions, more flexible alarm templates and enhanced Process Analyst.

V7.20 supports the latest Microsoft operating systems, such as Windows 7 and Windows Server 2008, which gives end-users the benefit of up-to-date, feature-rich and user-friendly operating systems.

More Secure

Vijeo Citect can now integrate the video feed from Pelco™ surveillance cameras directly onto process displays.

What this enables users to do is monitor critical processes, equipment and materials so that they improve security, safety and process control and heighten the accuracy of condition assessment to ensure better-prepared maintenance or intervention in the case of an incident.

Additionally, server-to-server authentication is now an added layer of protection for networked control systems. This is likely to be seen as increasingly critical at a time when the risk of cyber attacks is high and the potential negative consequences for businesses, considerable.

Conclusion

As operations consolidate and globalise, plants have new sections added on, existing areas expanded or modified and in the process, operations systems become larger and hold more data.

Server-side online changes enable this to happen without the risk of operator error or downtime.

Live video on SCADA screens direct from IP cameras located across key sites is likely to gather momentum since it provides a quick and intuitive add-on to traditional process and security data assessments.

Enriched tag information that adds richness and context to process data should help operators read this data more accurately.

Graphic enhancements and the improved look and feel of templates will not only improve engineering efficiency for quicker project design, but will also simplify the user experience.

Vijeo Citect V7.20 is a refreshing development, exploiting the rich functionality of Windows 7 and enabling clients to maximize return-on-investments, with ease of use, superior integration capabilities and enhanced security. The online changes feature will help quicker deployment and enable rapid changes that are now demanded by the process control industry.

- Sathyajit Rao, Vice President of Research,
Industrial Process Control Practice, Frost &
Sullivan

All together, the focus on enhancing the core is expected to deliver richer operational and business benefits through easier and secure deployment, enhanced analysis and security and an improved user experience.