ARC VIEW

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Elevating SCADA to the Cloud

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Summary

Honeywell Process Solutions recently briefed ARC Advisory Group on the company's new SCADA offering. The offering, which represents the culmination of decades of SCADA development, creates a flexible, scalable solution with the ability to leverage a cloud-based infrastructure. The company has branded the solution "Experion Elevate."

Honeywell executives provided ARC an overview of the new offering along with the reasons they believe will attract customers to the solutions.

The offering is the culmination of decades of SCADA development and creates a flexible scalable solution with the ability to leverage a cloud-based infrastructure. Honeywell Process Solutions has branded the solution "Experion Elevate."

Key takeaways from the meeting include:

- All Experion SCADA functionality is available as a cloud-based service
- It lowers the cost of entry, allowing smaller enterprises to capitalize on the initial offering and improving their total cost of ownership
- It can improve business agility and flexibility, while reducing difficulties
- It is fully interoperable with on-premises Experion SCADA allowing end users to employ flexible hybrid architectures

Changing Needs

The recent volatility in oil prices highlighted new dynamics in the energy markets. Despite widespread focus on energy efficiency, global demand for affordable energy continues to rise. This has led to a more diverse energy

mix globally and changes in the supply & demand dynamic. North America has continued along a path of greater energy independence, while emerging economies are increasing their demand for this precious resource.

Drastic oil price reductions highlighted the need to run lean and efficiently, with many smaller oil companies declaring bankruptcy. This has led to increased focus on capital and operational costs. End users are focusing on improving uptime and real-time performance. At the same time, many end users must contend with aging assets and their upkeep – migration, upgrades, and maintenance.

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End users must navigate the challenge of changing demographics in the workplace. In the US, about 10,000 people retire each day. Many developed nations must deal with a similar issue of an experience exodus. New workers don't have experience on legacy systems and don't want to work with old technology. The number of people who are not retired and still understand these systems is shrinking fast, and their cost is going up.

Government regulations continue to evolve, creating an ever changing landscape which companies must navigate. Many of these regulations focus on personnel and environmental safety. However, the unwritten "regulation" of public perception also challenges companies to address these concerns proactively.

The traditional approach to SCADA has been a wholly-owned, on-premises solution requiring dedicated support staff with heavy capital and operational expenditures. These expenditures cover IT equipment and software, as well as physical and IT infrastructure, hardware and software refreshes or upgrades, and cybersecurity. Honeywell also points out that most end users don't consider the implementation time, tax implications, and the net present value of capital when considering such a project. This on-site approach offers limited flexibility, and ties up funds that might be better used elsewhere.

SCADA "In the Cloud"

To help companies meet these challenges, Honeywell has adapted its Experion SCADA solution for a hosted cloud environment. Honeywell's

SCADA experience goes back to the late '70s. Much of that experience and heritage is brought forward and modernized in the Experion platform.

Honeywell has partnered with global cloud provider Microsoft to provide a fully functional Experion system hosted in Honeywell's cloud infrastructure, utilizing best-of-breed cybersecurity. Data connections to and from the customer network are accomplished through connectivity options already used throughout the industry for company sensitive data.

Honeywell's New Experion Elevate Solution Leverages the Company's Extensive SCADA Experience

Honeywell, however, isn't only offering the solution in the cloud. The offering can continue to be used on-site or in a hybrid configuration. The hybrid solution allows end users to adopt cloud services in a fashion that makes sense to their current situation or can address any trepidation regarding the use of cloud technology. In addition, end users with a bias for on-premises solutions may still uncover additional returns by managing lower performing assets with Elevate, and in some cases providing connected asset monitoring where previously absent. According to the company, all product functionality will be available and hybrid architectures will operate seamlessly via Experion's Distributed Systems Architecture (DSA) – designed for remote and potentially lower bandwidth links, regardless of the implementation.

Why Elevate?

In Honeywell's experience, on-site SCADA systems tend to become less stable over time creating operational, security, and maintenance headaches; until they are finally upgraded and the process starts all over again. In contrast, Experion Elevate hosts the Honeywell content for the customer and supplies a full SCADA solution to the customer as a service, with Honeywell keeping the SCADA software current and functioning. Being cloud based, Elevate also enables more efficient collaboration and workflows such as a partnering skid builder, whether Honeywell or 3rd party, to securely test connectivity and configuration at the fabrication site, so the skid can be dropped into its final location and begin operation immediately.

In recent years, we've seen large improvements made in the cloud infrastructure by companies such as Microsoft and Amazon. These improvements continue to lower the barrier for entry into this infrastructure to better address concerns around security, accessibility, and the robustness of the hardware and services. In many cases, a cloud solution today has better uptime and security than an on-premises solution. All this provides a measurable impact on the SCADA system for the customer with improved delivery time, more flexible operating costs, and more robust support infrastructure, while reducing local overhead.

Honeywell asserts that the cloud offering permits a lower cost of entry by removing the large capital expenditure. It also provides a more predictable set of costs over the long term due to the subscription nature of the service. Because a system can be brought online in a few hours, instead of days, it takes less time for the system to deliver value. It is also feasible to employ Elevate on much smaller solutions as the service is highly scalable whereas on-premises solutions come with a much higher initial cost to justify implementation.

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From a manpower and maintenance perspective, a cloud-based solution requires fewer on-premises IT personnel due to the reduction in IT equipment. Typically, there is only a minimal IT effort on-site associated with the VPN gateway device that handles the private network between the cloud and corporate network or field devices. This also reduces the headache associated with hiring scarce resources in today's job market.

Because system support is part of the cloud solution, Honeywell handles all maintenance on the hosted SCADA components. The customer's SCADA system will always be current with the latest patches and upgrades. The cloud-based system also allows Honeywell to leverage its global support pool of engineers and system support teams from anywhere. If needed, an expert can be brought in instead of having to use only the closest resource. This has big advantages over on-premises systems where the support team often cannot see the issue and/or may need to travel to the site, increasing expenses.

System flexibility increases with a cloud solution. Honeywell's virtual servers can be adjusted as needed to respond to changes in processing power, memory, storage, etc. With on-premises solutions, in contrast, these would require bringing down the server, manipulating physical hardware, or possibly even an entire hardware upgrade. The cloud provider even can upgrade its host server hardware to newer specs while the system continues to run.

Cloud data centers are built on the premise that hardware and software will fail at some point. They are designed to consider all aspects of hardware, including servers and network hardware, power systems, heating/cooling, and more. The host data centers have online backup systems to maintain uptime. Experion Elevate also leverages proven Experion SCADA techniques to add further redundancy spanning separate cloud data centers to meet the most stringent customer requirements if required. Data resiliency and privacy are another key component and are one of the higher priority items that concern end users. For this same reason, cybersecurity is designed into the cloud from the beginning. For most cases, the cloud providers spend and do far more on security than an individual company could themselves. Per Honeywell, hosted data centers are very secure and use best-in-class industry standards for both physical security and cybersecurity at the data center site.

Conclusion

Honeywell's Experion Elevate represents the natural progression of software in the era of the Industrial Internet. Oddly enough, most end users already use cloud-hosted services as part of daily operations for financial systems, payroll systems, ordering systems and the like. From this aspect,

industrial software lags the financial industry, which is not surprising given the huge discrepancy in investment.

Few SCADA system users would even notice a difference between a cloud implementation and an on-premises one. Most telemetry-based systems currently utilize wide area networks, which also run on cloud provider backbone networks and infrastructure, and have remote data centers for server hosting. The difference is in who manages the servers.

ARC expects many larger organizations to continue with on-premises installations for many applications in the short term, but smaller organizations or organizations looking to improve monitoring and production costs on selected assets should quickly adopt cloud technologies based on the benefits offered. Oil and gas companies would have benefitted greatly in 2015 from the flexibility, improved support, and agility these solutions offer.

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