FABRUM.

Integration of Cryocoolers to the Cloud using Ignition SCADA

CASE STUDY
Network Site Visit

POWERED BY
CallaghanInnovation
New Zealand's Innovation Agency

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INDUSTRY 4.0 Network

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Company Profile

Fabrum is a New Zealand-based company that designs and manufactures containerised cryogenic liquid production plants for nitrogen, oxygen, and hydrogen. Fabrum's containerised plants are sold internationally and can be found all over the world.

Current Situation and Background

Fabrum's systems are installed with a suite of sensors to enable remote datalogging and alarming. These can be used to monitor pressure, temperature and flow, however, these systems currently need to be queried manually to gather the required data.

Fabrum decided to investigate solutions that would allow the automation of datalogging and alarming of its remote plants back to a home server using supervisory control and data acquisition (SCADA) as the core technology. They also wanted to keep the remote-in functionality where required. Their current manual system of datalogging and alarming was limiting their growth. They felt there was huge potential if they could connect their standalone cryocoolers up to the cloud and enable real time data to flow back to them.

Their solution

Fabrum has identified Ignition SCADA as a potential platform that could manage their machine data pipeline (MDP) and they have developed a plan to support the implementation of this. The project will be divided into three phases. The first phase is a pilot test phase. This will be aimed at evaluating the feasibility of Ignition software by testing automated data transfer, automated alarming, and client views on a containerised liquid nitrogen plant located at

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Fabrum. The second phase will be to implement an Ignition home server to enable automated data transfer and alarming from remote plants. The third phase will be to roll out Ignition into Fabrum's other plants, new and existing, connecting to the home server as remote data feeds.

Key benefits

By integrating their standalone cryocoolers to the cloud using Ignition SCADA, Fabrum are planning to achieve several key benefits. These include:

1. **Automation:** The automation of datalogging and alarming will eliminate the need for manual processes, increasing efficiency, and streamlining operations.
2. **Scalability:** Fabrum's standalone cryocoolers could be more easily connected to the cloud, making it easier to manage and monitor their operations, leading to better scalability.
3. **Real-time monitoring:** By integrating their standalone cryocoolers to the cloud, Fabrum gained the ability to implement real-time monitoring capabilities, enabling quick response times to faults, reducing downtime, and increasing productivity.
4. **Flexibility:** Ignition's flexible architecture will allow Fabrum to customize the platform to fit their specific needs, enabling easy integration with their existing systems.

Once the system is up and running, Fabrum will begin applying predictive analytics to help them to optimise their products and designs for efficiency, reliability and functionality, keeping them at the forefront of their industry.

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Key takeaways for other manufacturers

Consider connecting your products to the cloud. It can open up alternative business models and enable real opportunities to optimise your products based on real customer use. There are a few things you need to consider, though:

- **Security:** Ensure that the connection between your products and the cloud is secure, with robust encryption protocols and protection against cyber-attacks.
- **Scalability:** Consider the scalability of the cloud infrastructure to accommodate an increasing number of connected products and users.

- **Interoperability:** The cloud platform you use for connecting products should be compatible with various devices and platforms to allow for seamless integration.
- **Data analytics:** The cloud platform should provide data analytics tools that enable manufacturers to extract insights from the data collected from connected products.
- **Customer support:** Connected products require ongoing customer support, and it is important to ensure that the necessary resources are available to provide timely support and maintenance.

About the site visits and Industry 4.0

The purpose of the Demonstration Network is to drive uptake of Industry 4.0 technologies among New Zealand manufacturers with the aim of increasing their productivity and global competitiveness. The Network of Site Visits (NSV) are part of the Industry 4.0 Demonstration Network, which also includes a mobile showcase and smart factory showing cutting-edge Industry 4.0 technologies in action. The NSV takes selected companies through a fully-funded assessment process to help them accelerate their own journey towards Industry 4.0, and sees them share their knowledge with other manufacturers.

Further questions?

To find out more, please contact

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