Avid / run better

CHEMICAL

From Archaic to Automated - Without Missing a Batch or a Beat

Avid Solutions transforms a specialty batch chemical company's production process from manual to fully automated.

Background

The client is a leading specialty chemical company with a presence in more than 25 countries throughout the world. The company's core business is the development, manufacturing and marketing of plastics, rubber, intermediates and specialty chemicals.

A portfolio of more than 100 products makes up the specialty chemicals division of this company. With on-demand services, the company produces only about 10-20% of these on a regular basis. As the complexity of their manufacturing grew, the manual processes utilized proved to be more and more inefficient. Implementing automation – and working with an integrator partner to lead the transformation – was required. During the vendor selection process, Avid Solutions came highly recommended, and, following an on-site visit, the client hired Avid Solutions to lead the way.

Approach

After having an initial in-depth discussion with the client, the Avid Solutions team laid out a migration plan including future goals, project phases and a comprehensive detailed outline to achieve success. Project phases proved very helpful given the on-going, long-term nature of this transformation to get the site fully automated. Avid Solutions prioritized projects within phases based on ROI calculations and the financial results that would be reached.

So far, Avid Solutions has provided the client with both products and services. From a products standpoint, the Avid Solutions team installed a High Availability VMware system based on the Rockwell Automation Plant PAx architecture that is currently hosting the Rockwell FactoryTalk Historian, View SE Network Distributed Server, Terminal Services Server leveraging ACP ThinManager to deliver View SE Client sessions, VantagePoint Information Portal Server, plus an Engineering Workstation. Existing stand-alone HMI client computers were replaced with Thin Clients, which reduces downtime and costs while allowing the site to expand the number of HMI clients and ensuring a consistent user experience.

RFIdeas badge readers were also installed to allow the site to leverage existing RFID security cards to log users with appropriate credentials into the HMI. This underlying foundation was a critical first step to allow future projects to use the systems and smoothly transition from manual to automatic processes. Avid Solutions has also built and installed a variety of control panels for the site in addition to specifying, ordering and installing the first Motor Control Center (MCC) in years.

From a services perspective, Avid Solutions implemented a fully automated environmental reporting system. Before, an employee needed to manually compile a report to send to the EPA. With the newly installed infrastructure, however, this is now done automatically on a regular basis. Avid Solutions also implemented Win911 and integrated it with the existing Motorola hand-held radio system, providing audible alarms including alarm descriptions right over the radio system in order to inform operators of critical activity. Plus it has elevated the awareness of active alarms from the control room to anywhere in the plant. This gives operators peace of mind that they will never miss an alarm, which prevents hazardous situations from occurring. Avid Solutions has also successfully executed technologies that enable proper monitoring and discharging of plant wastewater. And finally, the Avid Solutions team is in the process of rewriting the client's existing automation code to be S88 compliant, which will allow batch automation in the near future.

In addition to the project work, Avid Solutions acts as an ongoing support system for the client since there is no on-site controls engineer. For example, whenever the client needs immediate help, Avid Solutions responds with the appropriate level of support. When plant demands and project orders change, their engineers are available to provide direction and to modify the project scope and schedule – without any disruptions to normal operating activities. Avid Solutions has also worked with the other contractors involved in the design and build processes to ensure that the customer's best long-term interests are kept in mind. In fact, the client considers Avid Solutions to be an integral part of their team because they strive so hard to provide the best possible solution.

Avid | run better

CHEMICAL

Approach (continued)

Avid Solutions has worked extensively with the client over the past year and a half to build a foundation of automation infrastructure leading up to the end goal of operating their reactors using FactoryTalk Batch. This has included several critical tasks including evaluating the plant's instrumentation and drawings; installing new control panels and fiber optic networking; functionally rewriting and updating existing PLC and HMI code; and assisting with a major plant process upgrade. Avid Solutions' engineers (who are extremely knowledgeable about the client's key processes) were instrumental in helping the client determine that they needed to install new storage tanks and a distribution infrastructure in order to enable automatic material additions. They also helped the client decide to revamp their P&ID set in order to develop necessary upgrades to reactors and plant facilities, which will ensure that the transition from manual process control to S88 Batch will be successful. Such an undertaking is not an easy one, and Avid Solutions was able to help the client by conducting ROI studies to present the project to upper management and secure funding for these plant improvements. The first of multiple reactors to receive these upgrades and S88 Batch programming is slated to take place during the first half of 2016. By using standard PlantPAx code objects and thinking for the future, the first reactor will then be used as a design template to extend automation to the rest of the plant.

Results

The client has experienced little to no previously unplanned downtime as this process has taken place, and the plant is already experiencing a safer, much more efficient, streamlined process for its batch manufacturing systems. Avid Solutions continues to work closely with the client in order to develop and implement user-friendly, low-maintenance products and technologies to meet demands well into the future.

Applications:

Historian

S88 Batch

Environmental Reporting System

Technology:

VMWare

ACP ThinManager

Microsoft SSRS (SQL Server Reporting Services)

vSphere HA High Availability

Win911

Rockwell PlantPAx including:

-Rockwell FactoryTalk View SE Network Distributed Server and Clients

-Rockwell FactoryTalk Batch Server

-Rockwell FactoryTalk Historian

-Rockwell VantagePoint EMI

-Rockwell Studio 5000

-Rockwell ControlLogix PLC