

Tangible gains

AUTOMATION Michael Hewson of terminal automation provider Varec argues the case for integrated information systems

Information systems for terminal automation have traditionally supported specific, discrete business functions, such as truck rack automation, tank gauging and Supervisory Control and Data Acquisition (SCADA). It is not uncommon at larger, highly automated storage facilities to see three separate systems, each provided by a different supplier, performing these functions. Meanwhile, smaller facilities often install only truck rack automation systems and might not always install a tank gauging system, preferring to sacrifice accuracy and capability for a simple, lower-cost system. Many facilities have no SCADA capability at all, preferring to control pumps and valves manually in order to reduce costs. Automation is even less prevalent in aviation and defence applications, which involve the same or similar business functions as storage terminals, but are often still based on manual, paper-based processes.

However, new technologies, such as Microsoft .NET and the upcoming Microsoft Vista, are enabling system suppliers to provide highly capable, fully integrated systems that meet the needs of the entire oil and gas supply chain, including commercial, aviation and defence applications. Just as Microsoft Office has standardised spreadsheets, word processing, presentations and small database applications into one software suite, Varec is providing complete solutions for all aspects of terminal automation, such as truck rack automation and automated data capture, tank gauging, SCADA, movement control, order entry and inventory accounting. Because of the similarity in the markets, Varec is leveraging this technology across the oil and gas supply chain to meet the needs of commercial oil and gas, aviation and defence customers.

Commercial oil and gas

Terminal automation for commercial oil and gas applications is much more than automating the truck rack. Although many marketing terminals provide only refined products through a truck rack, many storage terminals and refineries store crude, solvents, asphalt and other products that are received and delivered by pipeline, rail car, barge and ship, as well as truck. Because commercial solutions have not been available to meet these requirements, terminals and refineries have been required to use manual processes in these areas or develop expensive custom or engineered solutions.

To meet this need, Varec has leveraged its experience in refineries and terminals to develop a new product version of FuelsManager® Oil & Gas,

which aims to meet these requirements in a single, integrated package. The software is currently being Beta tested at the Marathon Catlettsburg Refinery, which is one of the largest and most complicated systems in the US. This two-and-a-half mile long facility requires the integration of pipelines, barge loading, rail rack loading, truck loading, pump and valve control and movement control into one system operating on a single application server, effectively replacing multiple discrete systems and many manual paper and spreadsheet-based processes.

Aviation

The automation of fuels management at airports involves the same basic business functions as commercial oil and gas terminals: automated data collection, tank gauging and SCADA. Automation of truck racks at airports is becoming more common, to include the use of driver and customer cards for billing issues. Wireless communications technologies, such as WiFi and Bluetooth, in conjunction with mobile computing technology, have enabled automated data collection at the wingtip of the aircraft. Using its experience in commercial oil and gas and defence, Varec has developed a new product version of FuelsManager Aviation, which aims to deliver a complete solution enabling paperless fuels management for even the largest airports. The software is currently operating at more than 40 airports, including the Northwest WorldGate at Detroit Metropolitan Airport where the system has enabled savings of over \$900,000 per year by eliminating manual processes.

Defence

Varec has been the long-time standard supplier for base-level fuels management systems to the US Defense Logistics Agency. Although the defence supply chain has many unique requirements, the core functions of automated data capture, tank gauging and SCADA are the same as those found in commercial oil and gas and aviation facilities. Varec has combined its technologies and products developed for the commercial oil and gas, aviation and defence markets into a single, integrated package, FuelsManager Defense, to provide the Defense Logistics Agency a next generation system as part of its Business Systems Modernisation programmes. The company has installed FuelsManager Defense at more than 20 US military bases this year and is scheduled to upgrade over 500 locations over the next two to three years.

New wireless and mobile computing technolo-

gies are also enabling terminal automation solutions to improve tactical military fuelling operations. In order to provide a complete supply chain management solution for the defence industry, Varec recently combined technologies from each industry solution to create an innovative and high-tech system, TacFuels®, specifically designed for tactical applications. The TacFuels system is being tested as part of the US Army's Load Modular Fuel Farm programme. The combination of FuelsManager Defense and TacFuels is enabling complete oil and gas supply chain management for the US and other defence organisations worldwide.

Breaking down barriers

The lack of integrated and complete solutions has been a barrier to automation for many facilities in the oil and gas supply chain. Information technology and automation engineering managers recognise that system costs increase dramatically when multiple systems from different vendors must be integrated to meet all of their automation needs. A completely integrated system necessitates multiple contracts with multiple suppliers and the systems must be integrated, requiring each of the suppliers to provide its own team of resources. Technical support is more difficult because help desk engineers must always first determine which system is causing the problem, and it is often difficult to get multiple suppliers to work together to jointly solve a problem. Furthermore, future upgrades can be risky because upgrading one system often exposes incompatibilities with the other systems. Because of these problems, smaller and more specialised facilities have continued to rely on manual processes.

Varec's FuelsManager suite of solutions helps solve these issues by providing a single, complete solution for all business functions, whether the facility is a terminal, airport or military base. Varec customers only have to make one call to resolve a problem. Troubleshooting is simplified because the help desk engineers are trained on the entire system, from the gauge to the enterprise interfaces. Upgrades are simplified because the system is tested as an integrated suite and upgrades with a single installation program.

Unlike the US, many countries have national oil companies that are responsible for refineries, terminals, airports and military bases. In these markets, a single system and supplier for all locations could provide the same benefits, but on a much larger scale. Standardising on one product requires a single training programme for all fuelling staff, while integration with enterprise logistics and billing systems only requires interfacing to one system. The system thus becomes a national asset that improves management of the oil and gas supply chain across the entire country.

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