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Fuel Management

New "cloud" technology changing the world of cardlock systems

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2011 manitoba magazines Maggie Award Winner

By Paul Nelson

FUEL MANAGEMENT... EFFICIENCY FROM "THE CLOUD"

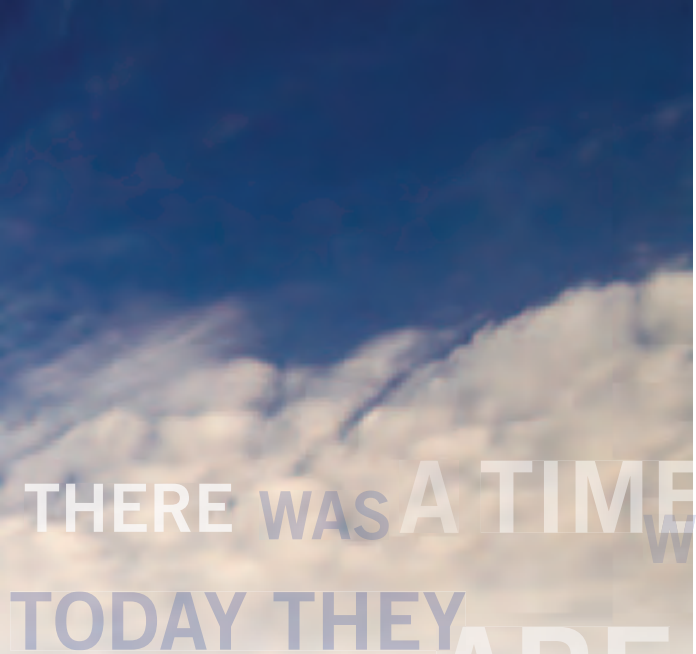
THERE WAS A TIME WHEN CLOUDS ONLY MEANT RAIN. TODAY THEY ARE SOPHISTICATED MANAGEMENT SYSTEMS THAT REPRESENT INCREASED EFFICIENCY AND A BRIGHT SPOT IN THE FUTURE OF CARDLOCK SYSTEMS.

At the very core of maintaining a successful organization is the ability to achieve optimum efficiency in all aspects of business. For many organizations operating fleets of vehicles, from a small fleet of municipal vehicles to a large fleet of trucks, efficiency is achieved through fuel management. Since the 1970's, the term "cardlock" has become synonymous with fuel cards and unattended fuel management, as well as a target for improving efficiency.

In the current economic climate, efficient, high-value fuel asset management has become a top priority. Not only must owners take the cost of maintaining and operating their fleets into account, high fuel prices and all, they must also consider the loss of money from fuel theft, inaccurate record keeping, and the potential for inaccurate cost forecasting. Fuel management systems at cardlock sites work to streamline fuel control operations, offering effective solutions for the issue of fuel control. These solutions include accurate tracking of fuel for record keeping and tax purposes, expense allocation for job costing, and improved driver accountability, among other things.

Fuel management at cardlock sites is currently operated using fuel cards, similar to a credit card, or a key fob, which fits on a key ring. These devices offer fast, local authorization and on-site record keeping through a Fuel Island Terminal (FIT), Fuel Site Controller (FSC), and P.C. software.

To begin the fueling process at a cardlock site, the driver inserts the fuel card or key fob into the reader at the FIT.



Next, the driver may enter additional data, such as a PIN, odometer, or miscellaneous data, which corresponds with their particular fuel card or key fob. Once the data is authorized, the pump is activated and the driver can begin fueling the vehicle. The transaction data on the fueling operation is recorded in the office by the FSC, which stores the transaction data along with driver and vehicle records. All of the programming for the system as well as the management of the information can be done on site via software on a P.C. that communicates with the FSC.

Evolution of unattended fuel sites

Before all of this technology was widely used, fueling of vehicles at a private or commercial fuel site was done by an attendant on-site, and was time consuming and vulnerable to fraudulent transactions. With the advent of computers, the fuel management system saw its first innovation with the move from manual record keeping to automated record keeping using the data storage technology of the day (starting with cassette tape drives!). This minimized the risk of human error with the input of authorization and transaction data directly to the system, while increasing security due to PINs associated with each card and account. Thus, unattended fuel management at cardlock sites was born.

Managing multiple sites, either within a private organization or municipality, or in a shared network of fuel marketer sites, became possible with dial-up modems. Top speed on these early modems was 300 or 1200 bits-per-second. Eventually, high-speed modems were introduced that allowed for faster and more reliable card authorizations, record keeping, and reporting, as well as a better on-site experience for users. Data could now be transmitted between the fuel site and home office more quickly and/or frequently. In addition, wireless modems and TCP/IP connections became an option with advances in communication technologies, offering increased flexibility, convenience and security.

The next step in the evolution of unattended fuel management was taken with the implementation of IP over cell modem technology. With this option, local fuel sites can be accessed using a secure software tunnel via the Internet, anywhere cellular coverage is available. However the fuel card authorization was still a local affair, handled on-site by the card authorization table stored in the local FSC.

Leading the way… to the cloud

One company leading the course of innovation for cardlock fuel management, having a hand in each of the aforementioned steps, has been Hodgkins, IL-based OPW Fuel Management Systems. While IP over cell technology offered greater convenience in fuel control, the next evolutionary step for 24-hour unattended fuel management is OPW Fuel Management Systems and Kardtech Incorporated's Kardall system. The Kardall network, which can be outfitted as an option for OPW Fuel Management's FSC3000™ Fuel Site Controller, utilizes advancements made possible by the latest in communication technology to improve fuel card authorizations and transaction data capture in regard to efficiency and security.

With the preceding fuel management technologies, site operators must maintain and access card files on authorized users at each of their sites separately. With the Kardall "cloud" operated system, all of the information is consolidated on one remote host, which can hold a virtually unlimited number of users and infinite number of transactions. Therefore, every transaction at all operator fuel sites can be monitored and controlled remotely, in real time. Along with the efficiency offered by real time reporting, Kardall

Outlook on innovation

OPW Fuel Management Systems and Kardtech Incorporated's Kardall, which has already been implemented by firms such as Alberta Fuel Distribution, ERS, and Blue Wave Energy, truly is the next step in the evolution of fuel control at

"WITH THE EVOLUTION, IT'S NOW EVEN LESS TO DROP FUELING INTO REMOTE AREAS OF CANADA, PROVIDE REMOTE ACCESS FOR POLLING AND CARD EDITING, AS WELL AS OFFER VISA AND MASTERCARD TRANSACTIONS IN REMOTE AREAS OF NORTHERN CANADA. YOU DON'T NEED MEMORY, IT'S ALL STORED ON THE SERVER. IT'S BEEN A GOOD EVOLUTION, NO QUESTION ABOUT IT."

also detects and prevents instances of fuel theft. Consolidated information improves security by preventing anyone from authorizing a second refueling from anywhere within the fuel operator's entire network.

The Kardall system utilizes secure TCP/IP communications, and makes information available over LAN/WAN or IP over cell. Whether there is available cell service or available Internet, Kardall affords for access to all of an operator's fueling sites over a remote, web-browsing based system. This system takes the place of the P.C. software. With an optional BlueTree wireless modem and access point, no wiring is needed outside of power, essentially eliminating any reliance on the grid.

Kardall also performs various types of transaction reporting, including system diagnostic reporting, customer invoicing, taxes, costing tables, averages, fuel terminal delivery entry, pump totalizer entry, and pricing. In addition to all the benefits Kardall offers on the demand side of the equation, Kardall also offers tank gauge connectivity for automatic importing of fuel volumes on the supply side.

cardlock sites in Canada, and the rest of North America.

Doug Morrison, of Fleming-Reid Petroleum Equipment, says "with the evolution, it's now even less to drop fueling into remote areas of Canada, provide remote access for polling and card editing, as well as offer Visa and MasterCard transactions in remote areas of northern Canada. You don't need memory, it's all stored on the server. It's been a good evolution, no question about it." Doug also comments on OPW Fuel Management System's presence in Canada, stating "I've been in the business since the late 70's, I've been through different evolutions, and OPW-FMS has been number one in Canada since it entered the market. Coast-to-coast, OPW-FMS has proven reliable."

Doug's partner, Rod Ingersoll of Ingersoll Petroleum, who has been in the business since 1982, states "OPW has always been reliable, dating back to single keylock sites. I would say that 90% of cardlock sites in Canada have OPW-FMS equipment. OPW-FMS excels in distributor rela-

solution. Kardall's true data hosting service includes 3rd party customer access, a messaging center for alarm notifications from site, and a fully integrated tank inventory interface. Fuel managers are now able to connect to their facility assets and other devices from anywhere in the world with the upmost in confidence." As they say, time is money, and you save both in Kardall's cloud network.

Paul Nelson is a fuel management specialist for OPW Fuel Management Systems, based in Hodgkins, IL.

tionships, quality of equipment, technical support and customer service." Doug also comments on Kardall, saying "We're excited about Kardall, as it will allow for the operation of cardlock sites anywhere from Toronto to the oil fields north of Fort McMurray. Kardall will allow an operation to host their own cards on a national level as well as other networks if they wish, allowing them the best of both worlds and a better control of their own destiny."

Mark Dikken, president of Kardtech, calls Kardall a "A solution for today's needs and tomorrow's demand," noting its "Fully Secure Private Cell TCP/IP Network with 99.7% up time with zero impact on the client through an I.T. department." Dikken states that Kardall's "live, interactive operating platform allows for on-screen training, messaging, loyalty programs, limits, restrictions, and even entry of tank dips by agent or by delivery company." He also notes Kardall's "liability, accountability, efficiency, and reliability," stating that "with Real Time Kardall Network Solution, users can combine other PetroVend Networks such as T Check, Com Data, EPS, TCH, and Paymentech, among others. Fuel marketers, private fleet and commercial fuel retailers, realize the benefits of added value (obtained and sustained) in this