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The AT&T Center in San Antonio can now support 600 vendors wirelessly.

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**Baaaack!** 



Avoiding Collisions on the Track



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)GRAM

**Production Went Up** 

Industrial Radios Breathe New Life Into Old Quarry





#### OCTOBER 2011

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### From the President



There are we going...?

It's been an interesting few months since my return to ProSoft Technology as the new President/CEO. I took the time to meet with most of the people who make up ProSoft in North America and our Asia Pacific Region. Additional time is being scheduled to visit with our EMEA team in December and meet more of our Latin American folks in the early part of next year as I travel in Latin America.

I wanted to get a good feel for where ProSoft Technology is from the viewpoint of those that make up the company. It was a time to listen and have an open discussion with each individual. It was great to spend that time getting to know ProSoft from others' viewpoint, I am grateful that I took that time and will continue to take that time with the other regions of our company.

There were a couple of questions that came up predominately and I thought I would take the time to answer for you the readers of the ProSoft Magazine as well!

- 1. How did they get you to come back out of retirement? Well... there are probably a lot of answers to that question, but the one that resonates best for me is just that I cared. It was a short retirement, just about 5 months. I had taken the time to put a great transition plan in place, reorganized the North American team to fill my previous position of Managing Director of North America and was very happy with the success of that plan. When Gary and the Board of Directors spoke to me about coming back to ProSoft as the President/CEO about 4 <sup>1</sup>/<sub>2</sub> months later, it took some thought, but what an opportunity. If you have a great team of people to work with, you can really make a success as you move forward with that team.
- 2. Where are we going? This resonated throughout the company and additionally as a question from our partners. My response? We are going to continue. We will always be looking for opportunities within our market where we can provide communication interfaces. We will continue with our good partners, always working to improve the products we have and add the value with our engineering, technical support, sales and marketing. We will continue to look at opportunities to work with other companies as their sales and marketing arm. Meeting with the team of people that comprise our Engineering group and Strategic Product Marketing gives me the peace of mind that continuation is only the beginning.

I have a personal "mantra" that I shared with each individual. We all need to "Figure it out", "Do it right", and "Get it done"!

See you next time...Thanks.

# Regional rends ProSoft Technology's Region



Scott Sibenac Managing Director

#### **North America**

2011 has been a great business year so far and time is just flying by. It is already time for the fall tradeshows once again. We continue to stay close to our channel partners, customers and distributors at these national and international events. Even in our world of new and amazing media technology the Automation market still remains such a personal relationship-based business. ProSoft will be exhibiting across the nation from the PackExpo show in Las Vegas to Emerson Exchange in Nashville, the PI event in Phoenix, to last but not least, the Rockwell Automation Fair in Chicago. Be sure to stop by our booth to say hello if you are at one of these shows.

At ProSoft we also understand that we can't be everywhere so we are also enhancing our website to make it easier to find automation solutions by translating it into 6 languages. Our new catalog (which will also be available in 6 languages) will be available in October 2011 as well as the magazine you are reading right now – all to keep you up-to-date on communication solutions from ProSoft Technology.



Alain Chevalin Managing Director

#### **Europe, Middle East, Africa**

For most industrial automation users, calling technical support can be a painful experience. We have all been there at one time or another...waiting on hold forever... then when you finally get a live voice on the phone they say those inevitable words "Do you have a support contract?" Not so when you call ProSoft Technology Technical Support. First of all, it's free. We don't charge our customers for technical support because we believe in selling solutions, not just products. Second, there's not much our Tech Support Engineers haven't seen because these are engineers who have worked in the field with our products. They also know that when a plant is down, minutes count. Third, our Tech Support Engineers love a challenge. They take pride in doing whatever it takes to make your life just a little easier.

So, is there a way we can make your experience with ProSoft Technology even better? If so, we would like to hear from you. Tell us about your application challenge and how we can help make it the best it can be.



Franco Melchiorre Managing Director

#### Latin America

In this edition of our ProSoft Magazine I would like to share with you the enthusiasm and energy of our efforts as we consolidate our presence in Latin America. Our humble beginnings in the year 2000 began with one Regional Sales Manager for the entire territory. Today we are fortunate to report that we have five operational sub-regions: Brazil as a single country subregion; Mexico and Central America; Andean Region (Venezuela, Colombia, Ecuador, Perú and Bolivia); South Cone Region (Argentina, Chile, Uruguay and Paraguay); and Caribbean (Puerto Rico, Dominican Republic, Trinidad and Tobago).

Our most important assets are our people. Our Regional Sales Managers are vital to our success. Hugo Amador is responsible for Mexico & Central América. Antonio Ramirez is in charge of the Andean Region and Sergio Arias is responsible for the South Cone region. These individuals share our core values and they are very committed to serve our customers in their countries. I invite you to meet with them at the different events where ProSoft Technology is present.



Lenus Hong Managing Director

#### **Asia Pacific**

What a year!

As we are fast approaching the end of 2011, the Sales and Marketing team has been working relentlessly to participate in all the events happening in the Asia Pacific region. Marketing has always been one of our key success factors in building the ProSoft brand awareness. It is a critical reinvestment process to ensure that all our valuable customers are fully engaged with us.

Our AP team has travelled thousands of miles over the year, holding marketing events with our local channels, as well as RAOTM, RAU and RA Road Shows / RAOT with Rockwell Automation, and the SE SI Conference with Schneider Electric. This has been a busy and valuable journey to continue having a strong local presence in every country, and to ensure that our customers continue to receive the best local support.

The Marketing team has also been busy organizing training courses every quarter. We plan to have a larger technical seminar near the end of this year to bring all our Asia Pacific partners together for knowledge exchange and networking.

As we continue growing as a global organization, localization is always a challenge with the many cultures and languages in this Asia Pacific region. We have added Korean and Japanese speakers into our Sales team to serve customers in those respective countries. We are also looking to add Thai speakers to our team. We are adding other local languages to the ProSoft website, starting with Chinese and Korean language support in the first phase, followed by Japanese. These new webpages will go live by the end of this year.

Kudos to our Marketing team!



# And they call RODED! the thing...

By Danetta Bramhall

f you are near the AT&T Center in San Antonio during basketball season you'll hear the roar of the crowd as the Spurs take to the court. In February you'll hear a different sound... the sound of carnival rides, pig races and wild west shows. You'll also smell cotton candy, leather, mud, blood and beer as the World Famous Stock Show and Rodeo plays for 18 days to over one million people.

The AT&T Center, home of the NBA 4-time world championship San Antonio Spurs, the American Hockey League San Antonio Rampage, and the annual San Antonio Stock Show and Rodeo and host to acts such as George Strait, The Rolling Stones, and Van Halen, is made up of 15 buildings including horse and cattle barns, auction barn, horse show arena, offices, a marketplace for numerous vendors and the 100-year-old Freeman Coliseum. Because of the demand for Wi-Fi services by the multitude of vendors present at the Stock Show and Rodeo, organizers decided to update the Coliseum as well as the 14 other buildings which make up the AT&T Center complex by bringing in wireless capabilities.

"We got a tip that AT&T was looking for a wireless company," said James Jenner of MidCoast Electric in San Antonio. "Scott Sibenac from ProSoft Technology happened to be in my office that day and together we made a cold call to the AT&T Center."

That cold call turned into a fortuitous event for everyone involved.

Starting in November 2009, setup began in the Freeman Coliseum to make it the Master Access Point linking the 28 Industrial Hotspot Radios that would be distributed to the other buildings.

"This was a pretty straight-forward application for these type of radios," commented Jenner. "But, the organizers at the Center were in a bit of a hurry. They wanted it up and running by the end of January 2010, in time for the rodeo. And, the wireless company they had been trying to contact for the job wouldn't return their phone calls."

So MidCoast Electric and ProSoft Technology took on the job of bringing this championship rodeo complex into the 21st century.

ProSoft's 802.11 abg Industrial Hotspots were placed in each of the 14 buildings making up the Center complex. One or more radios were placed in each of the 14 buildings depending on its size and construction. The Industrial Hotspots provide the speed needed to transfer data in real-time. They are certified for harsh environments, making them a dependable solution despite poor weather conditions. The Master station, located in the Freeman Coliseum, allows for remote troubleshooting and programming.

This new wireless network allows over 600 vendors, featuring agriculture-related items such as tractors and horse trailers, fencing, hay bailers, irrigation systems, horse pens, cattle scales, animal feed and a wide array of agriculture supplies, access to wireless credit card machines.

The vendors are located in the Texas Star Marketplace, located in

the Freeman Coliseum and the Two Step Marketplace, located in the Exhibit Hall directly behind the Freeman Coliseum, as well as throughout the Stock Show grounds. The new wireless network now connects all

of these venues as well as the Royal Saloon and the Cowboy Church.

Bexar County voters overwhelmingly approved a partnership between the Spurs, Bexar County, the San Antonio Stock Show & Rodeo and the Coliseum Advisory Board

MidCoast Electric and **ProSoft Technology** took on the job of bringing this championship rodeo complex into the 21st century.

to build a Bexar Countyowned community arena that would serve as the new home for the Spurs and the Stock Show & Rodeo. The Spurs and the San Antonio Stock Show & Rodeo together designed the AT&T Center to be a state-of-the art facility, capable of hosting championship sporting events, rodeo and other first-rate entertainment. In addition, the County

agreed to make enhancements to the Freeman Coliseum and stock show facilities, to ensure all of these County-owned facilities were properly maintained and remained state-of-the art. The new wireless system certainly accomplishes that. +



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Site map for San Antonio's AT&T Center

# Production Went Up 53%

A 'Big 3' auto manufacturer increased paintshop production using ProSoft Technology industrial wireless solutions.

The auto manufacturer's plant paint shop was causing a production bottleneck and needed revamping. Engineers envisioned increasing communication speed and peak bandwidth, as well as reducing maintenance downtime, as the road to increased production. A RadioLinx wireless network became the key to a successful solution.

#### The Process Environment

An overhead monorail system transports car body carriers around a loop that travels through the 100-meter-long paint-shop building. At the paint-shop loading station at one end of the process line, car bodies are loaded onto these mobile carriers, lifted eight meters off the floor, and attached to an overhead monorail system. The carriers run above a process line with 14 sequential stations. At each station, the carriers stop to allow two on-board hoists to lower the car bodies into a chemical immersion bath. When the process is completed at one station, the hoists lift the car body and the carrier moves along the monorail to the next station in the chain, as soon as it's empty. After the last process station, the car bodies are unloaded from the carriers at the other side of the building, 120 meters from where they began.

#### The Problem – Obsolete Mobile Connectivity

Each mobile overhead carrier contains an on-board controller to operate the on-

A RadioLinx wireless network became the key to a successful solution. board hoists. A single, stationary master controller located near the loading station, manages the carrier controllers. The master issues commands via a legacy serial protocol through a conductor rail system that connects it to the carrier controllers.

The protocol is slower than newer industrial protocols and is difficult to transmit wirelessly. The facility management recognized that to increase communication speed and bandwidth they would need to use a new protocol. And, the original network design did not require or include peer-to-peer communication between carrier controllers. They determined that adding peer-to-peer communication capability could also help increase production.

The sliding-contact conductor rail system that carried messages came with its own set of problems. The sliding-contact system required significant maintenance to operate at peak efficiency. But even at peak efficiency, when network bandwidth utilization approached maximum capacity, high transmission error rates plagued this hardware-based rubbing connector system. Low capacity and high error rates created another problem. Even though the paint-shop process line had 14 stations, the conductor rail system had enough bandwidth for data from only 13 carriers at a time, which was restricting paint-shop throughput.

#### The Goal – Increase Production Capacity with Minimal Modifications

Plant engineers wanted to retain the advantages of having mobile, on-board controllers for each carrier. They wanted to eliminate the communication bottleneck imposed by the older serial protocol. They wanted to eliminate the maintenance headaches and bandwidth limitations of the conductor rail network. They not only wanted to be able to use all 14 stations simultaneously, but also wanted to add from four to six new carriers to cope with increased production demands. So, they began rethinking their network strategy.

#### The Solution – Marrying Old and New Technologies

Working closely with engineering service

and local distributor, the company elected to migrate to the faster, more robust, Ethernet communication network in order to increase their bandwidth capabilities. But, the processors mounted in the mobile carrier cabinets had no Ethernet ports. The manufacturer did not want to replace all the mobile PLCs with Ethernet-capable processors, so they installed a serial to Ethernet gateway in each controller cabinet. This enabled the stationary master processor to receive process data from the mobile processors via Ethernet. The existing legacy master PLC was replaced with a newer version, giving the master controller sufficient Ethernet connectivity bandwidth to handle the large volume of data from the mobile controllers.

The sliding contact network system was not well-suited for Ethernet communication and too unreliable and costly to maintain. Eliminating the outdated sliding contact system and replacing it with a modern wireless system seemed like an obvious and necessary choice. The mobile carriers and the stationary master controller could then communicate via Ethernet through a high-speed, high-volume wireless network



solution. But wireless networks can have their own set of limitations. Radio waves reflect off metal objects and bounce in all directions, creating a potential problem known as radio multipath interference.

Engineers were doubtful wireless would be reliable for heavy industry, in an environment surrounded by moving metal. The paint shop has metal walls and a metal roof. The carriers are massive steel objects, as are the car bodies they carry. These constantly moving metal masses result in an ever-changing radio frequency environment, increasing opportunities for radio interference to interrupt or corrupt data flow. But RadioLinx industrial radios use highly effective filtering algorithms and allow emitted power adjustment. Both of these features help overcome multipath interference problems. Plus, ProSoft Technology's expert advice regarding proper antenna selection and placement was a major factor contributing to the application's overall success.

"We saved at least 2-3 days of engineering work while designing the network," remembers Mike Dean, the system

> Production capacity increased more than 53 percent.

The RadioLinx wireless Ethernet solution provided all the speed and bandwidth engineers needed to achieve their design goals. integrator from DACs. "And of course, we saved on installation time, having less hardware to handle, manipulate, and install in the field. In fact, installation and validation of the network were very quick. When adopting a new technology, the learning curve typically runs through one or two projects. But, with RadioLinx and with support from ProSoft Technology, our learning process was very short."

#### The Results — DRAMATIC

Production capacity increased more

than 53 percent. The RadioLinx wireless Ethernet solution provided all the speed and bandwidth engineers needed to achieve their design goals. Wireless networking brought the transmission speed and reliability that were missing with the old conductor-rail, sliding-contact system. The wireless solution was easy to implement and much easier to maintain, requiring less downtime. And the number of carriers that could simultaneously be in use in the paint-shop loop increased from 13 with the old network to 20 with the new network. •



# She's Baaaack!

In the movie *Poltergeist*, if you ever heard someone say, "She's back," you knew there was trouble. But not at ProSoft. **Here it's a good thing!** 



#### By Danetta Bramhall

In January of this year, Janice Hungerford announced her retirement from ProSoft Technology after 18 years as one of the driving forces behind ProSoft's growth.

#### Guess what?! She's Back!

In July it was announced that Hungerford would be coming back to ProSoft Technology as the new Chief Executive Officer. Hungerford succeeds Gary Joke, appointed interim President in a unanimously supported decision in 2008 following the loss of founder, Douglas Sharratt. Joke, acting Chief Financial Officer for ProSoft Technology since its incorporation, will retain this role. He has also moved up to the key role of Chairman of the Board, helping to guide and accomplish key initiatives and objectives set by the Board.

> "My heart has always been wrapped around this company. And I just felt like there were some things I still wanted to accomplish." Janice Hungerford



Janice meets with (from the left) Chien-Tan Lien, General Manager–Engineering; Franco Melchiorre, ProSoft's Managing Director for Latin America; Gary Joke, Chief Financial Officer and Chairman of the Board; and Ken Roslan, General Manager–Commercial Marketing.

"I am very pleased that Janice Hungerford has agreed to step into my role as our new CEO," comments Joke. "Her undeniable passion, history, and extensive experience with ProSoft Technology allows a seamless transition that is key to the organization. Together we look forward to exciting opportunities for growth and new leadership, while preserving the unique family tradition held by ProSoft Technology."

Hungerford's vast experience, strong existing relationships, and proven leadership will be paramount in the execution of the company's long-term strategy. "It is an honor to return to ProSoft Technology in the capacity of CEO," comments Hungerford. "Together with the board and global managing directors, it is our intent to help ProSoft Technology achieve the abundant growth anticipated in coming years."

But what about the farm, you ask? In the last issue of the ProSoft Magazine we told you Janice was retiring to her farm that she and her husband Jim own.

"The farm is still there," says Hungerford with a smile. "Jim wanted a full-time farmhand and I really enjoy working in the vineyard, but building fences is HARD work. I told Jim he's just going to have to hire some help."

It seems as if the Hungerfords just can't do without ProSoft Technology. Janice's husband Jim is also a retiree of ProSoft. In fact, Jim has retired 3 times. So, it didn't really come as a surprise for Janice to make a comeback. "My heart has always been wrapped around this company," says Hungerford. "And I just felt like there were some things I still wanted to accomplish."

Hungerford has now added a new hat to her wardrobe. In the past at ProSoft she's had a number...Customer, Salesperson, North American Sales Manager, North American Managing Director and now...CEO. •



### California Water District DGrades Their Control System

Located in the fertile farm land of the central valley in California, the Cawelo Water District is a small part of the largest state-built water development project in the United States.

#### By Danetta Bramhall

alifornians have always been faced with the problem of how best to conserve, control and move water. California has a wide diversity of climactic and geographical contrasts. The northern part of the state, with its alpine forests receives as much as 100 inches or more of rain per year, while the central and southern parts of the state range from arid desert to fertile farm land with some areas receiving less than 2 inches per year. Population centers have grown up in locations where there is not a sufficient water supply. The central valley, running from Sacramento to Bakersfield, contains some of the most fertile farm land in the world, most of which is dependent on irrigation. Because of this need to conserve, control and move water to areas of need, California has developed the State Water Project, the largest state-built

water development project in the United States.

The Cawelo Water District is a small part of this statewide water project. Located in the southern portion of California's fertile San



Rockwell Automation processors were installed at each of the five remote well sites containing a ProSoft Technology Modbus Communication Module and a DF1 Communication Module.

Joaquin Valley, the Cawelo Water District supplies irrigation water for over 45,000 acres of crops including grapes, citrus, almonds and pistachios.

After a careful study, the Cawelo Water District decided that the level of reliability was not acceptable in their current system. Parts were no longer available for their legacy system and buried wire was degrading with age. So, they decided to upgrade their system to allow remote control of facilities, monitoring of power usage and quality, and to enhance the ability to perform load shifting for remote facilities.

"The water district needed a name-brand solution with local support," says Danny Burns, Operations Manager for Prousys, Inc. the System Integrator chosen to construct the new system. "We recommended Rockwell Automation hardware."

Allen-Bradley processors were installed to replace the aging Westinghouse PLCs at each of the five remote well sites. In order to monitor power usage and detect anomalies in the Multilin PQM Power Monitors, a ProSoft Technology Modbus Communication Module was installed in each processor.

"This is a perfect example of how ProSoft modules are used everyday to connect Rockwell Automation hardware with other networks," said Chuck Clark, Western Regional Sales Manager for ProSoft. "We receive numerous requests on a daily basis for modules in the water/wastewater industry. Because our modules are designed to be used as 'in-rack' solutions for Rockwell Automation processors, it is a cost-effective way for plant managers to use their existing Rockwell Automation equipment with other network's protocols."

A SCADA Master Control system was also installed consisting of an Intellution Fix/ DMACS HMI and an Allen-Bradley SLC 5/05 with two ProSoft DF1 Communication Modules in order to poll all of the 5 well sites, three pump stations, four reservoirs and five check stations.

Redundancy is a key factor in most water systems. Prousys installed and configured a second Intellution HMI to provide control redundancy. In the event of a failure in the primary controller, the system switches to the backup, ensuring seamless control in the plant.

"In other words," states Burns, "The system will keep right on running if the HMI goes down."

The system's three pump stations, containing pumps ranging in size from 500hp to

1,000hp, are controlled according to the levels in the associated wells. The precise operation of the system depends on the accurate measurement of system levels and flows across the entire water system. Flow and level meters relay these measures back to the central control room for monitoring and control. Allen-Bradley Panelview 550s were installed at each of the three pump stations.

"The new system now gives the water district full control of all remote sites," said Burns. "The SCADA system can now track station flow rates, overflow events, well level, in-flow

This is a perfect example of how ProSoft modules are used every day to connect Rockwell Automation hardware with other networks. and out-flow. They also have the capability to detect numerous system failures including power, high/low voltage, phase imbalance, high/low amperes, frequency, load factor and low water level. Since the ProSoft modules communicate over the backplane with the Rockwell Automation processors, they were critical to the success of this project. ProSoft provided the 'missing link' in the

communication chain, seamlessly allowing connectivity between these differing networks." •



The system's three pump stations contain pumps ranging in size from 500hp to 1,000hp.

# Wireless...

Avoiding Collisions on the Track

Andritz Inc. uses high-speed Ethernet radios to create a robust anti-collision network for two different dual Portal Crane projects.

#### By Adrienne Lutovsky

In Roswell, Georgia, residents make their way down tree-lined brick walks of the city's Historical District, sipping their morning coffee from recycled paper cups, gazing at furniture through shop windows. Just outside of this city founded on manufacturing mills is Andritz Inc., an international provider of services and equipment for the world's creators of pulp, paper, tissue, and Oriented Strand Board (OSB) products including furniture and homes.

With over 150 years of experience, Andritz is able to support pulp and paper companies with a complete top-to-bottom custom integration process. Andritz provides equipment for the processing of short wood, bunk wood, and tree length logs using debarking drums, chippers, conveying and storage systems, refiners, pulp drying lines, and tissue paper machines which form, press, dry, and reel the finished product. From start to finish these applications are designed, set up, programmed, delivered, and installed by Andritz for the customer.

#### **Project Details**

In 2006 Andritz was commissioned for two different OSB Mill projects: one requiring the installation of 4 portal cranes at Grant Forest Products in South Carolina, one requiring 2 portal cranes at Martco Industries in Oakdale, Louisiana.

The Portal Cranes in both projects were to be used for unloading logs from logging trucks and transporting the materials to an onsite woodyard. The cranes would need the ability to operate independently and simultaneously while sharing a common set of two perpendicular rail tracks. This system would enable the two cranes to travel from the log truck unloading area to the woodyard infeed equipment or to the log storage area located in between the two rails.

"Andritz has Portal Cranes capable of lifting an entire load of tree-length logs from a logging truck with a single bite of the grapple," notes Robert Dunlop, Sr. Electrical and Automation Project Engineer for Andritz, responsible for the electrical and control systems of these cranes.

Many of these Portal Crane grapples can lift up to forty-four tons of logs in a single bite and transport them along rail runways



ProSoft's Ethernet Industrial Hotspot

sometimes up to a mile in length. Cranes traveling high speeds can safely operate up to 750 feet per minute (12.5 feet per second).

"A typical Portal Crane unloading and delivery cycle is about 2.5 minutes per crane, translating into hundreds of tons of wood per hour being processed," said Dunlop.

#### The Challenge

Given the high performance demands of modern crane applications, the old practice of using 300-400 foot long bus bars or festooning cables to communicate between the gantry and trolley was not an option.

"Festooning cables and bus bars are costly and are a frequent source of operational problems. It can cost around \$10,000 for materials alone, plus installation and maintenance costs. Then when the equipment fails, downtime is a serious problem to a customer and can sometimes take a day to repair," explains Dunlop. The bus bar systems operate on a serial communication network so data rates are slow and during poor weather, particularly precipitation, the signal is often degraded. Even if the serial communication system was faster, bus bars can only communicate from gantry-to-trolley and not from craneto-crane which is needed for anti-collision systems.

Each crane costs millions of dollars and for the safety of the crane operators it is imperative to have a reliable anti-collision system in place. Andritz needed the ability to monitor the real-time locations of each crane on the rails and to automatically slow down and stop each crane should they enter a potential collision situation. Until the advent of wireless devices, safe and reliable anti-collision systems were just wishful thinking.

#### The Solution

Andritz placed a satellite GPS system on each crane to accurately determine their respective locations on the rail. For this to be an effective solution, each crane would need to know the position of the other crane. Andritz selected ProSoft Technology' RadioLinx' Industrial Hotspot<sup>TM</sup> Ethernet radios (RLX-IH) as their wireless solution. ProSoft Technology's radios provide the speed needed to transfer data between the cranes and the operators in real-time. They are certified for harsh environments, making them a dependable solution despite poor weather conditions.

"I use ProSoft's radios all the time for this type of application," said Dunlop. "The main advantage of using high speed Ethernet radio systems is that they help the cranes avoid collisions on both the network and on the track. Plus, operating wirelessly creates a significant cost savings by eliminating additional communication bus bars and festooning cables."

Altogether, the two projects utilized twenty radios: thirteen radios for the Grant Forest Products project and nine for Martco Industries.

One radio is attached to each crane and is dedicated to communicating its GPS position to the other crane on the tracks. A set of radios then connects each crane's gantry control system to its trolley control system.

"The high-speed Ethernet communications are very effective, so that when the crane operator moves the joysticks inside the



Portal Crane grapples can lift up to forty-four tons of logs in a single bite and transport them along rail runways sometimes up to a mile in length.

operator cab, the gantry and trolley controls respond seamlessly, without any noticeable delays," Dunlop elaborated.

Finally, a radio was implemented to connect the control systems for each application to a woodyard ground station on site, where a Rockwell Automation<sup>\*</sup> ControlLogix<sup>\*</sup> platform manages the data. The ground station radio allows for remote troubleshooting, programming, and operational data acquisition of the cranes. It also allows Andritz to provide remot crane diagnostics and programming support through internet connections.

#### Results

The Grant Forest Products and Martco Industries projects are live as of October 2006 and January 2007 respectively. In application, the two wireless systems not only created a more efficient, cost-effective network than bus bars and festooning ProSoft Technology's radios provide the speed needed to transfer data between the cranes and the operators in realtime. They are certified for harsh environments, making them a dependable solution despite poor weather conditions. cables, but are far more reliable in diverse weather conditions. The wireless networks are self-healing, with significantly less risk of signal degradation than the alternative, and they operate in real-time which is key to a successful anti-collision system.

With sophisticated processes involving multi-million dollar Portal Cranes operating at rapid speeds while carrying several tons of materials, crane collision is a clear concern. It is not only the cost of downtime and repair to be considered, it is the safety of the crane operators and workers on the ground level that is also of importance. In these cases, a real-time wireless Ethernet network was the only way to facilitate the conditions needed for a high-performance anti-collision system. The networks created by Andritz will protect the Portal Cranes, thus creating a safer environment for crane operators and workers on the ground level. •



## Introducing the new



♥ ♥ ProSoft Technology is one of the few companies that specializes strictly in industrial communications solutions for automation and control applications.

That being said, there are still countless specialty and legacy protocols out there, and no end to the combinations and differing needs of each customer, each industry, and each individual application.

That's why it is our ongoing goal to strengthen the vast portfolio of communication solutions we offer our customers. As a part of this, we have developed our ProSoft Partner Program (P3).

#### About P3

P3 is a program where ProSoft Technology will market, sell and support third party industrial communication products. P3 products are complementary to ProSoft Technology's line of in-chassis protocol interfaces, industrial gateways and wireless solutions. The program is designed to provide our channel partners and end users with an ever-growing range of connectivities to field-proven solutions supported by the team of engineers you trust.

#### **Benefits to End Users**

- A total of 234 years of highly technical sales experience in industrial automation
- 500 distributors in 52 countries
- A trusted vendor for all of your communications needs

#### **Global Tech Support & Training**

- Technical support for customers in multiple languages
- Training opportunities as needed

#### Introducing our first partners!

#### **FieldServer Technologies**

ProSoft Technology will sell and support the SlotServer and QuickServer brands manufactured by FieldServer. As an added benefit to users, ProSoft Technology offers a new option to purchase custom configuration services for both the QuickServer and SlotServer products.

#### QuickServer Gateways for Building Automation

The QuickServer gateways enable communication between BACnet<sup>™</sup>, LonWorks<sup>™</sup> and JCI

Metasys<sup>®</sup> N2 building automation protocols and several of the more pervasive serial and Ethernet protocols, including EtherNet/IP and Modbus TCP/IP.

#### SlotServer In-Chassis Solutions for Building Automation

SlotServer provides in-rack connectivity between the Rockwell Automation<sup>®</sup> ControlLogix platform and an array of Building Automation Systems and Fire Alarm Control Panel protocols.



#### Western Reserve Controls (WRC)

ProSoft Technology will sell and support all DeviceNet communication products manufactured by WRC.

#### **DeviceNet Gateway Solutions**



With support of the new DeviceNet protocol gateways, ProSoft Technology now offers a solution to integrate ASCII devices, Modbus devices, and

select legacy Opto 22 units into a DeviceNet control system.

#### Network Extenders/Repeaters

Extenders provide a cost-effective solution for increasing network length to reach devices in remote locations. Available for DeviceNet,



SDS (Smart Distributed System), J1939, CAN-open and other CAN, V2.0, Part A or Part B serial bus systems. ◆

> It is our ongoing goal is to strengthen the vast portfolio of communication solutions we can offer our customers.

# Plains Exploration & Produ Significant Benefits from W

By Adrienne Lutovsky

The San Joaquin Valley in central California is the largest petroleum producing region in the state. In the South Belridge Field just outside of Bakersfield, Plains Exploration & Production (PXP) Company transformed their steam injection metering and data acquisition systems into a highly

sophisticated, automated process comprised of a large network of WirelessHART transmitters and industrial broadband radios.

#### The Application

PXP's Hopkins Lease consists of over 200

wells distributed over a little more than a square mile. As an enhanced oil recovery project, continuous steam injectors play a critical role in the amount of oil produced by a given well. Placed adjacent to each producing well, steam is injected into the surrounding reservoir to help mobilize the oil toward the producing well.



# ction Company Anticipates /ireless Installation

Originally, each injector was fitted with a chart recorder, which metered and recorded steam. To track these readings, operators were required to visit each of the approximate 120 injection wells every day to visually interpret the chart recorders' graphical readings, log it on a clipboard, manually convert this measure to a flow rate, key it into a spreadsheet, and send to the office in Bakersfield where a data entry clerk keyed the figures into a database.

#### **The Problem**

This steam metering method was very manpower intensive. The chart recorders

themselves required recalibration every three months, and it was difficult to accurately interpret their readings. Secondly, concerns existed about data integrity from potential recording errors during the several handoffs and manual entry steps required. Lastly, the process consumed much of the operators' time and provided only one data point per





day, so should a problem arise at a well, PXP suffered response lag times in dealing with the issues.

The Project Facilities Engineer at PXP saw these inefficiencies as another opportunity to improve processes for PXP. After equipment investigation, analysis and discussion with operations, he was able to implement a new wireless metering and monitoring system, employing the latest technologies to deliver a real-time system, resulting in substantial benefits to PXP. The opportunity to implement a wireless solution made deployment quick and economical. Without these technologies, separate power and communication lines would be run to each well making the retrofit project very costly and time consuming. Additionally, maintenance of the system without the miles of power and communication lines is eliminated.

#### **A Proven Solution**

With close coordination with operations personnel, the new, state-of-the-art automation system began as a pilot project, during which ten Rosemount 3051S WirelessHART Pressure Transmitters were installed at four wells. Two transmitters were placed on each well to measure the downstream pressure at the wellhead and the upstream pressure before the steam passes through a choke. On dual stream wells, a third transmitter is installed so that each stream has its own downstream transmitter and a shared upstream transmitter. The pressure transmitters communicated through the self-organizing mesh network to the Emerson WirelessHART gateway, where the process variables, process diagnostics, and instrument diagnostics were converted to Modbus TCP/IP data. ProSoft Technology 802.11 industrial broadband radios connect gateways in the field to an industrial PC in the office a mile away, forming the backhaul netwoårk, or an alternate wireless communication system that moves data from points in the field to the business system.

During the pilot project, PXP brought in a company that tests steam levels and is able to report a true number for the amount of steam being injected to a well. PXP compared the steam test results for both the wireless transmitters and the chart recorders and found the transmitters readings to be around ten times more accurate on average.

"We were surprised by how much more accurate of a reading this new technology was able to deliver," comments Michael Fischback, Project Facilities Engineer. From a reservoir perspective, inaccurate steam metering translates into expensive repairs. Over-injecting of steam also leads to higher than necessary operating costs. Under-injection results in missed production opportunities where oil that could have been extracted was instead left in the ground.

After the project was validated, the plan was rolled out across approximately 120 wells. In total, 249 Rosemount WirelessHART transmitters were installed, with four gateways aggregating this data and three ProSoft Technology industrial radios to communicate this data to an industrial PC in the field office.

#### **The Implementation**

As a whole the project went very smoothly and quickly.

"Installation of the Emerson pressure transmitters was merely a matter of removing a mechanical pressure gauge and screwing on the new instrumentation," describes Fischback. "Installation of the ProSoft radio was as simple as mounting the radios onto a backboard. The installation of the ProSoft radios took no more than a day."

"Bob Karschnia, Emerson VP of Wireless Solutions, comments, "Upstream oil companies have a limited amount of time to deploy any kind of solution to help them solve their problem, so the faster they can get that solution deployed, the better. The advantages of using both the ProSoft Technology solution and the Emerson Smart Wireless solution are the ease of deployment. Both solutions have a straight-forward user interface that allows you to configure and set-up the networks almost instantaneously. They are very highly engineered solutions that take the complexity out of the user's hands and build them into the products."

The biggest attribute of this system is that it allows operators to see performance problems more quickly and react with better priority and increased time efficiency.

#### **The Results**

In enhanced oil extraction projects, steam costs can account for anywhere from 40-65 percent of a producer's costs and

> The new system gives operators the data they need to better prioritize their day as soon as they arrive on site, rather than visiting all 120 wells...

are responsible for much of the revenue derived from a well. As a result of the newly automated wireless process and data acquisition system, PXP expects to see oil production increase, in addition to the benefits of greater efficiencies and reduced costs. The savings will more than pay for the entire system within the first couple months of operation, and the benefits will be seen year after year. The operation will benefit from:

#### Reduced maintenance

Calibration cycles for the Rosemount WirelessHART transmitters, which were delivered pre-calibrated, are recommended by Emerson only once every 5 years; a dramatic improvement from the 3 month cycle suggested for the chart recorders.

#### Real-time data: improved response times and smarter decisionmaking

Live data feeds to the field office, where operators can monitor present well status or query a range of conditions. Predetermined set points trigger notifications for operators to see instantaneously if a well deviates from goals. Data is archived permanently and can be trended for better analysis and decision making down the road.

#### Increased efficiencies

The new system gives operators the data they need to better prioritize their day as soon as they arrive on site, rather than visiting all 120 wells, not really knowing where to start, freeing them to focus on more productive activities.

Profitability stemming from greater accuracy and distribution of resources

At today's prices the cost of steam at Hopkins exceeds \$10 million annually, and with the new system in place, PXP can distribute their steam with improved accuracy compared to the chart recorders. •



Because of its weather-proof casing, ProSoft's Industrial Hotspot can be mounted outside the panel.

### Industrial Radios Breathe New Life Into Old Quarry

by Danetta Bramhall

Uside of the small town of Taylor, Missouri, an operator watches the cutting arm of his dredge on sonar. Silently the arm descends into the murky water and neatly intersects with the sandy bottom. The automated vacuum control system on the cutter head pumps the wet sand at a rate of 6,000 gallons per minute, through a 2000-foot pipe, underground and across a lake to the classifying plant. Once there the sand is pumped to the top of the 70' plant, then is filtered and stacked into product piles ready for transportation. Wireless industrial radios instantly report minute changes in pressure and flow in the pumps and keep the operator in constant communication with the controllers in the classifying plant nearly a half-mile away.



The dredge operator can watch the cutting arm via sonar on the VersaView 1700.

Though reminiscent of a sci-fi movie, this scene represents the brainchild of Mike Gottwald, Corporate Engineer for RiverStone Group Inc. a subsidiary of Central Stone, a sand and gravel company in West Quincy, Missouri.

Using MicroSoft Access and Excel in conjunction with Allen-Bradley's RSView, they now have production reports which were never available before. "It has definitely increased our data gathering capabilities and allowed us flexibility in the use of the man-power needed to run this operation, saving us approximately \$100,000 per year," said Gottwald. "Also, with the old system the pipe would get plugged several times a day. Now, as fast as ControlLogix is, we can anticipate plugs and we haven't had one since the new system went on-line."

"I'm new to the mining industry," said Gottwald. "So, when I started to work here I asked a lot of questions." Gottwald was surprised to learn that most of the technology used in the dredging operation was over 30-years-old and obsolete. Everything was done manually, with no way to even measure pressure or flow from each of the pumps. When he asked the dredge operator how he could see what he was digging into under the water, he was told that they "felt" their way along.

Much of the Convac system controlling the vacuum at the cutter head inlet needed to be replaced. The electrically operated control valve and control panel were a proprietary system that was inadequate for the needs of the operation. The old angle sensor on the cutter head also needed to be removed. Since the dredge rises and falls when the cutter head is touching bottom or free floating it was impossible to determine a true cutter arm angle.

#### **Going Wireless**

In order to solve these problems, improve efficiency and coordinate the dredging with the classifying plant, a fully automatic system was needed. The first change Gottwald was determined to make involved installing radios in the dredge to communicate with the pumps and the classifying plant.

"I wanted to use wireless," said Gottwald, "because wire is such a big headache." Gottwald started with consumer-grade radios. "The classifying plant is on the other side of a major highway. The consumer radios were a disaster. They shut off when a plane flew by.

"We had several industrial radio companies look at this application. Some told us it couldn't be done. Others told us we would need expensive repeaters. ProSoft Technology came along and simply did it. ProSoft's RadioLinx modems are by far the most robust radios I have ever found. RadioLinx is a complete wireless Ethernet package. For this application it was just plug and play."

"Every wireless application is unique," said Wally Gastreich, RadioLinx Application Engineer for ProSoft. "It is imperative that any company providing wireless communication know the specifics of the

"We had several industrial radio companies look at this application. Some told us it couldn't be done. Others told us we would need expensive repeaters. ProSoft Technology came along and simply did it."

application. Critical information that should be considered before purchasing a wireless network include: How far does data need to be transmitted? Are there any obstacles such as buildings or mountains impairing line-of-sight between radios? In what type of application will the radios be used, i.e. oil and gas pipeline, manufacturing plant, electric welding, etc. If the integrator does the proper leg-work up front, the reliability of the radios is a given."

A RadioLinx Ethernet modem was placed at the classifying plant, the pump station and on the dredge. The classifying plant is nearly half mile away from the dredge, which sits down in the water-filled quarry. In order to achieve line-of-sight between the two, the antenna at the classifying plant was placed on top of its 70 foot height. Another antenna was placed on the barge and a third at the remote booster pump station. No repeaters were needed.

"There's increased demand for our industrial wireless radios," said ProSoft Technology's Ken Majerus. "Their durability in all climates combined with the flexibility of remote configuration and PLC programming make them perfect for applications that need realtime access to remote, difficult to reach or moving equipment. The versatility of their short and long-range antenna combinations allow local data to be transmitted up to 15 miles to a base station or further with single radio repeaters."

Once Gottwald knew he could install a reliable radio system, he contacted Van Meter Industrial, an Allen-Bradley Distributor in Iowa. "I like working with Allen-Bradley," said Gottwald. "In my career as a contractor I've had great success with A-B. They always have a solution to any application."

#### Updating the Automation

Carl Schmidt from Van Meter Industrial and Ken Majerus from ProSoft Technology assisted Gottwald in choosing the automation needs for the new system. A 200R Industrial PC was installed in the classifying plant communicating with an A-B SLC 5/03 processor. This data, including plant processes and production reports, is viewed via RSView on a VersaView 1700M. A ControlLogix processor was installed at the dredge communicating with another VersaView monitor. A MicroLogix processor was installed at the remote booster pump station to monitor pressure and flow and allows the pump to be started and stopped from either the dredge or the classifying plant.

#### The Classifying Plant

The new PC in the classifying plant serves several functions:

It provides a Graphical User Interface (GUI) through a touch screen monitor. The GUI enables operators to change states of the field devices (manual, off, auto), and change variables that affect the process such as gravel product pile locations, classifying cell timers, etc. The PC collects data from field devices such as the remote booster PSI, TPH from the product scales, downtime, etc.

All of the classifying plant control tags are served to the dredge PC so that remote viewing and control of the classifying plant is obtained. The classifying plant PC also provides all the information from the remote dredge PC allowing operators to view all dredge information as well such as pump speed, motor amps, cutter head depth, etc.



The dredge floats in the water-filled quarry as the cutting arm descends to the bottom.

#### The Dredge

Along with the automation upgrades the dredge also underwent a major electrical overhaul. The pushbutton type control system was removed. A processor/PC based system was implemented to accomplish a one button startup. All dredge motors and pumps are now all started with the touch of a button. The PC monitors flow, pressure, and motor amps on all devices, ensuring that the start sequence works every time without damage to equipment.

A new Convac system was installed to replace the previous, 30-year-old proprietary equipment.

"The versatility of their short and long-range antenna combinations allow local data to be transmitted up to 15 miles to a base station or further with single radio repeaters."



The classifying plant is in constant communication with the dredge over a half mile away via RadioLinx Industrial Wireless radios.

"The new Convac system works with 'off-the-shelf' standard hydraulics and a new multivariable control scheme," said Gottwald. "I had the opportunity to see the valve work with a material cave-in and the new system handled it in a rapid and controlled manner."

#### **Complete Control**

Now the fully automated dredge can run not only the dredging operation, but also the booster pumps as well as the entire classifying plant via the radios. Sonar was installed on the dredge, which is displayed on the VersaView monitor via RSView, giving the operator a clear view of the cutting arm and the sandy quarry bottom. "We also installed a positioning sensor on the dredge that uses the magnetic field of the earth to tell us the heading of the dredge, its pitch and yaw and the angle of the cutting arm," said Gottwald. "This allows us to know the exact depth of the sand at any given time."

With all this new technology, the efficiency and cost-effectiveness of the operation has been greatly increased. As Gottwald put it, "Now all the dredge operator has to do is drive the boat!"

Gottwald is planning another similar application before the end of the year at their quarry in Molene, Illinois, dredging sand from the Mississippi River. •

# **TechUpdate**



#### Smart Switch Wireless Ethernet Technology

By Adrienne Lutovsky

s wireless becomes more pervasive in industrial automation, new feature sets continue to be developed to expand the applications for wireless. Smart Switch Wireless Ethernet Technology is one of those solutions.

#### What is Smart Switch?

Smart Switch enabled Ethernet radios are able to intelligently route packets over the network, managing the wireless network like a standard Ethernet switch to create true peer-to-peer wireless Ethernet communication. The Smart Switch intelligent routing technology was developed for ProSoft Technology's Industrial Frequency Hopping Ethernet radios to provide a solution for applications that need the ability to communicate from any location to any other location in the project.

Any Ethernet system with complex communications and the need for long range/robust FHSS technology will benefit from the Industrial Frequency Hopping Ethernet radios with Smart Switch technology, including SCADA, Material Handling and Process Control.

#### Successful Application

The wastewater system managed by Cape May County Municipal Authority includes four water treatment plants covering the South Jersey residential and recreational areas. Four years ago an investigation began to upgrade the SCADA and communications between these plants and 40+ pump stations. Cape May chose to replace a costly and unreliable leased line communication system with a Smart Switch Ethernet radio network. The peer-to-peer 900 MHz frequency hopping network made it possible for plant network access at any site, and a secondary 802.11g network provided WiFi access to the system. This was accomplished by connecting the two radio networks via a standard Ethernet connection, allowing data to be passed between the two networks. The network performs at up to 1.1 Mbps data rates with one second per site scan rates, and the serial port on the radios provided the ability to tunnel through to legacy serial-based controllers. The network has proven easy to troubleshoot and provides a scalable solution. Now, the 14 year old operation has been converted to a state-ofthe-art facility.

#### Advantages of Smart Switch Ethernet Radios

- Intelligent Ethernet packet switching
- Practical peer-to-peer network
- Improves error correction
- 1.1 Mbps RF rate for fast performance
- OPC Server software
- Flexible RS232/RS485 serial device connectivity using tunneling or encapsulation
- ISA 12.12.01 Class I, Div 2 certified for hazardous locations



FUN & GAMES

# Spot the Difference

ProSoft Technology offers hands-on labs and demonstrations. Can you tell where hands-on happened? Can you spot the difference?

#### Hint: There are 10 of them.

Answers are upside down at the bottom.





I. RadioLinx anterna removed 2. ControlLogix ethernet cable unplugged 3. Blue pen on PanelView 4. ControlLogix Modbus Communication Module door opened 5. Antelog Input I dial moved from 4 to 6 6. Ethernet cable #4 unplugged from AB I783-USO5T 7. Anterna placed on top of ProLinx module 8. Yellow screwdriver at bottom of case 9. ProSoft thumbdrive on top of ControlLogix rack 10. Wireless Point III purple cable choice and severable cable changed to green



#### It Wasn't Me!

am an Automation Specialist for a Distributor. Many, many years ago I got a call from a customer who was having trouble with a PLC-5. The customer just happens to be a major cracker manufacturer. I got to the facility and met with the plant's NEW manager.

This plant is huge and incredibly noisy. So noisy you must wear earplugs to prevent damage. And, it was so clean, I looked like I was going in to surgery after the gear I was required to wear to enter.

It's a giant facility, but the particular PLC I was looking at was hooked up to a single compressor. I told the PM I was going to need to shut down the PLC to swap out a faulty module, and I asked him if it was hooked up to anything else. The PM said no.

#### However...

It seems that one PLC was hooked up to one compressor that was a MASTER for the whole plant. When I took it down, the plant

It was dead calm for about 30 seconds before rumbling equipment turned to chaos, with people racing all over the floor.

I looked at the PM and he looked at me, and the look on this guys face was sheer terror.

I swapped the module as fast as I could but all the compressors had to be manually restarted. Can't eat a cracker to this day without sneaking a laugh at that one! +

Mr. Wasntme, California

#### **A Unique Jogging** Experience

was working for a mining equipment company back in my early career, and being in mining I got to travel to all sorts of glamorous places. I'm a runner, which works out great as a business

I'm in the main part of the village, for what that's worth, jogging down a typical road, watching for traffic as I usually did while jogging in any strange city. I turn the corner of an intersection to find a group of baboons. Not cars or bicycles or vicious dogs.... Baboons!!!!!!!

I stopped dead in my tracks, looked down, and tried to slowly step my way back up off their radar. Too late! They took off after me like a fly to a cow patty.

That group of baboons chased me for about 40 or 50 yards before deciding I wasn't worth the trouble.

Now when I jog, there's nothing that surprises me, 'cause I've seen it all. +

#### Mr. Mississippi



# Were you there?

ן S י Evolution +r3



**1993 Atlanta:** The first tradeshow booth ProSoft Technology had at Automation Fair was built by hand by Doug Sharratt in his garage. There were a total of 5 people working for ProSoft at the time and 4 went to Automation Fair. The 5th, Kim Tatman (who still works for ProSoft) stayed in Bakersfield to answer the phone.



**1996** *Philadelphia:* By 1996, ProSoft Technology had doubled in size and they had a professionally-built booth at Automation Fair.



**1998** Saint Louis: In 1998 ProSoft Technology decided they needed more space to show their growing product line.



2005 Saint Louis: By 2005 it became "standing room only" in ProSoft Technology's booth in Saint Louis.



2010 Orlando: ProSoft Technology celebrated it's 20 year anniversary at Automation Fair in Orlando.



**2011 Chicago:** With the plans finalized and construction complete, ProSoft Technology unveils its new booth at Auomation Fair in Chicago.

### Asia Pacific Events



In April Hands-on Training was held in our Asia Pacific office in Malaysia for numerous distributors, partners and users from Indonesia, Korea, Malaysia, Thailand, Singapore and Vietnam.



In May, ProSoft Distributor Beijing Xiong Yue Technology Co. gathered a crowd at the ProSoft Technology booth at the RAOTM in HangZhou, China.



A partial view of the show floor at the RAOTM in Jakarta, Indonesia on March 9 of this year.

# Expanding Your Connections

### New solutions from ProSoft Technology



#### **Building Automation** Solutions

**Connecting EtherNet/IP or DF1 to:** BACnet/IP BACnet MS/TP LonWorks JCI Metasys N2



#### **Migration Solutions**

**Connecting to:** Modicon S908 I/O GE Genius Bus I/O EtherNet/IP to Data Highway Plus EtherNet/IP to AB Remote I/O TI 500/505 I/O Honeywell IPC-620 I/O bus Fisher Provox Control I/O bus



**DeviceNet Solutions** 

**Connecting DeviceNet to:** ASCII Modbus Pamux Optomux



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