The ProSoft Magazine

STOP DRAINING PROFITS

Communication Solutions That Will Increase Your ROI 3

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ProSoft Perspective

STOP DRAINING PROFITS

Communication Solutions That Will Increase Your ROI

By Ken Roslan | Vice President, Global Marketing

In the past most control system upgrade and maintenance projects were usually done under a yearly budget. Nowadays, senior management is looking for returns on every automation project. With that in mind, ProSoft Technology has worked to create solutions that address the ROI needs for upgrading and maintaining control systems.

Traditionally, engineers needed to rip and replace entire old control systems just because they were running out of spares. Migrating old automation equipment to new is important, but it must be done during scheduled downtime. ProSoft has migration solutions that allow you to upgrade a single component instead of the whole system, allowing a phased migration. For example, old Remote I/O™ or DH+™ PanelView™ terminals wear out. The new replacement PanelView Plus terminals do not support these old networks. The solution would be to upgrade to an EtherNet/IP™ control system. This would require a lot of capital dollars and downtime. We allow you to replace a single DH+ or Remote I/O terminal with an EtherNet/IP one with minimal scheduled downtime. This same solution can be used to upgrade old variable frequency drives and Remote I/O FLEX™ I/O adapters.

In the Oil and Gas industry, oil prices have dropped to the point that producers are focusing on production optimization. ProSoft has developed an innovative solution that puts a flow computer into a PLC, allowing you to significantly reduce your capital spend and maintenance costs. With ProSoft's in-chassis flow computer, this one PLC system can now do the equivalent of what multiple stand-alone flow computers, RTUs and a PLC used to do.
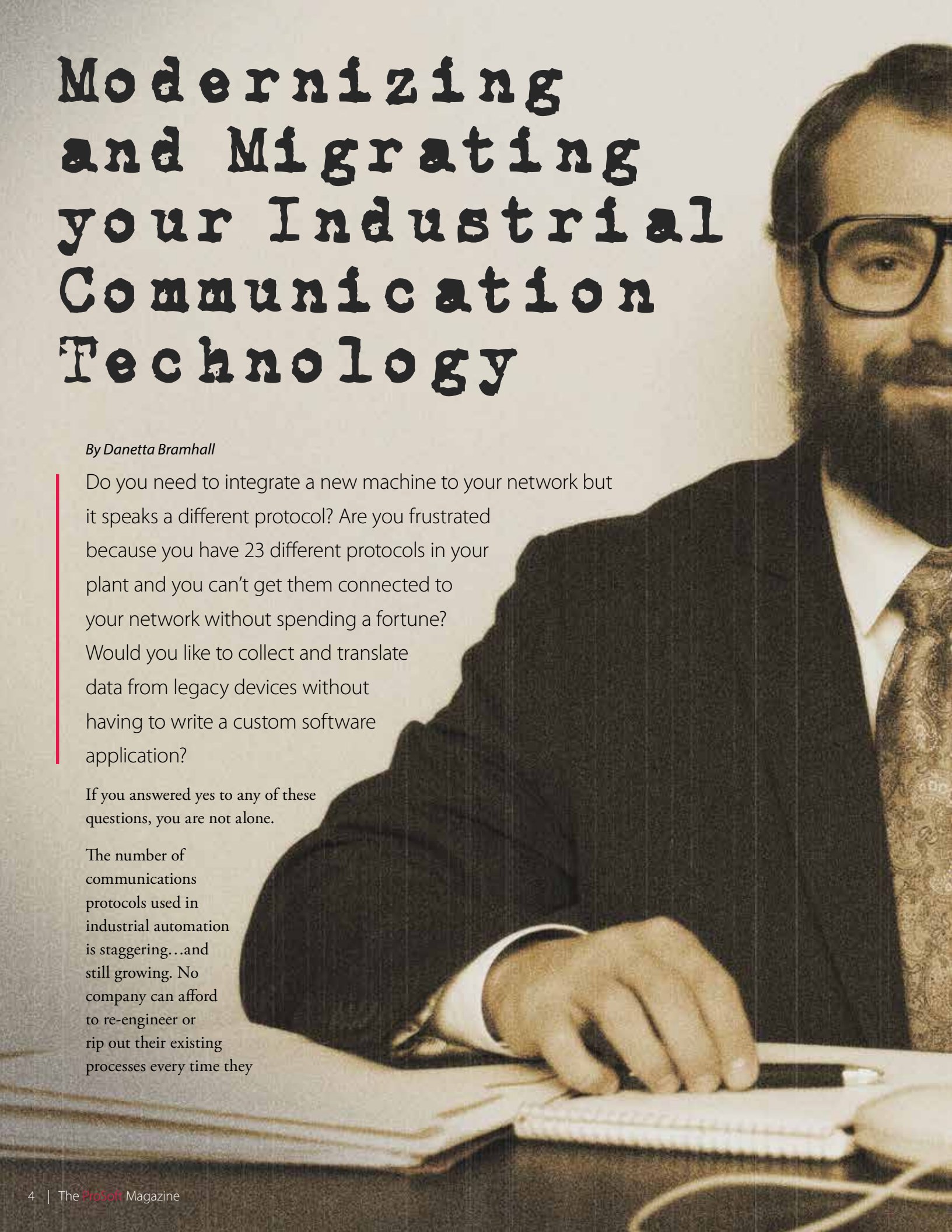
Many corporations have sustainability objectives. Energy usage of facilities is no longer being seen as an overhead expense. We're finding that our customers are now being required to allocate the energy cost associated with producing a specific product. Many customers already have devices in their facilities that can monitor power usage. But that data is not being collected. ProSoft offers communication interfaces allowing you to tie all the different devices together so that you can monitor and analyze your energy usage throughout your entire facility.

Equipment like compressors, boilers, chillers and lighting systems are energy-consuming devices that can now be coordinated with the needs of the manufacturing process to reduce your overall energy usage. These sub-systems have different communication interfaces than your plant-floor PLCs. But with our communication modules the PLCs can coordinate their needs with these different systems. This kind of solution can save manufacturers up to 25 percent in their energy costs. Depending on the size of your plant, that could be a BIG number.

So if you are being asked for an ROI by your boss, ProSoft solutions are there to assist you. ❖

Modernizing and Migrating your Industrial Communication Technology

By Danetta Bramhall

Do you need to integrate a new machine to your network but it speaks a different protocol? Are you frustrated because you have 23 different protocols in your plant and you can't get them connected to your network without spending a fortune? Would you like to collect and translate data from legacy devices without having to write a custom software application?

If you answered yes to any of these questions, you are not alone.

The number of communications protocols used in industrial automation is staggering…and still growing. No company can afford to re-engineer or rip out their existing processes every time they

add a new machine or want to collect data into their existing network from some legacy device that is still working well but not connected to the network. Re-engineering is not the answer because no matter how careful you are, there will be problems, interruptions and downtime. And downtime does not pay the bills, cover the payroll or produce any profits.

Phased Migration

What you need is a plan that will allow you to layer new data communications technology over the top of what you already have. Then you can gradually migrate your existing equipment and devices into your network, providing you with the ability to collect new kinds of data that will increase your profit margin.

Let me give you a couple of examples. Let's say you have a hydro-electric power facility and your network is either the IEC-104 or DNP3 protocols. You need to track alarms and collect data from the new generators, but your controller communicates via Modbus®. This is where adding a stand-alone or in-chassis gateway can increase the functionality, speed and convenience in your plant for a very low cost. Most importantly, it will give you real-time data so you can make critical decisions and avoid downtime.

If you are in manufacturing, you know that change is a constant of life. Sometimes that change comes in having to reconfigure your line to produce a different size of your product or you've bought the latest packaging equipment but you're not going to replace all those older bar code scanners. All of these changes can create a tangled mess when it comes to communication. This is another example of how a phased migration can help you achieve your goals. You can leave those bar code scanners where they are for now. Add a protocol interface gateway that will allow all of your equipment, old and new, to play nicely together. > > >

Industrial Internet of Things

If you haven't heard of the "Industrial Internet of Things" (IIoT), then you haven't read any magazines or been on any websites lately, because this seems to be the new thing to talk about. Basically the IIoT is all about collecting the right mission critical data, whether it is live or historical, so you can make good decisions regarding your overall productivity. In reality, this is something that ProSoft Technology has been helping our customers do for 25 years. Usually, however, once you have collected this data, you need to deliver it in a time-sensitive manner to the decision-makers and this involves integrating wireless as part of your industrial network infrastructure.

If you focus on the benefits of wireless instead of the fear of pre-conceived ideas, you can build a reliable, robust and secure wireless system that will work hand-in-hand with your wired technology.

We all know that everything is going wireless. Industrial plants and processes around the world are embracing wireless. Now, before you start rolling your eyes and stop reading, hear me out. You may be reacting to outdated information, because industrial wireless technology has made great strides. Going wireless can also help you implement your phased migration plan fairly painlessly because it will allow you to integrate your "old" equipment into your network.

Do you have a remote device that someone has to manually go to and collect the data? Two industrial radios can solve that problem for you.

What about your building automation system…is it connected to your network? Think of the money you could save if you had real-time data on how much and where your energy is being used.

Do you have a hazardous area in your plant? If you could monitor this area remotely with remote video monitoring you could potentially detect dangerous situations early and contribute to increased work-place safety.

Now I know what you are thinking: You don't trust wireless to be reliable and secure. In reality, you can actually increase your network security and reduce downtime by going wireless. Think about it. How hard is it to walk into a building and simply plug an Ethernet cord into the wall? Bang…you now have access to the network. Not so with wireless.

Today's wireless solutions have security features such as encryption and advanced firewalls built in that can actually exceed wired security. You just have to make sure you use them properly. If you focus on the benefits of wireless instead of the fear of pre-conceived ideas, you can build a reliable, robust and secure wireless system that will work hand-in-hand with your wired technology.

Planning for the Future

As you plan your migration and modernization strategy, the first thing you need to do is to stop adding any more custom, proprietary systems that make it hard or impossible to get data out of them. Start small and add interface connectivity gateways where it makes the most sense now, and keep adding as your budget allows.

Don't fight wireless. Realize and come to terms with the fact that 10 years from now, literally everything will be wireless. Look into today's industrial wireless products and make a five-year plan on what you will make wireless, so you will be ready for the needs of the future.❖

It's Not a Cable, It's an Antenna!

By Keith Blodorn

Why would someone want a cable that acts like an antenna? After all, much research and development has gone into improving cable shields precisely to prevent this! As it turns out, there are several conditions in industrial communication systems where using a radiating cable as an antenna offers major benefits. The most common cases are for communicating to equipment moving along a track, replacing slip rings in rotating equipment, and providing a clear RF signal where obstructions or plant floor layout prevent a clear "Line-of-Sight" to transmit from a traditional antenna. **>>>**

What is a Radiating Cable?

A radiating cable is a long, flexible antenna with slots to radiate RF signals that can be installed around corners, along monorail systems and through tunnels to propagate wireless data signals in situations that are tough or impossible for traditional antennas. Since the radiating cable antenna can be mounted within inches of where the signal needs to be received, it isolates the wireless signal from going to other machines that may be on the plant floor. And, the cable comes in multiple lengths to meet the needs of most applications.

In a typical coaxial cable, a metallic shield wrapped around the cable isolates the signals transmitted on the cable from the electromagnetic waves in the air around the cable. This helps to maintain a strong signal on the cable, and prevents that signal from creating interference with radio frequency (RF) equipment nearby. Without the shield, the cable would act like an antenna, transmitting the signal it carries into the air, and receiving radio waves from other RF devices.

For those who remember analog cable TV, we experienced this phenomenon when we saw "ghost" images on certain channels. Instead of just receiving the video signal sent from the cable company along the coaxial cable, we were also receiving that channel's over-the-air broadcast of the same video signal as picked up by the coaxial cable working like an antenna. This was an unintentional use of radiating cable, and produced undesirable results.
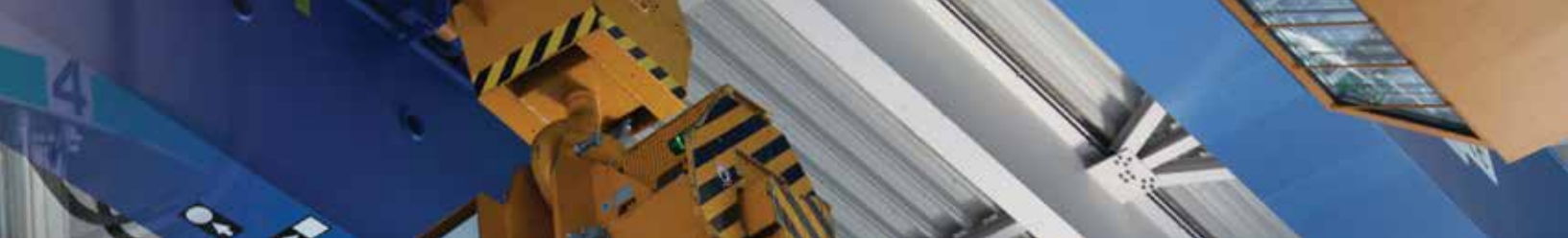
The same principle that gave us blurry television pictures back then is used to make a cable that intentionally radiates signals. This is called a radiating cable, or leaky feeder cable. The difference between radiating cable and poorly shielded TV cables is that the shield on a radiating cable is designed with exacting slots that allow for the transmission of signals at a specific frequency. In this way, these cables are tuned to the RF equipment to which they are connected. The cable's shield still

works to block unwanted RF, but will allow signals of the correct frequency to emit from, and be received by the cable inside. That makes a radiating cable act just like an antenna.

Overhead Cranes

One way radiating cable improves communications is by providing a consistently strong signal along a long track, such as an overhead crane path or an assembly line conveyor. The transmitted RF power from a traditional antenna attenuates over distance. This is called "free space loss" and determines how strong of a signal one radio can detect from another based on the distance between their antennas. For example, consider a connection between two IEEE 802.11 a/b/g/n industrial hotspots using 7dBi MIMO (Multiple In/Multiple Out) antennas. Using the ProSoft Wireless Designer software, we can estimate the signal strength and data throughput for this system at different distances.

-58dBm
100 ft
144 Mbps

Site 2   Site 1

At 100 feet apart, the data connection can maintain a very fast 144 Mbps data rate.

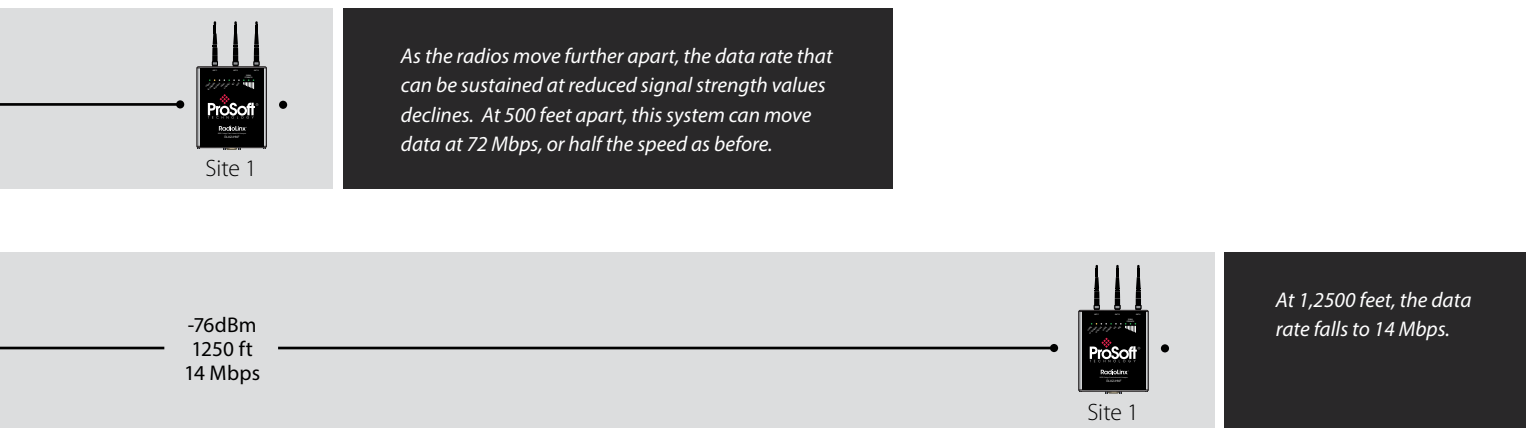-72dBm
500 ft
72 Mbps

Site 2

Site 2

As you can see, the transmission speed of the wireless connection is dependent on the strength of the signal, and declines as the distance between the radios increases. In an industrial application, this can lead to poor performance or even lost connections.

Placing RF Signals Precisely in Crowded Plants

Another benefit of using radiating cables comes from the ability to place RF power very precisely. The use of wireless communication equipment in factories is growing rapidly, which means that factory floors are becoming crowded with radio waves on all the common frequencies. For machine builders who need to use wireless, this creates a real problem. With a radiating cable solution, new machines can co-exist within the crowded plant RF space without adding to the cacophony. This is because radiating cable emits RF in one direction, and only needs as much power as it takes to link with another antenna at a relatively fixed distance. While the plant's general wi-fi network is screaming to everyone who will listen, the equipment on the new machine can operate at a whisper.

This benefit is especially important in rotating machinery which traditionally used slip rings to conduct communication signals from I/O on the moving part of the machine to a controller on the fixed part. Slip rings are expensive to install, require regular maintenance, and even still suffer from poor communication speeds due to noise on the rings and in the pick-ups that ride on the rings. Traditional wireless solutions can work, but often the motion of the machine will obstruct the wireless link, requiring higher gain antennas that result in greater RF "noise pollution." Radiating cable is used in these applications to provide a clear, consistent path to the rotating antenna, without interfering with other nearby wireless systems. ➤ ➤ ➤

Site 1

As the radios move further apart, the data rate that can be sustained at reduced signal strength values declines. At 500 feet apart, this system can move data at 72 Mbps, or half the speed as before.

-76dBm
1250 ft
14 Mbps

Site 1

At 1,2500 feet, the data rate falls to 14 Mbps.

Flexibility

Radiating cable also benefits from its inherent flexibility. Since it is a cable, it can follow almost any path to provide wireless signal in places where antennas just can't reach. One of the early applications for radiating cable was to enable two-way radio connectivity for emergency workers inside highway and rail tunnels. In the industrial setting, there are many hard-to-reach places, whether those are actual tunnels or "RF tunnels" created by obstructions. An example of that would be a warehouse, where the metal racks and merchandise on those racks can cause obstruction and reflection issues for a traditional antenna. Radiating cable can be installed along the aisle ways to provide a strong signal just where it's needed.

Things to Consider for a Successful Radiating Cable Installation

Performance of the wireless connection is of prime concern for industrial applications. To determine the optimum system components, ProSoft Technology tested the performance of radiating cable with RLX2 high-speed industrial hotspots, in several different configurations. In addition to measuring the radio data rate (in Mbps), we also looked at the performance of a typical industrial Ethernet application using EtherNet/IP™ (EIP), measuring performance in EIP packets per second. This second measure is more important as it indicates the kind of data rates an industrial application is likely to see.

The results of these test cases, as well as the real-world applications that ProSoft Technology has deployed, show that radiating cable performance can support high-speed industrial data applications. The next challenge is to make sure to choose the right components for the application at hand. There are several criteria to consider:

How much bandwidth is available?

For RF applications in general, it is important to understand what the RF environment in the area looks like. Often, a company's IT department will designate certain wireless 802.11 channels for use in the facility. Having a dedicated channel for industrial applications helps reduce the chance of interference. A spectrum analyzer can show the specific frequency bands that are used in the exact location

Radiating cable provides consistent data rates over a long distance, can be shaped to provide signal in difficult-to-reach environments, and reduces plant RF congestion by constraining its RF signal to the exact area where it's needed.

of the intended radiating cable installation. In some cases, selecting a 2.4GHz or 5GHz system will result in more "clear air" for the application.

Are multiple segments required?

Determine the length of the system to deploy. Depending on the type and speed of communications required, it is important to avoid radiating cable segments that are too long. For higher-speed applications, limiting cable segments to 150m will produce good results. One radio can support two segments (as in Test Case 2 above), so applications up to 300m can be deployed with one radio and two cable segments.

How fast will the mobile part move along the radiating cable path?

For a single linear segment, this is not an important consideration. However, in applications where the mobile radio will traverse from one segment to another, or in rotating applications, the cable from the two segments should overlap to ensure consistent coverage. The amount of overlap depends on the speed the mobile radio is moving, as the mobile radio should be in range of both segments for a period of time to make sure the next segment is picked up.

Will the system need multiple fixed radios?

In cases where the radiating cable path length or number of clients requires more than two segments, the mobile radios will need to "roam" from one fixed station to the next as they move along the path. It is very important in these applications to choose radios with very fast roaming performance. In our tests, we achieved roaming times under 40ms, which allowed the EtherNet/IP connection to stay active with no faults at the PLC.

There are other factors to consider before choosing a radiating cable system, including cable mounting method, termination requirements, and post-installation test plan. The best way to ensure a complete plan and trouble-free installation is to speak with a company that has experience with radiating cable systems.

Summary

For certain industrial communication challenges, radiating cable offers unique advantages. Radiating cable provides consistent data rates over a long distance, can be shaped to provide signal in difficult-to-reach environments, and reduces plant RF congestion by constraining its RF signal to the exact area where it's needed. These benefits are especially valuable in applications where machines move along a pre-defined path, where the terrain of a facility is particularly difficult to reach with broad coverage, and where signals on rotating equipment are otherwise transmitted through slip rings. Care must be taken in selecting and installing the components of a radiating cable solution. However, with a bit of preparation and advice from an experienced industrial RF vendor, a radiating cable system can provide trouble-free communications for your toughest applications. ❖

WRAPPING **FOUR BOTTLES**

By Danetta Bramhall

In Altavilla Vicentina, Italy, a Clever Sleever Machine places and shrink-wraps decorative sleeves on bottles at a rate of 15,000 pieces per hour. That's four pieces per second. So, imagine how much money would be lost every time they have to stop production to replace a damaged or broken slip ring.

That was the problem facing Clever Machines.

Clever provides a wide variety of sleever machines and heat-shrink tunnel applicators. These machines can perform every type of sleeve application required by the client, at different production speeds, including linear and rotary machines suitable to apply full and partial sleeves and safety seals. These machines can be found in many different packaging applications including food and beverage, cosmetics and pharmaceuticals.

"Through constant technological research, in conjunction with our clients, we are committed to finding solutions to our clients' needs," said Tagliaferro Silvirio, owner of Clever Machines.

So, when a client came to them with the need to reduce downtime on their Sleever Machine because of the time-consuming nature of maintaining slip rings, Clever contacted Rockwell Automation. Rockwell Automation® suggested they use ProSoft Technology's 802.11n Fast Roaming Industrial Hotspot radios and a 5 GHz radiating cable as the antenna.

The 802.11n Fast Roaming Hotspot supports Access Point, Repeater, Bridging and Client modes and delivers fast data rates up to 300 Mbps.

"The Fast Roaming feature of this radio maintains seamless, high-speed connections particularly well-suited for moving equipment like Clever's Sleever Machine," said Andrea Mazzucchelli, Regional Sales Manager for ProSoft Technology.

PER SECOND

"This was the excellent packet-per-second performance and robust communications we were looking for," said Andrea Parlato, Electrical Division Technical Manager for Clever.

Now a CompactLogix™ L36 communicates to the POINT I/O™ through ProSoft Technology's radios, providing fast and reliable data from their rounding tables which apply the labels and heat-seal them to the bottles.

The radiating cables essentially replace the slip rings, virtually eliminating the expensive downtime associated with maintaining them. A radiating cable is a long, flexible antenna with slots to radiate RF signals that can be installed around corners, along monorail systems and through tunnels to propagate wireless data signals in situations that are tough or impossible for traditional antennas. Since the radiating cable antenna can be mounted within inches of where the signal needs to be received, it isolates the wireless signal from going to other machines that may be on the plant floor. And, the cable comes in multiple lengths to meet the needs of most applications.

"The radiating cables have been specifically tested to work with the 802.11n radios," Mazzucchelli said, "making this a field-proven solution instead of those expensive-to-maintain slip rings." ❖

Wireless I/O vs.

By Keith Blodorn and Danetta Bramhall

We all know that one of the biggest challenges to connecting legacy or remote equipment to the network is the cost of running wires. If you have an indoor application, you have to run conduit and wires to the devices you want to monitor or measure. In most cases it is just too painful and expensive.

Outdoors, there are trenches to dig, cables to bury underground and the permits…don't forget about the time it takes for permitting. What if the equipment you need to connect to is across a major street or parking lot? That would mean more costs and permits to tear up city streets. Many times it just isn't feasible to run conduit between items like water pumps, generators or chillers and your control room. But, how are you supposed to get to the data in this equipment?

There is the traditional method of installing a wireless Distributed I/O system using Ethernet radios. Depending on the application, this would work just fine. However, it can be a daunting process that involves costly downtime. And we all know that downtime doesn't pay the bills. With a Wireless I/O system from ProSoft Technology, the cost, hassle and expensive downtime of installing wire goes away.

What is the difference between Wireless I/O and Traditional Distributed I/O with an Ethernet Radio?

A traditional distributed I/O system using an Ethernet radio requires plant operators to support network communications and program a data communications network. Not so with ProSoft's Wireless I/O.

Wireless I/O, sometimes referred to as a Wireless Terminal Block, is a simplified form of wireless communication designed to make reliable, secure connections between two locations. Unlike data radios, the Wireless I/O system requires no software to program or network protocol to configure. The Wireless I/O radios are sold in pairs, already programmed to connect to one another. The I/O signal sent between the radios is encrypted with 128-bit AES encryption to make sure only the paired radio

on the other end can read the information. The individual I/O modules read the physical signals from the machine – 24VDC digital signals, 0-10V or 4-20mA analog signals – and send that information to a corresponding I/O module at the other end. The corresponding module simply reproduces the signal on its output terminals. The digital I/O module has 4 digital inputs and 4 digital outputs, while the analog modules each have two inputs and two outputs. The system is bi-directional, so each radio can send inputs to and receive outputs from the other. Each radio pair can support 16 I/O module pairs, for 64 digital inputs and outputs or 32 analog inputs and outputs.

Because the system only needs to handle a small amount of data, the wireless I/O radios use a technique called "frequency hopping spread spectrum" modulation. This method is ideal for reducing potential interference from other radio signals in the area and provides very reliable transmission of the I/O signals. The radios are available in either 2.4 GHz or 900 MHz versions. By default, the system transmits the status of its I/O once per second. A "Turbo Mode" option boosts the update rate to as fast as 10 times per second.

Typical Example of a Wireless I/O System

Let's consider an application with a storm water retention system including pumps and valves, several hundred meters from the control room. The building maintenance team wants to gather information about the storm water system, such as basin water level, pump status, and outflow rate. Digging a trench from the building to the basin control panel could easily cost $10,000, even more if the path requires trenching through parking lots or roadways. If you add the cost of cabling and conduit, the project cost quickly exceeds the benefit of bringing the data into the control system.

With ProSoft Technology's Wireless I/O, this type of project becomes much easier and much less expensive! Using the pre-paired radios, the building maintenance team can install input and output cards right in the cabinet with the basin control equipment. With the wireless I/O there is no need for the basin control equipment to support network communications, and no need for the installer to program a data communications network to make it work.

So, if you have abandoned the idea of gathering information from hard-to-reach or remote equipment in the past…think again. ProSoft's Wireless I/O system is an easy and cost-effective way to bring your data back into your control system for analysis and action, and most importantly, an increase in your bottom line. ❖

Spot the Difference

Can you spot the 10 differences between these pictures?

For answers, see page 22.

What would you monitor if the cost and pain of running wires *went away?*

WIRELESS I/O

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ProSoft Profile

Bobby Maxwell is a prime example of ProSoft's policy of promoting from within the organization. He started out a little over 5 years ago in an entry-level job as the Marketing Assistant. But it wasn't long before his intelligence, his "get it done right" attitude and his thirst for knowledge were noticed by other departments. He began taking engineering classes at the local college and quickly rose through the ranks to become one of ProSoft's Product Managers.

"I really enjoy being a product manager," said Bobby. "I like problem solving and putting together puzzles. Every time I meet or talk to someone, they provide a nugget of information. The more people I talk to, the more nuggets I get. Over time, those nuggets start developing into a pattern, and pretty soon that pattern molds into a problem that we could develop a solution for. It's a fun process."

> **HOBBIES:**
> *Camping and Building Things*

Bobby also does a great deal of traveling in his role as Product Manager.

"At the end of April I had my first experience at Hannover Fair in, you guessed it, Hannover, Germany," Bobby said. "That was an experience. The amount of people and automation suppliers of all different facets was astounding. I spent two full days there and wasn't able to see everything. I don't know if I could have seen everything had I spent a full week there."

Bobby works out of ProSoft's corporate office in Bakersfield, California. We asked him what he liked best about working for ProSoft. His answer was very short. "The people and the coffee." You see, in the Bakersfield office, there is a large supply of Peet's coffee.

Bobby's wife, Lindsay, also works for ProSoft, as the Manager of the Finance department. She also started out in an entry-level position answering the phones over 17 years ago. Those of us who have been at ProSoft for a long time have literally watched Lindsay grow up from a teenager to a beautiful mother of two boys.

We also asked Bobby what he liked to do outside of ProSoft.

"Where do I begin?" Bobby said. "My wife tells me I have too many hobbies! I love to go camping with friends and family. It doesn't matter if it's to a lake, desert or mountains. You name it, I'm up for it. I also really enjoy building things with my hands. It lets me forget life's daily stresses and relaxes me. Right now I'm working on building a tube frame buggy. It's taking much longer than I anticipated." ❖

Lindsay and Bobby Maxwell with their two sons.

ProSoft Profile

Jérôme Prat has been with ProSoft 11 years. During that time he has taken just about every type of technical support call you can think of. ProSoft is known in the industry for having excellent technical support and that is especially true in the EMEA region. First of all, ProSoft doesn't charge for technical support. Second, in the EMEA region, you have engineers who speak French, English, Polish, German, and Russian, and scattered offices that cover most time zones. This makes it convenient for customers to get the help they need, when they need it.

Jérôme and his team also get a lot of presales calls - potential customers who have questions regarding whether a ProSoft product will work in their particular application.

"We get presales calls from many countries and many customer types," Jérôme said. "Most of the calls are related to wireless projects. We are seeing more and more of a demand for wireless solutions."

Many times these calls come from distributors and partners who have large projects for which they need assistance in choosing the right radio or antenna.

"Any Modbus®, PROFIBUS® or energy protocol products are the most popular overall calls we take," Jérôme said. "ControlLogix® still seems to be the leading platform, but we are seeing an increase in CompactLogix™ and gateway interest due to price considerations."

Jérôme is required to do some traveling in his role as Technical Support Manager.

"Several years ago, I was working with a customer of ours in Denmark," Jérôme said. "I spent two weeks there, providing training on a number of products. During the weekend between the two weeks I had the opportunity to go to a shooting

range and was able to shoot a rifle that was used during World War II. It was a lot of fun! The next day I drove to the North Sea and spent most of the day walking on the beach that was littered with World War II blockhouses. Those things are indestructible!"

We also asked Jérôme what his favorite part of working for ProSoft was.

"ProSoft Technology is very well-known in the industry for having good technical support," he said. "It makes me feel very proud to be an integral part of it."

HOBBIES: *Taking care of his baby girl, Constance*

EMEA Technical Support Team:
Jérôme Prat, Romain Timmer, and Clément Bitsch.

Were You There?
Automation Fair 2014

ANAHEIM ● 2014

EXIT
See you next year!

Automation Fair 2014 in Anaheim opened to huge crowds.

Were You There?
Automation Fair 2014

ProSoft's migration products on display

Ken Roslan, V.P. of Global Marketing for ProSoft, talks customers through the five phases of migration.

Customers were able to see how well ProSoft's water-tight radios would hold up in a storm.

Catalogs and candy from around the world were available to customers In ProSoft's booth.

Kuan Chee Choun, Sales Manager for ProSoft's Asia Pacific region, draws diagrams to walk customers through their installation.

Spot the Difference Answers

1. Front left, kneeling by sign – hat colors are swapped
2. Back row, second from right – deleted from the photo
3. The hand-held Welcome to ProSoft sign has been horizontally flipped
4. Front right, sitting – shoe has been deleted
5. Front, fourth from right, kneeling – 2 fingers have been changed to 3
6. Top of building – curved line has been erased
7. Center left, in the distance – the freeway bridge has been erased
8. The copyright has been removed on the ProSoft sign
9. The ProSoft sign diamond has changed positions
10. Second row, between first and second from right – grass has been replaced by concrete

Hugo Amador, *Regional Sales Manager for Mexico and Central America, gives a talk titled "Wireless Communication".*

Erik Syme, *Director of Program Management for ProSoft, speaking to customers in the booth about the advantages of using an in-chassis flow computer.*
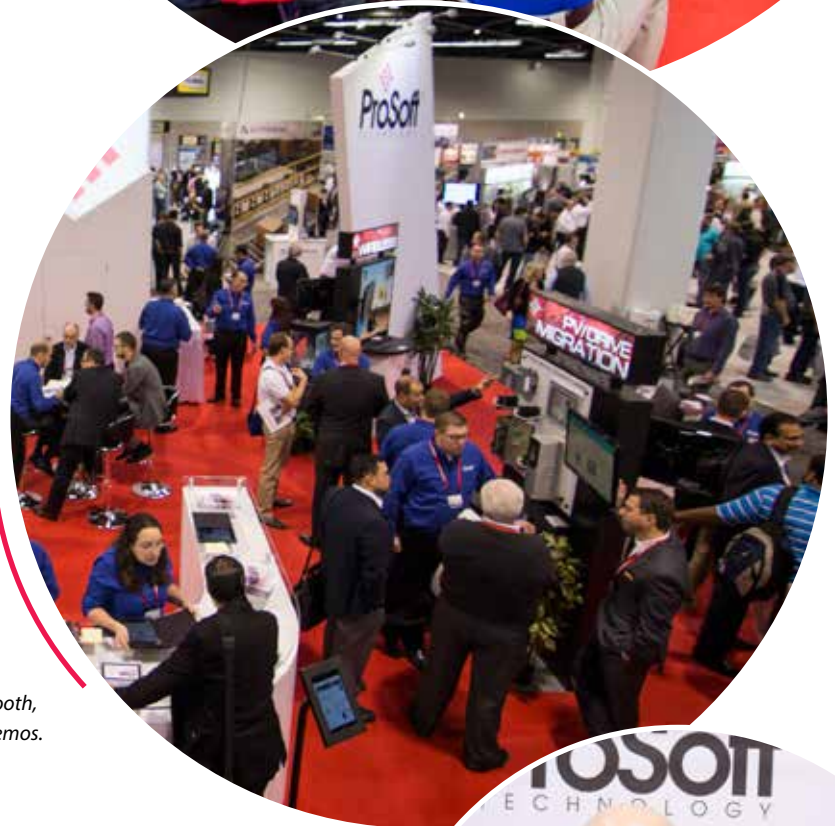
ProSoft Technology's booth, complete with 8 live demos.

Gary Lomer customized a remote-controlled system for the Psycho, the top show car in Australia today. The story of his success was featured in the Fall 2014 issue of The ProSoft Magazine.