

# Remote Services Help P&P Mills Optimize Performance, Fill Technical Support Gaps

— BY JACK O'BRIEN, EDITOR-IN-CHIEF AND KEN PATRICK, EDITORIAL DIRECTOR

*Expertise remotely provided by industry's technology suppliers is proving to be a highly cost-effective solution for mills with downsized technical support ranks*

As economic conditions have worsened during the past 2-3 years, the pulp and paper industry has progressively reduced personnel, creating a shortage in certain technical and support areas at the mill level. To compensate for the loss of expertise in these areas, some mills



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are turning to the industry's technology supplier sectors for increased support and assistance. Operating with reduced technical and support personnel is more than just a temporary situation for many companies. To survive long-term, "leaner and meaner" is becoming a permanent way of life for mills eternally struggling with their bottom lines. Today, more than ever, these facilities need comprehensive, long-term support packages from suppliers and technology consultants, especially if they can be provided at reasonable costs and with a high

level of reliability. And as always, they need more "out-side" help to improve performance and boost overall productivity of their operations.

In response to these critical needs, some suppliers have creatively restructured toward the future with mill technical support, long-term asset care, and improved performance as a primary focus. Metso Corp, for example, recently launched its Future Care program, which leverages the expertise and full range services of Metso Paper and Metso Automation into a program that, in effect, partners them with customer mills.

Through the Future Care program, Metso is able to provide 24/7 support of a customer mill, analyzing and solving problems on a daily basis and helping to optimize machine-system performance, control production costs, and improve overall profitability.

A key ingredient of the program is the Remote Service Center, which provides around-the-clock, real-time monitoring of a customer's systems and processes. When problems occur, Metso is able to quickly assemble experts from various areas to analyze the problem and provide expedient solutions, typically without having to send a person or team to the mill.



"To quickly identify the source of a problem, we are able to bring in all of our global resources, without having to send people to the mill"

— Jeff Long, director of marketing, North America, Process Automation Systems, Metso Automation

Currently, Metso operates several Remote Service Centers around the world, with the first North American Pulp and Paper center being located in Norcross, Ga., just outside of Atlanta. To explore more specifically how these service centers work and to examine Future Care in more detail, PaperAge recently visited the Atlanta facility and talked with Niel Casale, senior vice president, North America, and Jeff Long, director of marketing, North America, of Metso Automation's Process Automation Systems. This article summarizes key points of those discussions.

### Trends and Drivers

According to Casale, two primary driving forces have shaped the scope and direction of Metso's Future Care program. First, of course, is the industry's cutback in technical and support areas, which is expected to continue into the foreseeable future. "It was obvious to us that our customers, because of these cuts, would need more of our support services."

The second driver is Metso's strategic goal of evolving from just a supplier of machines and automation to a "total solutions provider," with the ultimate strategy to become a "performance provider," under what Casale refers to as "life cycle management." Today, he adds, "service no longer ceases when the project is completed; it begins there and is a continuous process throughout the life cycle right back to the renewal of new systems."

As depicted in Figure 1, Casale notes that suppliers have traditionally performed so-called "corrective maintenance," to primarily maintain just the equipment and sys-

tems they provide. "Looking back on what has been traditionally done," he explains, "suppliers have routinely performed a type of corrective maintenance (Level 0), where they have on-call technical people to troubleshoot and maintain the equipment.

"Later, we evolved to the preventive maintenance stage (Level 1), where our technical experts actually are 'in-residence' at a mill, working there eight hours a day to ensure that the equipment is maintained and operating properly. We still do corrective and preventive maintenance level work. Future Care complements and is a natural extension of what we do today. It is not intended to replace anything. Our customers are asking that we move to this next level.

"Future Care is a new twist that takes us into the areas of predictive maintenance (Level 2) and ultimately into performance management (Level 3), which goes far beyond just the maintenance of equipment and systems we have supplied to a mill. As you go up this ladder, remote service capabilities become extremely important because at these levels a lot of expertise from many different areas is needed. The only practical and expedient way to do this is through the Remote Service Center that is connected electronically to our in-depth expertise around the world," Casale emphasizes.

### Remote Service Center Concept

Routinely rushing teams or even individual experts to mills, often thousands of miles away as was sometimes done in the past, consumes valuable time and can very quickly become cost prohibitive. Neither paper mills nor supplier companies today can afford the expense and delays involved in flying experts cross-country, and especially cross-continent, to help solve equipment and system operating problems. The days of "no matter what the cost" have passed in the paper industry, just as they have in most other businesses and industries around the world.

"Today, we have the capability to cost-effectively make the solution of a customer's problems a global Metso effort. Sometimes when a customer is having a problem with whatever grade of paper, pulp, or board he is producing, he might not have any idea of the problem's source. It could be an automation problem, a machine

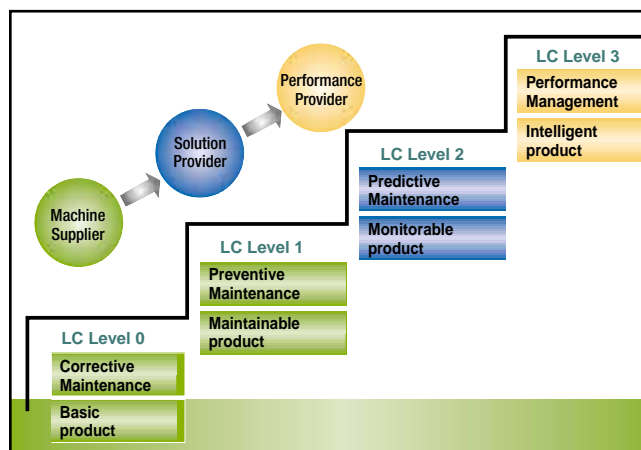


Figure 1. Performance Provider: Four Level Approach to Life Cycle Management

problem, or a chemistry problem. He just knows the product is off spec. To quickly identify the source of a problem, we are able to bring in all of our global resources, without having to send people to the mill," Long points out.

"Let's face reality. Time is money," Casale adds. "We had one case at a distant Canadian mill where our Remote Service Center networked with other Metso locations in Finland, immediately solving what had been a serious roll problem. In traditional times we'd have a technical person flying out to that mill, taking a day and a half to travel each way."

Casale uses another recent case history at a large Metso installation in the Northeast, which had some perplexing calendar roll problems. "Our remote center was called and between our Metso Automation person, our Metso Paper people, and the mill's papermakers, we were able to retrieve all pertinent historical data from the server and very quickly determine the issues. The problems were solved very quickly and economically, which could have been a very slow and costly process otherwise."

Casale further points out that "as a supplier we also have a limited number of people and capital. With remote services we can focus more resources on a given problem instantly. We can also focus them on helping a mill optimize its operations. Working with on-site process engineers on a daily basis to optimize a machine or system can become as costly, if not more so, than solving specific problems," Casale says.

Casale and Long explain that Future Care and remote services do involve some cultural changes at both the mill and the supplier levels. "Customers are used to having a body—a real person—at the mill to help with equipment problems," Casale notes, adding that "it will take some time for customers to begin realizing that good things can be accomplished remotely. But seeing is believing, and as we develop more and more successful case histories, the believers will increase."

Remote center projects are preferably conducted on a contract basis, Casale says, primarily if not exclusively



Analyzing "live" mill data in the Metso Remote Service Center are (L-R): Jim Brown, principal engineer; Giles Duquette, project manager; and Ali Haapanen, director of projects and engineering.

for existing Metso customers. "This kind of operation is really not conducive to one-time, on-the-spot situations. The key is continuity and in-depth understanding of a particular process, as well as an on-going relationship with a mill—working closely with them on a day-to-day basis, almost as though we were an employee."

According to Long, 51 customers currently use a type of on-demand support from the Atlanta center. "The communications equipment

is already in these mill, and we have a 24/7 help line. The mill can call at any time about a particular problem, and we will work with them remotely to resolve it." In addition, there are currently 15 actual "Activity Management Systems" on a contract basis. "With these, we monitor the mill's system performance continuously, 24/7, and alert them if there's a problem, and then work with them to solve it.

In addition to the North American Remote Service Center in Atlanta, Metso operates several in Europe. For example, Metso Automation has a dozen pulp optimization programs out of Tampere, Finland, where they work on a contract basis to optimize the pulp process day to day with experts at the center and in the mill. This is a gain sharing arrangement, Casale explains.

### Remote Center Operations

As shown in the sidebar on this page, services that are currently being provided by the Remote Service Center range from performance monitoring of a mill's DCS to condition monitoring, process analysis/optimization, e-learning, continuous monitoring of field instruments and elements (FieldBrowser), and the Metso Pulp and Paper Portal.

DNAactivity management monitors a mill's DCS 24/7 and sets off alarms if there are any occurrences. Email or other electronic communications are then sent to the customer and/or Metso's experts, who immediately began an examination of the issues. Sensodec condition monitoring allows vibration signatures, machine runnability patterns, etc., to be analyzed by Metso's expert who

will make recommendations on what needs to be done. Being as short-staffed as they are today, many mills simply do not have the personnel to analyze data collected and stored in the Sensodec unit, Long emphasizes.

The process analysis capability currently being implemented allows daily preventive/predictive interaction at the Life Cycle Level 2 shown in Figure 1. Process optimization, using all data available on an ongoing basis, is generally done under long-term contracts, and takes maintenance up to the Performance Management Level 3.

Casale explains that remote monitoring of valves through Field Browser and tying all field instruments into centralized monitoring through Field Care is a new approach that extends Future Care to the final elements.

### CURRENT METSO CARE      FUTURE SUPPORT OPTIONS

#### **DNA Activity Management**

Continuously monitors remotely system performance and communicates exceptions to enable preventive and predictive actions

#### **Sensodec 6S Condition Monitoring**

Data is uploaded from the customer and analyzed by Metso experts with recommendations for actions

#### **Process Analysis**

Automatically gathers and transmits process data for preventive and predictive analysis of process performance

#### **Process Optimization**

Long term contracts where Future Care Center experts can interact daily to ensure optimum process performance is sustained in conjunction with the customer. Current applications include Pulp, wet-end and total consistency

#### **Blended Learning**

Combining technology and traditional training to deliver product and application knowledge where and when needed –24/7

#### **FieldBrowser**

Continuously monitors and reports the status and performance of final element controls

#### **Metso Pulp & Paper Portal**

Dedicated bi-directional gateway to Metso's knowledge base and secure communication tool

#### **Looking Ahead**

Continued exponential growth of features and capabilities that redefine the scope and means by which Metso delivers support to its customers worldwide

With this capability, Metso is able to link to and monitor field devices 24/7. State of the art systems were recently sold to two Canadian mills.

Long points out the value of being able to continuously monitor performance all the way through to the final elements. "What we've seen so far has been sort of a surprise in that what the systems do best is identify intermittent problems. When something fails hard, it's fairly easy to diagnose and resolve the problem. But things that suddenly go crazy in the middle of the night, and then just as suddenly seem to heal themselves the next morning, drive maintenance people crazy. This is where continuous monitoring is most effective."

The Pulp & Paper Portal is rapidly being put in place, Long notes. "This is a direct-connect between the mill and Metso—a shared workspace. If we're conducting a contract project, we can use it as a document hotel to put all the communications there, all reports, etc. Machine drawings are always a hassle for the customers to maintain. We can store them electronically on the portal.

E-Learning fits in perfectly with the Pulp & Paper Portal, Long continues. "The portal area has theoretically no limits. In the practical area, a mill's safety training program could reside there, as well as the applications training program. Technology is no longer the limit. Creativity is the limit today.

Casale adds that another capability to be added soon will be remote tuning of control loops. "This represents classic savings in time and money, in that a specialized person will not be needed in the field. From the remote center, we will be able to work with a person in the mill to very effectively tune control loops."

### **From Chipping to Shipping**

The Remote Service Center is tied into a customer's paper machine sensors, intelligent field devices, and sensors of various types in the pulp mill and other areas of an integrated operation ("from chipping to shipping"). Although protocol does matter to some degree with systems such as online paper machine scanners, it does not matter with smart field devices. Long points out that, generally, proprietary protocols are disappearing, as customers push it that way.

“The remote center works beautifully,” Long says. “Before, when we had to send a person or team to a mill, we never knew exactly who to send. The mill would report a certain quality or production problem, which could be caused by a myriad of things. It was difficult to determine which area of expertise should be involved. But in the remote center, we can look over the data carefully for a few hours and analyze it down to a specific cause or set of causes. Then if someone has to go to the mill, we know who to send.”

### Typical Problem Analysis

On the systems side, Long explains that the typical kind of problem “we see” is bus loading. “Bus loading changes with the amount of activity on the system. You can see how bus loading changes with time and correlate it against activities. Then you can solve any loading related problems.”

Sensors often give an early indication of failure, Long continues. “It might be the rotating wheel in a moisture sensor that begins slowing down. We can see that and know we need to repair it at the next opportunity. Sometimes, during a paper machine break, paper gets stuck in the frame and the sensor head tries to push it aside. We can quickly see the increase in motor torque, for example. It is simply incredible what we can observe by monitoring the right things and having alarms set in the right places.”

Casale adds that Sensodec focuses on the nature of the machine and such things as potential bearing failure by monitoring vibration levels and other runnability parameters. Quality issues such as pulsations in the sheet can often be related back to runnability issues such as pump pulsations, pulsations in the headbox area, etc.

“Today we get so much sensor information on the machine—from the Sensodec system looking at the machine itself to gauging systems looking at the quality parameters, flows, etc, and new technologies such as IQ Insight that lets us look at extremely fast variations in the sheet. The challenge is converting all those data into information to solve specific problems. In the old days we did-



Future Care discussions (L-R): Jack O'Brien, PaperAge; Niel Casale, Metso Automation; Jeff Long, Metso Automation; Ken Patrick, PaperAge; Mike O'Brien, PaperAge.

n't have the primary measurements—the data weren't there. Today, things have turned completely around. The data are there. They just have to be correlated to a real event that you're dealing with. And sometimes that takes some pretty fancy massaging,” Long insists.

### Future Trends and Developments

Casale believes that “down the road” Metso will become a major partner with many customer mills, helping the papermaker actually manufacture the products. This means sharing at all levels, including risks as well as benefits.

“In the future Metso will be involved even more in such areas as bleaching optimization programs, wet-end consistency management, etc. In this regard, we are currently working closely with a major chemical company using our Kajaani analyzers.

“The future is all about real partnering and true ROI. It's about investing and returns, a realistic business concept. With Future Care, we are extending and complementing the mill's expertise. We see a big future in the paper industry worldwide and that includes the important North American market that has been struggling. Our goal is to significantly grow Metso's business in the next five years through the expansion of the Future Care business approach, and Remote Services will play a major role in that growth.. That's how positive we are about Future Care and the paper industry's future,” Casale concludes ■