

OPC Finds Strong Validation Among End Users

The word "standard" has its roots in the French word *estandard*, which means rallying point. Since the OPC Foundation introduced the OPC specification as a means of providing a standard application programming interface (API) for the process control industry two years ago, end users have rallied around OPC (OLE for Process Control) in increasing numbers. From small manufacturers to the world's largest companies, end users are touting OPC's initial payback (i.e., a means of building a flexible IT infrastructure without the need to write or maintain custom connections) as only the first payment on what they think will be a massive return on investment.

DuPont, Wilmington, Del., has long been a corporate leader in driving the development of standards for industrial automation. As one of the world's leading multinational corporations, the company faces integration challenges on a scale that few others do.

Ray Walker, senior consultant for DuPont Engineering, DuPont's corporate engineering group, speaks to the company's historic imperative for standards development: "We have our own internal legacy products to monitor and control our chemical processes," says Walker, "that we built in the late 1960s and 1970s. In the 1980s, we started to get away from running a software company inside of a chemical company, but we have an inventory of many custom device drivers—and the maintenance cost for those legacy interfaces was beginning to mount. I've been running a program to try to reduce those costs, and, as a result, we got interested in OPC very early on."

A Unified Standard

"From a user perspective," DuPont's Walker continues, "we wanted our suppliers to collaborate and come up with a unified standard, much like we encouraged the fieldbus technology development in the Instrument Society of America (ISA). Therefore, we became a founding member of the OPC Foundation, working primarily with Rockwell Software and Intuitive Technologies. When Honeywell got on the board of directors of the foundation, our interest in the initiative increased further."

For its process monitoring and control host computers, DuPont primarily uses OPC as an interface gateway between distributed control systems (DCSs), programma-

ble logic controllers (PLCs), and custom multiplexers. It has been using the OPC standard for more than a year.

"OPC has provided us with a consistent technology for the interface gateway," says Walker, "whereas in the past, depending upon the supplier we were working with, we had a custom design standard to support. So with OPC we've reduced the amount of diversity we've had to deal with, and we've been able to leverage and replicate solutions throughout the company."

NOTES FROM THE FIELD: INCREASING MOMENTUM FOR OPC

Strong projections for OPC adoption are being borne out in the field, according to market research firm Automation Research Corp. (ARC), Dedham, Mass.

"We're seeing strong interest in OPC from a broad range of end users," adds John Weber vice president of technology for The Software Toolbox, Charlotte, N.C., a resource for end users, OEMs, and integrators looking to incorporate OPC technology into their systems. "They're beginning to grasp how better access to process data via OPC improves decision-making throughout an organization." The Automation Division of Phase Metrics, Concord, Calif., recently committed to the OPC specification when they chose to use OPC servers for data connectivity in their next generation of test equipment automation, called Distributed Automation. "We're designing equipment and systems that will be around for the next five to 10 years," says Joe Lakumb, software engineer, "so we looked closely at the emerging standards for connectivity. The choice was clear: basing our systems on OPC, COM, and Windows NT would yield a robust, flexible solution for years to come."

Phase Metrics' customers are requiring more of a complete testing floor solution—resulting in the need to connect to more and more types of PLCs and other process-connected devices. "By adopting the OPC specification," says Weber, "Phase Metrics is building flexibility and choice into their systems."

According to Weber, Phase Metrics was pleased with the availability of OPC toolkits and servers and with the growth of available tools over the past year. "We expect OPC to be a part of our supervisory solution for years to come," asserts Lakumb, "providing us the flexibility and performance necessary to remain a market leader."

But these initial benefits are only the tip of the iceberg, Walker says, and the company is coming to understand the long-term benefits provided via OPC. "As our suppliers



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begin to provide OPC clients that allow us to browse and analyze process data," he continues, "that's when the real return on investment comes home for us."

DuPont has approximately 15,000 employees that look at process data on a daily basis, and if OPC empowers a productivity gain of 1% across this group—not an unrealistic expectation, according to Walker—the annual savings to DuPont will be in the range of \$15 million.

"It's the consumer of process data that stands to benefit the most from OPC," says Walker. "And as we see people develop increasing numbers of OPC clients, this benefit will grow significantly." For DuPont, this means having a common human interface navigation for people who need access to process data—and the ability to select best-of-breed solutions from multiple suppliers with easy integration across them. In a company as diverse as DuPont, with batch, continuous, discrete, and hybrid processes throughout its manufacturing operations, OPC will simplify the leveraging of solutions across business units.

The early tangible benefits of OPC are in reduced interface maintenance costs, because, in Walker's words, "that's where the market is focused."

DuPont is already seeing a savings of over \$2 million

annually based on reduced maintenance empowered through OPC.

Bridge to the Future

DuPont's experience—and anticipation of increased benefits accruing through widespread adoption of the OPC standard—are indicative of what analysts see as a massive industry shift to OPC. "Though utilization of the technology is probably less than 5%," says Bill Thompson, senior analyst for Automation Research Corporation (ARC), Dedham, Mass., "growth over the next five years will bring that figure close to 50%."

As more software packages use OPC as a common API, third-party integration is eased and expanded. ARC sees key end user benefits including increased speed of implementation and operation, lower costs, greater flexibility, and higher levels of customer satisfaction.

One such satisfied customer is Conoco's Pico plant in Edson, Alberta, Canada, where the company produces natural gas and natural gas liquids for processing. Bruce Kuzyk, production supervisor for the Conoco Pico plant, discusses the company's utilization of OPC: "We opened up a new natural gas field about fifty miles from the Pico

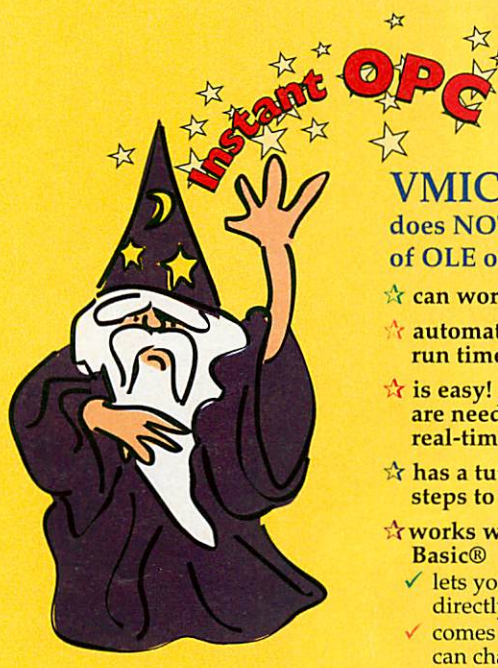
plant," says Kuzyk, "and needed remote operations—because we were expanding production without expanding our workforce."

This was in September of 1997.

"The new field incorporated eight dehydrators and two compressors," Kuzyk continues, "process-connected devices using the OPC interface."

Conoco chose to use OPC because it was user-friendly, provided excellent control of the remote units, and activated fast and efficiently—an important consideration, as the technology controls field-based safety systems as well. "It's worked perfectly," says Kuzyk. "We've had no failures. The plan now is to eventually run all our fields with the OPC server."

Greg Saunders, instrument technician at Conoco, elaborates on this: "We wanted something that worked seamlessly with our DCS," he says,



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"and OPC provided us the perfect bridge. The fact that the technology is wholly within the Microsoft environment allows us to branch into other applications very easily."

Saunders continues, "When you're tying in a whole system, OPC takes the bridge—or more accurately, bridges—that used to be at a distance and very difficult to work with, and makes it a single, easy-to-traverse link to any compliant driver or application. From an end-user perspective, it turns a communications maze into a straight line."

For the Pico plant, this was particularly valuable, because Conoco Canada operates on a Windows basis.

"With OPC, we've been able to bridge the data across the network effectively," says Saunders, "which wasn't the case before we implemented the standard."

This has appreciably extended the functionality of the system for Conoco and allowed them to leverage the companies investment in other OPC-compatible applications, like Excel. "The feedback from Calgary (i.e., headquarters) has been extremely positive," Saunders notes. "They've never been able to access the process data, in real-time or on a historic basis, like they can now via OPC."

According to Saunders, this has eliminated the gap which existed between the company's production and business functions—enabling better, faster decision-making at a higher level. "In the last eight months," says Saunders, "we've made remarkable strides via the field applications alone. It used to be a struggle to get usable data to geologists and well-site engineers, but now they can access what they need immediately. OPC has been an excellent way to go."

Indeed, Conoco has only touched a small part of what Saunders sees as the technology's huge potential. "I'm discovering more and more potential on a daily basis," he says. "It seems like answers to questions come faster, and problems are resolved more quickly. I know that the company leadership is excited about what OPC can do."

Doing More

For companies like Motiva Enterprises LLC, Houston, OPC has increased choice, added flexibility, and empowered them to do more—more efficiently. Motiva is a joint venture between Shell, Texaco, and Saudi Aramco involved in refining and marketing petrochemicals. "We got involved

in OPC because of the problems posed by proprietary interfaces," says Dave Hardin, ITS technologist for Motiva.

The company felt there was a need for a standard API interconnect to simplify real-time process integration requirements, and it moved quickly to support the efforts of the original OPC Task Force and OPC Foundation. "OPC increases the choices that we have," says Hardin. "Over the past year or so, we've definitely seen an increase in the number of products and packages that are OPC-compliant; and, with the ability to integrate third-party products eased through OPC, our ability to build

systems without compromise to meet our needs has increased."

This is particularly critical for those competing in rapidly changing markets.

Though Hardin finds it difficult to quantify the impact of the standard at this time, he says "it's clearly growing, but we have yet to fully utilize the benefits OPC brings to the table."

According to Hardin, the core of those benefits are reduced cost and increased functionality. "Within a refinery or chemical plant, for example," Hardin explains, "you have a wealth of real-time process information, and you want to be able to display and analyze and store this information in multiple ways, providing it in useful form to all the different types of users throughout an organization. One vendor's products do not satisfy the full need—you have to go to multiple vendors in order to meet it fully—and that's where the options empowered by OPC come into play. You need many products going after the process information, viewing it and analyzing it in many different ways, and you have to integrate these products as easily as possible. OPC enables this."

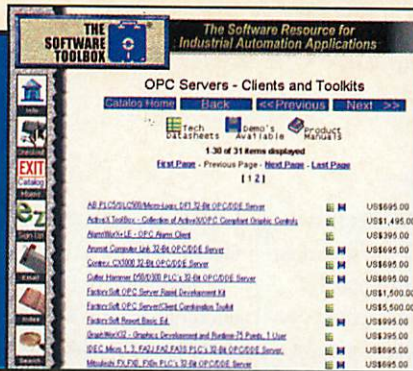
OPC compliance will be an increasingly important factor in vendor selection, according to Hardin, a belief seconded by ARC's Thompson. "As end users look to new systems," says Thompson, "the issue of interoperability will be a key issue; and OPC compliance will be a significant factor in the specification of new system elements."

Hardin also refers to the beneficial effect OPC will have in the market from an end-user perspective: "It opens up and increases competition," says Hardin, "and that will have the dual effect of lowering costs and increasing functionality. It's a win-win situation as far as I'm concerned." ■

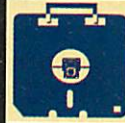
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—Ray Walker, senior consultant,
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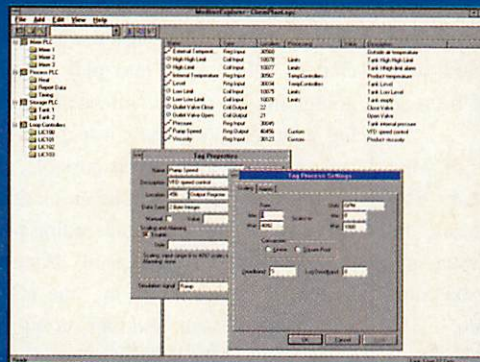
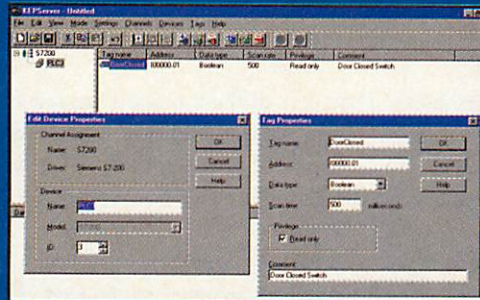
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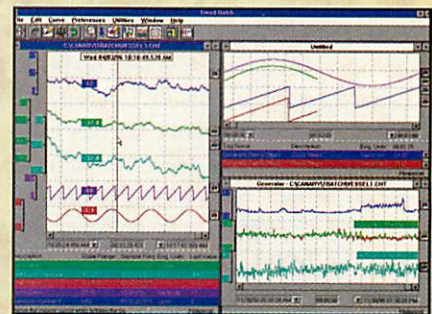
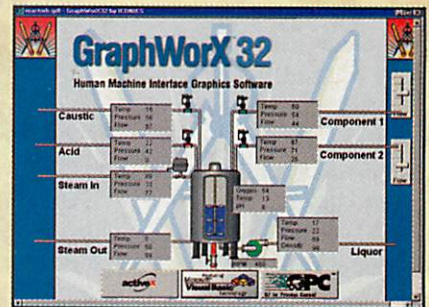
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