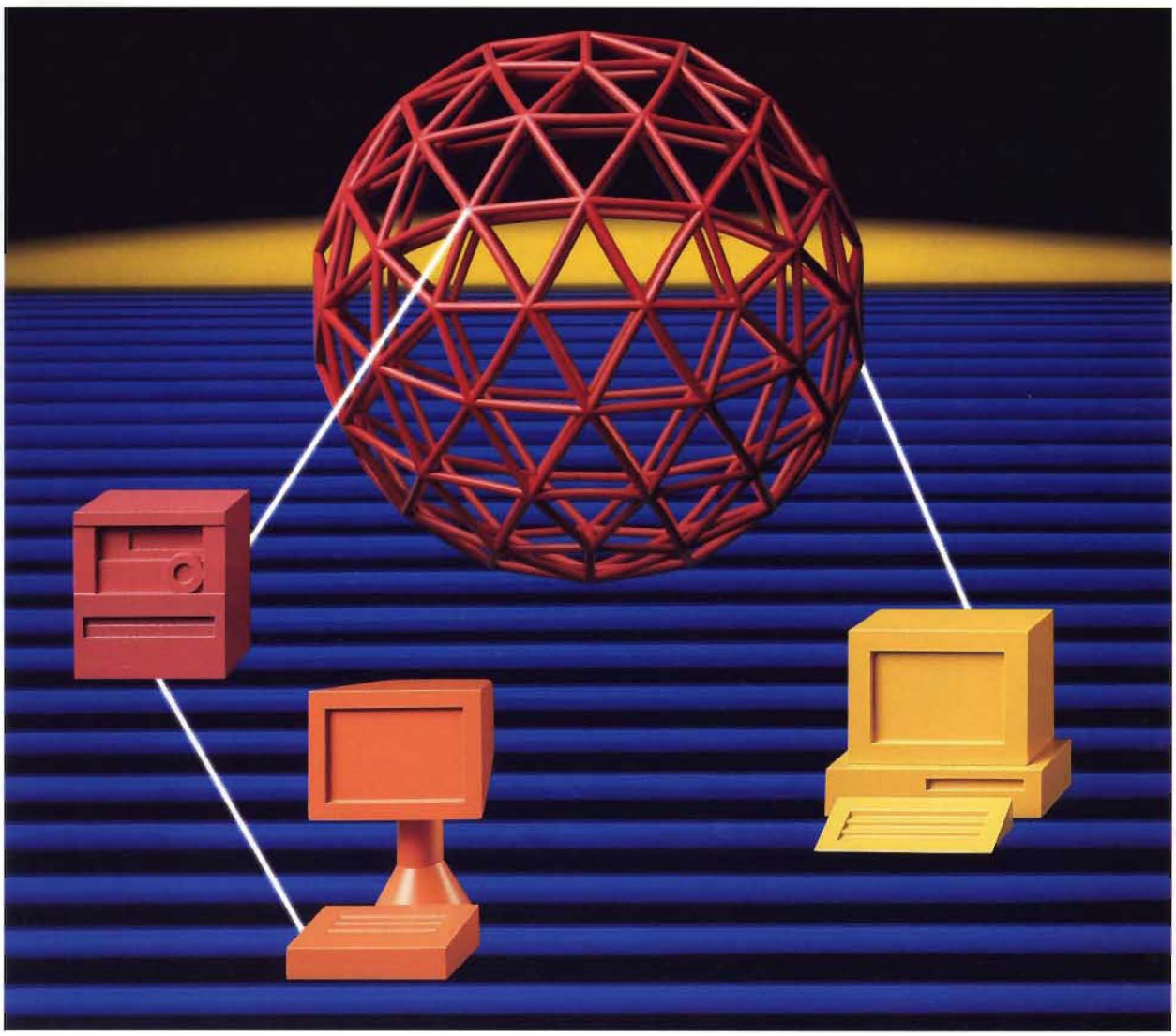
# COMMUNICATION SOLUTIONS

*FALL 1987 ▪ A BUSINESS-TO-BUSINESS JOURNAL FROM COMPUSERVE*



*ELECTRONIC DATA INTERCHANGE HELPS BUSINESSES IMPROVE*

*REPRINT OF COVER STORY*

CompuServe

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**Dear Executive,**

The CompuServe EDI Service is a natural extension of CompuServe's already broad range of electronic communication services. By integrating the data transmission services of our packet data network with the highly customizable CompuServe Interchange management information systems, CompuServe EDI offers a comprehensive business-to-business communication solution.

This article, entitled "Strategic Tool: Electronic Data Interchange Helps Businesses Improve Efficiency," originally appeared in the Fall 1987 edition of CompuServe's *Communication Solutions*, the magazine published for our valued customers. The article provides a conceptual overview of the EDI process, and highlights the benefits one firm had achieved through its implementation.

Your company, too, can profit from the operational and marketing efficiencies of EDI by using the CompuServe EDI Service. CompuServe Incorporated has been an innovator in communications technology for nearly 20 years and counts the nation's largest companies as customers. These companies have benefited not only from our technological capabilities, but from our dedication to customer service and support as well. You will find the addition of the CompuServe EDI Service to be a significant strength of your competitive business strategy.

We hope to have the chance to show you what we can do for you.

Respectfully,

Clark Woodford

**G. Clark Woodford**
Executive Vice President
Business Services

# STRATEGIC TOOL

## Electronic Data Interchange Helps Businesses Improve Efficiency

When a SunHealth hospital purchasing representative talks to a co-worker about sending out a group of orders for medical and surgical supplies to Johnson & Johnson and Calgon/Vestal and getting the supplies "stat," he doesn't ask about the cutoff time for rushing the orders to the vendors via overnight mail. Nor is he concerned about the vendors' time zones and the hours that their order-taking departments are reachable by phone. Nevertheless, the hospital will have its supplies on time. The purchasing representative will know the moment each vendor received the orders, when the items were shipped and when they are scheduled to arrive. And he won't worry about ending up with 15 cartons of 4-by-4 gauze sponges when the hospital really needed 50 cartons of 4-by-4 gauze bandages.

SunHealth Corp., headquartered in Charlotte, N.C., signed an agreement last year with Abbott Labs, a Chicago-based pharmaceutical company, to use an IBM PC-based system to place orders for hospital supplies from Abbott. After receiving customized software enhancements from Abbott, SunHealth expanded the system—now called SunHealth Buyline—to include 24 hospital supply vendors and made it available to 85 of SunHealth's 202 hospitals in the southeastern states.

The hospitals can electronically send purchase orders and other business documents instantly from their IBM PCs to the computer systems of Abbott, Johnson & Johnson, General Medical, Baxter and other providers of medical and surgical supplies. Several other medical and office supply vendors, including Uarco, Unijax, AOA/CHICK, Calgon/Vestal, Edward Weck and Forms & Supply Co., are connected to SunHealth Buyline through CompuServe's value-added packet-data network.

When a SunHealth hospital employee sends a purchase order to Uarco, a paper products company, for example, the document is transmitted electronically from the IBM PC through the CompuServe network and mainframe computers to Uarco's computer system in a matter of seconds. Uarco acknowledges receipt of the order and processes it. In Fiscal Year 1988, SunHealth will have the ability for some vendors to transmit invoices back to customers via Buyline.

What all this means for SunHealth is quick order acknowledgment, the ability to keep lower inventory levels since orders can be filled faster, more efficient invoice processing and improved customer service, according to Jim Swinford, SunHealth's computer systems support manager. "Accounting can process its invoices faster, the purchasing department has less invoice reconciliation and the vendors increase cash flow," he says. These benefits are significant considering that SunHealth's hospitals—with a combined annual gross revenue of $7.5 billion—each generate an estimated average of 600 purchase orders per month. Each purchase order contains an average of 15 line items (individual listings of items being ordered) or a total of about 9,000 line items per hospital per month, according to a survey of SunHealth hospitals done by Swinford in 1985.

SunHealth was able to beat the paper chase and improve productivity with its Buyline system, a working example of a technology called Electronic Data Interchange or EDI. In an EDI application, order-related business documents, such as purchase orders and invoices, are delivered

*Jim Swinford sees the Buyline system as a way to offer more value-added services to SunHealth hospitals.*

from one company—or trading partner—to another electronically. The document sender is a different trading partner than the document receiver. For example, EDI can take place between companies or between an individual and a company. Instead of being typed on a form or called in, the information is compiled, edited and received electronically in a computer-to-computer document transfer. The sender puts the data in a format that the receiver can interpret and use (both the sender and receiver having agreed upon that format in advance). The information is sent at the sender's convenience and retrieved at the receiver's convenience.

Benefits to an EDI user typically include a substantial cost savings in the exchange of routine business documents, reduced errors, faster responses to orders and enhanced management control of the whole ordering, shipping and inventory cycle. Manually prepared paper documents, for example, can cost between $8 and $50 from the time they are requested until they are sent out, according to a report on EDI from INPUT, a computing/communications industry consulting firm headquartered in Mountain View, Calif. If EDI is used, the report states, the total cost for the document averages less than $12, with the electronic portion costing less than $1.

Transferring order information verbally by phone has the elements of immediacy and interactivity, but errors often occur due to the rekeying of data and misinterpretations of what someone said. "No one wants to talk about errors, but if you look at reworked orders, returned goods and credit memos that have to be issued, it is a problem. EDI eliminates these mistakes caused by rekeying information or quoting numbers over the phone," says Robert A. Payne, general partner and consulting manager of "EDI, spread the word!," a Dallas-based consulting business that serves as a publisher and clearinghouse for information about EDI.

While SunHealth hospitals were transmitting many purchase orders by computer prior to using the CompuServe value-added network, there were limitations to their procedure. Hospitals were primarily using TTY communication (i.e., Bell 43-type devices) and this communication was limited in scope. When exchanging order information directly, without the services of a network provider, both the hospital and the vendor had to make arrangements to "call up" each other's computer systems at specified times so that the data could be sent from one system to the other. With the vendors that use CompuServe as a third-party network, orders can be transmitted anytime day or night.

***Businesses dealing with a high number of repetitive transactions and time-sensitive information are likely to see the most return on their investment in an EDI system.***

The benefits of EDI have recently gained attention from businesses across the country. EDI technology is now being used by 75 of the Fortune 100 companies and 39 percent of the Fortune 500, Payne reports. His publication, *The EDI Yellow Pages,* lists information on more than 1,500 EDI users and vendors. At least 30 industries, including the pharmaceutical, grocery, apparel, automotive, transportation and heavy equipment industries, are represented by companies using EDI.

Businesses dealing with a high number of repetitive transactions and time-sensitive information are likely to see the most return on their investment in an EDI system. The food processing industry, for example, has estimated its potential savings at $300 million annually (assuming that 50 percent of transactions are processed electronically) or as much as .1 percent of that industry's $300 billion in annual revenues, according to an EDI study conducted by The Yankee Group, a Boston-based computer industry consulting firm. The $300 million reflects savings achievable through elimination of clerical and administrative work, and does not encompass savings resulting from the reduction of surplus inventory. The Yankee Group applies the food processing industry's savings figure to eight other industries—pharmaceutical, chemical, food retailing, retail/department stores, electric components, apparel, life insurance and transportation—and projects that these industries could collectively save $1.46 billion annually by implementing EDI.

Certain industries have successfully used EDI not only to cut costs and improve efficiency but also to reduce inventories of products and materials. "In the medium

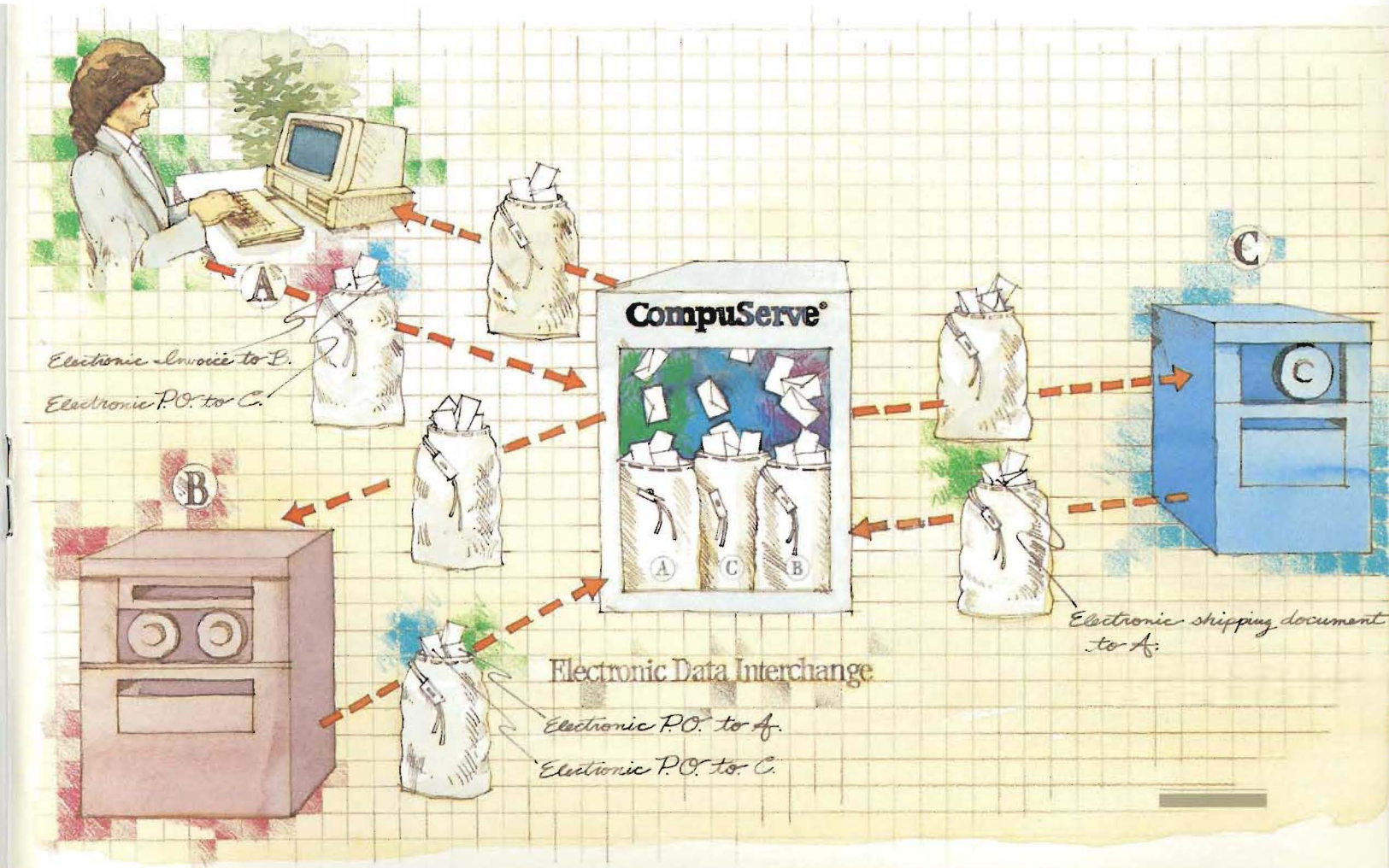
to long term, a business will see inventory reduction as a result of the faster response on refilling orders, making it easier to keep a full, varied line of a product," says Payne.

A clothing manufacturer, for example, could increase department store sales of its products by up to 25 percent using EDI. When the clothing manufacturer works with each store to set up an EDI system for reordering and filling orders quickly, there is less "out of stock" merchandise, meaning a better selection for customers. "There's an improvement in the linkage between supplier and retailer, which can have a tremendous impact on customer service and on what the retailer can do," says Payne. Since the individual store buyers do not need to order apparel items as far ahead with an EDI system as they would with conventional paper or phone methods, they can order less and plan to reorder certain items based on how customers react to them—in essence, setting up a "test market" system.

***Due to cost reductions and productivity improvements, EDI has achieved corporate buzzword status in many industries.***

The auto industry has been able to drastically reduce the amount of automotive parts kept in inventory by using EDI to lay the foundation for a comprehensive process known as "just in time manufacturing." The idea is to order exactly the amount of materials needed, based on new car orders from customers, and to move the automotive parts directly from the delivery dock to the assembly line, thus eliminating the need for large inventories.

With all of the figures on cost reductions and productivity improvements, EDI has achieved "corporate buzzword" status in many industries. Yet, EDI, available for about 10 years, has only recently been experiencing exponential growth. In 1982, EDI was a $2 million industry, according to a Yankee Group estimate. By the end of 1986, EDI had grown into a $46 million industry; by 1992 it will be a $1.9 billion industry, says Victor S. Wheatman, manager of EDI planning services for INPUT.




*In an EDI application, order-related business documents, such as purchase orders and invoices, are delivered from one company — or trading partner — to another electronically.*

"Since the beginning of 1986, instead of EDI being just an esoteric concept understood by a few technical people in large corporations, it has become something that people across all businesses and industries are recognizing as a key component in their business strategies," says Jack Shaw, president of EDI Strategies Inc., an Atlanta-based consulting firm.

Industry experts attribute EDI's sudden growth to several simultaneous events, including the emergence of cross-industry standards for transmitting EDI documents, the active support of trade associations, the development of a "critical mass" of businesses using EDI, and the increase in EDI-related products and services.

In May 1986, the American National Standards Institute approved and published the first complete set of cross-industry EDI standards—guidelines for transferring specific business documents electronically from a sender to a receiver, regardless of the industry that each represents. While standards for the purchase order and invoice were available as early as 1983, many companies decided they needed standardized formats for other order-related documents so they could realize the benefits of EDI. There are now 14 ANSI-approved standard formats, ranging from a planning schedule to a purchase order change form to a "functional acknowledgment"—an electronic document that lets the sender know that the receiver has opened his electronic envelope and received the business documents.

"Now there's a sufficient base of standards available that one can readily conduct the bulk of a company's interbusiness transactions electronically. It's a practical technology," says Don Nichols, chairman of subcommittee D of ANSI's Accredited Standards Committee X12. Another 33 standard forms, including an inventory advice form, an order status report and post-shipment documentation, are being worked on now and yet another 50 forms are at draft stage, according to Nichols.

While cross-industry standards were being formulated, trade organizations, such as the Automotive Industry Action Group, the Chemical Industry Data Exchange and the American Textile Manufacturers, took an active role in promoting the use of EDI. They began developing educational programs for companies in their industries to provide information on the benefits of EDI and how a company could get started. Many of those industry groups participate in the development of new ANSI standards for all industries. ANSI's X12 committee itself sponsors EDI training seminars and provides informational literature to help companies become involved.

***Value-added networks offer a low-cost, low-risk method of entering the EDI environment.***

With the involvement of industry groups and more individual companies, EDI gained a "critical mass" of users. "After a company had installed 10 or 20 trading partners on its system, the industry began to learn how to go about EDI in a big way," says Payne. For example, after one company had set up 20 of its larger suppliers to transact business through EDI, it was not a major step for another company or division to begin trading with the same 20 suppliers.

The availability of products and services for businesses desiring to use EDI has been a major factor in EDI's growth, according to Shaw, and one significant factor he cites is the presence of value-added networks. "In 1982 and 1983, there were no value-added networks offering cross-industry EDI capabilities. If companies wanted to use EDI, they had to go through the technically complex process of setting up direct data communication links with one another," he says. While some larger companies did this, it was not a cost-efficient solution for all companies.

"The arrival of value-added networks is helping to hold the cost down, exposing more companies and organizations to EDI, and giving them ready access to EDI without having to establish relationships with an additional outside provider," says Shaw. Instead of creating a special link to each trading partner, a company can set up an EDI arrangement with a provider such as CompuServe and then have electronic access to all of its vendors via CompuServe's network and mailbox capabilities.

Third-party networks such as CompuServe offer a "low-cost, low-risk method of entering the EDI environment," according to results from doctoral research conducted by Peggy Emmelhainz, assistant marketing professor at the University of Dayton. "Third-party service bureaus often provide lower costs than would be incurred if the organization communicated directly with all partners," the study says. In addition, the third-party network "assumes the technical risk inherent in an environment of evolving protocols and standards...and appears to add an extra buffer of data security between sender and receiver." Says Shaw, "There are thousands of additional companies that already have working relationships with CompuServe and they're going to be more likely to try EDI because they can work with CompuServe."

Due to the convergence of these technologies and the presence of business realities such as the need to cut costs and improve operations efficiency, analysts believe that use of EDI will grow substantially, creating new market opportunities. Future projected applications for EDI include electronic payments, the use of EDI for international trade, and the development of EDI standards for graphic communications.

"Corporate-to-corporate electronic payments are going to be as standard a part of EDI as purchase orders and invoices are now," says Shaw. "Our research shows that many companies are looking at the issue of electronic payments. The reason they're not doing payments yet is simply the sequence that companies use for implementing a system...typically including purchase orders first, then invoices and finally payments. By the beginning of 1989, we'll start to see the same kind of explosive growth in the use of EDI for electronic payments as we're seeing now in its use for non-payment transactions such as purchase orders."

The major growth area for EDI applications from 1989 through the mid-1990s will be in international trade, according to Shaw. "It's been estimated that the cost of processing paperwork alone in international trade is equivalent to 7 percent of the value of the product shipped," he says. "Last year, $2 trillion worth of international trade was conducted. That means that $140 billion was spent in just processing the paperwork. EDI can eliminate a significant percentage of that."

The analysts agree that standards for transmission of EDI graphic communications will be developed within the next five to 10 years. Graphics would be especially useful when a company has asked a supplier to custom develop a special part or tool. In addition to sending an order, the customer would want to transmit a drawing showing the desired size and shape of the item being designed.

While the administrative and inventory cost savings of EDI can be dramatic, the greatest benefit of EDI lies in its potential as a strategic tool, according to Emmelhainz's research. Using EDI to incorporate more timely and accurate information as part of strategic planning, and integrating the EDI system into internal systems such as market research and planning are seen as ways to improve business practices through the use of EDI, according to her study. In other words, while EDI is a valuable business tool, its full potential cannot be realized if it is used in isolation from a company's other information and communication systems for suppliers, distributors and customers.

***The greatest benefit of EDI lies in its potential as a strategic tool.***

In addition to EDI, CompuServe offers customized electronic communication services, including Interchange information systems, InfoPlex electronic mail and value-added network services. The applications of these services in tandem with an EDI system result in a total inter-company communications solution, providing a company with not only the operating efficiencies of EDI but also unique marketing advantages, to create a competitive edge.

SunHealth, for example, not only uses EDI but is also setting up an InfoPlex system to send advisory messages to its affiliated hospitals. In the near future, SunHealth plans to add an electronic catalog to its system, offering up to 30,000 items and replacing the current thick supply catalogs used at the hospitals. The electronic catalog could be updated on disk or updated online through the CompuServe network. Says SunHealth's Swinford, "We see Buyline as a vehicle to get a lot of other value-added services out to our hospitals, and the future looks promising."

■ Mary Mitchell

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