Document Imaging Report

Business Trends on Converting Paper Processes to Electronic Format

November 21, 2003

HP MAKES ILM SOFTWARE ACQUISITION

Well, it wasn't **FileNET** [*as we predicted in our last issue*], but **HP** announced an acquisition last week that will help it compete in the emerging information lifecycle management (ILM) market. **Persist Technologies** is a Pleasanton, CA-based, 40-employee company that develops "software for active archiving of e-mail, **Microsoft** *Office*, and other popular data types."

Persist, which had been an HP partner, will help HP develop applications that can migrate data across the several layers of storage media offered by HP. Persist also advertises advanced search and retrieval technology.

In the end, FileNET's lack of a competitive e-mail archiving application probably made Persist more attractive. "Eighty percent of the e-mail being managed in Microsoft Exchange is stored on HP servers," HP's Jeff Kato told *DIR* during a recent interview. "If we can help our customers manage that, it will give us a good start addressing their ILM needs."

XEROX-BRANDED SCANNERS NOW AVAILABLE

The initial products from the partnership between **Visioneer** and **Xerox** have hit the street. Three workgroup scanners branded with the Xerox DocuMate label are now available. They range in list price from $350 to $1,200. The two higher-priced models are bundled with **Kofax** VRS 2.1. All three models include a driver to link directly to Xerox *DocuShare* 3.0. Per the partnership agreement, Visioneer is managing the development, marketing, and support of the devices, which carry the Xerox trademark. ◼

UDO Is Here!

Plasmon now shipping much-anticipated, next-generation optical storage technology.

Plasmon's much-awaited release of UDO (Ultra Density Optical) storage technology is here, and its timing couldn't be better. The archiving market is red hot. And UDO happens to be the heir apparent to magneto-optical (MO) storage, which is primarily an archival medium. Yes, the future suddenly looks bright for Plasmon, which has invested some $25 million and more than three years of development in UDO—a technology that many skeptics scoffed would never get off the ground.

Plasmon has now cleared its first hurdle: at **COMDEX** this week, it announced it has begun revenue generating shipments of UDO drives and media. Now, Plasmon faces an even more daunting challenge: marketing its niche technology in a market increasingly being infringed upon by vendors of mainstream storage media like magnetic disk and tape.

"Because of concerns about regulatory compliance and potential litigation, the amount of data being kept on archival storage is growing 92% annually," Dave DuPont, VP of marketing for Plasmon, told *DIR*. "The good news is that everybody recognizes the need for more archival storage. The bad news is that other storage vendors have also recognized that need."

Before archival storage was hot, MO and other types of optical storage were really the only proven way to address WORM (Write Once Read Many) requirements. In fact, **SEC** Rule 17a-4, which governs the storage of e-mail records by stock brokers and dealers, specifically mentioned optical technology as the only pre-ordained, acceptable archival storage medium.

Over the past two years, however, as corporate scandals have rocked America, there has been a lot more attention paid to how businesses are archiving their records. Suddenly, the tape backup systems, which for years served as de facto archives for many businesses, were being called into question. As businesses began scrambling to upgrade their archival storage, mainstream

storage vendors began scrambling to meet their demands.

EMC's Centera, which was introduced last year, is probably the most hyped of the magnetic archival solutions. EMC competitors like **IBM** and **Hitachi** have also announced plans for offerings in this area. Tape vendors like **Sony** and **StorageTek** have gotten into the act and IBM recently announced plans for WORM tape as well. All this competition comes on top of an already severe decline in MO sales over the past few years, which finally seems to be leveling off this year.

"When you start getting into regulations like HIPAA, where a record has to be kept for the lifetime of a patient, the proposition of permanent storage on spinning disks becomes a bit more suspect."

Jeff Kato, HP

DuPont looks at that leveling off as a sign that MO has found its niche in the growing archiving space. "Even EMC has had customers demand optical as part of their Centera solutions," said DuPont. "EMC says it can mirror data on Centera, but many customers prefer their second copies be made on removable media, such as optical."

HP, which offers a full-range of storage products, including tape and magnetic disk, also believes there is a place for optical in the storage hierarchy. At COMDEX, HP re-stated its support for UDO. Currently, HP and Plasmon control 95% of the MO jukebox market.

"Optical technology was initially marketed as an inexpensive

REMOVABLE MEDIA COMING INTO VOGUE

Typically, magneto optical (MO) storage is not thought of as removable. The majority of MO disks are kept in jukeboxes where it takes approximately 10 seconds to load a disk and retrieve a file. However, as the dynamics of the storage market change, **HP's** Jeff Kato believes there will be an increased demand for removable optical disks. To serve this market, HP is marketing standalone UDO drives in addition to its library technology.

Kato cited three reasons for this trend:
■ "Requirements for archival storage capacity are increasing, but there is still a need to control costs. Keeping disks off-line means you need to buy fewer automation devices."
■ "Some regulatory compliance regulations specify that users need to keep multiple copies of data. Storing copies offline is a less expensive way to meet these requirements."
■ "It used to be you needed separate applications to mange on-line and off-line records. Newer records management software keeps track of both types of records."

alternative to magnetic disk," explained Jeff Kato, director of the automation business segment at HP. "As the price of magnetic storage declined, that marketing approach became a dead end. Now, optical is viewed more as someplace to keep files that need to be stored long term."

Kato went on to say that HP views optical storage as complementary to magnetic disk and tape. "There are some regulations that call for archiving e-mail for two to three years, and for those applications, magnetic disk might be cost-effective," he said. "However, when you start getting into regulations like HIPAA, which call for a record to be kept for the lifetime of a patient, the proposition of permanent storage on spinning disks becomes a bit more suspect. The upkeep and maintenance of magnetic disk systems can get fairly expensive over time. There is no storage cheaper than taking a piece of optical media and putting it on a shelf."

UDO Delivers Five-Fold Improvement in Optical Cost

With UDO, the cost of optical storage is getting even cheaper. The first generation of UDO offers 30 GB of storage per disk. The disks list for $60 apiece. The latest generation of MO technology, which was released in 2001, features 9.1 GB of storage per disk. Those disks list for $90 apiece. Based on these numbers, UDO offers an immediate five-fold price/capacity improvement over MO—$2 per GB vs. $10 per GB. Future generations of UDO, scheduled to be released every two years, will double the capacity of the media, without any planned price increases. Currently, Plasmon lists MO

Optical Storage Costs
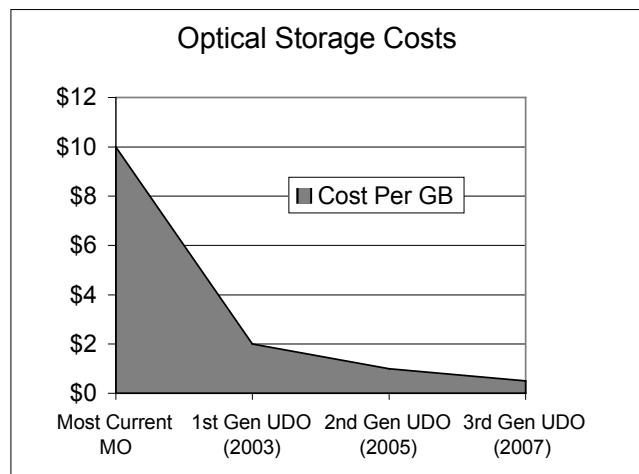
The introduction of UDO promises to drive a five-fold decrease in the cost of professional optical storage media. Additional UDO generations should continue to halve that cost.

and UDO drives at approximately the same price—just over $3,000.

In addition to its lower price, UDO also delivers improved archiving characteristics. "UDO uses phase change technology to write data," explained DuPont. "This means the surface of the media is physically altered when data is recorded and can't be changed again without destroying the disk. MO, magnetic disk, and tape are all inherently changeable media that have to be WORM-enabled through software." [*A rewritable version of the UDO media is also available. It lists for $70 per disk.*]

It's also probably worth noting that MO and UDO feature the same 5.25-inch form factor. Because of

UDO COULD REPRESENT SLINGSHOT AGAINST STORAGE GOLIATHS

Despite its attractive price/performance characteristics, UDO is not a shoe-in for success. Optical's history as an oddball storage technology is definitely working against it. This is coupled with the fact that mainstream tape and magnetic storage vendors simply have more marketing clout than **Plasmon**, whose fiscal 2003 revenue was just over $90 million.

We look at a recent EMC Centera installation at **Huntington National Bank** as offering evidence of some of the challenges Plasmon faces. Huntington, which is based in Columbus, OH, has a document imaging installation that uses optical storage. However, the bank chose to

go with Centera for an e-mail archiving application.

"The optical technology we use is several years old and very expensive," Brad Gaitten, VP, network and customer support for Huntington, told *DIR*. "To a certain extent, we can rotate new platters into our existing jukeboxes, but as our business grows, it becomes inevitable that we have to buy new jukeboxes. Optical is just too expensive for the storage capacity it gives you."

In July, Huntington installed a three-terabyte Centera system, using software from **iLumin** on the front end to manage e-mail. "We looked at several different options including

optical-based solutions," said Gaitten. "The specific term 'UDO' does not ring a bell. We have had a solid relationship with EMC for several years, have worked with them on our SANs, and use their tape back-up product. EMC was very creative with the Centera deal they put together for us. Given the level of trust we have with them, we felt it was the way to go."

According to Gaitten, Huntington is in the very early stages of considering a migration of its imaging system to Centera. "We feel the archiving capabilities are about the same for both types of storage," he said, "but the retrieval performance is much better with Centera."

this, current MO jukebox offerings from both HP and Plasmon can be upgraded to handle UDO drives.

According to DuPont, this type of easy migration path is not typically the case when working with magnetic disks. "EMC is able to keep down the initial costs of a Centera installation because of future revenue it expects from hardware and software maintenance," he told *DIR*. "We find that optical customers tend to keep the same system for five to 10 years. Nobody keeps a magnetic disk system online for more than three years. The cost of running and managing a disk system is so high that it's financially appropriate to upgrade to a higher capacity disk system every three years or so."

Plasmon Promises Improved Software Support

That's not to say managing an optical storage system is without its challenges. One of the biggest complaints that *DIR* has heard from end users over the years is that optical has to be managed outside the magnetic and tape-dominated enterprise storage environment. Optical has been called "the red-headed stepchild of storage."

According to DuPont, Plasmon has been busy over the past year trying to rectify this situation. "We have made a concerted effort, and staffed accordingly, to ensure that we have broad software support for UDO," he told *DIR*. "We have an ISV team that is responsible for cultivating partnerships with software vendors. To that end, we also held a software developers conference this summer. We are trying to facilitate the integration of UDO into normal storage environments."

Plasmon currently lists more than 25 software vendors as supporting UDO, including **Sun**, **Veritas**, **Legato**, **IBM/Tivoli**, **IXOS**, and **FileNET**. "By the end of next year, we expect that 75% of our MO customers will have upgraded to UDO," said DuPont. "However, we see our real opportunity in market segments that have not necessarily used MO in the past. E-mail archiving is one example. And the medical market, which has not historically been one of our larger markets, is currently our hottest segment."

As Plasmon moves toward a broader market space, it realizes businesses will be skeptical about purchasing technology controlled by a single vendor. To help diffuse these concerns, Plasmon has already signed an agreement which enables **Verbatim** to act as a second-source media supplier for UDO. As the demand for drives ramps up, Plasmon plans to license out its technology in that area. HP will probably not act as a UDO drive and media manufacturer. Rather it will outfit its jukeboxes with OEM components similar to the way it outfits its MO jukeboxes.

Optical Still a Viable Storage Option

Yes, the storage landscape is in transition, and it's important that document imaging vendors pay attention. MO has long been a staple in our industry. The technologies were originally coupled because images were storage hogs that were too expensive to keep on high-priced magnetic disk. Falling disk prices, of course, have changed that paradigm.

But that doesn't mean optical storage is dead. The perfect storm of the introduction of UDO and an increased interest in archiving has breathed new life into this once seemingly moribund storage medium. Although it might not be the best fit for every imaging application anymore, UDO seems like a viable option to address the ever-increasing number of long-term archiving applications now showing up in the market.

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IBM Emerges As Early ILM Market Leader

Unique breadth of hardware, software, and services gives Big Blue the edge in evolving space.

Over the past couple months, we've witnessed a good deal of consolidation around the enterprise content management (ECM) space. Not only have we seen heavy merger/acquisition activity among the leading ECM players, we've also seen several large storage vendors encroaching on ECM turf. This consolidation of ECM with storage has given rise to a new market definition, one being labeled as information life cycle management (ILM).

Curiously, the leader in this emerging space is a vendor that hasn't made a major ILM-related acquisition in almost a year. That's because **IBM** already possesses most of the characteristics of a prototype ILM vendor. While its competitors are busy rolling up the technologies needed to compete, IBM has begun rolling out solutions targeted at specific ILM applications.

Late last month, Big Blue announced no less than nine ILM offerings targeted at the very hot area of regulatory compliance. These solutions leverage a combination of IBM's content and storage

management software, database technology, storage hardware, and top-flight partnerships. IBM can also leverage its *WebSphere* application server technology and its world-renowned integration arm, IBM Global Services, to tie everything together.

"Basically, we are trying to work more effectively across the IBM team," Holly Tallon, programs director for DB2 information management marketing at IBM, told *DIR*. "Through our breadth of technologies, we are trying to establish a compliance framework or backbone, which is a common set of middleware that can address multiple regulations."

> **"Businesses used to install content management software because it improved operations Now, regulations like Sarbanes-Oxley are forcing them to install it. It's important to remember that the underlying business value still exists."**
>
> **Jim Reimer IBM**

Regulations being addressed include Sarbanes-Oxley, **SEC** 17a-4, the Patriot Act, and HIPAA. Tallon explained that the elements of specific solutions can be reused in additional compliance applications. "For example, our *Content Manager* software is part of the solution for addressing Sarbanes-Oxley," she said. "If you add some more seats, it can be used in conjunction with our *CommonStore* e-mail management application to address SEC 17a-4. Our Tivoli storage management software can be installed on the back end of both applications."

Not everything leveraged in IBM's compliance solutions is currently in-house. On the storage front, for example, some of the solutions advertise tape and magnetic disk systems with WORM capabilities—two areas where IBM only recently launched initiatives and is currently working with partners. And, *Lotus Workplace for Business Controls and Reporting*, a Sarbanes-Oxley compliance tool, leverages input from **KPMG**.

"KPMG has developed a catalog of rules and controls that can move companies toward compliance with Sarbanes-Oxley," explained Jim Reimer, chief architect, IBM content management applications. "We are integrating those controls into our *Content Manager* and *WebSphere Portal* technologies to create a system of templates and administrative controls to help businesses with compliance."

According to Reimer, KPMG has been receiving requests for such a packaged solution from its clients. "The first deadline for Sarbanes-Oxley is for companies whose fiscal year ends June 30, 2004" he said. "The majority of public companies, however, end their fiscal year in December. We expect things to really starting picking up in this area towards March of next year. We will have our product available in the first quarter."

Like Tallon, Reimer, reminded us that any content management solution should be looked at as more than a point application.

"Businesses used to install content management software because it improved operations," he said. "Now, regulations like Sarbanes-Oxley are forcing them to install it. However, it's important to remember that the underlying business value of content management still exists and can be unlocked through the expansion of the application."

New Line Targets Mid-Sized Applications

In addition to preaching this message to its traditional Fortune 500 customer base, IBM is now targeting small-to-mid sized businesses, where it has not traditionally sold ECM technology. Last month, IBM introduced *Content Manager Express*, which is aimed at 100-user-and-under installations. "It's part of a company-wide initiative, and it's aimed at a space not highly penetrated with ECM technology," Deb Taufen, director of ECM marketing at IBM, told *DIR*. "We've also introduced Express versions of our database and application server software."

Content Manager Express is designed to have a small footprint and be easier to install than the full-blown version. It comes without features like advanced workflow and HSM (hierarchical storage management). A 20-concurrent user system lists for about $30,000.

IBM is looking to market its *Express* line through reseller partners. "We hope to leverage our relationships with distributors like **Avnet** to expand our reseller channel," said Taufen. "We are looking for resellers to create vertical solutions with our technology."

IBM Gets Serious About E-Forms

Speaking of partners, IBM also recently expanded its relationship with software heavyweight **Adobe**. IBM has entered into a co-selling agreement pairing IBM's *Content Manger* with Adobe's e-forms product

line. Initially, the agreement will enable Adobe e-forms to be managed as part of a *Content Manager* application. It will also enable Adobe's e-forms output technology to interact directly with IBM's *CommonStore for SAP* archiving technology.

"Adobe's work with XML is very important, as companies move from paper to electronic forms," Taufen told *DIR*. Incidentally, last week Adobe announced it had acquired the assets of **Yellow Dragon Software**, a developer of XML messaging and metadata management software.

Taufen added that IBM will continue to work with **PureEdge**, a smaller vendor of XML-based forms. "We don't necessarily form exclusive relationships," she said.

A lot of people view the Adobe and IBM pact as a counterstrike to **Microsoft's** InfoPath XML-based forms platform, which was introduced with *Office 2003* last month. "Over time, the integration between our two product lines could grow," said Taufen. "There is the potential to apply some of our messaging and privacy technology to e-forms. Right now, we are cross-educating our sales teams and have committed to some joint marketing plans."

In another move that could be viewed as a counterstrike at Microsoft, IBM recently announced that it had ported *Content Manager* to the Linux platform. This is part of a company-wide support for Linux that has been progressing over the past couple years. We view IBM's embrace of Linux as yet another sign of the company's strong vision for the future.

A Nimble Giant

We've noted several times in *DIR* that IBM was one of the first companies we ever heard talking about the concept of ECM. It was back at **AIIM 1998** when IBM's Jim Kelly first discussed with us the connection between IBM's database and document management technologies. By having the foresight to closely link storage with this group, IBM has now emerged as the early pacesetter in the exciting ILM space. As we noted, IBM is introducing solutions when others are still talking about concepts.

No, Big Blue's ILM offering is not perfect. IBM was rumored to be in the running to acquire **Documentum**, which was eventually scooped up by EMC—IBM's arch storage rival. Documentum would have added some missing collaboration and electronic document management technology to IBM's ECM mix, so, as a pure ECM-player, IBM still may have some holes to fill. However, a tighter partnership with, or an acquisition of, **Interwoven** may eventually take care of that.

Yes, the ILM market is coming together nicely for Big Blue. In many cases, larger companies are accused of being driven by their own inertia and being out of touch with the real requirements of the market. By having the vision to assemble a technology set that fits so perfectly into an emerging space like ILM, IBM is showing that it has not lost its edge. Yes, the days of a mainframe computing environment sold and serviced by a single vendor, most often IBM, may be gone forever. However, try substituting the term "ILM" for "mainframe," in the previous sentence…. It appears Big Blue may be onto something.

For more information: **IBM**, Armonk, NY, e-mail: jreimer@us.ibm.com, dwtaufe@us.ibm.com, htallon@us.ibm.com. **DIR**

Leading Storage Vendors Partner With IXOS

Information lifecycle management (ILM) has suddenly become a hot application for storage vendors. Leading players like **EMC** and **HP** have made recent acquisitions to beef up their technology in this area. Not wanting to be left behind, competitors **Hitachi Data Systems** (HDS) and **StorageTek** have also made moves. They both chose to partner with archiving specialist **IXOS**, which has emerged as the leading ILM-enabler among ECM (enterprise content management) vendors—whose technology is so complementary to storage in ILM applications.

Both HDS and StorageTek will initially be offering OEM versions of IXOS' e-mail archiving software. The plan is for both to eventually resell the complete IXOS ECM line through their services divisions.

"E-mail is the largest ILM problem our customers are facing today," said Roger Good, director of global services for StorageTek. "Thirty-percent of all disk storage is related to e-mail. The need to better manage this e-mail is something all our customers can relate to."

Richard Gailer, head of sales and marketing for IXOS Software AG, agreed that e-mail archiving is among today's hottest ECM applications. "We only introduced our e-mail management application two and a half years ago, and today it accounts for 10-15% of our revenue [*approximately $15-20 million on an annual basis, based on IXOS' fiscal 2003 revenue*]."

In conjunction with its e-mail archiving solutions, HDS, which is one of the world's leading magnetic-

disk-based storage vendors, also announced software to create disk-based WORM systems. StorageTek, which is one of the world's leading tape vendors, also offers a range of magnetic disk solutions. Currently, StorageTek offers WORM tape products and is considering adding WORM disk.

For more information: **IXOS AG**, Grasbrunn/Munich, Germany, PH 49-(0)89-4629-0; **StorageTek**, Louisville, CO, PH (303) 673-5151. ▦

Parascript Subsidiary Unleashes Mobile Forms Tool

HP among early OEM partners.

In his 1999 best seller, *Business at the Speed of Thought*: *Succeeding in the Digital Economy*, Bill Gates explained how **Microsoft** saved millions of dollars by switching from paper to electronic forms. Not surprisingly, Microsoft has developed its own e-forms software, InfoPath, which was released last month as part of *Office 2003*. InfoPath enables users to create and fill-in XML-based forms leveraging their *Word* applications.

This sounds great if you have access to a keyboard. But what about mobile workers? Microsoft's other big initiative in the past year has been its tablet computing technology. How does the mobile workforce get plugged into InfoPath?

Pen&Internet, LLC, may have the answer. The handwriting recognition software vendor and wholly owned subsidiary of **Parascript, Inc.,** recently released *riteForm*, an application that offers to automate the extraction of data from hand-filled forms. At **COMDEX** this week, Pen&Internet announced its first big North American OEM partner for *riteForm* —HP, which plans to bundle the *riteForm* technology, along with some forms design and printing controls, into a package for managing internal forms.

"Pen&Internet has been selected as the preferred vendor of ICR technology for HP's Forms Automation System (FAS)," explained Leonid Kitainik, general manager of Pen&Internet. According to a press release, HP will market FAS "to medium to large enterprises with more than 500 employees that have significant volumes of internal forms—including vertical markets such as finance, healthcare, manufacturing, and organizations in the public sector—and have a need for producing and processing their forms in-house."

This is not the first time Pen&Internet has worked

with a big name. In the early 1990s, the group worked with **Apple** to develop recognition technology for the Newton. The company also developed the *CalliGrapher* handwriting recognition application, which it licensed to more than 4,000 OEM partners before finally selling the technology to Microsoft in 1999. That technology currently appears in Microsoft's Tablet PC platform.

Kitainik gave *DIR* a demo of *riteForm*, which he said is based on the company's third-generation recognition technology. *riteForm* can be deployed in a couple of different ways. It can be designed so that users complete electronic forms displayed on a tablet or some other type of mobile computing device, which captures their pen strokes. It can also be designed so that users fill out paper forms with digital pens that perform the capture. In both instances the key to converting the pen strokes to accurate data is a combination of on-line, or vector-based, character recognition and lexical table look-ups.

Pen&Internet's riteForm leverages vector-based, or on-line, recognition technology to automatically process hand-filled forms.

"Between our company and Parascript, we offer the premier technology for recognizing both on-line and off-line handwriting," said Kitainik. "On-line handwriting is at least 20-25% more accurate. On a free-form with no table-look-ups, it is impossible to use off-line recognition. With on-line, you can achieve 80% accuracy. With on-line recognition, you can take into account dynamics, such as the direction in which a person is writing, that are completely lost when you are reading text from a frozen image."

In many ways, the *riteForm* application is designed like traditional OCR/ICR-based forms processing solutions. "Because forms are structured documents, many of their fields can be associated with a unique vocabulary or data table," said Kitainik. "Our plan is to license *riteForm* to systems integrators and OEM partners who can use it to design forms processing solutions. They will know the type of data that is relevant for particular form fields. Because building lexical databases for this type of recognition technology is still a bit of an art, we will help them

with that. There are even some tricks to recognizing something as straightforward as social security numbers."

In addition to HP, the Swedish systems integrator **Teleca** has licensed *riteForm*. Both companies are developing applications leveraging digital pen and ink technology developed by the Swedish firm **Anoto**. Vendors that currently license Anoto's technology for digital pen and ink hardware include **Logitech** and **Nokia**. They both market a pen that captures a digital trace of anything written with it. That digital trace can then be uploaded to the *riteForm* solution, which can convert the information to usable data. The upload can be accomplished by plugging the digital pen into a computer workstation or even through mobile protocols, such as Bluetooth.

Based on the pattern of the trace, *riteForm* determines which form template the data should be associated with. The paper forms are printed with special low-contrast characteristics to increase the accuracy of the recognition. "Teleca is transmitting the information from the pen to Pen&Internet; we are hosting the recognition process," said Kitainik. "We convert it and send the data back to them. The process takes about 20 to 30 seconds."

According to Kitainik, improving the timeliness and accuracy of reports filed by visiting nurses is one area that Teleca is currently experimenting with the technology.

Pen & Internet also has one partner that is developing an application similar to the electronic forms version of *riteForm*. (A demo of this type of application can be accessed at www.penandinternet.com/piweb/products/riteForm/rfr_demo.asp.) **Antelope Technologies**, which develops modular computing technology, has licensed Pen&Internet's *ritePen* recognition technology to develop forms applications for the medical and military markets.

In many ways, *riteForm* sounds similar to *Cardiff's Digital Ink Module*, which was introduced back in 1999 [*see DIR* 6/4/99] but never really got off the ground. That application was at least partly derailed by Cardiff partner **A.T. Cross**, which had trouble finishing a working version of the Cross Pad hardware needed to run the solution. Today's improved pen and tablet computing technology should rectify that problem.

Kitainik added that Cardiff's solution was also damaged by its attempt to use offline character recognition.

Pen & Internet is currently looking for more *riteForm* partners and is willing to work vendors and integrators of traditional forms processing technology that want to expand their offerings.

For more information: **Pen&Internet**, Sunnyvale, CA, PH (408) 746-9900, www.penandinternet.com.