

Document Imaging Report

Business Trends on Converting Paper Processes to Electronic Format

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October 22, 2004

THIS JUST IN!

CAPTIVA WAITING ON BIG DEALS

Captiva President and CEO Reynolds Bish took us through an interesting conference call explaining his company's third quarter shortcomings. Captiva pre-reported revenue of approximately \$15 million after forecasting results close to \$17 million. Bish said the shortfall is attributable to software deals that didn't close as soon as expected—something we've been hearing from quite a few public companies recently.

Specifically, Bish cited two seven-figure deals, including one with a retailer that "includes a large *Digital Mailroom* component." Sales of Captiva's much hyped *Digital Mailroom* software have been conspicuously slow, but Bish remained confident some would be reported before the end of the fourth quarter. Captiva was due to give its revised fourth quarter guidance this week.

* * *

Kirtas Finalist for Prestigious Award

Congratulations to **Kirtas Technologies**, which was recently named a finalist in the 2004 **World Technology Awards'** IT Hardware category. Kirtas was chosen as one of five finalists from a list of 15 nominees. The other finalists read like a Who's Who of the IT industry: **Google**, **AMD**, **Motorola**, and **Apple**—which was chosen as the winner. The awards were presented at the World Technology Summit held earlier this month in San Francisco. **Nasdaq**, **Microsoft**, **Philips**, **TIME**, and **Fortune** all participated.

Kirtas is the developer of a high-speed color imaging system for bound books [see *DIR* 8/6/04].

For more information:
<http://www.Kirtas-tech.com>; <http://www.wtn.net>

Conversion Services Caught In BPO Wave

The demand for document conversion services is up. Of course, with improved Internet services paving the way for an increasing number of offshore alternatives, supply is also on the rise. To combat price pressure brought on by the competition, traditional imaging service bureaus have had to expand and refine their offerings. The *Document Imaging Report* recently caught up with a pair of conversion shops that have successfully transitioned their businesses to compete in this new landscape.



Jon Boumstein,
president, *Data Dimensions*.

"It has become very challenging to make decent margins doing traditional imaging and data capture," observed Jon Boumstein, president of Janesville, WI-based **Data Dimensions**. "Over the past few years, pricing has become very commoditized. In some cases, offshore operations will throw out prices so ridiculously low, they can't be making money. Those types of bids end up hurting everyone."

According to Boumstein, North American service bureaus have been hurt by an increased acceptance of offshore outsourcing in general. "Many people thought 9/11 would sour U.S. business' taste for offshore outsourcing," Boumstein told *DIR*. "Ironically, the exact opposite has occurred. I've seen more growth in offshore services between 9/11 and now, than in any other period before. Health insurance and financial institutions, for example, had previously passed for the most part on using offshore labor. That mindset has changed dramatically."

The health insurance market has been Data Dimensions' specialty since the early 1990s, and 80% of its business now comes in that area. "To continue to grow our business, we have to be very innovative and

flexible," Boumstein told *DIR*. "This includes building different business models, adding tools, and increasing our services related to the documents we are scanning."

Automatic Recognition, Offshore Operations Reduce Costs

Regarding business models, Data Dimensions has taken an "if you can't beat 'em, join 'em" approach. In 2002, it opened two offshore facilities of its own in India. The company also maintains four U.S. facilities in the mid-west. "Our customers can reduce their costs by choosing to leverage our offshore operations," Boumstein told *DIR*. "For security or other reasons, however, some customers would rather keep their images in North America. Also, when sending images overseas, there is an 11-12 hour time difference you have to deal with. So, we also offer to handle everything in North America."

Data Dimensions still relies primarily on manual data entry but recently licensed automatic recognition technology from **Parascript** as a further means of reducing costs. "We are constantly evaluating new products and technology," said Boumstein. "We've tested everything in the OCR/ICR market but have struggled to find anything that could rival the accuracy of our manual operators. [Data Dimensions uses **Captiva's FormWare** application to assist its operators]. Parascript is the first recognition vendor whose technology has come close to rivaling the quality we get from a manual process."

Parascript, headquartered just outside of Boulder, CO, is best known for its address recognition installation with the **USPS** through **Lockheed Martin**. A couple years ago, Parascript began marketing more general forms processing technology to service bureaus. One of the hallmarks of Parascript's business is its innovative pricing model. Its USPS contract, for instance, is based on Parascript's ability to increase the accuracy of its application. "Data Dimensions' agreement with Parascript reflects more of a partnership than a traditional licensing model for technology or services," said

MORE CONSOLIDATION FOR SERVICE BUREAUS?

Could another wave of consolidation be coming in the conversion services market? **Data Dimensions** President Jon Boumstein thinks so. "I just don't think there is enough demand to support the large number of offshore service bureaus that are popping up," observed Boumstein. "Remember in the 1990s, **Lason**, **SourceCorp** [then known as F.Y.I.], and **ImageMax** started out as roll-ups of U.S.-based service bureaus. I think we are going to see something similar with the offshore companies. I see a lot either folding up or becoming part of some sort of sweeping consolidation."

Boumstein acknowledged that he was approached more than once during the aforementioned North American rollup period. "We just didn't think that being acquired would take our business or our customers where they wanted to go," said Boumstein.

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DIR is the leading executive report on managing documents for e-business.

Areas we cover include:

1. Scanning
2. Forms Processing/OCR/ICR
3. Integrated Document Management
4. Content Management/XML
5. Document Output
6. Storage
7. E-Commerce

DIR brings you the inside story behind the deals and decisions that affect your business.

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Boumstein.

Data Dimensions is currently using Parascript's technology to process unstructured forms related to a government contract. "The forms are more complex than health care claims, and we are doing full-text OCR and ICR on them," said Boumstein. "We are achieving about 70% field-level accuracy. This has decreased the time we spend keying data from more than 2 ½ hours per day to less than 45 minutes."

Data Dimensions is currently working on integrating Parascript's technology into its health care claims operations.

Expanded Services Include Digital Mailroom

In addition to offering reduced costs, Data Dimensions is also offering an expanded set of services.

"Additional services can include archiving, adjudication of health care claims, managing customer relations, and other back office activities," said Boumstein. "We've also recently introduced a digital mailroom offering."

Data Dimensions is the latest business to jump into the much publicized digital mailroom space. Data Dimensions has partnered with New York City-based software vendor **MailSurity** and has opened an office in Secaucus, NJ, focusing on scanning mail. MailSurity's patent pending software is designed to identify the intended recipient of a piece of mail. Leveraging this technology, Data Dimensions is offering to receive all of an organization's incoming mail, scan it, post the images on a secure Web server, and notify the identified users that they, indeed, "have mail."

Data Dimensions currently has two pilot customers for its digital mailroom, each of which is receiving approximately 6,000 pieces of mail per day. "We are honing our delivery model to best tie the mail into our customers' workflows," said Boumstein.

Imaging Expertise Still At A Premium

Integrating with workflows is also one of the main foci of **3SG**, a Columbus, OH-based service bureau that processes approximately 400,000 documents per day. 3SG has 500 customers spread across several markets with the majority of its business coming from a combination of government and insurance contracts.

"When most businesses implement document imaging for the first time, they go online, buy a



Jim Welch, VP of sales and marketing, 3SG.

scanner and a server, and have at it," observed Jim Welch, VP of sales and marketing for 3SG. "They don't realize the types of bottlenecks they are going to encounter. Even if they figure out a system to handle their day forward operations, they eventually want to get their backfiles online. That's when they call in a service bureau."

According to Welch, the pressure to make documents accessible online is the number one issue driving growth in conversion services. "Compliance concerns may be a factor, but at the end of the day, people just need information faster," he told *DIR*. "In the insurance market, for example, all the big companies now have online document repositories. If smaller companies want to stay competitive, they can't tell customers they will call them back in a few hours after they locate a paper file."

Like Data Dimensions, 3SG owns offshore operations. And like Data Dimensions, 3SG has generally eschewed automatic recognition technology. "We will continue to take OCR/ICR technology with a grain of salt until it becomes more accurate and robust," said Welch. "We rely primarily on keying and database lookups. If OCR/ICR technology were more robust, it could potentially be less expensive than our current methods. However, we are very hung up on quality."

According to Welch, this obsession with quality is reflected in the fact that 3SG "push feeds" each document it scans and then views it on a 17-inch monitor before passing it through for processing. "We have refined our processes over the years, so that despite these extra steps, we accomplish all of our scanning using just five [**Böwe**] **Bell Howell** 8125 scanners," said Welch.

3SG relies on a capture platform known as the *Paragon Data Suite* (<http://www.paragon-partners.com>), but is currently looking at alternatives. The company also has an **ImageRight** (<http://www.imageright.com>) repository where it can host its customers' images. "We don't have an exclusive deal with any software vendor," said Welch. "We have integrated our capture service with software from almost any document management vendor. Image delivery is our focus."

3SG advertises that it can deliver images in a variety of ways to a variety of systems. "We can even host images ourselves and make them available



Ishreth Sameem, CIO, 3SG.

through our customers' application interfaces," said Ishreth Sameem, CIO of 3SG. "One of the trends I'm seeing is that our customers, especially in financial institutions, might have multiple-step capture processes and are asking us to perform just a couple of those steps. We might do the capture and clean-up, while they do their own data extraction and verification."

According to Welch, 3SG's imaging-centric focus gives it flexibility and expertise that its larger, more diversified competitors can't offer. "We've set up our business so we can expand and contract very quickly to handle varying volumes," he said. "We can increase our capacity by 50% in two weeks based on demand. Also, we provide consulting focused solely on document processes. We have become so adept at identifying potential ROIs that, by the time we leave a prospect, it's usually not a question of if they can use us, it's a question of do they have the money in the budget. I'm not going to kid you, it's not inexpensive to redo a document process—but I'll give you an example of some of the hidden ROIs that we've discovered.

"We had one customer that, in their mind, was spending \$1,000 per month on off-site storage to handle their past two years worth of documents. By the time we finished assessing the situation, we convinced them to spend \$15,000 per month for an imaging system—this includes amortized costs to cover backfile conversion—and, even at this price, we calculated they would be saving \$10,000 per month on document costs. That gives you an idea of how badly businesses can underestimate their document management costs."

The New Competitive Landscape

Both Data Dimension's and 3SG's stories illustrate the fact that it's truly not your father's service bureau market anymore. This realization hit us hard during the past month while we were trying to do some research for a marketing firm. This firm had contacted us regarding the size of the imaging conversion services market.

After talking to several people we thought were involved in this space, we came to realize, this segment—as we defined it—is becoming extinct. Way back when, conversion services started out as a means of consolidating paper storage on microfilm. When microfilm was transitioned to digital storage, it changed the playing field. As successful imaging software vendors learned years ago, once an image is digitized, it's a dynamic piece of information that can be integrated with other applications. It's this integration that produces eye-popping ROIs.

As service bureaus realize this, they are being

enveloped into the more general business process outsourcing (BPO) space, where imaging becomes just a piece of more complex processes. The wildly successful **ACS** was one of the first to deliver on this imaging-as-a-piece-of-BPO model, and now others are following suit. Based on ACS' success, they are probably not a bad role model.

For more information:

<http://www.datadimensions.com>;

<http://www.3SG.com> **DIR**

Patents Help Kodak Recoup Imaging Losses

It turns out **Kodak's** acquisition of the software division of **Wang Laboratories** might not have been "The \$260 Million Mistake," we originally made it out to be [see *DIR* 9/15/00]. Kodak's recent win and settlement of a lawsuit against **Sun Microsystems** actually involved patents picked up from Wang. The settlement will net Kodak a cool \$92 million in cash from Sun. It also helps validate Kodak's intellectual property and could set the stage for additional licensing agreements from other high-tech businesses.

The suit involved three patents filed with the **U.S. Patent Office** between April 1991 and May 1993 and granted to Wang between July 1993 and May 1995. Their numbers are 5,226,161, 5,206,951, and 5,421,012. The patents use terms like "object manager," "invocation," and "interaction." According to an AP story, "Kodak's patents describe a method by which a program can 'ask for help' from another application to carry out certain computer functions." Kodak alleged that Sun's Java-based technology was in violation of these patents. Two weeks ago, a jury agreed.

According to reports, Kodak was set to file for more than \$1 billion in damages before the \$92 million settlement was announced—a couple days after the jury decision. Sun made a statement that the settlement does not acknowledge guilt, but merely protects its Java customers from uncertainty. The settlement does, however, create some uncertainty in the rest of the software community. One source ventured that the Kodak patents are so vague and broad-reaching, they could arguably be applied to the concept of computer processing.

Who's Next?

Who Kodak will go after next is unclear, although **Microsoft**, which has introduced its .NET platform as an alternative Java, appears safe. It seems that Microsoft, **IBM**, and **HP** have already signed licensing agreements with Kodak regarding the

patents in question.

Sun's settlement with Kodak is ironic because earlier this year in a high profile case, Microsoft agreed to pay Sun some \$2 billion related to patents and intellectual property issues. The Kodak and Sun settlement is just the latest in a series of highly publicized settlements related to software and technology patents in the past year. In May, **Forgent Technologies** announced it was suing a number of imaging technology vendors, including Kodak, regarding compression techniques used to create JPEG images. And of course, the forms processing and document capture industry has been hit hard by claims pertaining to patents owned by **Millennium, L.P.** [see *DIR* 1/9/04]. A second company with document imaging patents, **Digital Imaging Systems**, has also gotten into the act [see *DIR* 5/21/04].


While \$92 million may not seem like a lot for Sun—based on the settlement it received from Microsoft—the real loser in the recent rash of patent litigation could be innovation. A fear of impending litigation brought on by billion-dollar companies with teams of lawyers could be paralyzing to any small business attempting to develop what it thinks is a new technology. As a result, many reformers are calling for an end to patents related to software.

Of course, the fact that most start-ups developing new technology don't have any money probably works as protection for them. It's our opinion that, as long as it's the big boys that keep exchanging the cash in these cases, innovation will continue unchecked.

Speaking of big money, this settlement with Sun is yet another positive sign that Kodak is finally learning to play in the digital age—a sentiment we first reflected on in our last issue. Seven years ago, Kodak got taken for a ride by a pair of digitally savvy companies—Microsoft and Wang, who sold Kodak a bill of goods about Microsoft's future focus on document imaging and workflow. Kodak spent \$260 million to acquire a \$60 million business from Wang. Under the name Eastman Software, that business was at one time reportedly losing \$12 million per quarter. Four years ago, Kodak sold its imaging software business for an undisclosed amount to **eiStream**, but apparently held on to some very valuable patents.

We haven't been able to find anyone to comment on how the patented technology manifested itself in Eastman Software's offering. However, Kodak seems to have done a good job explaining to a jury how it manifests itself in Java. Good for Kodak, and welcome to the digital age and all the funky

litigation that goes along with it!

For more information:
<http://www.uspto.gov/patft/index.html> 

IBM Focuses On Records App For The Enterprise

Automation and scalability are characteristics associated with enterprise content management (ECM) applications. As traditionally parochial records management (RM) software emerges as an integrated part of the ECM infrastructure, these two areas need to be addressed. At the recent **ARMA Conference** held in Long Beach, **IBM** introduced the latest version of its *DB2 Records Management* software, which has been specifically upgraded to do just that.

Following ARMA, *DIR* caught up with Bruce Miller whose title is e-records strategy and business development executive for IBM. Miller was the founder of **Tarian**, the RM company that IBM acquired back in 2002 [see *DIR* 11/15/02]. Miller talked with us about trends in the RM industry and what IBM is doing to address them.



Bruce Miller, e-records strategy and business development executive, IBM.

"One of the biggest changes in recent years has been the increasing interest in records management outside the government sector," Miller told *DIR*. "Prior to 2002, 80% of the end users I dealt with were in government, and 20% were in commercial industries. Now that has flipped, and 80% of our customers are commercial enterprises."

To his credit, Miller was one of the first to envision the integration of ECM and RM. He launched Tarian with the goal of marketing his software as an OEM application to be embedded in ECM solutions. At that time, he told *DIR* existing RM applications just weren't built to scale for the volume of records stored in ECM systems. Since then, the increased focus of managing e-mail messages as records has put even greater demands on RM applications.

"More and more decisions are being recorded and communicated through e-mail," Miller told *DIR*. "These decisions constitute records that can hurt businesses if they are not managed properly. Many of our customers are pointing to their e-mail and saying it is the first thing they want to get under control."

"Of course, classifying e-mail messages as records can increase the volume of records exponentially. We've had customers ask us to benchmark our technology at 10 million records per day."

To accommodate this increasing volume, IBM has enabled its disposition technology to be completely run on a server. "The most important function of records management software is the destruction of records once their required holding period expires," Miller told *DIR*. "This is known as disposition, and it can be a very computer intensive process. It involves checking all the records for extended legal holds and then deleting the ones that are cleared for elimination."

"Traditionally, client software has been used to activate this process. Users end up with hour glasses on their screens as disposition functions are performed. When dealing with millions of records, disposition can take hours. And while the hour glass is showing, there is no way to measure, monitor and control the process. You are basically praying that it is working. By moving disposition onto the server, we've eliminated these issues."

Commercial Market Requires Auto-Classification

IBM has also tackled the challenge of automating records classification. "In government installations, you may get away with expecting users to take the time and effort to manually classify their documents as records," Miller told *DIR*. "In the commercial market, those types of expectations can be a non-starter."

To solve this, IBM has tightly integrated its records management application with the meta data fields in its content and document management applications. "The meta data in specific fields can be used to automatically classify users' documents as specific types of records," said Miller. "We've also improved our APIs to make it easier to leverage meta data in homegrown or third-party document repositories."

As far as e-mail goes, because its meta data is not as rich as in document repositories, Miller said IBM is currently relying on other methods to automate classification. "For example, a customer may keep all its e-mails in *Exchange* for 90 days," he said. "After that, they may be moved to an archiving solution, at which point we can automatically declare them as records and manage them accordingly."

Miller is currently looking at content analysis technology that could be used to pare down the number of an organization's e-mails that are

classified as records. "That type of technology is not quite ready yet, but I think I have found one vendor that is very close," he said. "We are doing tests, and it's our full intention to add content-based automatic classification as soon as possible."

Compliance Is The Catalyst

These new features are designed to take RM from a niche application to an enterprise-wide requirement. According to Miller, this type of transition is already taking place at the Global 1000 customers he focuses on. "Initially, customers typically install records management to address a specific compliance area like Sarbanes-Oxley, Section 404 or SEC Rule 17a-3/4," said Miller. "However, the CIOs and other people buying the applications have the attitude that, eventually, they will expand it to manage a more general selection of records."

"This attitude is being driven by an increased awareness of the risks involved with poor records management. Randy Kahn [author of *Information Nation: Seven Keys to Information Management Compliance* <http://www.kahnconsultinginc.com/library/infonation.html>] and others have done a great job of educating the market. We've also seen an increasing trend of plaintiffs suing in cases where they know a settlement would be less expensive for a defendant than the discovery associated with the case. Proper records management can act as protection against

WORM STORAGE ISSUES COULD COME TO A HEAD

There is an ugly secret in the records management market, which **IBM's** Bruce Miller thinks will be exposed within the next year. It's the fact that the WORM storage hardware being sold to address regulatory compliance concerns is not fully compatible with the records management software being sold to address the same issues. "The main purpose of records management software is to delete records after their regulated retention period expires," said Miller. "However, you can't delete records from WORM storage devices without destroying or reformatting the disk."

"This means if a user has files with retention periods spread out over a period of time stored on one WORM disk, it is forced to keep all those files until the file with the latest retention date can be deleted. In some cases, legal holds on specific documents can extend retention periods indefinitely. We are going to have to come up with a way to manage these types of situations, because sooner or later it's going to come to a head. A customer is going to say, 'I just bought a brand new storage system and a brand new records management application to deal with my compliance issues, and you mean to tell me they can't work together?'"

this by greatly reducing potential discovery costs.”

For more information:

<http://www-306.ibm.com/software/data/cm/cmgr/rm/> **DIR**

German Claims Processor Deploys Innovative Solution

German service bureau **BKK Abrechnungszentrum Emmendingen** (ARZ BKK) has implemented an innovative system being used to process between 30,000 and 40,000 variably structured forms per day. BKK is a subsidiary of BKK Group, one of the largest health insurance companies in Germany. ARZ BKK manages data entry from paper documents including medical forms and invoices from a wide variety of sources.

“In the past, we’ve installed software to handle invoice processing mainly in traditional accounts payable departments,” said Gideon Shmuel, general manager of European operations for **Top Image Systems (TiS)**. TiS is the forms processing software vendor, whose application is at the center of the ARZ BKK solution. “However, ARZ BKK’s documents are much more difficult to handle than what we’ve done before. The medical forms come in a variety of shapes and sizes. The invoices come from a range of businesses, from physical therapists to auto insurance companies—two businesses whose invoices look nothing alike.”

The document images are captured in grayscale with three **BancTec** S-Series scanners. They are released to TiS’ *eFlow* platform which performs thresholding before bi-tonalizing the images to increase OCR accuracy. Full-text OCR is applied, and a series of business rules is used to determine the nature of the forms. In addition, a specialized database lookup application from German software developer **Exorbyte** has been deployed to increase data capture accuracy.

“In the BKK project, our software processes 10-15 pieces of data per second against a database with 25 million clients,” said Gero Lueben, CEO of Exorbyte. “We have a quality ranking that can be finely optimized and tuned to determine whether an image should be passed on to a manual operator along with some suggestions, or passed through as accurate. From talking to our customers, we understand our software can double the accuracy rates in some forms processing applications.”

Exorbyte was founded in 2000 by a former **Siemens** employee with experience in the forms processing market. The company also offers

solutions for fuzzy search and retrieval of information. Exorbyte works mainly through OEM and reseller partners.

In addition to Exorbyte’s technology, ARZ BKK is currently implementing advanced image processing software from another German software vendor—**LuraTech**. LuraTech, which was featured in our Sept. 17 issue, develops technology for segmenting and compressing document images. Initially, LuraTech’s segmenting technology is being applied to improve OCR rates by separating text from the background of grayscale images. By the middle of next year, ARZ BKK is considering installing color scanners and saving color document images in a highly compressed PDF or JPM format.

With the current system, which went live in April, ARZ BKK is expecting to achieve an ROI in less than 12 months. “We are increasing the volume of documents we are processing by adding more branches of BKK’s business portfolio,” said Gerhard Eichenbaum, the head of ARZ BKK. “We expect to be able to process 100% more documents by adding only 50% more staff.”

As for TiS, Shmuel views the ARZ BKK application as its entrée into the healthcare space. “Semi-structured forms applications are not new for us,” he told *DIR*. “However, until this point, we’ve focused mainly on the financial services world.”

For more information: <http://www.exorbyte.com/>; <http://www.topimagesystems.com> **DIR**

Asaca Introduces High-Density Optical Library

Asaca has announced the first jukeboxes for managing bare, blue laser optical disks. Asaca, which has a long history in the optical library market, has embraced **Sony’s** PDD (Professional Disk for Data) technology in its new line of TeraCart libraries. PDD is the high-density optical storage format that Sony introduced at **AIIM 2003** [see *DIR* 5/7/03].

The first generation of PDD features 23.3 GB of data on a single-sided disk. It is being marketed for the same type of applications as UDO technology, which **Plasmon** began shipping late last year [see *DIR* 11/21/03]. According to Chuck Larabie, VP of sales and marketing for Asaca/ShibaSoku Corporation, his company looked at UDO before choosing PDD.

“Because UDO media requires a cartridge, it takes

up more room in a library than PDD, which can be deployed with or without a cartridge," Larabie told *DIR*. "You can fit three to four bare PDD disks in the same space as one UDO disk. This enables us to offer greater storage capacity than UDO in a similar-sized library and reduces end users' total cost of ownership."

Larabie also cited PDD's 120mm form factor as potentially leading to a drop in media price that could further reduce TCO. "The 120mm form factor is the most common media format known to man," Larabie told *DIR*. "This popularity helped drive down the costs of DVD and CD media. Related to this, the DVD library business has been growing in recent years, while the MO business [which is based on a 130mm form factor] has been shrinking."

"We consider UDO [which has a 130mm form factor] to be the natural successor to MO. We realize it will win some business based on that legacy, but we see a 130mm strategy as short-sighted. Manufacturing facilities currently producing other 120mm formats will be able to utilize their existing facilities to produce PDD media. As more of them obtain licenses for PDD technology, it will drive the cost down."

Initially, the first generation of PDD is listing for \$45 per disk, which on a price-per-gigabyte basis is comparable to the first generation of UDO, which lists for \$60 for a 30 GB disk. Plasmon has told us it expects the capacity of UDO disks to double every two years through 2007 [when third-generation

UDO technology is scheduled to be released] with the cost per disk remaining the same. The initial PDD roadmap calls for a similar rate of capacity increases, although, according to Larabie, Sony has already demonstrated 200 GB PDD technology—a capacity he says Plasmon will be hard pressed to match with the lenses in its current UDO drives. The future price of PDD disks is open to speculation.

Larabie stressed Sony's message that, unlike CD and DVD technology, which some considered too unreliable and lightweight for critical data storage applications, PDD is designed specifically for that market. "CD and DVD are primarily consumer-oriented, so they have some shortcomings in mass storage applications," said Larabie. "We had to make some adjustments before adopting CD and DVD in our libraries. PDD is designed as an industrial technology. We think it has the potential to provide all the benefits of UDO at the lower price point traditionally associated with DVD and CD."

Larabie concluded by saying the most important battle for Asaca and PDD is not against UDO, but against the magnetic storage and tape giants. In recent years, these vendors have moved their considerable development and marketing resources into the archiving space formerly dominated by optical disk. "UDO and PDD both offer durability and long-term properties that magnetic and tape storage don't have," he said.

For more information: <http://www.asaca.com>; chuckl@asaca.com **DIR**

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