

Digicash Eager to Reap Latent Ecash Harvest

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Digicash Inc., at the ripe old Internet age of seven, is doing the California thing.

The pioneering digital commerce company has undergone a face-lift, negotiated an amicable "virtual separation" with its founder, and started a new life on the left coast.

It faced up to-rather than argued against-its image as an also-ran. It now faces what chief executive officer Michael C. Nash describes as "a hard job."

"It was important to investors that we make a statement," said Mr. Nash, whose arrival as president and CEO eight months ago symbolized the start of the new era.

A big part of that statement was establishing corporate headquarters in the high-technology heartland of Palo Alto, Calif., amid an abundance of essential engineering talent and within sight of the venture capital sources that keep Silicon Valley humming.

"The idea was to establish the company as a more credible player," Mr. Nash said, "not a seven-year-old company that isn't doing anything."

Mr. Nash, 46, who spent most of his career with American Express and Visa, conceded in a recent interview that "there are still not a huge number of customers and merchants" using Digicash's highly secure and anonymous Ecash system for Internet purchases. That is in large part a reflection of the immaturity of the market for information and goods that lend themselves to micropayments-transactions of a few dollars to a few cents, which would be uneconomical for credit cards.

A competitor, Cybercash Inc. of Reston, Va., had enough credibility to go public amid last year's Internet stock boom. But Cybercash's electronic- cash product, Cybercoin, is also still in the fledgling stage.

Digicash's biggest problem may have been that David Chaum, the American- born cryptographic scientist who started the 40-employee company in Amsterdam, anticipated a demand for micropayments-for buying, say, on-line documents or software or pieces of music-long before it materialized.

Mr. Nash said he sees such a market blossoming over the next year and is eager to take it on.

"In one or two years we will either have made the cut or not," he said. "I am optimistic. Every time I talk to people about this space, I realize how good our technology is.

"In one year, we will be taken more seriously as a global payment system than we are today."

Digicash faces skeptics, as it has from the beginning, but they cannot discount its money in the bank.

Digicash's financial details remain private, but its backing is blue- chip-constituting another of those hopeful credibility-enhancing statements.

Leading this year's capital infusion were Applied Technology Investors and its general partner, Massachusetts Institute of Technology Prof. Nicholas Negroponte, and August Capital of California and its general partner David Marquardt, an early investor in Silicon Valley success stories Intuit, Sun Microsystems, and Verifone, and the sole venture investor in Microsoft Corp.

Funds also came from European and Asian institutions, which were no doubt comfortable with a board that includes Prof. Negroponte as chairman, Mr. Marquardt, Mr. Nash, and Mr. Chaum.

"We have a good blend of directors, and with our investors we have both (U.S.) coasts covered, as well as international sources," Mr. Nash said. He called Mr. Negroponte "the nicest guy I've ever worked with. His considerable connections open doors for us, and I get a lot of follow-up activity from him."

Mr. Chaum has stepped into the role of chief technology officer, a move not atypical for a high-tech company past the start-up stage. The Amsterdam office remains intact, better to serve Digicash's relatively high concentration of clients in Europe. But Mr. Nash said most growth will be in the United States.

Now fully focused on research and development, Mr. Chaum is "looking to the future, working on what you'd call the next version," Mr. Nash said. "It's best to let David be David," which presumably became difficult while Mr. Chaum also was trying to run a corporation.

Despite his serious scientific credentials and a string of technical and business accomplishments, Mr. Chaum never shook his reputation as a somewhat loopy privacy fanatic. He closed a few deals with major European banks, Deutsche Bank foremost among them, but could not crack the top tier in the United States.

Mr. Nash was recruited not just because of his knowledge of advanced payment systems-he helped devise the Visa Cash stored-value smart card and got an up-close look at the competing Mondex system while working for Amdahl Corp. in 1996-but to instill what Mr. Negroponte termed "professional management."

Mr. Nash is trying to fill at least two senior openings: a marketing executive and chief financial officer.

"The company is moving from a disorganized research group to a viable company selling product," Mr. Negroponte, the founding director of the MIT Media Lab and author of the best seller "Being Digital," said in a typically frank series of responses to e-mail inquiries late last month.

He called Mr. Chaum "enigmatic and hard to know" but "brilliant and a true leader in his field. David has to find his role naturally." Mr. Negroponte, who once termed Ecash "the most exciting thing I've seen in 20 years," said he was confident the Digicash founder would put his qualities and interests "to work ... for the success of the company."

"Digicash has always had the best technology but was the worst company," the professor said. "Mike Nash is changing that.

"What this says to me about the future is: Work with big partners when you have big ideas. Digicash is a very big idea."

So, where is the (virtual) money?

Mr. Nash, Mr. Negroponte, and any other Digicash booster will say the answer lies in their technology and Mr. Chaum's patents, and they have faith that their intellectual property will prevail in the end.

Mr. Nash said he marveled at the system in the personal "due diligence" he did before accepting the job. "Nobody has found a security flaw," he said.

Deutsche Bank, he said, would not have signed on without subjecting Ecash to a "line-by-line code review." The system passed in flying colors and is available for on-line payments in Germany.

Bank Austria, Den Norske Bank of Norway, Advance Bank of Australia, and Nomura Research Institute in Japan are among the other users. The only U.S. bank to issue Ecash was Mark Twain Bank of St. Louis; the program is continuing on a small scale within Mark Twain's new parent, Mercantile Bancorp.

Even though Mark Twain "didn't have the muscle to make it happen" on a larger scale, "it helped us to educate regulators and to demonstrate how easy it is to operate the system," Mr. Nash said.

"People worry that micropayments will be too expensive to support," he said, "but Ecash is dead simple. The bank operates it, there is no third party, it deals direct with the customer. There are no huge data engines to run it. We're quite comfortable the system can scale-even if somebody wanted to put 20 million people on it."

Outside observers don't question the technology, just the market.

Research by Global Concepts Inc. of Atlanta has found some interest in the Internet audience for digital cash, which in the case of Ecash looks like coins on a computer screen. The strength of the system is in the accounting of which coins have been issued, paid, and received-and preventing reuse of spent coins.

But to this point, credit cards are the overwhelming payment choice among on-line shoppers, even before the introduction of the Secure Electronic Transactions protocol that MasterCard and Visa designed to reassure the public about security.

Global Concepts director David Stewart said Ecash suffers by being "locked on the Internet." It's different from MasterCard International's Mondex system, he said, in that the virtual cash cannot easily transfer over into physical form, or back.

He said the biggest demand for the anonymity that an Ecash-type system affords would come from the shadier corners of electronic commerce- pornography and gambling.

"The biggest problem is that there is usually nothing to sell," said Bill Burnham, senior electronic commerce analyst at Piper Jaffray Inc., Minneapolis. "Paying a 10th of a cent for two words of an article is like walking into a store and buying a single raspberry.

"The U.S. economy is not built to produce items to be bought in micropayments."

Mr. Burnham's hyperbole aside, he leans to the view that accountable, authorizable, on-line electronic cash systems will prevail over the next 10 years. He is less sanguine about nonaccountable systems that satisfy "anonymity purists." He described Digicash's Ecash as accountable, on the plus side of his ledger; others have viewed it as nonaccountable or un-auditable, which would put it in the class of Mondex, about which Mr. Burnham is less positive.

Mr. Nash wants to put the definitional questions to rest: "We offer user anonymity on an audited system."

Those dual qualities were important to regulators in continental Europe, where, Mr. Nash was quick to point out, Mondex has failed to win a major adherent. "Our system is the only one with genuine privacy. And if our cryptography was broken, we'd know immediately," in possible contrast to the off-line aspects of the Mondex smart card system. "You can bet every hacker in the world will be seeking bragging rights to be the first to crack Mondex."

Mr. Nash also wants to refute the belief, reflected in Mr. Stewart's comment, that Ecash is "locked on the Internet."

Smart cards are a big part of Digicash history and may be big in its future. Digicash supplied the CAFE system, a futuristic chip card demonstration project at European Union headquarters in Brussels. It was also a contractor to MasterCard on smart card efforts that preceded its decision last year to acquire 51% of Mondex.

Digicash developed an operating system, called Blue, that Mr. Nash said "was doing everything two years ago that Mondex is talking about now" in its Multos multiple-application system.

"Our focus now is Ecash," he said. "It is a working product, with tested code, and has operated on the Internet for five years if you include Cyberbucks," a test version. "We are actively seeking banks that want to join us to promote it to their customers.

"We do have a huge amount of skill in smart cards," Mr. Nash went on. "We may be the only company that can do a smart card transaction in 18 millisecond, which would be suited to a high-speed toll road, for example.

Digicash missed out on being a smart card operating system supplier, but Mr. Nash said it has much to contribute as an application developer and potential integrator of chip cards with Ecash. If a bank needs software to run on both Visa's Java-based platform and MasterCard-Mondex's Multos, "we can write it," Mr. Nash said.

The company developed compression techniques that, he said, enable a 3 kilobyte chip to do all that a 6K chip can do. "We can put a dozen applications on a 16K chip," the most advanced now being produced for cards. "We can do public key cryptography on a chip that costs 65 cents," at least a few dollars cheaper than most of the industry is talking about.

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The talk about lowering the cost of a chip card "doesn't make us popular" among the card manufacturers, Mr. Nash said. But he contends change in consumer behavior and card economics will come gradually, and the cost base should stay as low as possible.

"The industry's vision gets fulfilled when there are lots of applications to deliver, and in that we may have a role to play," Mr. Nash said.

"It took 10 years to figure out how to make credit cards profitable. It isn't hard to see how to make money on stored value. It's just hard to do and no one has done it yet."

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