Transforming DVC from a Tool into a Solution

by Mike Pihlman, ITS

My old partner Renee calls me a nerd. I suppose I am. I'd much rather play with technology than do just about anything else...except maybe run. I'm especially ignorant of business and marketing. My friend Jay, on the other hand, understands all about this stuff, and after endless hours of trying to get me to understand (or care to understand) the difference between vertical markets and horizontal markets, he just about gave up. Then, at DVC'97 West, out of the clear blue sky I understood.

Let me see if I've got this right: A product aimed at the horizontal market can be adapted or modified to be used for anything you want it to be used for. To me, a Swiss Army Knife is such a product. It can be a bottle opener, a saw, a scissors, a knife or a screwdriver. It can even open a wine bottle. On the other hand, a product made for a vertical market addresses a need of a particular market. A corkscrew was designed for the wine drinkers of the world. Beer drinkers find no use for it.

Desktop videoconferencing is a Swiss Army Knife. I can see the commercial now: "Act now, and for only $29.95 we give you video, we give you audio and we give you data." I was walking the booths at DVC and saw a whole lot of Swiss Army Knives. Virtually everyone was showing a horizontal technology. If I were a teacher who happened to pop in to walk the exhibit floor, would I have seen something that meant anything to me? How about a travel agent or a photographer or a real estate agent or a policeman or a banker? The answer is no. Yet desktop videoconferencing can have a profound effect on all those people. We just don't know how to show that impact.

What do I use it for? Why do I need it? What value does it add to my life or my work? These are the real questions people ask. They are good questions, and I have tried to answer them since embracing this technology way back in 1992. But they are very *hard* questions to answer. I am, after all, a nerd. I may have helped design a thingamajig that gives you all this great capability, but *you* have to decide what to do with it.

It's clear that this approach does not work. Builders of this technology must start focusing on how DVC can be used. We need to spur the imagination of those who do not understand the technology as we do. Once people understand how DVC can be used in their life and in their work, more applications will bubble up and everything will expand from there. We also need to enlist the help of our software application partners and friends to develop easy-to-use applications for vertical markets.

Make a copy of this article and give it to folks in the businesses listed below, to some starving Java programmers and to a venture capitalist or two and see if we can make DVC happen in areas not yet explored!

The Venerable Applications

It's not just new applications that need to be addressed, but the old standards as well.

Telecommuting (Videocommuting): I simply do not understand why telecommuting has not taken off. Every morning I watch KPIX Channel 5 in San Francisco (Hey, Roberta!), and see the roads filled with cars all going to work at a prescribed time. To have to travel in bumper-to-bumper traffic for two hours in the morning and two hours in the evening just does not make sense, especially when you could have been working (as I am now) for those two hours. Certainly, some people cannot telecommute and some don't want to (or their bosses won't let them), but just about anyone with a cellphone stuck to his or her ear is a likely candidate. And that would virtually clear the roads.

Telecommuting benefits the employer, the employee and the environment: increased productivity, higher
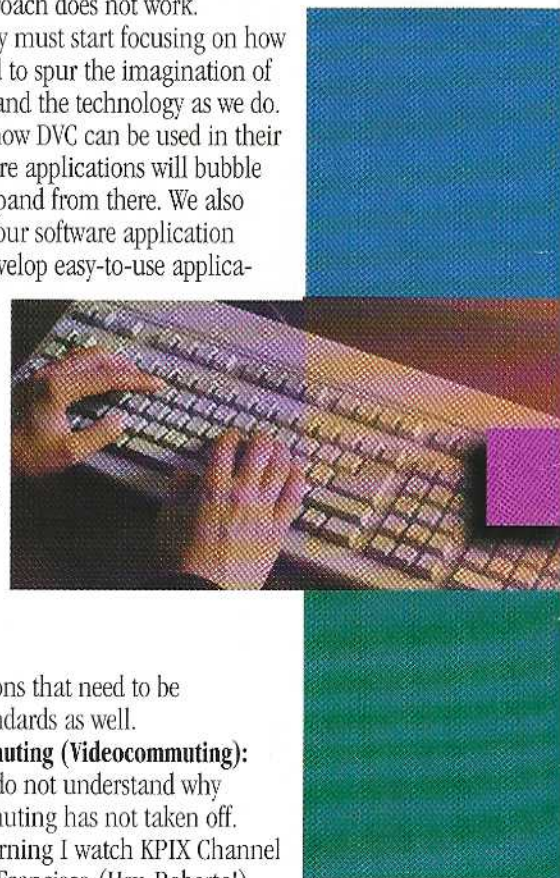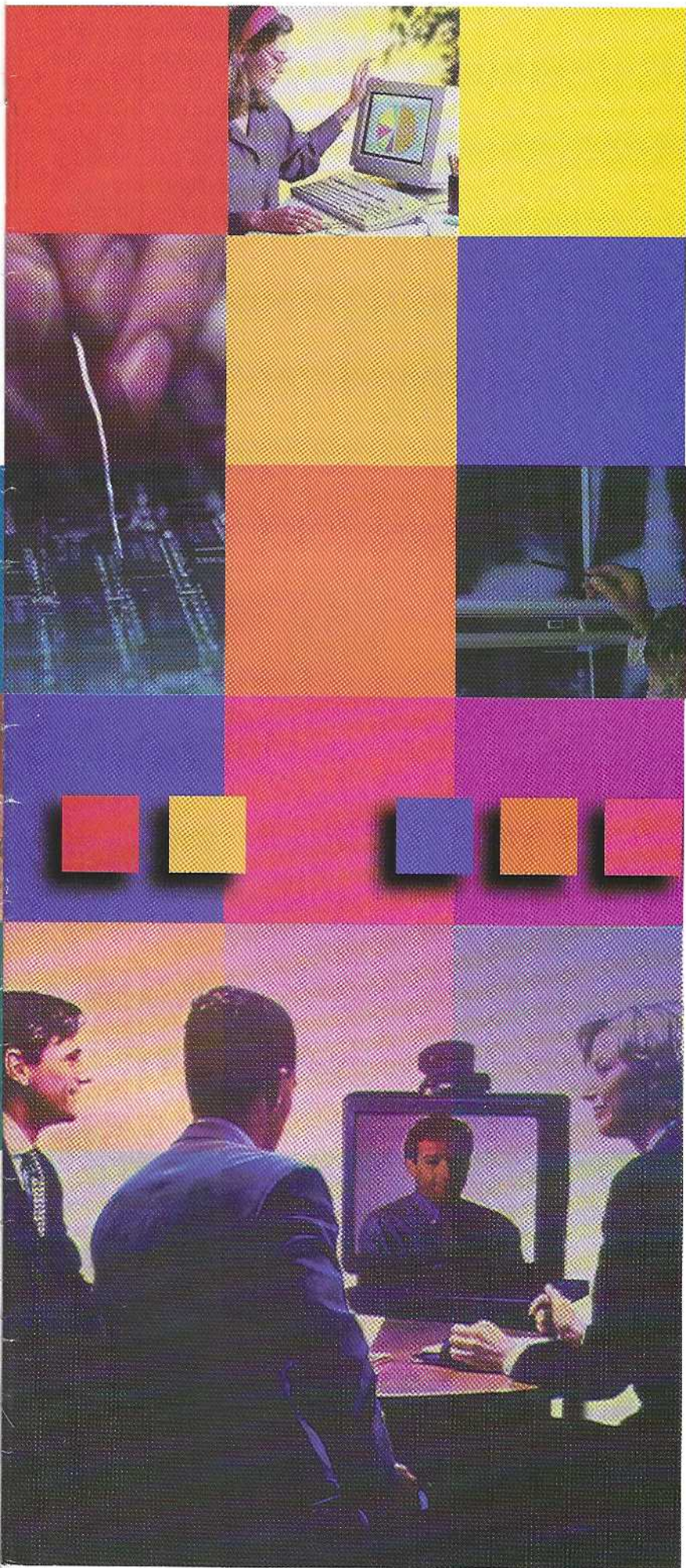
morale, decreased traffic, decreased emissions, reduced stress, lower costs and much more. Studies have shown that an effective telecommuting program consists of the telecommuter working at home one to two days a week. Telecommute any more than that and the disadvantages start to become apparent. Some of these include: out-of-sight out-of-mind, fear of losing out on promotions, supervisors' fear of losing control, loneliness and isolation. Intelligent use of desktop videoconferencing can add to the effectiveness of telecommuters, and may possibly permit them to telecommute full-time, if they so choose.

But let's not just give telecommuters a Swiss Army Knife; they will never use it to the fullest capability. Throw some Java programmers and pizza and beer together with a development kit and let them build applications that tie many business functions together into a "telecommuter" application for a PC and Mac (Java is multiplatform). We need email, we need to surf the Net, we need to work collaboratively with a co-worker on a document, we need to print, cut-and-paste, make phone and video calls, receive phone and video calls, and make copies.

The telecommuter package combines DVC with all the other functions in a neat package—a package that can be modified easily to suit a particular company or need.

Distance Learning: ILINC (Troy, NY) has a gem of a product. It was shown at DVC'97 West. Did anyone besides me see it? ILINC has developed a distance learning program based on Intel ProShare. With this software you can make an ISDN call to an MCU and participate in a "virtual classroom." You can raise your hand, see the teacher, see other students, give presentations, use the whiteboard and a host of other things. This is the way we need to go.

There are a number of colleges that offer remote instruction. What better way to teach someone than by having him or her actually attend a class remotely and see what is going on? This can be done easily with DVC—right from the person's desktop at home. DVC is a natural for students who happen to be homebound for long periods, allowing them to continue to attend class with their friends and classmates.

A DVC connection provides almost everything remotely that you can get in class. You can ask the teacher a question, get the class notes (file transfer), hand in homework assignments, and even work with a teacher's assistant on particularly difficult problems using application sharing. A virtual classroom can be set up using a multipoint controller unit or a reflector site like CU-SeeMe has on the Internet. But this is still a Swiss Army Knife. An application like ILINC's is the

first step in pulling it all together into a single easy-to-use package. All we need are schools and teachers willing to give this technology a try.

Meetings: When you go to a meeting, what happens? You sit down and chat with the folks already gathered there. If you have some paperwork to give out, you hand a copy to each person Then someone starts the meeting. If some people are unknown to you, you give them your business card and receive a card from them. As the meeting rolls on, boredom sets in and you start scribbling diagrams on your notepad until the meeting ends. If it was a good meeting, tasks were probably assigned and responsibilities and timelines agreed to.

There is nothing going on here that couldn't be done remotely using a fully integrated "meeting" application and DVC. This time everyone involved can be at home, on the road or in Hawaii. When they get bored, they just have to hang up and go back to their surfboard. The results of the meeting (video, voice and data) are stored on a CD that is attached to the network. People who missed the meeting can retrieve (or stream) the video file later in the day or the next day or six years later.

Newer Application Ideas

Travel Agents: Imagine you are planning your next trip to Hawaii. You place a video call to your travel agent, and he or she shows you a video of a helicopter flight through the Waimea Canyon on Kauai. You like this so much that you decide to go there, but you need a place to stay. No problem. While you are on the line, your agent pulls up some photographs of the hotels or condos in the area. You select one, and you and your agent place a call to that hotel. Now you are all connected in a multipoint call, and the hotel operator selects different cameras that give you live pictures of the grounds, a typical room and the hotel. They can also show you videotape of their facilities. After you hang up with the hotel, you and your travel agent fill out the necessary paperwork. Room reservations, airline flights, taxis, limos and rental cars are all taken care of in that one session.

A friend of mine owns a condo on the Garden Isle. Hopefully, by the time this goes to press, I will have an H.324 unit (that auto-answers) hooked up to the condo with the camera facing out toward the unspeakably beautiful ocean view. Tie that in to a reservation system on a computer and you can book the condo while you are looking at the view. This can be done.

Photographers: A few years ago my wife had my daughter's picture taken in Stockton, CA, 35 miles from the little town of Tracy where we live. When the proofs were ready, she drove to Stockton to see them and bring them home. Together

we selected the ones that would become pictures. Then she drove back to Stockton to return the proofs. When the pictures were ready, back to Stockton again. After several more trips, I suggested to the photographer that videoconferencing might be a time-saving alternative. An application that uses DVC could let you preview the proofs and print them out. If you wanted to print a picture in a card (like a Christmas card), the software would put your picture in any of thousands of different card styles so you could see which you liked. Only one or two trips would be needed. The rest could be done by video.

Movie Theaters: Tracy is centrally located. We are 30 miles from shopping malls in Modesto, Stockton and Pleasanton. That's one of the reasons we live here. There have been many times when we were cruising the Pleasanton mall that we decided to go see a movie in Dublin or Pleasanton. But what's playing? It would have been nice to walk up to a kiosk, push a button and automatically see a sampling of the movies being shown at some of the local theaters. After seeing the selections, we could be visually connected to a cashier (imagine them behind a real movie theater cashier's box) and order our tickets. The tickets could be printed out in the kiosk, and all we would have to do is drive to the theater, buy popcorn and enjoy the movie.

Alternatively, I could do this from home, or I could simply call up the local Movies 14 and see a videodisk sampling—on my big-screen TV using a POTS call—of the movies being offered.

Banking and Mortgage: In these same malls are kiosks for banks. They have application forms in them for you to fill out and send to the bank. Imagine if there were a live teller on a TV screen able to process your application on the spot or take care of some other banking needs. I could open a checking account by filling out an application form using application sharing. I could even get my first set of checks printed out on the local printer. All the paperwork that needs to be done for opening and closing accounts could be done remotely using DVC. The only thing you can't do is get cash, unless an ATM can dispense it on command from the bank. Hmmm.

Lynden Corporation (Idaho Falls, ID) has developed a mortgage kiosk based on the Intel ProShare. (Thumbs up to Intel for its developers' kit.) You walk up to this kiosk and touch the screen to make a call. Automatically an agent pops up on the screen to help you with your mortgage. When it gets really detailed, they pull up a special form that you and the agent fill
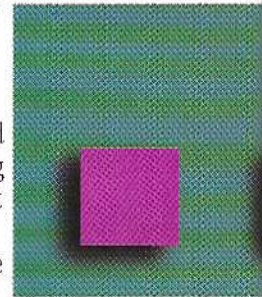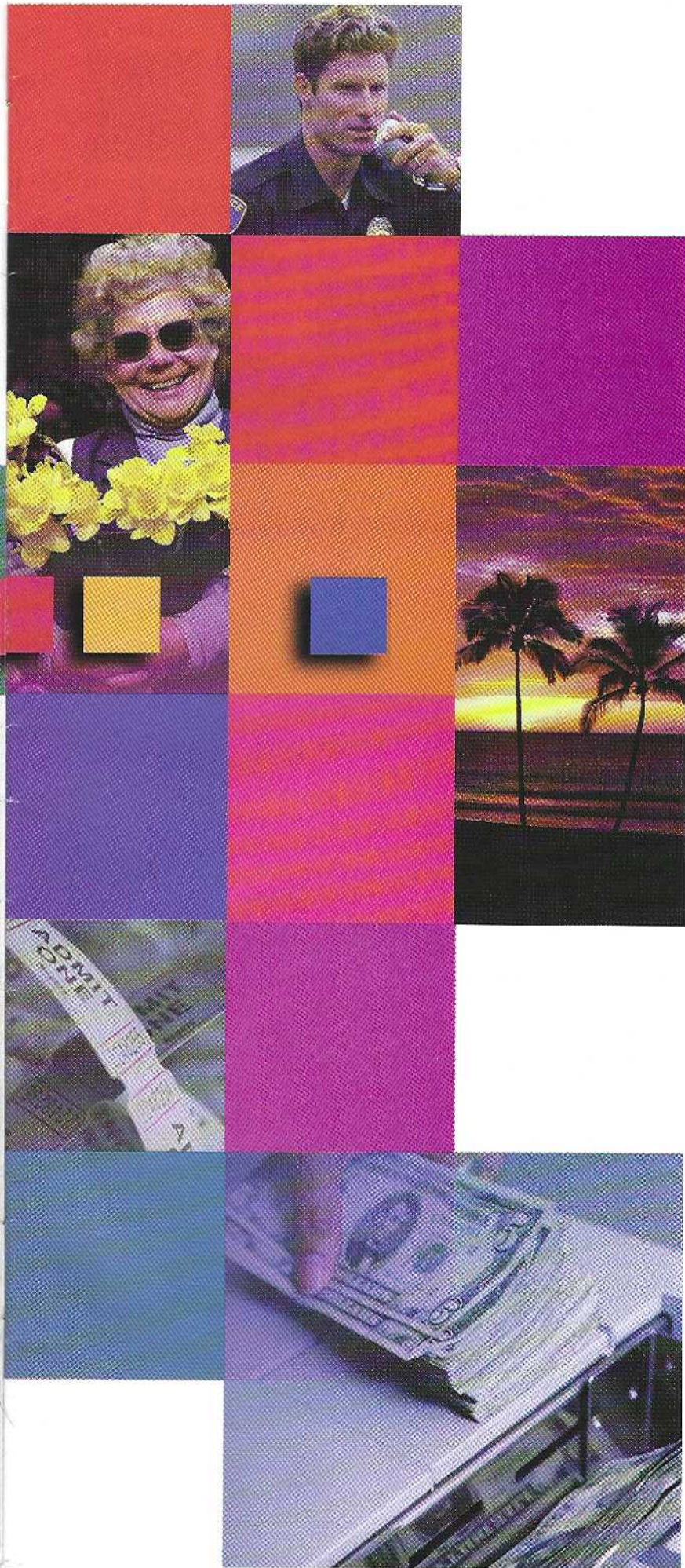
out together. There is a printer in the kiosk, and the remote agent can access the Internet to find the best rates. The best thing about this product is that it is solid as a rock. It was one of the first true applications I saw using DVC, and it is still one of the best.

Florists: I want to order a bouquet of flowers for my wife. (Actually, if I did that she'd probably keel over.) Today, I call my local florist and order some flowers...sight unseen. With video, I make the same call, but now it's a video call. The florist can show me the available options. If the system is computer-based, they can take my credit card number, fill out the receipt and transfer it to me along with a nice GIF photo of the arrangement I ordered.

Doctors: There is doctor in Chico, CA, who uses DVC to see patients in the rural community of Mad River. The emergency medical technician in Mad River types in the patient's current problems and sends them along with live video to the doctor. Using a camcorder as the video input, the technician can zoom in on a wound or rash, and the doctor can take a high-resolution photograph and pace it in the patient's file.

Godfrey Revis at 8x8, Inc. (Santa Clara, CA) tells me that some doctors are interested in monitoring the medication of homebound elderly patients by video. I have heard of opthalmologists using DVC to examine eye patients remotely.

One really cool application is a Web-based application in which a California (where else) plastic surgeon will examine you for a fee to see if you need surgery. Years of running in the hot noontime California sun has made this of more than passing interest to me. Dr. Edward Domanskis has an ISDN line connected to his local ISP. Using CU-SeeMe, he can see patients from around the world. I've communicated with him via email about the new H.324 products, and he makes a really good point about the use of the Internet for this service: it costs only the price of a local phone call. I suppose patients have to travel for the operation, but I'm pretty sure Dr. Domanskis is thinking about a solution to that problem as well.

Repair People: I had a problem with an RSI (Edina, MN) Eris videoconferencing system I had received a couple of years ago. I called Mike Schaeffer, formerly of RSI, on my PictureTel PCS-50 (now LIVE-50), and he troubleshot the problem remotely. He made me open the box and found the loose wire. He showed me where to put the wire, and it worked! Remote troubleshooting could save hundreds of hours of travel time for repair personnel. Your TV goes belly up. Using video, the repairperson at your local elec-

tronics store can see how it is acting. The same goes for your dishwasher. If a special part is needed, the repairperson has a good idea of what is needed before visiting your home, and can bring it on the first visit.

But we need a wireless connection to the camera. I want my pool person (ah, the California life) to look at my pool filter when it konks out, and I want the air conditioning repairperson to see and hear my unit when it is acting up. If I can take the camera outside and let them see and hear the problem, it can save time and money.

Police: The Tracy Police Department has a call-in program for elderly people. I'm sure many other municipalities have this as well. It seems to me that the ability to see the person or, if the person doesn't answer, to see inside the house using an auto-answer system might increase the effectiveness of this type of program. A computer-based system tied into the doctor and/or pharmacy can also help the homebound receive and take the correct medications. I'm in the process of trying to convince the Tracy police that this is a good idea. It's a tough go, but hopefully I'll be able to get a trial working soon.

This is a pretty simple application, but it needs to be very easy to use—possibly even hands-free or voice-activated on command. It's something that can benefit many millions of people and provide comfort for family members of the elderly. And get with it. I'm 45 now and I'm not getting any younger. (Dr. Domanskis is going to help, though!)

Small Businesses: Many businesses can benefit from an auto-answer DVC system. Ed, a friend of mine, lives more than an hour away from his business, a retail store (Mail Boxes Etc.). The Tracy police call him at home several times a month at night to alert him to possible problems at the store. If he had video to remotely check up on his store with a simple phone call (using an auto-answer system), he could save many long trips at night.

Libraries and Museums: I've been talking to a few museums in the area about using DVC to provide storytelling or informational sessions to one or more libraries or schools. The idea would be to connect, either point-to-point or via multipoint (at greater cost) several children at the remote locations to see and hear the session from the museum. This will broaden the reach of the museum and provide educational opportunities for children who might not otherwise have a chance to see the museum. Hopefully, I'll
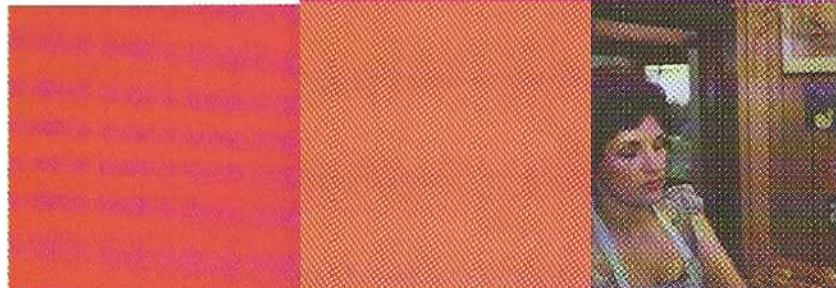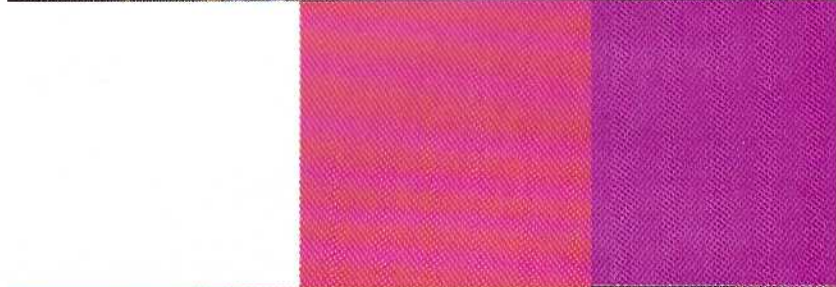
be able to get a connection going by the time you read this.

Headhunters: As a consultant, when I have some free time in my schedule, I put my name up on the Data Processing Independent Consultant's Exchange (www.dice.com) listing indicating I'm available for work. People see the listing and call. Over the past year, I have become quite good at filtering out the wheat from the chaff, but there is still an awful lot of chaff. Rather than drive 50 to 75 miles for an interview that seven times out of 10 is not a fit, I now offer to send them an H.324 system to try a remote interview. So far I have had no takers.

I have approached a local headhunter with the idea of inexpensively interviewing people from remote locations. The idea is to use an H.324 system I have in Ed's Mail Boxes Etc. store so possible Tracy employees can just go there for the interview. For the trial, resumes can be sent and received by fax. Eventually we can develop an "interview" application that combines all the needs of an interview into one system.

Las Vegas!: I just love this one. In this magazine a few months ago there was a short article describing a C-Phone videoconferencing system being used in a slot machine. Here is a Mike summary: I am feeding the slot machine my nickels and I don't want to leave because I know the next nickel will make me a millionaire. Without leaving my electronic slot machine, I place a video call to the concierge and order a drink, extend my stay in the hotel one more night, order tickets to the Tracy Byrd concert in the hotel, and make dinner reservations. Maybe it can even pop up a menu for me to see what I can eat at my slot machine. The article said it best: "It's fun to imagine the customer feeding dollars into the machine with one hand while calling up the concierge with the other to find out the name of the closest bank that offers quick loans." Applications like this are great!

Families: Almost six years ago, my family had a need for POTS video-conferencing. When my daughter was born, videoconferencing would have permitted our farflung family (Missouri and New Jersey) to see her live. As it turned out, they had to wait several months to see (and hear) her. The new H.324 technology can bring families together. Students away at camp can call home, and anxious parents can see what they look like. Folks in nursing homes can stay in touch. And students at college can beg for money via video.

Someday my daughter will go to the University of Kansas. When she is there, her old (but wrinkle-free) dad will be able to see her, and work interactively with her on her homework or some other nasty problem. I'll be sitting on my recliner watching the 49ers when the video call comes in. I open the shutter and see Kristen in her dorm room. She asks me to send her the video clip of the movie she made last year so she can show her boyfriend. Using my wireless keyboard I access the video CD (which is on the Firewire network), and scan through the list of movies we have stored there. Being me, I send her that wonderful clip of her taking a bath when she was five years old. It just goes to show that no matter how much technology changes our lives, some things will forever remain the same.

Conclusion

These few examples show that there are many situations where DVC can have a real impact on our work and our lives. We need to develop specific application packages to meet these needs—not just market the technology and let the customer figure out how to use it. Whole companies can be established and grow on some of the needs listed in this article.

I have a letter sitting in front of me from a credit union to Lynden Corporation, dated July 9, 1997. The credit union says that they used the Lynden product to get into the mortgage loan business. With the Lynden DVC solution, they funded over $20 million in first mortgage loans. In the process, their assets grew from $54 million to $72 million. To do this they started a loan department at a cost of about $15,000. (They had expected to pay $120,000 to get one started.) And they did not need to increase staff.

Results like these can apply across many industries. The time has come to get the word out about our technology. And the best way to do it is to show people how this technology can be used to benefit their business and their lives. But we have to do it right. The solutions, above all else, have to be reliable, easy-to-use and meet real needs.

Mike Pihlman owns Innovative Telecommunications Solutions, a consultancy in Tracy, CA, specializing in desktop videoconferencing, telecommunications, ISDN, wiring infrastructure, and telecommuting. He can be reached at 209-835-9384 or at mikep@vornet.com when he's not running. Check out the new site: www.vornet.com/~mikep.