



Interview of William (Bill) Dambrackas

Interviewed by:
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James Pelkey: Your background in the communication industry precedes Equinox, and I only know a little bit about that. Maybe you'd go back and kind of catch me up, leading up to the kinds of ideas that you came in touch with and how your view off the industry evolved to the point where it came to wanting to create Equinox and kind of what the motivation for doing that was, and how you saw the opening that allowed you to create your successful company.

Bill Dambrackas: I guess my experience goes back to the mid '60s in communications. I worked at RCA Government Communications Systems, Camden, New Jersey, back before there was a data communications industry. There has always been communications and there's always been data communications to some extent, and after RCA, I went on to Ultronic Systems, which was a small company that pioneered stock brokerage desktop quotation systems.

Pelkey: What year was this?

Dambrackas: That would have been in '69 when I joined Ultronic Systems.

Pelkey: What made you make the jump from an RCA to this little, this much smaller company?

Dambrackas: It just looked a lot more exciting. It's a smaller entrepreneurial environment. At RCA you're, I was as a design engineer, I was a small spoke in a big wheel and at Ultronic I was a bigger spoke in a smaller wheel. And I got a little closer to the action, and it looked like a leading edge opportunity, really, because this idea of a live on-line data network with twenty thousand key stations on peoples desks in 1969, was a pretty big, pretty sophisticated network. It was all proprietary; I mean, there were no standards when that was designed back in the '60s. There were, we made our own modems; we made our own multiplexers; our own data switches; our own front ends for the computers. We had three big Univac computers, and it was an on-line date network with our own homegrown protocols and everything.

Pelkey: For the financial marketplace?

Dambrackas: Yeah.

Pelkey: And it was in, what, '69?

Dambrackas: This was a desktop quotation system. And the original one, when I went there, they the products that were on most desks were Nixie tubes, you know, a series of Nixie tubes, and you types in your stock SIC code, you know, RCA, IBM, and then you hit a button for Last, Open, High/Low or Close, and on a Nixie tube you got price. Stock price.

Pelkey: What's a Nixie tube? I've never heard that expression.

Dambrackas: Oh, you don't know what a Nixie tube is? How old are you, Jim?

Pelkey: 42

Dambrackas: Oh, Nixie tubes are these little tubes that were one of the earliest ways to display data. It looked like a little vacuum tube and it has neon, it's a neon type tube, and it has numbers and letters, with little wires shaped in there. It's like a multi-segment display, and depending on which pin you put the high voltage on, you'd light up a different number.

Pelkey: Well, how about that?

Dambrackas: I'm trying to think of a popular product where you would have seen – cash registers at one time had Nixie tubes, the little round tubes with little neon numbers would light up. This was long before LRDs and that stuff.

Pelkey: Now did the company – where did you, you built your own modems?

Dambrackas: Yeah, back then we made our own modems.

Pelkey: Now there were modem suppliers at that point?

Dambrackas: 1969, there really were not that many modem suppliers, no, this is '60s. I mean, you know, this is –

Pelkey: Milgo was around at that point.

Dambrackas: What Milgo really did was – they make, at that time, they were making custom modems, modems were a very custom product, it was not a commercially, widely available market for modems. Milgo, the reason Milgo got into the modem business was they were mostly doing government contract work for the DOD and for the space program in Florida, here, and one of the things that they did, they did a lot of things, one of the things they did was figure out a way to send some data over the lines. You know, they made a modem, and that ended up being the backbone of the whole company, but it wasn't a modem company back in those days.

Pelkey: What about Rixon?

Dambrackas: Rixon was one of the early pioneers in modems. We were looking for cheap, though. We were looking for something that would – we had to put these things on a broker's desk and rent them for about \$60 a month, and you know, you couldn't buy some high powered –

Pelkey: An AT&T modem was obviously way too expensive.

Dambrackas: Yeah, so we made our own little modems --

Pelkey: On what kind of speed?

Dambrackas: 1333 baud. Picked our own baud rates too, back in those days. It was the fastest that we could run on a regular local loop. So we were actually way ahead of the 300 baud guys, you know, and a little bit ahead of the 1200 baud guys, if you think about it. It's 1333.

Pelkey: And at that point in time there wasn't really a strong sense that this kind of multiples of 75 series was really what the data rates were going to be supported?

Dambrackas: They were around, but they weren't -- everybody didn't automatically use those rates. There weren't that many standards, you know, that materialized. I mean, I guess RS-232 was only put together in '68, or something like that. So this is one year after RS- 232 was invented, we didn't use RS-232 on hardly anything that we had. That had not yet really cemented itself in. So it was exciting. It was the early days of communication, now --

Pelkey: And what were your responsibilities at this point?

Dambrackas: I was a design engineer.

Pelkey: but what category of --

Dambrackas: Well, for what was called brokerage products, which at that time was everything. So the stock -- the only product Ultronic had in those years -- Ultronic started in the early '60s. So I joined seven years after they got started, but really their only business was the stock market stuff, and they wanted to get into some other things too, but the main business was the stock market stuff.

Pelkey: Where were they located?

Dambrackas: Mount Laurel, NJ. They had their master computer right there. We had three big Univac 392s, or something like that, running redundant, and one of the projects that I did was design the front end for that. And that communications front end and worked on various parts of the network that went around. They were a lot of datacom pioneers who worked at Ultronic. In fact, you said you're going to visit Bob Wiggins here soon. Bob Wiggins was there, not at that time. He joined in something like '72 or something like that. Then Jim Hahn from Infotron, and Infotron is a spin-off out of Ultronic. Jim Hahn and Stan Hunkins spun out of Ultronic. Data Media was a spin off out of Ultronic -- the terminal manufacturers. Another guy that was there early on is Bill Rogers, Buck Rogers, not the IBM Buck Rogers but another guy. He's at Telenex right now, which is the Spectron, you know Spectron guys. There probably were some other folks out of there too.

Pelkey: What was your -- did you go right from the university into RCA?

Dambrackas: Yeah, I went from technical school. I actually went to a two year engineering school, two year technical school, and from there I went to RCA in the mid '60s. And started as a junior, very junior engineering type. Went to -- kind of worked my way up. Went to Ultronic as a design engineer. Did a lot of TTL design. A lot of software --

Pelkey: that must have been fun.

Dambrackas: Yeah, it was fun. We didn't realize -- a lot of us didn't realize that it was the birth of data communications industry, like something, just like you said, the birth of an industry, this fits pretty well into your, into how industries are created. The -- I never ever said to anybody, you know: "I work in the data communications industry," in 1969. I worked at a company that was making some electronic things, you know, and they happened to move some data around, and it was neat, the stuff we were doing, but we didn't -- there were no private networks. There were no public networks. You know, there weren't any networks. There wasn't really an industry.

Pelkey: The network was AT&T.

Dambrackas: Yeah, the network was AT&T and it got phone stuff around.

Pelkey: Where did you go to learn about such things as modems? Did you just wing it?

Dambrackas: On the job, just on the job.

Pelkey: Did you read any magazines? Were you familiar with Nyquist or --

Dambrackas: Yeah, I read some of that stuff. I actually didn't work on the design of the modems. Other guys worked on the design of the modems. I mostly ended up working on the front ends, the -- one of my first things I worked on was an ultrascan, the thing that displayed the stock stuff across the wall with neon lights, that was one of the things, and then later on the terminal stuff -- the CRT terminal stuff. CRT terminals weren't very big back in those days either. I mean, they were expensive special purpose things. I guess RCA had some patents on putting alphanumeric characters on a raster scan CRT that they were holding on to pretty tight, and they didn't like anybody else making that stuff. They later loosened that up a good bit and started licensing it out, but once Ultronic got into CRT terminals, then the stock quotation stuff got more sophisticated. We put a lot more data on there.

Pelkey: And it's U L T R O N I X?

Dambrackas: I C. Ultronic. Ultronic Systems. Now, what happened to Ultronic Systems was they were acquired by GTE.

Pelkey: When? Do you recall?

Dambrackas: The actual -- shortly after I joined. It may have been right around the time I joined, but GTE didn't do much with them for a few years, so the full impact of GTE's big master strategy didn't happen until about '71 or '72 or something like that. GTE went around and bought a lot of little companies in the information business. It was kind of called -- they called it GTE Information Systems. It was GTEIS was that division. And GTE early recognized the value of information systems. And it's interesting they didn't call it data communications. You know, today or maybe not today but in the late '70s they might have called it data communications products or something, it was called Information Systems. They bought a minicomputer company, Tempo Minicomputers in California and a few other companies and banded them all together, and slowly tried to create a, you know, a division which specialized in this data processing, or the link between data processing and communications, and make a data communications company, and I guess that's when Bob Wiggins I think joined. He ended up -- I didn't know him really well there, met him and you know talked to him -- but he was brought in from IBM by GTE to help formulate this whole data communications kind of product line, aiming toward public networks and so on. He left shortly after that, I guess, and then ended up down at Paradigm and the GTE thing was I think one step along the way, you know, towards -- so the industry was, you can't pick a day when the bell rang when the industry was created, but it obviously happened somewhere in and around there, in and around the early '70s.

Pelkey: Right.

Dambrackas: Which I think most people would kind of agree was kind of the birth of data communications.

Pelkey: Did you know Jim Hahn?

Dambrackas: No, he had left Ultronic just before I joined. I met him, but didn't actually work with him there. His wife worked at Ultronic the whole time I was there. Leigh. So I actually ended up knowing Leigh a little better than Jim. She recently died. I don't know if you know that. But I ended up meeting Jim, kind of through her, and then Infotron I guess started in '68, late '68, one year before I joined Ultronic. So Ultronic started to get to be very, very much a division of GTE and things were being mixed together and it was a point where I guess they had wanted to move a lot of us out to California, to what used to be the Tempo Minicomputer plant, and mostly because I didn't feel like moving out to California, I ended up switching over to Infotron. That was in '76. And I had progressed along to begin a senior engineering manager at that point, and I went to Infotron really to run the whole engineering department -- to work for Jim. It was right up the street from Ultronic.

Pelkey: How big was Infotron at this point?

Dambrackas: Infotron was not very big. It was, I think, they had not yet had a million dollar year. It was like an eight year old company and they had not yet reached a million dollar year. In fact, I think they did about a million and a half in '76, so they were somewhere under a million the previous year.

Pelkey: What was it -- why did Jim start Infotron? Do you recall?

Dambrackas: He and Stan Hunkins, I guess, were the two founders. And then there was an early guy that came was Tony Barbero, was another guy. He was running sales when I joined. I guess they started it because they had -- they saw, they were one of the early ones to see an opportunity in data communications products. Of course, they started to make time division multiplexers. They realized that there was going to -- definitely a market for multiplexers, for putting more than one data communications link over a phone line, and they made TDM MUXes. They've chopped up on 9600 baud link or a 4800 link down to a bunch of 300s, you know, and you could map it around. Put a couple of 1200s in there and so on. They were very much an early pioneer in data communications, but the market, the industry didn't grow a whole lot in those early days. It had a slow start and so by '76 Infotron had not gotten too big. Codex was off to a pretty good start, I guess. They were doing good with their modems and they also were making multiplexers. Timeplex was making multiplexers. They were doing pretty good. And I guess Milgo was mostly in the modem business, and they were kind of off to a start, but '76 the whole industry

was kind of small. Really it kind of exploded. The steep part of the curve in data communications was between '77 and early '80.

Pelkey: Right, '81, '82.

Dambrackas: Yeah, that was a pretty steep growth curve for everybody, Infotron included, Racal, Milgo, Timeplex, all the companies. The, of course, on the technology side -- you do your little picture on the board here of all the different things and one that's a strong one that influences all this stuff is the technology side. When, just like this Toshiba computer we have here, you know, somebody invents this new kind of display, that may revolutionize the lap-top industry or something, you know what I mean? So on the technology front, microprocessors, silicon microprocessors, had really come of their own in '74, '75.

Pelkey: Yes.

Dambrackas: And one of the last things I did at Ultronic was I made a 6800 based, Motorola 6800 based terminal. It was a, called the, it was called the Electronic Quote Board at the time. I think they ended up marketing the product called the Futures Trading Board. They took a CRT and duplicated what they used to have on the wall, on the big display, and it was a trading board for a bunch of securities. You could sit there with a keyboard and have all these different securities displayed, you know, bounced back and forth from one to the other. But that was, I was told by Motorola, the first product that actually made it to production with a Motorola 6800 in it. You know, the 6800 had just come out in like early '75, and we ended up -- or mid '75, I guess we got this thing to market in March of '76. That was right when I left to go to Infotron. And so the TDM multiplexer suddenly had a big opportunity here with having microprocessors applied to it to get statistical, to actually packetize the data and statistically share a link, as opposed to just divide it up by time division.

Pelkey: Right

Dambrackas: And having just finished --

Pelkey: You must have seen what Codex was doing, then, because they had a statistical multiplexer, a big box. I understand they had to ship engineers along with it.

Dambrackas: Right, exactly. There was a big race between all the TDM -- this is one of the resolutions in data communications I guess was there was all the TDM manufacturers were kind of head to head, and that was really Codex, Timeplex and Infotron. And the Infotron was kind of behind the pack. Timeplex and Codex were clearly leaders in TDM multiplexers. And Codex had already announced, at the time I joined Infotron, that would have been March of '76, Codex had already announced their 6000 statistical multiplexer. They had published the spec sheets and published information on it, but it was far behind schedule. John Peel I guess was one of the guys working on that thing. You know another guy that worked on it you ought to talk to was -- he's an old pioneer in data com -- The Bytex founder, Steve Finn.

Pelkey: Oh, Steve Finn. Yes, yes.

Dambrackas: Somebody just told me recently that he may have left Bytex. To do another company? One of the founders left to do another company.

Pelkey: Maybe the Chinese guy.

Dambrackas: Yeah, Ban Wei Lu?

Pelkey: It might have been Ban Wei.

Dambrackas: it might have been Ban Wei.

Pelkey: I don't know, but I know Steve Finn is still there.

Dambrackas: He's still there. Ok, good. He's -- Steve Finn was sort of my counterpart at Codex. He was one of the engineers on the thing who was getting it together. We didn't know that. I didn't know him at the time. I later met him. Also one of the founders of Concord [Data Systems] was there too, Ross Seider, he was a Codex guy. Anyway --

Pelkey: So you saw -- did you see the spec before you went to Infotron?

Dambrackas: Yeah, in interviewing at Infotron and talking to Jim, Jim said, you know, what they do is make a microprocessor powered statistical multiplexer, and that was really what I was chartered to do when I went there. So we ended up beating Codex to market with a product, even though Codex had a head start on us. We took our existing time division -- as opposed to designing --

Pelkey: Excuse me, when you took over, you were director of engineering or something at that point?

Dambrackas: (Affirmative). At Infotron.

Pelkey: And so you had time division multiplexing product line. Then, what you really came in to do was bring microprocessor technology skills with you to create the statistical multiplexer.

Dambrackas: Exactly.

Pelkey: And did you recruit a team of people out of Ultronic to come with you?

Dambrackas: No, there were some good guys there. I ended up hiring a few more, but I sort of augmented the team, added some people to the team. One of the guys that I hired out of Ultronic was Joe O'Neal, and he had -- he was my successor at Infotron after I left three years later. He had since kind of moved on to something else, but I brought a couple of people over. But it was -- there were already several engineers that were good. So I added some more. But we took the TDM box and made a new set of common controls for it, so we used the same channel cards and everything, and ended up making a statistical MUX out of what used to be a time division MUX. So we didn't have to go design a new back plane and a bus and line boards and all that. While Codex did a revolutionary design, where they had a whole fresh start on the whole box and everything, and they had a lot of headaches and a lot of start-up problems, so even though they announced the product, we ended up bringing our product to market and beating Codex pretty good. And it was a big hit for Infotron.

Pelkey: Do you recall how much it was priced for?

Dambrackas: Well, I think it came in about, the common equipment came in about seven or eight thousand dollars, so then per line on top of that it would be about another, we had dual line boards, you know, would handle two lines on a board. We thought that was really risky going from the old one line per board to two lines per board. Now our stuff here has 48 lines per board, with custom LSI. I think a dual line board was \$300 or something, I think it's about \$8,000 common equipment plus \$150 a line, something like that.

Pelkey: And Codex's was much higher priced.

Dambrackas: Yeah, Codex was much --

Pelkey: Like \$40,000?

Dambrackas: Well, there was a -- that first one they came out with was a real Rolls Royce. It cost a fortune. That was the 6000. They very quickly made a 6010, which moved down into the lower price range. It was cheaper and simpler. But they had started off, I guess, saying that statistical MUXes would be sold like a very special thing, and they didn't realize it would drop down into the dirt so quick and be a -

- and end up being the bricks and mortar of getting data around. You know, it's funny how these things start of to be very exquisite, special things, and then they drop down to be something that people throw around -- like modems.

Pelkey: Do you recall when you introduced that product?

Dambrackas: Yeah, it would have been less than a year after I joined. It was, probably would have been somewhere late -- I think we introduced it early, you know, because this was a big introduction race kind of thing. We introduced it long before we could ship it. I think we might have introduced it around the end of '76, something like nine months after I started. May have actually shipped it in early '77. But we had a big edge too, you see. We had many hundreds, I think something like hundreds of, it might even have been 500 or more. TDM multiplexers installed. And so we went in and sold a new common board set to those guys for like \$3,000, and turned their TDM into a statmux. While Codex was coming in showing this big \$40,000 box, saying: "throw all the Infotrons out." So it was an easy decision for the existing customers to make. That's one of the -- may be the big reason -- I like to say it was the technology, technology was part of it, but one of the big reasons for Infotron leaping way ahead of Codex in leading the way in installed base was because we just upgraded all these people for a relatively small amount of money into a statistical MUX. So we, by far, it was called the Supermux, that was the name of the product. We had a lot more Supermuxes installed than anybody else had for statistical MUX, mostly because of that upgrade philosophy.

Pelkey: Now was, when did TIX, Timeplex come out with theirs?

Dambrackas: A lot later. Timeplex, it's interesting you refer to Timeplex by its stock code, right? I guess Timeplex was in the dumps at that time. Botwinick wasn't there, so if he -- if you tell him what I said, he might disagree, but he wasn't there. He was --

Pelkey: Your opinion is shared by everybody.

Dambrackas: Timeplex was, yeah, really kind of in the dumps, and they really didn't catch onto this statistical MUX thing at all. They were just still, you know, selling their TDMs and they didn't have anything on the statistical MUX side. Codex and Infotron were the leaders. Western Union, as you said, was working on the design in New Jersey. We had heard about it. It was going to be a real super statistical MUX, up in the league of the Codex 6000. They had sort of been in that same strata, with the expensive Codex 6000, and that guy Joe Vispader I mentioned to you was one of the engineering guys there. But Timeplex, everybody thought they were going to go out of business in 1976, cause they just didn't do anything. I think in '77, they didn't do anything. In '77, I think it probably would have been '77 or early '78, somewhere around there, Western Union gave up on their statmux, decided not to go ahead with it, and it was very -- it was a luck out for Timeplex, for Botwinick. Botwinick had just come to Timeplex, to run Timeplex, and he was lucky that there was a team right there in north New Jersey who had just finished the development of a statistical MUX, and the company was shutting it down, and they were basically getting rid of all these people. So Botwinick hired Joe Vispader and many of the other guys that were there, and I tried to hire Joe, cause I had known about him, and his wife was a school teacher in New York City and he just didn't want to move away from the north end of Jersey, couldn't get him down to the south end. They went to Timeplex and made the Microplexer, and that came out probably in late '77, maybe, you know, early '78, so it was a little bit of luck there. You know, Botwinick has done a great job, but he did get a little lucky there. We all do things, get a little lucky once in a while, and the Microplexer came out and then ended up -- that was the rebirth of Timeplex. Timeplex really got rolling again with the Microplexer. And then the market was really --

Pelkey: Now when did you become aware of -- before you go on about -- when did you become aware of Micom?

Dambrackas: Probably would have been around -- that was an interesting wrinkle. Learned a lot from that experience. Really did. That was, ended up to be the root of a lot of the things I did here at Equinox. Never heard of Micom, of course in, I think it probably would have been something like late '77, maybe

early '78. Probably early '78, when -- first place I heard of them was I was out in California visiting a customer, and it was Bank of America, I think, Jim something, he told me about Micom. So I actually learned about it from a customer. He said: "Hey, you know this company in California here makes this little, real cheap statmux," and I thought the Codex 6000, being a \$40,000 box and then us being this cheap -- I thought we were the low end. Well we WERE the low end. And he said: "Oh, this thing's a little plastic box, you know, you put it in an attaché case and it handles four channels, you know, or eight channels, and the company makes special stuff normally, but now they're making this standard product."

Pelkey: Were you almost incredulous when you heard this description? Like a customer really didn't understand what he was saying?

Dambrackas: No he showed me one.

Pelkey: Oh he did?

Dambrackas: Yeah, right. The Bank of America has one of everything, you know. Giant data communications room.

Pelkey: What was your reaction when you saw it?

Dambrackas: Well, I said: "Cute," you know? And real cheap, and I -- well, we of course went up to hundreds of lines on our box. We could keep plugging more lines in and this, and when you got down to, because you had expensive common equipment and an expensive power, redundant power and all this other stuff. When you put four and eight channels in it, it was still pretty expensive, cause you had to pay for the common equipment. And Micom was down around \$1,800 for four channels and \$2,800 for eight channels, so they of course were very cheap, but they'd stop at eight channels. My first opinion was, well why such a small number of channels? I mean, you know, you can't expand it beyond eight -- four and eight. Obviously you can make it cheap if you just -- if you're not going to have an expandable or redundant, it seemed almost like a toy, you know. And it was hard to believe that they would --

Pelkey: There really was a market for it.

Dambrackas: Yeah, that there really was a market for it, that it would be a big success. Then the other surprise happened was, we of course sold our stuff through direct sales and reps. And Micom went the route of distributors, stocking distributors. People would fill up the trunk to their car with these things and drive around and sell them. It was kind of unheard of. You sell electronic components and stuff through distributors. But data communications products? I mean these are precious things, and you don't sell them through distributors. And Micom really pioneered selling that product through distributors, and they made it very easy to use, do-it-yourself installation, you know, very friendly. The literature was clean and simple, and they really were one of the first ones to step down from this priesthood of highly technical manuals, you know, and get down to the common folk. Make it simple. They were on a roll pretty quick. After seeing that first one, I heard about them again and again. Then I heard distributors were... (Tape side ends)

Pelkey: So the distributors came in and you said you bought one --

Dambrackas: Right. He demonstrated it to us. He showed it to us. He really didn't understand it all that well. He had a bunch of them in stock and we bought a pair of them off him. And we looked at it, looked it over, played with it. And, it worked. Very simple, bare bones, and so we got very excited and said -- oh, it did have some, we recognized some shortcomings that it had in there. You couldn't -- it wasn't very fast. You could run a 9600 baud link, but you couldn't statistically multiplex eight 9600 baud terminals on that link. You could only do, I think the total, they could only add up to 19.2 kilobits, or something. In other words, your eight channels couldn't add up to more than that. The processor couldn't gather the data and queue it.

Pelkey: Was it a Z-80?

Dambrackas: I think it was a Z-80, yeah. So we said, myself and Joe O'Neal, who was the guy that joined me from Ultronic, an old friend. He and I worked at Ultronic the whole time. We looked at it and talked about it and said: "You know, we could make one a lot better. We could use a 6502 processor that's a lot faster and has some slick indexing and everything else, and arrange the cues differently and we could make one just as cheap, just as simple that we could do all eight channels. We could make it four expandable to eight 9600s. And we made one. And it wasn't -- it didn't take long to make. You know, we ended up having the thing in less than a year. Six, seven months or something like that. And I think in somewhere around that late -- we introduced it, yeah in fact we had a big sales meeting in Acapulco. We had all our international distributors in and all. I introduced it there. I ended up doing the training and the --

Pelkey: When was this now?

Dambrackas: This would have been in -- it was around Christmas of '78, Acapulco, yeah.

Pelkey: In Acapulco.

Dambrackas: it would have been maybe -- it was like, maybe early January, right after the first of the year or something like that. I remember it was snowing in New Jersey and very warm in Acapulco. And that was the introduction of the product. We had had some beta tests in and all that, so I heard later from Bill Norred, I didn't know him at the time, met him a long time later, that when they saw that they were shaking in their boots out there at Micom. This thing was really good. It beat them hands down on manufacturing cost was cheap. Plastic box. We did, we just did a lot of things a lot slicker than them. The thing that Infotron did not do, and I didn't -- I didn't stay at Infotron a whole lot longer after that, but the thing that Infotron didn't do was sell it through distributors. Infotron really kept trying to go with the direct sales and the reps and so on. The reps and the direct sales don't like distributors. Distributors are -- there's a lot of things wrong. They discount against each other. It's a very brutal kind of marketplace. You get -- you have accounts receivable problems constantly with distributors so in a company that is already established and rolling, it's very hard to create distributor organization, because there's so many entrenched things that don't want to do that. In a start-up company like Micom was, in the early stage, when you don't have anybody, any sales, any distributors are easy to start. You just send, put somebody on a plane, and go around and sign them up. And then you just let all the fighting go on and you struggle with accounts receivable, you know, but you move a lot of boxes. It's a sloppy, painful way to move -- it's a shotgun, as opposed to a rifle shot. But it works. It's a way to get a lot of boxes. I learned that lesson by watching how quickly Micom got launched by making a simple, easy to use product, through distributors.

Pelkey: Now, within Infotron was there an awareness -- I mean, you say that your product was about the same cost or lower cost --

Dambrackas: Manufacturing costs -- and a lot better.

Pelkey: Manufacturing costs -- and a lot more functionality.

Dambrackas: A lot more functionality, yeah, but we still treated it, Infotron still treated it --

Pelkey: As a system sale, a direct sale.

Dambrackas: As opposed to a distributor box. It took Infotron a long time to get their distributor program going. I don't think they ever got it going until '84 or something or '85, long after they missed it. They should have, in hindsight, in fact, if you end up talking to Jim Hahn, he may agree with me, they should have hit distributors with a box in '78.

Pelkey: Yes.

Dambrackas: Beginning of '79, when we -- and they probably would have given Micom a real good run for their money.

Pelkey: Were there internal -- Infotron in that point in time, was there a tracking of Micom? Or was it -- saying wait a minute. This company's really doing well.

Dambrackas: They weren't taken that seriously. They really weren't taken that seriously.

Pelkey: Cause it was kind of seen as a toy product?

Dambrackas: Yeah.

Pelkey: And it wasn't very good functionally and they were using distributors and that's not the way you move this kind of stuff?

Dambrackas: Yeah. But, I guess it was mostly driven from engineering, as we looked at it and said: "Yeah, we can make one pretty quick and make one that's just as good," but the thing that Infotron didn't copy was the marketing style. We made it just as simple -- we made it cheaper. We sold ours for \$1500 for four channels and \$2500 for eight. So we were -- see our manufacturing cost was cheaper, performance was a lot better. Micom later upgraded their product. Made the 800/2 in about '81 or something like that, which caught up to the performance of the Infotron thing.

Pelkey: That was three years later.

Dambrackas: It was a good while later, yeah, probably about '81. So, but Infotron kind of missed that opportunity to get ahead of them there.

Pelkey: Now when you first saw the orange juice can ad, do you remember that?

Dambrackas: Oh, it was great. Oh sure. It was terrific.

Pelkey: What was your reaction when you saw that?

Dambrackas: Oh it was terrific. It was a -- you know, the simplicity and the -- everything about it. It fit the product, the squeeze, concentrate, you know, stop doing something the old fashioned way. You know, concentrate. It was very simple and elegant and Infotron didn't really advertise their product that way. They still treated it as if it was another product in their product catalog. It happened to be cheap and down at the low end, but they were treated as a monolithic product line -- everything up to the expensive stuff down to that. But -- a lot of lessons I learned there. I ended up using those lessons later, and one of the companies we ended up using that strategy against was Micom, interestingly enough.

Pelkey: Roger [Evans] and I have had a long conversation already. It's interesting how all these stories fit.

Dambrackas: Different peoples' view of history, as you said earlier --

Pelkey: Well actually, Roger's view was -- he said, he didn't mention the Infotron product specifically, but that they just thought that they had no idea that they would ever have an opportunity to build a company like they did. They thought everybody would come and duplicate their product very, very quickly, and then when people did -- I presume one of the things he's referring to is Infotron -- they didn't use distributors.

Dambrackas: Yes. Yeah, right.

Pelkey: And he just couldn't believe it. "We're sitting out there and seeing how people were doing this, and they just," he said: "'cause they didn't understand what was happening out in the customer base," in his opinion.

Dambrackas: Right.

Pelkey: They didn't understand the minicomputer user and what was happening. They still were thinking mainframes and that there was a user shift.

Dambrackas: Yeah.

Pelkey: With the minicomputers using remote terminals and a printer and the things being sold through VARs --

Dambrackas: Small number of devices -- it was no longer the systems kind of --

Pelkey: Right, customers were trying to buy the best box.

Dambrackas: Yeah, just for their application, and a very much lower level type of guys were doing the shopping now for the -- it used to be a data communications manager or something and now it was a -- it was just some kind of rather low ranking guy in the organization that would be buying the thing. So yeah, they did a great job and they built a company on that. They really focused and built a company, yeah.

Pelkey: Now you were saying before I interrupted and asked you the question about Micom, because clearly Micom and the data concentrator to me is a pivotal point in terms of that was an important event from many different directions. Stocking distributors and advertising and price points and so on. But you were saying that the market at that point was, in terms of market share and so on it was Codex and Infotron and Timeplex. You knew, of course, that Micom was doing time division multiplexers at that point in time.

Dambrackas: Yeah but Micom really wasn't much of a force in the time division multiplexers at all. They weren't even hardly counted, you know. It was that the statmux, the Micro 800 they called it, that was the thing that --

Pelkey: And Infotron's concept of statmux was really seeing Codex's statmux.

Dambrackas: (Affirmative.)

Pelkey: And said: "Oh, we can do that better."

Dambrackas: We can make it cheaper, ultra-cheap simple low end version of that --

Pelkey: Just like when you saw the Micom product, you said: "Oh, we can do that better."

Dambrackas: Yeah, (affirmative). Yeah, we tended to react, I guess at Infotron we ended up in both of those cases, reacted to what other people were doing.

Pelkey: Innovation by others.

Dambrackas: Yeah, or took what they had done and added out it. Made it cheaper, better. Infotron didn't invent, certainly, invent either one of those products. Codex, I guess, has to be credited I think with actually inventing a lot of the terminology and the stuff with statistical MUXes. Calling it a statistical MUX.

Pelkey: Although some people might -- it would be interesting for me here to say that DCA really had the first one.

Dambrackas: Yeah, DCA. Yeah, I think, yeah, you know, you're right. I take back what I said about Codex. I remember seeing a DCA statistical MUX early on, I think when I was still at Ultronic.

Pelkey: You couldn't do anything --

Dambrackas: Didn't do much of anything with it. It was -- it never really did much, but they had one.

Pelkey: They had the first one out to market.

Dambrackas: Yeah, I think they were. I think you're right. DCA may have been the first one in the market, but --

Pelkey: Codex made it.

Dambrackas: Since they weren't in the time division MUX business and they weren't like a multiplexer vendor, I think they were -- it just didn't work. They were kind of selling it as a DEC I/O controller or something like that. That's what they mostly were in, you know, DEC add-on things. But the transparent independent multiplexer Codex really, I guess, got most of the press, but I think you're right. I think DCA actually had one. In fact, they had a neat poster. They had a neat poster called the -- it's a great poster, DCA. It's called the Land of something. The Land of MUX or something like that. It had -- it explains statistical MUX's, and it has all this little rivers going around, it has like conveyor belts and all these little elves and they're all pouring different kind of paint, you know all different color paint, and these funnels that are going in on this thing that's like a river of grey looking stuff and it goes all around and then there's line hits and alligators and people said -- this is supposed to be telephone hitch, you know, retransmissions, and they got the guys running back with buckets for retransmitting it, you know, checking it or something.

Pelkey: Oh, fantastic.

Dambrackas: And it comes out the other end, somehow it goes into this magic thing and then all the different colored paint is coming out again and all the little elves are running with the buckets of paint and it's -- a good poster.

Pelkey: I'll have to look that up. Now, at that point in your career, were you familiar with what was happening, let's say, in the APRA community or --

Dambrackas: (Affirmative.) Yeah, we talked to -- we ended up talking to Telenet from Infotron. They were looking for somebody to make node stuff -- hardware for them, since they weren't in the business of making hardware. And they talked to us, they talked to BCC, who they later ended up doing the deal with, and we went down there and talked to them about what they were doing, met Larry Roberts and -- the famous Larry Roberts and another guy named Chris Newport was one of the architects of the thing. He died, I guess, a short while later -- brain tumor or something. And then Holger Opderbeck, another guy that was there. He was a young guy there, a software guy. He now has his own company called Netrix, doing -- in the D.C. area. Got funding from TA Associates recently. Yeah, we talked to them about doing custom hardware for them, but what they wanted didn't fit with what we wanted to do. We wanted to be -- make independent, end-user products, as opposed to a lot of special system stuff.

Pelkey: The ideas that they were playing with, their approach to the problem, when you first heard about it, did it have any impact on you?

Dambrackas: No, you know, this whole thing of packet switching ended up looking like a big statistical multiplexer that just had some steering around of the packets, and we didn't -- they were losing a lot of money at the time and I don't know if they ever did, I don't know if Telenet ever did get to the point where it made any money. His concept of selling other people their connections didn't, we didn't think it looked like a great idea. We thought private network was really where we saw doing well, and I guess history has proven that out. Private networks have ended up to be much more lucrative than public networks. Only in the countries where there's the monopoly and the PTT dictates that you have to use the public network has it been a success. Anyplace where there's a free market thing it hasn't been too big a hit.

Pelkey: So now it's early '79. You've introduced the statmux.

Dambrackas: Yeah. That's right at the time I left Infotron. I came down here to Miami to be Director of Data Network Products at Milgo.

Pelkey: Why did you leave Infotron?

Dambrackas: Well, one of the, I guess the headhunter. It was a good deal. Offered me a pretty good deal. I always kind of liked Florida, still do, and the -- Milgo of course was a leader in modems, and they wanted to get into the multiplexer business. You know, statistical MUXes. Timeplex of course was -- had an arrangement with Milgo where Racal-Milgo in Europe was the distributor for Timeplex. And it just looked like a growing market and Racal-Milgo wanted to get in it, so they ended up looking for people that worked on the stuff. They tracked me down, did their homework and made me a good offer and I was down here. And that was around June of '79. And I ended up staying there four years. I sort of have a natural cycle of about four years. In four years I was there we made the Omnimux line of statistical MUXes, which were kind of fit in against the -- they had high-end. It fit in against the Timeplex. We ended up competing with Timeplex Microplexer and we ended up making a low-end too, just like the Micom, made a cheap small one that, again, was another one that performed, but Milgo of course would never use distributors, you know, they ended up selling it through their direct sales force. They have a very big direct sales force, on site service and they have their -- you know, Milgo is a pretty big company.

Pelkey: It was Racal at that point too.

Dambrackas: Racal, yeah, Racal had owned it already. And there's not much to say there. We ended up making all the statmuxes and they got a nice market share. The other thing that I did do, I really ran this -- I ended up with three groups. Right before I left Milgo I had the multiplexer group, the data encryption was an interesting one. There's a market that's sort of in the early phases of development. Milgo now is doing pretty good, I don't know if they -- well, they don't publicize their numbers, but I've heard, and I wouldn't want to repeat what I've heard because I know they keep all their numbers very secret, but they're doing very well in encryption.

Pelkey: Doesn't surprise me. Now, a couple of question. During this period of time, when Codex introduced an LSI version of a modem and right before you --

Dambrackas: Codex was the pioneer in LSI modems.

Pelkey: With the Rockwell chip set.

Dambrackas: Right. No, they did their own custom chip.

Pelkey: They did it with Rockwell.

Dambrackas: They did it with Rockwell? Oh, ok -- it was their own design, I got you, but Rockwell was the chip maker, as opposed to --

Pelkey: And it was a teamwork -- it was a joint venture.

Dambrackas: Ok.

Pelkey: That's where Rockwell's technology came from.

Dambrackas: Ok, I see. That's interesting.

Pelkey: When they did that, Milgo I understand was bigger than Codex, in terms of leased line modems at that point in time --

Dambrackas: Yeah.

Pelkey: Although Milgo had been -- had to chase Codex in the 9600 because they introduced the 9600 first, Codex did, but then when they came out with the LSI version, Milgo again, that's what caused Codex to become bigger than Milgo. Had that transition already taken place when you arrived?

Dambrackas: I didn't run the modem side. I did everything but modems. But that transition had occurred, but I was not intimately involved in the modems.

Pelkey: Ok. Second thing is that Infinet is, I understand, the one who's really credited with kind of bringing network management because of multi-drop --

Dambrackas: They invented network management. They're credited with it, Jerry Holsinger; they're credited with inventing network management.

Pelkey: Were you familiar with what he was doing when you started to deal with network management or --

Dambrackas: Yeah, we ended up knowing what the competition was doing. That wasn't something I was involved in early on. It was mostly right early on when I went to Milgo it was encryption, right off the bat, it was data encryption and MUXes. They were the two things that I was really focused on, really, getting Milgo into these new markets, kind of pioneering some new things. I didn't spend a lot of time looking at how their established business went. It was later, it was several years later, when I ended up doing the network management, and then it was already pretty well entrenched. So I wasn't an intimate part of that revolution like I was with the statmux revolution. Encryption stuff was an interesting thing. We launched ourselves very quickly into the -- into being the market leader for encryption. That's an infant industry -- there's another birth of an industry. In fact, Paradyne really got their -- really got themselves in a sling over encryption with the Social Security Administration deal. The encryptor was the --

Pelkey: Box with --

Dambrackas: The blinking lights. The box with the blinking lights was the encryptor, so encryption was -- Milgo, you know, we pioneered the real good data encryptor and the public key, with the public key stuff in it too. The secret of encryption is key management, just making something that encrypts the data and does the other end, that's pretty easy, but you want to get the key from here to there without the spy being able to get the key, and you do that with public key algorithm. Very sophisticated mathematics, you know, really fancy stuff, and Milgo's got the best product. And that was -- and Mark Cole, my co-founder here, he worked for me and ran the encryption group, so we got a lot of the encryption history here, you know, the two founders of that technology are here. We've never done anything in encryption here. We may some day.

Pelkey: Now, from Milgo, you started Equinox. Now, what -- why did you want to leave Milgo and, when you were leaving Milgo, why did you want to start -- what was the genesis of the idea of Equinox?

Dambrackas: Well, the local area network fever was on in the early '80s. Everything you've read, every magazine you picked up, every newspaper had a LAN story in it in 1981 and '80, and Racal kind of had some charters partitioned out for the different companies. Vadic did the low-speed modems. Milgo did the high-speed modems. And then they had a company in England called Racal-Milgo Ltd., as opposed to Racal-Milgo Inc. here, which did other stuff. And of course they kept the companies from competing very much, so the statistical MUX and the encryption, basically Milgo here in Miami kind of won the charter for that stuff. So the other guys couldn't have a team designing one. Likewise with encryption, but nobody had the charter for LANs, none of the three companies, so, like there always is in these big companies, there's a little kind of jockeying and a little battling to kind of get to do something. And there are several ways to win that. One is to kind of hire the right people, much like Milgo here did when they hired me, that's kind of how they had the charter for statmuxes. One of the other things is sort of to come up with

the product. And so everybody was reading and talking about LANs and I was doing my homework and studying on the need for LANs, what was being hooked up. Back then it was all terminal to host. PCs in the early '80 weren't around. So LANs were really a terminal to host product. And data PBXs, port selectors they were called back then, had already been around. We had one at Infotron, an old one, which we never sold, we just couldn't sell the thing. Gandalf had always been the leader in data PBXs, called port selectors back then. They had made them since the early '70s and another Canadian company, Develcon was making them, and they were doing pretty good. And Micom had introduced one in I guess about '80, something like that, and they were starting to do pretty good with theirs. So I studied them, as well as all the different broadband technologies and all the stuff in the paper was always CSMA or broadband or baseband. What was better? EtherNet. In England they latched onto a token system, called the Cambridge Ring. Racal-Milgo Ltd. made a product called the PLANET. Good name, P L A N E T, private local area network. Good name. And that used this Cambridge Ring. Well they ended up winning the charter, essentially, for LANs, of the Racal companies. So much like the cartoon character that runs off the edge of the cliff and his feet are still going, I was sort of --

Pelkey: Momentum had been going --

Dambrackas: Right, I kind of got the juices flowing. I was studying all this stuff, looking at what was the best way to do it and meanwhile looking at port selectors. They really looked pretty cheap and simple and they filled the need. They were good local terminal to host connectivity, and star wiring, regular twisted pair. Even now, the excitement is all towards regular unshielded twisted pair. Well, why do you want to run all this special cable around your building and have all this stuff? Why don't you just use the modular phone jacks and the regular twisted pair. Take it back to the punch box, just like your phones are. You've probably got extra wire in already, and it works fine for 19.2 Kilobit data from your terminals to host, so I was sort of going towards the star wired, essentially applying all this newest technology to an old product, you know the data PBXs, or they were called port selectors then, rather than the bus based, you know, the coax base and those things. So I was on a roll, and when they said: "Well, they're going to do the other thing," I just sort of couldn't stop thinking about it. And that was getting up to late '82, I guess, when that actually happened, and I ended up starting a company here in March of '83.

Pelkey: Now how much time in between when you heard that PLANET had gotten it and you finally decided that I got to go do something about this?

Dambrackas: Well, the -- you like to sort of re-write history and make the reasons for starting the company be real polished and everything. The truth is that the thing that really made me want to start a company is a very simple, dumb thing. It is the fact -- Milgo was in Miami here, and I lived down at the sound end of Miami. Very happy living down here, very comfortable, as did Mark Cole, co-founder, and they bought a 100 acre site up in Sunrise, which is about another half hour drive, about a half hour drive to work, and this is another half hour drive further north. They bought a hundred acre site and they had planned to build this giant campus facility called Harrison Park, named after the chairman of the board of Racal corp. and I was faced with an hour drive to work. Now they of course offered to relocate and move me up there and I really didn't want to move, and that was really the straw that made me want to do it. If Milgo had stayed here, I probably would still be working there.

Pelkey: That's great.

Dambrackas: So they said they're moving the thing, and then I talked to Mark.

Pelkey: And Mark's last name is spelled?

Dambrackas: Cole. C O L E. so he really didn't want to move either. So the two of us didn't want to move and it just happened to coincide with this thing of the LANs, and I said: "Gee, you know, I think there's a golden opportunity here. Everybody's going on the exotic path for LANs, you know, the expensive stuff, and I think that data PBX -- " Micom was starting to pick up some pretty good speed with their data PBX, but of course Micom now was selling the thing through distributors. They were big now. They had a direct sales force, you know, representatives. Their data PBX was not simple and user friendly. It was pretty big

and complicated. It was this six foot, 600 pound box, like Gandalf. Pretty much everybody copied Gandalf. Infotron made one, they introduced it in around '82 or something like that, which was again like a copy of Gandalf. They all kind of had a Gandalf style box, big box, and it was complicated. And I remembered my experience with Micom and I said: "Gee, I think I can make one real small, real simple, using custom LSI, putting a lot of lines on the board, using telephone type connectors, make a little box that you can actually carry around, that can do everything the big boxes can." On top of that big ROM chips were getting to be available, and the idea of making all these menus, making it super friendly. So I thought, well I can do a Micom to that industry. Make this low-end --

Pelkey: That's what Roger said you did to him.

Dambrackas: Right, exactly.

Pelkey: He said you Micomed them.

Dambrackas: We Micomed them. That's right, and I learned. I learned from watching. I paid attention the first time around, so we, Mark and I, put a business plan together, pretty quick, simple, not a big deal, and just basically said: "Here's the competitors, and it was a well established market. You could get all kinds of studies, Dataquest, everything, as to who was doing what. Here's who's doing what. And we could make one real cheap, much cheaper, much simpler, much more user friendly, do it yourself installation, and sell it through distributors. And we raised a million bucks from TA Associates on the start-up day. Actually, I raised the money while I was still at Milgo. I didn't even leave Milgo. Closed on the money while I was still there. The morning of March 21, 1983, which is just about five years ago in a couple of weeks, and I resigned that afternoon. That was the Equinox. That's the vernal equinox, March 21st. That's how we named the company. We struggled with names. You know, we had the ThisCom, ThatCom, TeleThis, TeleThat, DataCom, this, that, initials, letters, we had a million combinations of them. We wrote up a computer program to try all combinations and cancel out the ones that were already used, and they all sounded the same when you look at them all on a sheet of paper.

Pelkey: That's a great story.

Dambrackas: So we picked Equinox, and haven't been sorry with the name.

Pelkey: No, it's a great name.

Dambrackas: Good name, you know.

Pelkey: Let me ask you to pause for a second.

Tape side ends

Pelkey: So you raised money in March of '83, you had a business plan together. And you were going to -- you had this role model about how to -- you had this role model about how to build a company from the experience of seeing what Micom had done --

Dambrackas: Mostly we patterned it after Micom, really, if you look -- and it was just a coincidence that Micom was one of the people making a data PBX.

Pelkey: Right.

Dambrackas: I mean, if Micom had not been making a data PBX, we still would have modeled it after Micom. We didn't --

Pelkey: Did you study -- did you go off and kind of more thoroughly study Micom in terms of financial statements --

Dambrackas: Yeah, always kept watching Micom, kept tracking them and always was interested in Micom, like I tracked all of the other datacom companies. But paid particular attention to Micom and saw all the success they had, so we copied them --

Pelkey: Did you hire anybody out of Micom in order to bring that culture with you?

Dambrackas: Yeah, we hired a guy, the first guy we got out of Micom was Frank Ford, our sales guy, VP of sales, who is no longer with us. He was a Micom regional guy in New Jersey. He had worked at Infotron too. And he had -- knew a lot of the distributor side, a lot of the distributors, and he worked out really good there. And he ultimately left the company.

Pelkey: Did you intentionally go after the Micom distributors?

Dambrackas: Yeah.

Pelkey: Their stocking reps and said: "Wait a minute. Micom's not giving you the product you want."

Dambrackas: Well we went after good distributors, and it just so happened that many of the good distributors were also Micom distributors. But we didn't specifically say: "Go to Micom distributors only." We went to all good distributors. And they all knew what a -- many of the Micom distributors also had been Micom reps and one time, and so they knew the data PBX from Micom.

Pelkey: In fact, Micom started off with only reps. They migrated them into stocking reps.

Dambrackas: Yeah, that's right.

Pelkey: Although they didn't innovate stocking reps.

Dambrackas: Yeah, who did?

Pelkey: Vadic.

Dambrackas: Vadic, really was the first one to innovate stocking reps? That's interesting. I didn't realize that. I guess I paid attention mostly cause it was happening to us. We were victims at Infotron. We went around looking for good distributors, found a lot of them, signed them up --

Pelkey: And in fact, Micom's reps were the original Vadic reps.

Dambrackas: Were they really?

Pelkey: Micom went around and picked up all the Vadic organization.

Dambrackas: Ok, that's interesting.

Pelkey: And Vadic allowed that to happen because they wanted the statmux to be sold through because they thought it was going to be a good product.

Dambrackas: Right, they thought it would be synergistic, along with their -- which made sense. Huh. Small world. Anyway, we signed up a lot of distributors, got off to a quick start, raised a second round, 3 million on our one year anniversary. Actually, the first year was really just designing the product. We spend one year designing. We didn't ship a product till April of '84. And raised our second round after the product was designed on our exact one year anniversary, March 21 of '84. Closed on that and then raised a third round in May of '85, another 3 million, so it's been a total of 7 million. And we had all the same problems with distributors that everybody does with distributors, but we had no sales force, very little expense, and we managed to get off to a pretty good start.

Pelkey: Now, my sense of it is that the data PBX business has really slowed down.

Dambrackas: Yeah, it's been flat. It actually went flat -- it was growing about 40% a year there in the first half of the '80s. Most or all of the reports ended up saying that, and it kind of flattened off about '86. It's been kind of flat through '86 and '87, and now it's rougher. Now you're battling to make market share from your competitors. We're up from '86 to '87, we're up about 20% revenues, but the market's not up 20%. We're doing this at the expense of competition. That's a hard way to grow a company.

Pelkey: Why did it flatten out?

Dambrackas: I'd say the main reason is that DEC really now competes with us. That's the main reason. The population of terminals is still growing, although PCs are becoming the desktop device of choice, but they're very often hooked up to minicomputers and mainframes through RS-232 connections, and port contention and sharing make a lot of sense there. But DEC came out with their EtherNet, with their terminal controllers, and they offer switching between hosts and so on, something that they never did before. One of the reasons the whole data communications industry was born and grew is that the minicomputer companies tended to let it grow. The minicomputer companies all used to stop at the RS-232 ports on their computer, and even though they made terminals, like DEC, being the leader, even though they made terminals and computers with RS-232 ports, they really never did anything between that.

Pelkey: Why?

Dambrackas: I don't know. I guess it never was that big of a market. It was the small part. Why didn't HP make a PC back when Apple did or why didn't IBM make a PC before Apple? It's just one of those questions that's hard to answer. It wasn't big enough. The same reason IBM finally came into the PC market is the same reason DEC finally came into data communications, cause they saw it growing into a pretty good piece of business, so now that they're starting to migrate out from their RS-232 ports and offer some premise type switching and distribution it makes it hard to compete, because they bundle it all together. It makes it rough. That's the biggest reason for the flattening off. PC LANs have had a slight impact, but not that big. PC LANs are mostly used to connect a bunch of PCs together to turn them into a multi-user system. They're not as much used for a premise wide thing, like I was just saying. You wouldn't take a big dormitory or a big thing and hook all these PCs together. They're just not used that way.

Pelkey: It is workgroups.

Dambrackas: It's workgroups. You put five or ten. Very few PC LANs are over ten or 15. There is some press about some very big ones, but they're the exception. They're very rare. Very expensive to go --

Pelkey: Now, Milgo obviously tried to get into the LAN business.

Dambrackas: With the PLANET. That was pretty much a big flop. It was too expensive. It was a terminal to host device.

Pelkey: But they're an exception. The next big event was when Micom bought Interlan.

Dambrackas: Milgo wasn't really in the PC LAN business. They were in the terminal to host business. Terminal to host LANs.

Pelkey: That's where Ungermann-Bass and that's where Bridge in the early days.

Dambrackas: They all started terminal to host, yeah.

Pelkey: They were all terminal to host guys. Sytek.

Dambrackas: Yeah. I don't know why Racal didn't do as good as some of those terminal to host --

Pelkey: One is the technology wasn't as good.

Dambrackas: Yeah, that Cambridge Ring ended up to be not that good. It was expensive.

Pelkey: Why didn't the other traditional datacom, the modem multiplexer --

Dambrackas: Get into that business? I don't know. That's an old story. It just doesn't happen.

Pelkey: Why did none of those companies -- other than Timeplex, they all missed the T1 business.

Dambrackas: That's an interesting one too. Timeplex certainly called that one right. They switched all their resources over to T1 long before anybody else did, and it was definitely the right move. It could have been their closeness with AT&T. They had a couple of deals with AT&T. They might have really seen it coming. I heard a lot of the signals about T1 MUXes when I was at Milgo from many of the reps and users that T1 capacity was getting plentiful and very cheap, and there were a lot of different sources of T1 capacity coming up, so the signals were there. T1 market is definitely a healthy market.

Pelkey: Have any of the people who worked for Equinox gone off and started other companies?

Dambrackas: No, we had one spin-off that was a distributor here locally. We had our national sales manager go off with some of the folks from accounting and start a distributor, but that folded six months after they started. But there haven't been any other spin-off companies started out of Equinox.

Pelkey: So Equinox had continued to, 1) take that more functionality, lower price, through distributors and continue to focus on the terminal to host with now some broadening the chart, dealing with PCs --

Dambrackas: Right, coming out with a PC product, and also just general networking now. Up until the middle of last year, we sold single site data PBXs. We sold products which sat in the middle of a building and hooked up up to 1300 devices, ports, modems, PCs, whatever RS-232 devices together all in that one building. And we introduced T1 connectivity, and T1 networking for our product last year. We have a board that runs T1, and you can network any number of these nodes together now, any user on any node can connect through to anything else.

Pelkey: Looks like he's connected to the node that the other users see.

Dambrackas: So he goes through. Also, a T1 MUX. We introduced in the middle of last year a T1 MUX that's a tributary off of our switch, so it lets users out at some smaller facility, 48 users connect in on a T1 as if they're local. We're getting some big systems now, so we're kind of getting into the networking business. Polaroid's up to seven or eight nodes all connected together with T1. Fannie Mae Home Loan Bank is up to eight or nine. DuPont is up to eight or nine. Texaco I'm going to visit tonight. They have something like nine data PBXs they're talking about connecting together, so we're starting to get into this private network business. Still, its primarily terminal to host. One way with -- there's a lot of PCs hooked up to our stuff, but they're hooked up via the RS-232 port and they run a terminal emulator, so they may in fact be on a LAN in a workgroup, but to connect up into the --

Pelkey: Do you see, in terms of your customers, do you see your customers using electronic mail over your equipment?

Dambrackas: Haven't seen -- it could be. We haven't got -- haven't seen it, but they may be doing it.

Pelkey: But you're relatively transparent to the applications?

Dambrackas: Yeah, we're very transparent, bit for bit transparent, so we don't get involved much in the applications. What we are hearing a lot of is we're hearing a lot of universities and big companies, Proctor and Gamble is a good one. They have 900 ATs on our data PBX. That's a lot of ATs, and they are

addressing -- they're also setting up a dial-in network nationwide where they're talking about 3,500 laptops dialing in so they're going to use our data PBXs as the dial-in port contender, back up switching between all these HP hosts, but on-site, locally up there, they have 900 ATs hooked up to a data PBX, and we're hearing from them that, gee these PCs are hooked up. Not just them, but a lot of people. We have a lot of PCs hooked up, and we know there's a lot of things we could do through the data PBX. We're putting our Crosstalk in there and our terminal emulator, and to transfer a file between two people that are on this network, you can do it, but you kind of have to treat it like you're a dial-up modem. You have to do this and that. Printer sharing we know we can do, but you need the software to do this. So we've been hearing this for a while, and we wrapped it all together and made an integrated software package that's a pop up, like sidekick, that does all the main -- it has a real sophisticated print spooler build in, it has a terminal emulator built in, and all kind of calling features and stuff.

Pelkey: One other question before we adjourn: How did you get in contact with TA?

Dambrackas: I had met Andy McLane of TA Associates on the phone. He called on a reference call for Infotron. He was doing some nosing around about Infotron and heard I had left. This was right after I went Milgo, and he called me and asked me about Infotron. He told me who he was and what he did and said if I ever wanted to raise some venture capital to give him a call. And that was three or four years later when I put it together, I said: "Hey, I remember a guy I talked to once." I called him up and we had a deal, so he was the first and only one I talked to and did a deal.

Pelkey: You were aware, however, about venture capital?

Dambrackas: Sure. I had known that if I couldn't strike a deal with Andy, I was prepared to go out shopping around and talk to a lot of people, but it just was a coincidence that I had met Andy over the phone. Never met him in person. Never actually saw him. We met in person out on Las Vegas, I guess. We were both going to a Comdex show in November of '82, just about four months before we started the company. I talked to him on the phone, told him what I wanted to do, and we were both going to this Comdex show, so we met and talked and I told him, and later got a plan together for him. He did some reference checking and we ended up closing the deal.

Pelkey: I don't have any other questions if there's anything else that we haven't reflected on that you think might be -- any companies that were important early on and kind of faded? Clearly Gandalf and Develcon aren't factors, and the Western Union situation.

Dambrackas: Halcyon bought that product and never did much with it.

Pelkey: Prentiss was never really a factor. Were there any companies -- I mean the big guys were in it. GE was in it and went away.

Dambrackas: No. I guess the main players have always been Timeplex, Infotron, Micom. There were a lot of people in it through OEMing and resale deals, but you don't count them. GDC is a company that, if I talk about the companies that surprised me, GDC is a company that I would have expected to do much better in the multiplexer business. They never really did as good as they should have. Even T1. The Megamux was one of the early, wideband MUXes. When I was first talking to end users and they were telling me T1 capacity is getting real cheap, they would always refer to the GDC Megamux. They'd tell me the GDC Megamux is the best thing going for utilizing this, and it's not that good. But it was there; it was ahead of Timeplex. GDC was in that business long before Timeplex, and why they didn't get their act together and -- We made a wideband MUX too at Infotron. It wasn't a big seller. We hardly sold any of them.

Pelkey: Thank you very much for your time. I appreciate it. You've been very, very helpful. I look forward to completing this.

Dambrackas: Looking forward to seeing what it looks like in print.

END OF THE INTERVIEW