
# Interview of Michael (Mike) Pliner

Interviewed by:
James L. Pelkey

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**James Pelkey:** It's April 8, 1992, I'm with Mike Pliner, in his office with Parity. Thank you for your time. As I indicated I'll make sure that you see anything that I use of this material and I appreciate your comments. You might begin by giving me some idea of your background before the founding of Sytek and how that prepared you for that experience.

**Mike Pliner:** Starting with my professional background, I got a P.H.D. in computer science, and in 1971 I went to work for one of the government agencies -- in the National Security Agency -- very high-tech agency in the use of computers and information. I worked for them for eight years, and at the end of that, I decided to get a real job in the private sector and went to work for Ford Aerospace here in California.

**Pelkey:** In, what, '78?

**Pliner:** That was in '75. And -- I'm sorry, you're right, the other four years even though I was getting my P.H.D. I was working for FA, in fact, the last two years I was doing my thesis the same time I was holding a full-time job. Not any different than starting a company -- but, that's where the other four years came from. But, in 1975, Carol and I moved out to California and I took a job with Ford Aerospace because it was a very interesting opportunity. Ford was a company in the Aerospace business that was basically selling 75% hardware, 25% software, and it was rapidly moving in the other direction, and to becoming more of a software company, at least in the Aerospace company, and less of a hardware company. And so they gave me the job of software development -- environment and tools and technology, and to really direct that for Ford Aerospace. I was, I think I was 30 years old at the time, I can't remember, and it was a great opportunity even though none of us wanted to come out to California. Ok, obviously since we've been here none of us will ever leave California. The job was great, it was all that it was supposed to be. I started a group with one person, myself, and grew it to 45 people before I left Ford -- four years. Brought the first Unix license into Ford Motor Company. Built a, my first network called Flash-Net Fiber Optic, high-speed network, for one of our clients --- did a lot of R&D in local area networking and applications, and we did a lot of external research for government agencies as well as private agencies. While I was at Ford, it was that particular work that a team of us for, let me see, let me think, myself, Ken Biba, Tom Berson, Jack Goldsmith, and Bob Kroll were the five founders of Sytek.

**Pelkey:** It's B-i-b-a.

**Pliner:** B-i-b-a. Tom Berson, B-e-r-s-o-n. Bob Kroll, K-r-o-l-l and Jack Goldsmith. All of us were working at Ford in one capacity or the other -- some of those people worked directly for me, actually two of them. We started Sytek, not as a networking company, we started as a technology consultant company. Now, we had a lot of networking experience. In fact, our first customer was Xerox on the X10 Telecommunications Network. We were writing the protocols for X10, ok. The company started with a $250 thousand dollar contract from Xerox, but it was strictly consultant.

**Pelkey:** Was it Xerox PARC or Xerox Corporation?

**Pliner:** No, Xerox Corporation. Our X10 (unintelligible) as you know never in the past, ok, and in fact we saw that coming six months into the program and said, "This thing's never gonna fly because the cost is too high", but we used that as a stepping stone to quickly branch out into all kinds of other consulting services including Cox Cable, Hughes, at the time, TRW, a number of commercial and government clients, in fact, we won some direct government business for the new company Sytek. In the first year, we got an end of the year with about, I believe, $1.3 or .4 million dollars in revenue with about 14 different customers, but all doing consulting.

**Pelkey:** And this is, your fiscal year at this point was July to June, or something like that?

**Pliner:** It was June 1 to May 31.

**Pelkey:** Ok. And, at Ford Aerospace, I think somewhere I read there's something called a Biba-Net --

**Pliner:** A Biba-Net?

  

**Pelkey:** -- or was there a network that a group of you worked on --

**Pliner:** I think it was called Flash-Net or Four-Net --

**Pelkey:** Oh, ok.

**Pliner:** -- but Biba, Ken Biba, was a very important part of making that network, ok.

**Pelkey:** And, did you have a relationship with MITRE at that point, or did you work --

**Pliner:** I can't remember that, I know we worked closely with MITRE, and I can't remember whether we had a contractual relationship with them or not -- Ken Biba could tell you --

**Pelkey:** -- and do you remember anything about technology transfer from MITRE into Ford, or --

**Pliner:** -- no, not into Ford, when -- you know, I really can't remember -- I mean, that goes way back, and I know that the three areas of technology we really were good at at Ford were networking and protocols, security, and database management, and we were really experts in all three of those and getting a lot of good research programs and software engineering tools, but that was more internal. And, so when we started Sytek, we started with that: security, networking and protocols, but we gave up database management.

**Pelkey:** What prompted you to want to start your company?

**Pliner:** The thought, entrepreneurship, just doing something on your own.

**Pelkey:** Was that that point of time there was a sense of, other people were talking about networking being big and --

**Pliner:** No, no, no, we had no idea about networking at that time. Like I said, we started as a consulting company. After the first year, we had had a great time and we had contracts with Intel, like, you know, but we were saying "something's missing, we want to build something, we want to take this expertise and really do something." While we're doing this consulting we watched the local area network market begin -- it wasn't a market -- the technology began to be looked at, I mean, here you have Ethernet for two or three years before -- you began to have Wang talk about a broadband network. You -- there's Bob Metcalfe who hadn't yet formed a company and he was deciding what to do. And, and you have Ralph Ungermann and Charlie Bass, and I remember when they were real small, but Ralph and Charlie decided, 'We're gonna go get this business', and they went and got venture capital, and they decided there is a business in local area networking, and --

**Pelkey:** And did you, were there contacts between you and any of those people --?

**Pliner:** Oh yeah, in fact all three of us, ok, like you say, Charlie Bass and Bob Metcalfe and myself, and we all, we met regularly, and we talked, we one time tried to convince Bob Metcalfe to join Sytek and he says, "No, I want to run my own company", and he built 3Com, I mean I remember when he was just three or four people -- and we were just seven or eight people, and Ungermann-Bass was just starting. It was in 19 --, we started in '79, in '81, I think it was '80, 1980 we took the money we made out of the consulting business, we had about $300 thousand dollars, and we said, "let's reinvest it and let's try to build something," and we decided to go different than everybody else; we went broadband, and we met this guy, Jose Picasso in one of our other consulting assignments, and we were doing -- I forgot who the consulting assignment was for -- and Jose brought with him, in a sense, the front-end interface technology broadband -- and, at that time, broadband versus Ethernet, and by then, you know the cost of Ethernet had dropped to such a point that I'm not even sure what the cost of broadband -- but at that time they were relatively equivalent, both of which, a thousand dollars adapter or something and broadband brought some interesting aspects to the local networking: one, much larger distances, be able to carry

  

video, be able to carry multiple services on the network and stuff like that, so we thought that was really interesting and we kind of explored the technology. I found a good radio group out in Japan who we worked real closely with to develop the technology into networking, and within a year had the prototype of LocalNet which was the first the broadband network -- using packets, using CSMA/CD protocols which is the same as Ethernet but didn't run at Ethernet speed. So instead of having one big channel of 10 megabits, you had 128 channels with 128 kilobits, but for the type of networking at the time, that was the business for the first five years, six years of networking -- it was a great solution. Though we kind of played around with this thing and somebody --

**Pelkey:** Do you recall how you got in contact with this Japanese firm?

**Pliner:** Yeah, through Jose.

**Pelkey:** Through Jose, ok. And so that's where you got the RF modems and --

**Pliner:** Well, we designed -- Jose was our design engineer and we worked with him closely to design and manufacture the RF modem ourselves. The technology was there we just weren't sure we could manufacture them, and then when we got, you know they worked on it, we finally got that down pretty well. We did the software ourselves -- and version 1 of LocalNet kind of came out, and I believe it would be 1981 and I remember our first two customers were Brown University, Naval Ocean Systems Center, and, three customers all at the same time, and Lincoln Labs. Now this is really interesting on Lincoln Labs because all that comes back to where Ralph Ungermann and us parted -- but, anyway, I remember, and I'm trying to remember the guy's name, Dr. --. In the early days of networking you were selling wire replacement, ok, it was cheaper to run a network with broadband or Ethernet than it was to wire everybody's terminal into a -- Brown had had that problem in spades and Brown decided let's take a chance -- this broadband stuff looks really neat, so they said, "We're going to take a chance on you", so did Naval Ocean Systems Center, our first two customers, and they NOSC turned out to be a $7 million dollar customer over time. Brown turned out to about $1.5 million, but we wired the entire campus at Brown and they put LocalNet in. Now, both of those were beta sites and had had to go through the growing pains and everything but they were very good. Lincoln Labs came a little bit later, and Lincoln Labs was a high-speed network, and this plays into the IBM story a little bit, and we had to do, we didn't have the product they wanted; they wanted the high-speed, host-to-host interconnectivity product, and we wrote a proposal -- let's see if I can get this right, you need to confirm this with Charlie Bass, ok? But, they wrote a proposal and said they wanted a high-speed network and we said "Why don't you go buy Ungermann-Bass?" and they said, "No, we want a broadband network", and I said "well, we don't have one", ok, so they came out with a RFP and, I believe it was our understanding that Ungermann-Bass did the RFP and some other people, and this for another $1 million dollar contract or something -- and we did the RFP, but we bid two options: we bid Ungermann-Bass and we bid our broadband, our high-speed broadband network, 2 megabit network which we never had -- it was going to have to be developed. We won the bid on our second option, the broadband, ok. To this day, I believe Ralph still thinks that I used him, ok, to -- win the bid because he gave me the cost, and I'm saying "Hey, you didn't tell me you were bidding at all", so, but on the other hand, we really did bid two options, it was really in our proposal, we said "If you really want to do this with off-the-shelf product, here's an Ungermann-Bass solution, ok, if you want to do this and take the chance and build a product, here it is," ok, and that's how we got into 2 megabit network. Now through that, through the host-to-host connectivity, this was the kernel -- by the way, we had some really good protocol engineers working for us: Kaufman -- I don't remember his first name. Get that from Bibo -- and another engineer, who were two of the best in the country, some of the guys who had worked on the Arpanet and stuff, and -- so we designed a whole new protocol set for our LocalNet 2000 was what we called it, or was it LocalNet 20, I forgot what the high-speed product was with 2 megabit, maybe it was called 2000. So we designed that and that's what was used to develop the host-to-host protocols, which were the kernel ideas of NetBIOS. We shipped that to Lincoln Labs, we shipped it to a customer in Japan, we shipped it to another customer and it was an incredible product to support, very difficult to service, and we actually killed it a little bit later -- but UB got started anyhow, and we went broadband and they went Ethernet baseband; they started out with Xerox protocols, eventually went to 802.3 protocols. We stayed in the broadband business, terminal-host for a good five years. We did very well in that business and just grew with the market, both locally and internationally, and Wang tried to

  

take a stab at the business, couldn't develop a product, but Wang was great for us. By the way, that was the one thing that allowed, because Wang was going out telling everybody that broadband's great and couldn't deliver it, ok, and we let them fight Ethernet, I mean, we just said, "If you want broadband, we can deliver. Here it is," and it worked for the broadband systems, actually worked pretty well over large, campus-wide networks. So while UB was specialized in department networks, Ethernet type networks, before you had gateways and all that, we were specializing in campus networks, we were doing big campuses --

**Pelkey:** With proprietary protocols.

**Pliner:** Proprietary protocols.

**Pelkey:** How did Ungermann-Bass and you work together?

**Pliner:** We really did.

**Pelkey:** You didn't see yourselves as competitors --

**Pliner:** Oh, no, we were competitors except for that -- I thought we were working together on that first deal, o k. They thought that we were competitors, but after that point, we went broadband and they were baseband. We were large campus-wide networks, terminal-to-host, they were departmental, and we both saw each other as competitors at that point. Then 3Com kind of got into the business, then Bridge got into the business, and then you had 3Com, Bridge, Ungermann-Bass and Sytek all going. In 1983, probably, ok, then the General Instrument investment came -- GI. We went up to raise some money for the company and we looked at venture investors and others and then GI found us. A guy by the name of Lou Solomon, who I have a hell-of-a lot of respect for, had the vision, this guy was thinking 2-3 years out ahead. He said, "You guys got the technology for us to bring data into every home and every business in the city." So, you think local networking was an interesting market now, think about the Metropolitan-Network on cable TV. Now, remember, GI was the IBM of the cable industry, ok. So, with Lou Solomon's vision and the kinds of things that we were looking at, I said, "Take some money from these guys and let's go even further ahead than just local networking, let's get into Metropolitan-Networks, because, I mean all the cable TV and GI was doing fantastic, you know. So we took their investment and they made some additional investments in the company --

**Pelkey:** And, that was 1983?

**Pliner:** I think their first investment was '82.

**Pelkey:** 82. And, do you recall how much they invested?

**Pliner:** At that time, it was like $6 million, but eventually they invested $12 million to $14 million, maybe $18 million.

**Pelkey:** And, $6 million, do you remember what the value of the company was?

**Pliner:** No.

**Pelkey:** Ok. But, they eventually got to 51%.

**Pliner:** 57%.

**Pelkey:** 57. But the first investment they didn't do that.

**Pliner:** No.

  

**Pelkey:** And you have --

**Pliner:** You know, Jim, I'm not exactly sure about that. I think with the first investment we gave them the right to get to 57% at sometime, but I know, but it was only after they put up $12 million to $14 million, you know over time, and I'm not exactly sure how that worked out. But, they were going to be our bankers and they were our strategic partners -- and Lou had this idea and we actually worked, we worked with them on a Metro-Net concept. We actually demonstrated in Sacramento, you know, interactive cable TV on a Metropolitan-Network. What was interesting, now you've got to understand what the costs were there, I mean, they're nothing like they are today. I mean, you're talking about a thousand or $1,500 for a box that was going to sit in front of your TV that would allow you to interact like a terminal. Now, what can you do? You can do home-banking, home-shopping, home-information. None of those -- after the market study and extensive millions of dollars of research and marketing and trials -- none of them were going to carry the cost of the system. People weren't going to pay the money necessary for cable companies to retrieve, you know, to get the money back out in order to make a profit -- except, believe this or not, except if they could've done home-lottery or home-racing. Now, remember, GI was in the race track business, so they did this little thing, you know, bet from home kind of thing. Believe me, that would have carried the terminals everywhere. But the legality of it, you know, it wasn't going to happen in 19 --

**Pelkey:** Either that or pornography.

**Pliner:** -- in 1982, but it was, it was a funny thing, it was entertainment still drove the home. Nothing else. Forget the data. Forget the home shopping. Forget the home banking. The market wasn't there, but entertainment was there and home-lottery or home betting would have carried the other services free.

**Pelkey:** Now, did they do that research after the investment in you?

**Pliner:** Yeah, and after, and we were building some products and prototypes all along the way. Well, the writing was on the wall. We were either too early, and as you know, interactive TV is now starting to get going, but, of course the price point was much greater. We were too early and it just wasn't going to happen --- Metropolitan-Networks, but that's why GI invested in us and that's why we let the investment happen, because we looked for that.

**Pelkey:** Now, see if this is correct --- during that period of time that you now began working with GI and they were wanting you to move in that direction, and therefore, that was starting to consume some of your engineering resources --

**Pliner:** Yeah, but they paid for it.

**Pelkey:** But you're also, on the other side, on networking you had this, where you were proprietary protocols you had this movement toward these --

**Pliner:** Yeah, but see it was this same technology that we used for doing campus-wide networking that could do inter-city networks -- the same technology. So, I didn't, you know -- yeah, I took a few barking people, a few engineers and put them on this project but I didn't move the company in that direction, ok. But that fizzled out and that was the end of Metropolitan-Networking for a while. And then we continued along the path of broadband. Now, we ran into IBM and they saw -- we did a big seminar in 1983 -- early '83 with Brown University at Brown. We expected 90 people to show up, 200 people showed up. Hot, spring night. And, so we were all crammed in this room and about 12 IBM representatives were there including Jim Turner from Entry Systems Division. And, we had customers talk, and so he looked at this technology and he said, "This is fantastic, we can get the IBM PC, we can put it on campus-wide networks, Metropolitan-Networks." They bought into the same thing that GI kind of said: carry video, multi-media -- this was back in '83 -- and you know, put it all in the same network. So, ESD got really interested in broadband. And, they had a good team and they were really riding the successes of the PC, you know, because PC was invented there, Estridge was still there, they were king of the roads, they could do anything they wanted, they were mavericks. They came to us and said, "We like this broadband

  

stuff, and we like that product that you had trouble with," you know what we called it, and again, I'm not sure I got the product name of this thing correctly ---- LocalNet 20, 2000, whatever it was, you know, the one for host-to-host. And, they said, " -- see these three boards? Our F board, PC board, I mean not PC but a digital board. And there was another board: "we're going to make, we're going to shrink all that down and we're going to fit it on one PC card that's going to go into an IBM XT," or AT, no there wasn't any NTs at that -- "I don't know if we could do that," I said, "and furthermore, we don't think we can meet your price point," because the price point they wanted was for the PC market. And I said, "Why don't you go talk to Ungermann-Bass? They can do that with Ethernet." And they did, but they kept coming back and said, "No, we want broadband, we gotta have broadband. We gotta be able to go on campus networks." So we entered into, and we said, "ok, this is a risk-taking company. Are we gonna do this thing and take this great idea and deal off the table or are we gonna pass on it, because they really want our product and they're willing to pay more for it." So we went and did it, and we knew that when Biba signed up to do that deal, we knew that there was only 60-40 shot we would ever make it, ok, because we were doing things that we just never had done before. We looked in the market and we said, "What do we have to do? We need a protocol chip." So, we went to Intel and we did a deal for the 586 which was the Ethernet chip that Intel had at the time. They were the first ones coming out for $75 or $80 a pop. We had to shrink the broadband modems. We went to our Japanese manufacturer and said, "We're going to ask you to do the impossible." So we went through this incredible design stage --- and by the way, we had to add -- the reason also they picked us is because the protocol we had on LocalNet 2000, and they said, "We need to build a robust networking protocol for some of our groups so that you can move resources around," that's why the NetBIOS protocol came in with the Broadcast protocol as part of that. That was all worked jointly with IBM. In fact, NetBIOS was a joint development, which both Sytek and IBM owned.

**Pelkey:** And where was Microsoft with respect to that?

**Pliner:** Microsoft was building the operating system on top of this.

**Pelkey:** So you had contact, did you have contact in Microsoft? Was it --?

**Pliner:** In the good old IBM way of doing things, they were going to keep this whole thing secret, ok, so we knew Microsoft was there, but we never were able to talk to Microsoft, so, you know, we would get these strange phone calls from Seattle and they won't tell us where they were from and stuff, but we knew -- Microsoft knew that we were in there; we knew Microsoft was in there; IBM was the broker; and the three of us -- they built an operating system; we built the network; we developed the NetBIOS low-level protocol, of which Microsoft was the test; and they built their stuff on top of it, and it was a joint development. In fact, we made it an open protocol and we were going to license it to other people outside of IBM, and that's when I actually first met Steve Jobs at Apple, because he was interested in being IBM compatible. We did a deal with Tandem, but then the other things at IBM happened, so --

**Pelkey:** Since you had a development contract --

**Pliner:** So we had a development contract with IBM.

**Pelkey:** The first one was development AND manufacturing?

**Pliner:** And manufacturing, development into manufacturing.

**Pelkey:** And that was signed sometime in mid '83?

**Pliner:** I think we signed it in '82, ok, because I think the product was launched in '84, if I'm not mistaken. It was a two-year development cycle.

**Pelkey:** And this came after the GI investment?

  

**Pliner:** Yes, so the GI investment actually was in '81, so you'll want to correct that. Now -- anyway, we did it. We made this thing work. It was incredible. We had software and hardware and protocols, I mean, I had to set up a separate division to deal with IBM because, like, if I didn't do that it was going to bring down the rest of the company. But I've got to tell you something, this group at IBM down in Boca was one of the most aggressive, I mean, they acted like a small company, an entire… They had good people; they worked all night; they could make decisions; they could move quickly. The program manager of that is Jim Turner. If you can ever find him at IBM, he was responsible for the AT and he was responsible for the PC LAN. So when IBM came out with the PC LAN protocol, I mean product, it had the NetBIOS protocol, and it was three boards shrunk down to this, and we were able to manufacture it, and before we even announced the product, we had manufactured 14,000 of them, and we filled up the IBM distribution channel. So it was a good relationship at that time, and we learned a lot about IBM manufacturing. IBM certified our manufacturing capability, not that I would ever manufacture hardware again, but we sure learned a lot from that relationship.

**Pelkey:** Now, from the little I understand, you started to manufacture that product in Mexico at a TI plant.

**Pliner:** No, we TRIED to manufacture in Mexico. We never successfully did that.

**Pelkey:** And IBM came in with their quality people, and looked there and --

**Pliner:** And then we moved it back. We said: "This is too high-tech of a product. It cannot be manufactured in Mexico," and moved it back and we set it up here, and we had an excellent, high quality manufacturing plant here -- that building right down behind Sytek today.

**Pelkey:** And when you brought it back up here, however, your cost structure was much higher than you thought it was going to be. A lot of the people that I've talked to have said that you weren't making any money on that product at that point in time.

**Pliner:** Wrong. Wrong. The cost structure went up some, but there was some margin in the product that allowed us, you know -- and IBM renegotiated the contract to allow us to do that, because what both of us recognized is that the product was too complex to build in Mexico, and the cost structure -- I mean, we all knew broadband was going to be higher in price than baseband, especially at that 2 megabit rate, but we did move it up here, and when we got into full manufacturing in '85, I believe, we did $42 million in business with IBM in one fiscal year.

**Pelkey:** Which is '85?

**Pliner:** Right. And we made money on that, no question about it, ok, when we were in full manufacturing.

**Pelkey:** Now, IBM also made an investment.

**Pliner:** Yes they did.

**Pelkey:** In September of '84, or something.

**Pliner:** Yes, that's correct. Right when the product was launched.

**Pelkey:** And they bought a little less than five percent of the company?

**Pliner:** They bought an option for five percent of the company for $6 million. It was a -- what do you call it -- a subordinated debenture, a six percent loan.

**Pelkey:** Now, you were a little bit late in product, but given what you were trying to accomplish, my understanding is that you ran maybe three or four months later than you had expected to be.

  

**Pliner:** Yeah, that's correct. Remember, it was only a 60% chance we were ever going to get the product out AT ALL.

**Pelkey:** And now in March of '85, IBM announces their cabling system? They announced that before you started to -- before they announced the PC LAN product, correct?

**Pliner:** Well, we were the PC LAN product. So they announced it in '84, I believe. Right around that announcement is when they made the investment in the company, and then, you know, business just took off. Like I said, half of our revenue came from IBM. We had a whole separate division, you know, we manufactured the product. What happened after that was something that -- we got involved in a fight between PC LAN and Token Ring. Dan Warmenhoven, in fact, was running the Token Ring group up at Raleigh. Bill Lowe was the one who kind of looked over -- he was our sponsor. He came out and looked at Sytek. He really liked the PC LAN, but here was where the problem was, ok. The charter for IBM ESD was workgroup computing, but they didn't want to settle for workgroup computing, because they built a LAN that was enterprise wide and campus wide. Because for workgroup computing, they would have picked Ethernet, ok, because at that time, you could put 20 or 56 nodes on Ethernet, but they wanted thousands of nodes. In fact, they wired up all of Boca Raton Florida with broadband and everything. So here you've got a network and a protocol for more campus wide, yet they had a charter for workgroup wide, and the campus wide absolutely moved head on with the Token Ring, because Token Ring was campus wide. And, again, Bill Lowe was our sponsor, you know. Dan, who I think the world of, Dan Warmenhoven over at NET, he's a great guy, and we sat down and looked at this, and said: "How do we both do this?" Well, I said: "Let the customer make a choice. If he wants to buy PC LAN, fine. If he wants to buy Token Ring, fine," or something like that, so we went on that for about a year. But the marketing messages started to conflict a lot, and then you also had -- well, the MAP people at that time were starting to get real strong, even though they never made it -- so Mike Armstrong stepped in and he said: "Alright, we've got to make a decision here. We've got to have a consistent LAN policy. We can't have this overlap. You, BSD, you're going to be workgroup, and that's all. Token Ring, you're going to be enterprise wide and then we're going to have MAP." And I remember meeting at IBM's headquarters with Steve Schwartz, and he said -- I sat in that meeting, and I said: "Guys, the market's not going to accept this, ok. You have to listen to the consultants. They know that the PC LAN is not a workgroup LAN. It's too expensive, and you don't put broadband in for 20 people, you just don't do that." And they said: "No, we've got to do it this way, because that's their charter," and stuff, and it's got to be that way. I walked out of that meeting and I said: "Guys, we better do something at Sytek. We better be prepared, because all hell is going to break loose." So we started, at that, started looking at downsizing.

**Pelkey:** Do you remember when that was?

**Pliner:** Again, it was probably about '86, or something like that. It was after an incredibly good year with IBM. I had $90 million in revenue. I was ahead of 3Com at the time, and I was -- I wouldn't say immensely -- I was very nicely profitable.

**Pelkey:** And that would have been the fiscal year ending May of '86?

**Pliner:** Yeah, you know, we're going to have to go back to look at the numbers and I don't have them here, but maybe you can get that from talking to Ken. And we all came back and said: "We better come up with a new strategic plan." And sure enough, when they made the announcement, two, three weeks after we had that meeting, they made the announcement, and the consultants -- I can just remember, Gardner Group and all of them said: "You're crazy. This makes no sense at all. How can you take this expensive product and constrain it to a PC onto a workgroup LAN." So, nobody bought it, you know, and IBM couldn't sell it very well, and that was the end. Then we scaled down and eventually stopped manufacturing altogether. Some interesting things happened on the way up there, of course. Apple came to us and wanted an IBM compatible thing. We became very good at 802.2 protocols and stuff, and we -- like I said, we began to license NetBIOS. Because of our terminal to host connectivity, and terminal to host was still, not a growing market but still a stable market, we were able to keep the company relatively, you know, moving, alive and somewhat profitable, but not great. That continued on to -- to in a sense, the company was sold to Hughes as one of the last local area network companies to be sold in 19 -- you

  

know, Ungermann-Bass sold to Tandem; Bridge sold to 3Com; 3Com changed its whole business, and I think that would be 1990 when we sold the company to Hughes, and became Hughes LAN Systems.

**Pelkey:** Were you still there at the time?

**Pliner:** No. No, actually I left exactly when the company was sold.

**Pelkey:** Which was in 1990?

**Pliner:** Yeah. Actually, it might have been '89. I'm trying to remember these dates --

**Pelkey:** According to --

**Pliner:** And, when I was there, I changed my role, because in the last two years I was not CEO, president, I was chairman, but I did, in the last two years, I was doing a lot of other things, but then helped, just to make sure the company got sold, which was the right thing for Sytek. In fact, there's a reemergence of -- they were getting a little bit into the router business and stuff like that with the new team of people, and under Hughes, which is integrating wide area networks and local area networks together, which makes a lot more sense than GI doing that, it's a good place -

**Pelkey:** Was GI a pressure point to get it sold?

**Pliner:** Two things. There was a time back there when General Instrument wanted to make a big investment in local area networking, and they were going to put a lot of money into it and were going to either build technology or acquire companies, but that never happened, because GI's satellite business and some of their other businesses got into trouble, so that never happened. Then the point came where it made sense for GI to sell it, because they weren't going to invest in it, so why have it? And so they did a good --we and GI did a good job of getting the company sold.

**Pelkey:** Now, going back to this period when you started to ship your LocalNet 20, how did you sell your product other than through the IBM relationship?

**Pliner:** Direct sales.

**Pelkey:** And your competition was data PBXs?

**Pliner:** No. Well, some, but our competition was more Ungermann-Bass, 3Com, Bridge, and Sytek.

**Pelkey:** And it was really a broadband/baseband sale that was happening?

**Pliner:** And MITRENET, to some extent, but that never was commercial. And it was broadband to baseband. If the customer wanted broadband, he bought Sytek. If he wanted baseband, he bought Ungermann-Bass. Now, it turns out, Ungermann-Bass got into the broadband business back in about '86, and we got into the baseband business, you know. So, then the distinctions between the companies were blurred. It was whose products, whose features you wanted, you know, all that stuff. And then price became the issue, too.

**Pelkey:** Eventually, you moved over and supported Ethernet.

**Pliner:** True. Everybody had to.

**Pelkey:** Yeah. So didn't just stay proprietary?

**Pliner:** In fact, I think over time, Ethernet won out, and why? Because of routings and gateways. Because, you know, if you build -- I mean, I could put up a broadband network in here, but Ethernet with routers and segments gives you the equivalent of broadband without video, ok. Now, if video is not

  

important to you, you can actually do it cheaper that way than with broadband. But, at the time, you've got to understand the economics of the time. Ethernet was expensive; broadband, you used the same components you wire your cable TV in-house, so the components were cheaper, however the interfaces were more expensive.

**Pelkey:** So you were going direct sales -- you really weren't seeing 3Com at that stage, because they were more in the retail stores.

**Pliner:** No, that's right. But we saw Bridge, and then when Bridge got acquired by 3Com, then we saw 3Com. Now, you asked about 3Com, yeah, Bob Metcalfe and Bill Krause, we talked. In fact, we were neighbors. I mean, we could walk across the parking lot and we used to have these visits, and it made some sense to see if you could combine these companies, but the one thing that prevented a merger was the ownership by GI. There was a little unknown law that says that if you're owned 50% by another company and you do a merger, you can't do a combination of assets, you have to write something off, and since both companies have a lot of goodwill, the write-off would have killed anybody. So we never even talked much beyond a few conversations and realized that was going to kill us. So we just called it off.

**Pelkey:** And do you recall, was that after '86?

**Pliner:** That was after -- I believe that was before, about a year before 3Com tried to merge with -- what's the name of that company?

**Pelkey:** Communications Solutions?

**Pliner:** No, Convergent. And then that kind of failed also. Poor Bill. But anyway, we never really got to any late stage talking, and it just, by the time we looked at it and talked about the goodwill we would have to write off, and it wasn't worth, even if it made sense, it wasn't worth proceeding.

**Pelkey:** You were really executing to what the opportunity for Sytek was early on, because, my understanding is, you had full customers with over a thousand nodes on a network.

**Pliner:** We had big customers. Like I said, we were doing enterprise campus-wide networking. That was our business. That's what we're good at, not these small 20 node Ethernets and stuff.

**Pelkey:** Now, at that stage, the cabling was a big part of the problem. You always had to lay the cable and --

**Pliner:** Well, you see, it was easier for us, so some extent, because we could use broadband installers who were in every city in the world. The broadband cabling network was no different than your cable TV network, same stuff. We had little cable installers all over the place.

**Pelkey:** That looked to be an early advantage for broadband.

**Pliner:** It was. But then, you know, eventually everybody could install Ethernet so that advantage went away.

**Pelkey:** Why do you think that happened?

**Pliner:** Because we really didn't have a good workgroup solution, and I think there was -- part of that -- I mean, there was a market for campus-wide networking but there was also a market for workgroup networks, and eventually the workgroups got bigger, and you got more and more of them, so you got qualified installers and stuff like that and you started tying them together.

**Pelkey:** Was it because, in the case of Ethernet and workgroup computing, you didn't have to go make big enterprise wide decisions?

  

**Pliner:** Exactly. You don't want -- and by the way, IBM attempted, with the cable kit, to bring broadband down to the workgroup, but it never really did, because by the time you did that, it still was more expensive on a workgroup level than baseband. On an enterprise-wide, no, I think broadband actually might have been cheaper at the time.

**Pelkey:** Now, one of your lasting legacies is NetBIOS. That, really, was instrumental in getting software companies to be able to --

**Pliner:** PC, right, exactly, and it became a PC networking standard. Again, it was done by ESD with some very good people. John Lee developed it with us, you know, at Sytek with our protocol engineers. And that stayed on beyond any of this stuff, and I still read things about NetBIOS, and I know all the warts of NetBIOS.

**Pelkey:** During the period of time when you were doing NetBIOS, all this 802 stuff was going on and --

**Pliner:** Oh, yeah, we played around in the standards committees. We participated in the broadband standards, you know, and all that, but you just do that as a part of your business.

**Pelkey:** So the influence of NetBIOS really did come from the experience that your team had?

**Pliner:** Yeah, if you look at some of the stuff that's in NetBIOS, message transfers and buffer transfers and all that -- I can't remember all the terms -- its roots go all the way back to this LocalNet 2000. That's not the right name. It's not Local Net2000, whatever it was.

**Pelkey:** Local Net 2000 was introduced in 1986.

**Pliner:** Yeah, that's not it. This was earlier. This was -- we had Local Net 20 -- was it Local Net 40? I don't know. Maybe you should talk to Ken about that. Whatever it was, the 2 megabit network.

**Pelkey:** Did any companies spin out of Sytek?

**Pliner:** Yeah, there's a company on security -- We spun the security stuff out in 1987, and it's now called ARCA. I think that's the only real spin-out.

END OF THE INTERVIEW

  