Interview of George Grumbles

Interviewed by:
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James Pelkey: You joined UDS in 1973?

George Grumbles: '72.

Pelkey: What were you doing before you joined UDS?

Grumbles: I was with a little company in New England, and doing essentially the same thing. The company was a digital controls kind of company, and the name of the company was Control Logic, in (unintelligible) MA. We were involved in some of the early throes of building small computers with logic blocks.

Pelkey: How did you come across UDS?

Grumbles: I knew the people here. I had lived in Huntsville. I had been in Huntsville; I moved to Huntsville the first time about 28 years ago, and did some consulting, manufacturer's representation, and lived here -- established a lot of friends here, so I knew the people at UDS.

Pelkey: What attracted you to UDS at that point?

Grumbles: Well, I felt that I'd lived in New England for five years. I had earned my degree in Yankee, and I was ready to move home again.

Pelkey: And was there anything about UDS and this business in particular that was attractive, or was it just --

Grumbles: Oh, yeah. It was very exciting. The company was about $150,000 a year -- no. The people were capable -- very capable collection of people, and as I said, I was ready to move back home, but I knew the folks that were going together to form UDS were very capable, very solid, ethical, honest, good people; intelligent.

Pelkey: When you joined UDS, what was your role?

Grumbles: Marketing and sales.

Pelkey: Ok, and you reported to --

Grumbles: Mark Smith, the founder.

Pelkey: Mark Smith. Now, during those days, can you describe the competitive environment? What were the challenges to you as a marketing and sales executive?

Grumbles: Well, I guess that you have to reflect back to that point in time, and one of the interesting things was that very early on, shortly after the Carterfone decision, which came down in '69, '68, that everybody in the electronics/ communications world looked at modems as a panacea, and a way to become wealthy quick. We had somewhere in the neighborhood of 160 competitors in the early '70s. Now, that number shrunk with time, but then, with the PC, it came

back up to maybe those same numbers. We had a lot of people out there scurrying around trying to build modems, and at that point in time, the modems of real choice were the low-end modems; 202s, the 103s, a little bit of the 201s, but then on the other end, for dedicated networks, the 9600 was just getting a foothold, and the standards were being established in CCITT for V.29 and V.27, and pretty much the networks were starting to fall into place.

Pelkey: What allowed UDS to emerge above the ranks of these 160 competitors?

Grumbles: Well, we elected to be a company that would try to build devices that the buying public needed, rather than what we thought they needed. To say it a different way, we did OEM work, and early on we were almost 100% OEM suppliers. We would go to a systems manufacturer and say: "Well, you need a modem. What kind of special features do you need that you can't find?" We'd build cards or boxes, but generally cards, and give him all the hooks that he needed -- special interfaces -- and you have to remember that at that point in time, RS-232 was a standard, but even Bell was not standard RS-232. If you built right exactly to RS-232, you weren't compatible with Bell, so you had to be careful. It's interesting to note that, at that point in time, there were a lot of questions about what RS-232 really meant. So we would build OEM devices, and we stayed an OEM supplier for probably five, six years, almost exclusively.

Pelkey: Now, was the OEM business mostly driven by the timesharing phenomenon and minicomputers?

Grumbles: Since we have always been dominantly a supplier into the minicomputer world, I think that's a true statement, yes. See, our early large volume OEM users were people like NCR, building point of sale equipment, and most of our large scale -- not large scale but large volume orders were going into point of sale; JC Penny's through TI, NCR, accounts like that, and very high volumes where cash registers were starting to get data-mated back into the processor.

Pelkey: Now, you were only dial-up? Or were you both dial-up and leased-line?

Grumbles: We had both kinds of modems, but have always been a dial-up specialist. We found that in the early days it was more difficult to build private line devices than it was dedicated -- or, switched network devices, but we sold an awful lot of 202s and 201s into private networks, but you must remember, in the early days of modems, that the modem you built for consumption in the United States looked a whole lot more like a private line modem than it does today, because it didn't include a Data Access Arrangement (DAA). You had the hooks to tie into a DAA, but you had none of the direct access safety mechanisms built into your modem. That only came some years later.

Pelkey: Did you build DAAs?

Grumbles: Yes, we probably were one of the largest suppliers of DAAs. I remember when the DAA was allowed -- was allowed to be built other than by the telephone company. We were at a show in New York, and it was probably an Interface Show -- I'm not sure; probably an Interface Show -- and we received an order for 50,000 DAAs from a company, and we probably delivered almost that many. We delivered tens of thousands of DAAs.

Pelkey: Do you remember what year that would have been?

Grumbles: Well, let me think -- '75, '76, somewhere in that time frame.

Pelkey: Now, there was an acoustic couplers before that.

Grumbles: Right.

Pelkey: Anderson-Jacobsen was one of the --

Grumbles: A-J, correct; Novation, A-J, a little company out of Phoenix -- I can't recall their name -- was also dominant in cups. We really never did get into the cups business, though. We wanted to be directly in. Acoustic couplers, even though they worked in those early days, they weren't quite as good as you would like to have seen them, and we just -- we built some devices that had acoustic coupler inputs, but we just never got into that market.

Pelkey: So at this point in time, people had to use DAAs.

Grumbles: Right.

Pelkey: You only started supplying the DAAs once you were allowed to, because you weren't allowed to in the early '70s. Was that a source of contention to yourself, creating a level playing field? Some people have held a view, for example, that AT&T was very slow in installing them, and they didn't work, and that was a way for them -- and they priced it so that customers really had to buy their modems, as opposed to buying modems from third parties.

Grumbles: Oh, I guess you can hear any kind of a story you want to hear. It's my general impression that at that point in time, there were three DAAs: the CBS, the CBT, and the CDT. The one was the manual answering, and the other two were auto-answering devices. One worked off the current and one worked off -- one worked off of current and one worked off of voltage, I guess. That's not right. Anyway, there were three; two automatic answer and one manual answer; and the units Bell built were totally adequate, and they were defined clearly enough that there was no problem. Bell charged a pretty high price because they wouldn't sell them, they leased them. You remember, that was when Bell leased everything, and you might pay somewhere between three dollars and ten dollars a month for a Data Access Arrangement. When we started selling Data Access Arrangements, we started selling them in single quantities in the $150 range, so you can see that it was -- and again, I'm reaching back for numbers, but I think that's the way they were.

Pelkey: That's consistent with --

Grumbles: If you had bought a DAA when Bell was only leasing them, you could have paid for it in a year or so, so I would say they were charging a high rate, but that's -- they were a monopolistic organization, and it was what the traffic could bear, and they did it. It was not difficult to build a modem to work directly into a DAA, and the DAAs did work, and Bell

probably installed them pretty quickly. Oh, there may have been some delays, but I don't think it was a major issue.

Pelkey: In those early days, was the advantage that the independent modem companies had the fact that they would sell them rather than just lease them? Was that a competitive advantage against AT&T?

Grumbles: Well, our attitude has always been sell, don't lease or rent, and we used that as a selling feature against Bell/AT&T, but -- I guess that's a true statement. That was a strong feature because not too many years thereafter Bell started to sell devices as well as lease them. One comment I want to make: Bell was always a good supplier. Their equipment was good. They had some units that didn't work wonderfully, but who hasn't had? They built good product, they spent a lot of time designing and developing them. They overdesigned them, most generally, and they were very expensively built, but I think anyone that says that the Bell/AT&T designed units didn't work really don't remember too well. They were good products.

Pelkey: I don't know anybody who says they didn't work well. They thought that the DAA was an egregious form of competitive advantage --

Grumbles: Oh, it was. When Carterfone came down and they saw the way it was going to go, and when the judge asked Bell/AT&T: "Well, how many circuits will be affected?" The comment was something to the effect: "If only one circuit it affected . . . " and then the DAA was born. It was a way for them to scramble and still continue to make more revenues.

Pelkey: Now, you saw that there were 160 competitors. Did you see many competitors when you were going after the OEM business?

Grumbles: Oh, you always saw a lot of competitors, but when things settled out, Vadic and UDS were typically the two principal OEM suppliers in the industry, and we were, in those early days, nose to nose in nearly every account. We would win one; they'd win one. We'd win one; they'd win one, and in the early days, Vadic grew a little more rapidly than we did. We have since surpassed them, and I think the reason we surpassed them is that there was a point in time when they put most of their eggs in the PC modem basket, and I think they lost some presence. We never did that. We never did commit totally to the PC world. We stayed with what I call quote-unquote the professional communicator, and moved to higher speeds, more sophisticated devices, and I think that that slowed them down just enough to hurt them a little bit.

Pelkey: Right.

Grumbles: But, Vadic was an excellent competitor. We had -- I can say that Vadic was a very ethical competitor. We used to get up and scratch, kick, bite, scream, holler, but we both played ethical business.

Pelkey: Now, my impression is that they were, during those early days, they were a little more innovative, in terms of the technology, if I understand correctly.

Grumbles: Well, there's a difference in philosophy. Our philosophy was always: why create a particular niche; find where a market exists and supply to it. Vadic was more a 'create a niche,' and you must remember that Vadic has to be given credit for the introduction of the full-duplex modems that now dominate this entire dial-up world, with their VA-3400. Shortly after they came out with their VA-3400, through a set of circumstances that can be read in the litigation that we had, and won, with Vadic, we came out with a unit that we called a 1212, and the 1212 and the VA-3400 probably were both better than the design that was settled on as a 212, but the 212 was totally adequate.

Pelkey: Is there any place that I can read about the circumstances of that litigation? I don't have to be an expert in it -- just what caused it, what prompted it --

Grumbles: I don't want to get into a lot of the early forays. Just leave it to say that we saw an opportunity, and we went to a patent attorney. We had him search out the Vadic patent and give us an interpretation before we ever started to build a full- duplex modem, and we advised Vadic before we ever introduced it, that we were going to introduce a unit. We sent them specifications to make them fully cognizant, so from the time we did it, we felt that we were not infringing on a patent. Then, when the judgment ended some -- golly -- three years later --

Pelkey: Do you remember any of the those dates?

Grumbles: No, it's just been -- it's been a lifetime ago. I know both Vadic and UDS spent far too much money on the litigation. I remember they were two small companies that spent probably a million dollars collectively on a litigation. We were successful in the defense of our position, that we were not infringing, but it was an expensive, tedious time, and very, very time diluting. We then, collectively, dominated that small niche --

Pelkey: Right, because the two of you really were the only ones --

Grumbles: We were the only ones, right.

Pelkey: So both of you had, because of different strategies, had successfully gotten above the rest of them, but you hadn't really distanced yourself.

Grumbles: That's right; that is true.

Pelkey: Both of you came out with the 1200 full-duplex?

Grumbles: That's correct. That was kind of the establishment of our position as being an innovative supplier. I remember, during the litigation, Kim Maxwell from Vadic, and I were chatting on a street corner in Birmingham, where the litigation was taking placed, and Kim said: "You know," he says: "you don't understand, George, but one of the days the world will be dominated by full-duplex dial-up modems," and I said: "Yeah, Kim, I think that you're probably right, and we're in the beginning stages of that, and we're causing that to happen," but you also have to remember, at that point in time we were selling those units in the $1,000 range. Now,

they came all the way down to $695 -- but, when the VA-3400 and the 1212 came out, they were up and pushing the $1,000 range.

Pelkey: Those were the dollar-a-bit pricing days.

Grumbles: That's right, and in fact, people used to talk about 'buck- a-bit.'

Pelkey: Now, during those days -- coming back more to the sales and marketing -- did you have your own selling organization? Did you use reps to sell OEM?

Grumbles: We used manufacturer's reps.

Pelkey: You used manufacturer's reps? Did you have your own sales for too, in terms of going after an NCR?

Grumbles: No, well NCR was my customer. I ended up selling to them. When you're a small company, everybody wears many hats, and everyone was a salesman and everyone was a manufacturer, and everyone was a tester, and everyone was an engineer. Fortunately, I was not much of an engineer. Everyone did everything, because you didn't have the large staff to allocate here, allocate there. You did what you had to do. This was pretty much true of our competitors at that time. It was until we got up into the multi-million dollar range, that we started to hire. I hired my first salesperson -- I want to say eleven years ago. It could have been 12 -- but 11 or 12, John Cherenko, who was senior to me in the data communications industry, and truly a superlative individual. I hired him from a competitor, and he was my first salesperson other than myself. I gave him the responsibility as National Sales Manager.

Pelkey: From a marketing perspective, advertising and those things we normally consider 'marketing' today, up until the first Interface Shows, were the first real trade shows of this industry.

Grumbles: Well, there was a show called The Data Communication Show, I think, that preceded it. [Handing something to JLP] I keep that just as a kind of a piece of memorabilia.

Pelkey: This is 1978.

Grumbles: See, 1978 there was a Data Com show.

Pelkey: Sponsored by?

Grumbles: Well, kind of the same people that we know. Shelly was involved in it and there was a magazine that preceded Data Communications, and it was called Datacom User, I believe, and it was published up on -- or the book was brought together up in Boston on Spear Street, MA, and Shelly was involved in up, I think probably as a financier at that point in time. The publisher's name was Dr. Robert Sexton -- Bill Sexton, Dr. Bill Sexton; William Sexton. There were two or three other people that were early on in the industry, and they had this little book, and they had the idea to have a little show, and they did that. Then, something happened, and I

don't recall the particulars. They had a falling out, and litigation came about, and Data Communications had already been established, and at that point in time, Data Communications had a "Data Communications Desk Guide' or something --

Pelkey: A desk reference or whatever --

Grumbles: Yeah, it was twice a year, and George Werner and had really just started the book, and it hadn't gone into it's twelve time a year cycle, and at that time that Datacom User fell, Data Communications started to grow, and really grew in leaps and bounds. Shelly Adelson essentially got out of the publishing business and went into the show business, and as you know Shelly has done the Comdex Shows and Interface Shows and several other shows, and has created an industry of his own. He's done a beautiful entrepreneurial job.

Pelkey: Right, absolutely. In those days, up until '78, what did marketing represent, other than spec sheets and user manuals and -- there wasn't really a vehicle to do advertising.

Grumbles: Oh, no, we advertised. In fact, when I came to UDS, I had the folks here agree with me that we would commit to a $75,000 budget, even though we were only $150,000 a year, but the thinking was that if you didn't hit your numbers, you could always cut back on it. My first advertizing was in Electronic News, and our first advertising was in the Datacom User and some of the OEM books: Electronics, EDN, to address the engineer. There was plenty -- you could advertise. There were places to advertise.

Pelkey: It was an in -- you advertised.

Grumbles: We did.

Pelkey: And the competition did as well?

Grumbles: We have always been more aggressive in advertising than most of our competitors.

Pelkey: Yeah, that's what I'd think.

Grumbles: I personally believe in advertising.

Pelkey: A comment: it seems to me that the nature of advertising in the data communications industry profoundly changed when those 'orange juice' ads of Micom's. Is that an opinion that you hold?

Grumbles: I don't think so. I think that Roger Evans did a good job of that. You know, Roger would never go to an out-house organization. He always did his own in-house advertising, and I think Roger did a very innovative job of advertising, and he made his advertising look a little more grown up and sophisticated, but whether or not that changed the world, I'm not sure I agree with that, because, at that point in time, Roger and UDS, Micom and UDS, were advertising fairly comparably in the journals. I'd say, probably, that the two of us did more to cause advertising to expand in this industry than anyone else; the fact that we were there, the fact that I

would get the back cover of Data Communications, the fact that Roger would get the back cover of Mini-Micro, I'd get the back cover of this, he'd get the back cover of that. We used to vie for back covers, and people that read books, when the flipped it over and saw the back of the book, there was a modem or a multiplexer there in so many of the books, that I think that our competition just started to fall into line. Vadic also was very early in advertising, and they used their -- for lack of a better term -- cartoon approach to advertising, where they would use the cartoon caricatures, and I'm not sure that was all of their advertising, but that's what most people remembered them by -- the Ma Bell ads.

Pelkey: Now, Vadic, if I understand correctly, innovated the stocking rep, and Micom really --

Grumbles: I guess I would take exception. I think Universal Data Systems was the first company to use a distributor, per se. Call them a stocking rep, call him what you may, but we had our very first distributor in Texas. Our distributor there was Oliver Collick, and his company was Data Marketing, I believe.

Pelkey: Do you remember when that was?

Grumbles: Now, let me think -- been ten or eleven years ago. I'm not sure of that date. I could probably search it out and find when it was, but he had been a manufacturer's rep for us, and Oliver called me one day and he says: "You know, George," and he says: "One of these days people are going to have to start stocking modems, because we're now stocking things like TI printers, and we're stocking" -- oh, my gracious, I can't remember the other people that were early on in stocking -- but they got these manufacturer's reps into a stocking basis, and I said: "Well Oliver, how do we do this?" He says: "I don't really know." I said: "Well, why don't you send me some contracts from some of the people that you're distributing for, and let's look at them," and I said: "Until then, what kind of margins do you need?" He says: "I don't know," and I said: "Why don't we start out at 15 to 20%, and we won't make you make a commitment to volumes, and we'll see where it goes?" And to my knowledge we were the first. I guess maybe Vadic had -- we'd have to sit down and look at dates, because we were both early on; but the thing that happened then was manufacturer's representatives started to polarize. Some stayed manufacturer's reps, some moved over and became full- blown stocking distributors, and there was a big change in the manufacturer's rep world, so in those early days, we were hiring reps who became distributors, or hiring distributors who had been reps, and we weren't going with the big industrial distributors at that time. We only got with the Hallmarks some years later.

Pelkey: You said at the beginning that you were both in the leased-line and the dial-up markets, and that you were 100% OEM. When did the shift occur, when leased-line stopped being as important?

Grumbles: Let me state it a little differently. We always did dial-up modems. Leased-line modems were truly easier, because all you had to do was build a modem; hook it on the line, you didn't have to go through any approvals or anything else. You didn't have to go through an interfaces. You built a modem to the specs, you sold it, they installed it, and you went. We tended to specialize in the switched network, and built our first standard products, if you will, that were more for the switched network, even though they had to go into a DAA. The people

that were building private-line modems, who were the larger companies -- Paradyne, Milgo and Codex -- they weren't in the switched network, so it was easier to pick an area.

Pelkey: Because they were much larger than you.

Grumbles: They were much larger than we are, and it was easier to pick an area where they weren't.

Pelkey: And Codex really had a barrier of entry, the 9600. That was a complicated product in those days.

Grumbles: That's correct.

Pelkey: So you had the big guys there, and it was much easier to go someplace where they weren't. It was a more difficult problem, at some level, but it was a different --

Grumbles: It was a different problem. Very early on, Codex became an OEM customer to UDS. We started supplying them all of their low-end switched network boxes probably 13 years ago, and we've only been a part of Motorola for ten years.

Pelkey: Can you describe the circumstance around that first interaction, how that relationship between you and Codex began?

Grumbles: Well, I had known a good many of the Codex people prior to coming to UDS, from my experiences both as a rep and then living in New England. I had a lot of involvement with '3C's'(Computer Control Company), and 'the three Cs' who became a part of Honeywell; oh, people like Art Carr had been at 'three Cs' and Jim Hart had been at 'three Cs'.

Pelkey: John Pugh.

Grumbles: John Pugh had been at 3C oh and several of the other people, so I knew a good many of them, and it was nothing more than a selling game.

Pelkey: Did you initiate it by calling on them?

Grumbles: Oh, I'd like to say that I wasn't that brilliant. I don't know. It happened. Whether they called me or I called them, I'm glad the call was made.

Pelkey: Was there anything unusual or difficult in deciding, for you, to OEM to them?

Grumbles: Oh, yeah. Oh, no, I think it was much more difficult for them than us, because we wanted to do it, and we were competing with Vadic right down the line.

Pelkey: Were you competing with Vadic, at that point in time, for that business?

Grumbles: Absolutely. I know both Ken and I were in town making calls on John Pugh when we were told: "Well, you've got a job. Go ahead." That is like 13 years ago.

Pelkey: And when you say both you and Kim were in town, did you ever talk to each other after you had gotten that award?

Grumbles: Oh, I'm sure we talked. I have no idea what the conversations included.

Pelkey: Was that a big event, closing them, or were they just one more OEM?

Grumbles: Well it was a big event, in that it was a customer that wanted to take all of our standard products and include them into their line. We made them look like their product. We put their name on the box and we sold to them. Sure, it was very important to us, because you've got to remember, in those days, we were a less than $5 million company looking at a million dollar potential.

Pelkey: So, towards the mid '70s, the emphasis of your line really was a switched network product line. Was there any event during this period of time that you can look back upon and say that was really the event? Certainly the 1200's were. Were there any other events that really caused UDS to accelerate and distinguish itself and become successful?

Grumbles: As a switched network supplier? No, I just think it was the way that the market was going, and like I've already intimated to you, our greatest interest was to build products that customers really needed, and the kinds of products they needed, and the switched network was an area where we found that we could compete most effectively. We had problems going into the high speed areas at that time, both in the technology we would have to bring to the table, and the other part was that much of the high-speed modem was dominated by the network kinds of thing; Codex with their DNCS, and Paradyne with their Digital Network Control Systems, and Milgo with their Network Control Systems, and your modems wouldn't work into those kinds of devices because they had their own protocols, and they wouldn't work with one another. So that was a tough market to crack into. They were dominating the volume.

Pelkey: The leased-line, the private line, whoever had one end, had the other end --

Grumbles: Almost always, right.

Pelkey: -- and it was locked in, so once you had a customer, the customer was kind of locked into you, until you got the standards business, whereas the switched required you having to be able to talk to AT&T, so it really was a different kind of a market.

Grumbles: One of the things that you must remember about Bell, Bell missed a lot of opportunities. Bell was not quick to introduce modems. They were not the first 4800 bps supplier. They were not the first 9600 bps supplier. They were not the first full- duplex 1200 bit per second supplier. They were not the first 2400 full-duplex supplier. They were not the first 9600 full-duplex switched network supplier. Bell -- I think that AT&T/Bell made a judgment error in strategy, and maybe they said: "It's not big enough a business to really worry about,"

and I'm certainly not in the cadre to say what that decision was, but Bell nearly always followed technology in the modem world. They did excellent devices, they did beautiful equipment, but they would be pushed by UDS's and Codex's and by Vadic's and by whomever came out with higher-speed modems, more specific, and as time progressed, we in the industry tended to follow CCITT a little bit more, and Bell always wanted to be independent from CCITT for whatever reasons, up until they got to things like they finally built a device that was -- the 224 was a V.22BIS. The 201 was Bell's 2400 half-duplex two-wire/full duplex four-wire, which was part of the CCITT V.26, but there it separated, and it became a whole different world. I think that they did one of two things: they either said: "It's not that big a business, and we ain't going to worry about it, and if we eventually lose it we lose it," I don't know; the other was that they said: "Well we know more what the customer needs than he does. We will introduce this and we will charge him this price, and he will buy it." Now, I don't know which of those strategies, whether it was push or pull, but whatever occurred, when we started selling into the world, of course AT&T had essentially 100% of the market. Then they fell to about 75% for a few years, then they went to 66%, and I would guess now Bell probably is --

Pelkey: Less than 30.

Grumbles: Of manufactured product, it is probably much less than 30, and probably they are no more than 30% buying other people's modems and reselling them.

Pelkey: In the early '70s, as a marketing executive, how did the developments in semiconductors come into play or impact your thinking?

Grumbles: Of course it did. You saw opportunities; being able to build far more complex devices less expensively. The approach we took, rather than trying to build our own LSI was, very early on, we went to the DSP. We used the Signetics 8X300 for our 208, which was essentially the first usable DSP, to the best of my knowledge, and we built a modem around that DSP and, to the best of my knowledge, we were the first company to actually build the modem into the Digital Signal Processor. People had used microprocessors and used it for all the peripheral kinds of things earlier than we had, but I think we were the first to truly take a DSP and build the modem into it.

Pelkey: Do you recall what year that was?

Grumbles: Oh, heavens. I could look back, but again that was 12 years ago!?

Pelkey: Then the DAA came in -- around '77, it was clear that the DAA was going to go away and this universal jack was going to come into being. It was about that point in time that this dial- up modem marketplace started to really take off, is that correct?

Grumbles: Right. It started to take off for several reasons. Switched network was very expensive. It was expensive to buy a line, and unless you had need for the line all the time with high-speed data communications, it was kind of hard to justify, and people were now starting to build modems that would move data at higher data rates, and would accommodate. So the cost of the network, the cost of the line, became the dominant feature. The cost of the modem has

really never been that important in picking a network, because it did not represent the bulk of the cost. You see, when I first started selling modems, people would tell me: "Well, there's no way you can send 2400 bits per second over a dial-up network. It won't work." It was unbelievable how hard it was to convince people that, yes, it will work. Then we went to 4800 over the dial-up network; then we went to 9600 over the dial-up network. Then we went to 14,400 over the dial-up network. Then we went to 9600 bps full duplex over the dial-up network, and we don't get that argument anymore. People learned that they could move data at high data rates over the dial-up network and not have to pay for the lines 24 hours a day, and so it was a big pulse for the part of the market we were in.

Pelkey: You indicated earlier that you approached -- you went to Merrill Lynch because you wanted to approach Motorola, is that a correct statement?

Grumbles: Well, as I indicated to you, from the time UDS was founded, up until we became a part of Motorola, it was the desire within the parties that really owned the company to build some personal wealth, carry UDS to a size where it could become a public company, sell it, merge it or whatever, and do so profitably, keep a good track record, and we sat down and went through a list of issues of what kind of company would we like to be a part of. There were statements like 'it should be an American owned company, US owned company; it should be a company with a well thought of and ethical management; it should be a company that has a management history not of continual management change.' One of the other features, if it could be a company that manufactured semiconductors also, that would be a plus -- and all of those things, and Motorola became a prime choice. We went to Motorola through Merrill Lynch and asked them if they would consider us. I must say that the decision has been excellent. Motorola has been a superlative parent.

Pelkey: At that point in time, did you look at all at the public market?

Grumbles: Yes, but you've got to remember that 11 years ago, the public market wasn't the place to be. Had we done it two years earlier, the public market might have been pretty good, but the time we finally elected to make our change, that wasn't --

Pelkey: Which was in '78?

Grumbles: Well, yeah, we became a part of Motorola ten years ago December the 27th.

Pelkey: During that same time, Vadic was also in the throes of either going -- they had tried to go public and they had to withdraw, so they were in the same boat of either going public or being acquired.

Grumbles: Right. See, the company that went public, I guess, first, successfully, in our little set of companies -- it may have been General Datacomm, that's a different company -- but Micom went public about then. See, GDC has also been a good competitor of ours and a strong competitor, and a larger company, and have always done a very good job.

Pelkey: But they focused on the RBOCs; that was their niche.

Grumbles: That was where they focused, that was their thrust.

Pelkey: So when you saw them, they paid half attention to the marketplace you were going after, and while you competed with them sometimes and they'd win sometimes, they weren't as --

Grumbles: That's true. Micom was probably the first company of any consequential size that went public.

Pelkey: Right. Now, when the IBM PC came out -- actually when Hayes came out with auto-dialing using the PC -- running software on the PC -- that solved the problem, if I understand correctly. Auto-dial was a recognized problem, it was just that it was an expensive, difficult problem, and not perceived as being very cost effective if you had to have it stand-alone.

Grumbles: Well, let me state it a little differently. Auto-dial wasn't all that complex. I think that Dennis Hayes saw an opportunity, got into the game of being a supplier into that market first, did a good job of it, established a de facto standard, and he proved to us that 'Marketing 101' works.

Pelkey: He went through this emerging retail channel, and developed a brand name.

Grumbles: Did a beautiful job, beautiful job.

Pelkey: And the rest of you -- did you not take the PC seriously? You said that you consciously didn't go into the PC market.

Grumbles: We consciously did not put all of our apples into the PC market. Companies like Vadic, and there were several others, were jumping in and saying: "We're going to do this because that's the future for the modems," and as the long term showed it to be, it was a mistake. For us it was not a mistake to stay out of that market, but we introduces a device that would work with PCs fairly early on, but it was never our principal thrust.

Pelkey: Right, but Hayes clearly has become one of the large modem companies as a consequence of this new view of the world. In fact, from yourself at Vadic, Hayes was the next -- if I look at the modem business, I see how the two of you emerged out -- talking about the dial-up market -- it was the two of you, and then Hayes came along, and that's really been -- there's lots of other stories, but those are the dominant stories.

Grumbles: That's correct, that is correct, and Hayes -- you talked about advertising, Hayes probably made the biggest difference in modem advertising of any company that ever has been, because they dedicated probably 30% of their total revenues into advertising. Who could imagine a modem company advertising on a major network at a football game, or who could imagine a modem company advertising in the Wall Street Journal and Time and Business Week and Scientific American, books like that. They made a large, large commitment.

Pelkey: Going back to the competitive situation, Vadic introduced the triple modem. What was your reaction when you first saw that?

Grumbles: The triple modem?

Pelkey: That was an important event in their corporate history.

Grumbles: The triple modem was the VA-3400, was it not?

Pelkey: No, there was the 3400 and then the --

Grumbles: Oh, the 3400, the 212, that's right, and the other speed was what, 300? . . .

Tape Side Ends

Grumbles: . . . That was probably their first 212. We didn't see that as a big threat, really, because they had to do that, as we had to come out with a modem that had 212 in it, with our 212, because now the standards were changing, there were standards, and if Vadic had stayed only with the VA-3400, if we had stayed only with the 1212, we'd have both died.

Pelkey: So you both did -- so you had a similar modem with a 1212, with 212 and a 103.

Grumbles: We had to. I'm sure it had a 103 in it. We had a very similar modem, yes, but you had to. You had to be able to be able to supply your old standard and the new standard, and had to supply it into networks where they were going to use both.

Pelkey: Coming back to -- coming to more recent times, with the V.32, the V.32 strikes me as being a different kind of a standard in your camp. It was really one where you went out beforehand and created a standard for the high speed, versus standardizing something that was already in the marketplace.

Grumbles: It was. We took a little bit different -- we took different approaches on both the V.33 and the V.32. To my knowledge, we were the first company in the United States to supply a working V.33, which was 14,400 bits per second, to the full spec, and we were very early on in the V.32, even though we may not have been the very first.

Pelkey: And you were active in the standards making.

Grumbles: We were involved in standards, correct.

Pelkey: Again, these were standards that the manufacturers tried to create in advance of the technology really being there, or someone proving that it could be done in the marketplace, whereas earlier standards were always established de facto.

Grumbles: You got to remember that the V.32 -- people had been talking about this in CCITT many years ago, and the 14.4 was a high-speed device -- see, V.32 is an echo-cancelling device.

Echo-cancelling was proposed by the French probably 20 years ago in CCITT, and in fact, there is a V.26 TER, that is a 2400 bit per second full-duplex echo cancelling modem that had been used in France and some of the European countries for a good while, but it was the last of the V.26 standards, and the --

Pelkey: So the V.32 was the first echo cancelling --

Grumbles: No, the V.26 TER was the first echo cancelling built to a standard, and it never really gained much real claim, but this concept of echo cancelling has been around for a long time, and the French have tried to get it through as a standard for many years, so it was a higher speed full-duplex approach that just really found its own in the V.32.

Pelkey: One last general question, if I may: as you saw in the book, the process of how the WANs and the LANs and the modems and the multiplexer companies have started acquiring each other. I think Micom acquiring Interlan was one of the first events, but this process has continued. Were you aware o f what was happening in the local area networking and wide area networking market, and was the T.1 multiplexer a product that the modem guys missed out on? What caused these companies to develop little niches and now being brought all together?

Grumbles: I don't know how to answer what you've asked. Let's say that with UDS specifically, that we elected not to go into the T.1 business, and the T.1 multiplexer business because we didn't feel like we had that expertise. We didn't have that set of people to do that design. We started looking at the digital networks, and started doing things like VDSs, like the AccuNet modems; things in higher speed digital and we've come out with a terminal adaptor. We just elected not to go into the T.1 business. See, T.1 is really -- people who way T.1 think of multiplexers, but T.1 is a tariff that covers a whole bunch of things, and we'll have a T.1 DSU/CSU, so we're working into the T.1 area. We're just not building a multiplexer. We elected to go a slightly different path.

Pelkey: So this whole other industry of LANs and WANs, they were more the computer scientists at some level.

Grumbles: Well, you see, we did move into that area a little bit, but not so much with the LAN and the WAN per se. We built a device about four years ago, four and a half years ago called SyncUp. And SyncUp is an emulator, if you will. It's a modem and a 3270 or a 3720 or a 3780 or a 5250, whatever. It can be any one of these kinds of devices, and now you can have a PC sitting in the field -- a clone or whatever -- and it can talk directly into an IBM mainframe, because it just looks like a terminal hanging out there. Now, you have to have a lot of software with it, and typically, when we sell a SyncUp we sell a software package that is needed in order for it to look like this device, but it simplified it, and this is kind of a PC market, it's kind of a -- it's on the switched network kind of like what IRMA is in a local area network, and it has grown and has become more important, more consequential, and will continue to grow. So we've been in that market, but from a slightly different side.

Pelkey: George, thank you very much for your time.

Grumbles: Let me mention one other thing. We didn't cover this, and I think it's something that you mentioned earlier that I think is worthwhile. I think our industry -- modems and multiplexers -- has done a better than average job in competing with world competition. I think that was have moved technology, pricing, marketing ahead of the Japanese, specifically, to the point where we stayed ahead of them in our own marketplace, and even though our market has gone up to somewhere in the neighborhood of $2 billion, we have been able to pretty well keep the Japanese on the sands. They've never been able to get past a beachhead. Now, they've sold in some areas. They've done some very significant things, but they've never been able to totally emasculate our business, and the very low-end, the Taiwanese units and the Korean units, end up being sold to a lot of the hobbyists and the toy computer people. They've still never made it strongly into the area of professional communications, and I think that if we in our industry keep our heads about ourselves and view this total world competition, I think that we can maintain this position, but if we ever try to hide under a shelter of high price or high profit for too long a period of time, I think that we'll lose it.

Pelkey: It's interesting, as you commented -- the fact that the modem business got into high volume production very early, it's the very nature of the businesses -- the PTTs and AT&T -- and you embraced it, as an example, in V.32, where you got ahead of the curve and you forced the standard and you drove volume manufacturing through to standards, it forced a mental set on yourselves and on this industry --

Grumbles: By very aggressive marketing -- a very aggressive set of competitors. My competitors have kept me on my toes, and thank God there have been some good competitors; there's been the people like the Vadic's and like the GDC's and like the Codex's, and you can go on, because they have forced us, collectively, to do a better job.

Pelkey: Yes, but it was a mental attitude that allowed you to go out there and dominate. Is much of your business overseas now?

Grumbles: Oh, 10%, probably.

Pelkey: So not significant. It would seem to me --

Grumbles: You said you weren't going to talk about futures.

Pelkey: That's why I stopped the question. George, thank you.

Grumbles: You are welcome.

END OF THE INTERVIEW