
# Interview of Bernard “Bernie” Strassburg

Interviewed by:
James Pelkey

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**James Pelkey:** I thank you for your time and I look forward to this conversation.

**Bernard Strassburg**: My time is not unlimited at this point because I've got to get away by 1:00.

**Pelkey:** We'll do as much as we can in the next hour and a half.

**Strassburg**: I hope we can do justice to your needs in that time, and I hope that my mind can resurrect some of this ancient history in a fashion that's usable to you and reliable.

**Pelkey:** You indicated you were appointed --

**Strassburg**: I was appointed as Chief of the Bureau November 22nd, 1963, so I was there from '63 to the end of 1973. I retired -- I left the government December 31st, 1973. That terminated 31 years of government service, all of which was with the FCC. I had various positions from the time that I started my professional career, in fact, as a young lawyer, at the FCC; all in common carrier regulation. As I say, the first awareness that we had of the fact that computers and data processing had something in common with communications started to emerge in early '65.

**Pelkey:** Was there a single event that you recall?

**Strassburg**: Well, there was no single event -- it was more of a single person that probably helped stimulate my interest in it, a young economist who worked for me, who's fairly well known in the business to this day, Dr. Manley Irwin, and Manley's up at the University of New Hampshire in the Whitmore School of Economics, and this is his forte, communications, data, and technology generally, and its impact on events and in reshaping institutions and markets and things like that. He's also quite a prolific -- has a prolific output in print. Manley would be a good guy to talk to. Manley was an economist on the staff. He had his PhD at that time, and he was -- he imparted to me some of the things that were happening in the outside world where communications and computers were converging. Then there were other manifestations of concern. There were some uses being made of data processing equipment by various firms or institutions that were encountering some difficulty in doing what they wanted to do with the telephone industry and Western Union, at the time. We felt more and more that this maybe was something that we ought to be concerned with as a new technology that is allied and will become increasingly allied with communications. We knew that the phone company was also already using a fair amount of data processing equipment and computers in their internal operations, for both communications and management. I guess Bell System has always been, as it was then, perhaps the second largest user of computer equipment. I, in 1965, assembled a task force, a small group of staff members to sort of take an overview of the various dimensions of data communications; what the problems seemed to be, if any, and what we should do about them. In 1965, I think this is more than a year before I started the First Computer Inquiry. I had given a speech publicly on our concerns as they were beginning to define themselves, and in 1966, I decided that we ought to formalize this thing. We sensed enough ferment out there, or enough concern, to say: "Well, look we're going to encounter some problems here, sooner or later, and let's get on top of them sooner, rather than later, and for once let a regulatory agency be out in front, rather than trying to shovel up the mess that's left behind." So I came up with the idea of a public inquiry of a type that we really never had before, except when we dealt with frequency allocation and management of frequencies -- the Commission's public inquiries were largely addressed to the use of the spectrum, and this was using a public inquiry of a legislative type to lay the foundation for regulatory policy and other actions, maybe even legislative recommendations that might be necessary, so we came up with the - - we put out a Notice of Inquiry in November --

**Pelkey:** And who had to approve this?

**Strassburg**: The Commission had to adopt it. As the Bureau Chief, I can do -- I was responsible -- I conceived the public inquiry -

**Pelkey:** And then you had to get the Commission members to go along with this concept?

  

**Strassburg**: Then, to take it to the Commission. The Commission has the last word on what proceedings are initiated and what policies are adopted, but the staff does its thinking for it, and the Bureau Chief, particularly in common carrier area, unlike the broadcast area, is sort of a center of power in the sense the his recommendations are critical to the Commission's actions. He gives the Commission its options; he gives the Commission his recommendations, and the Commission, by and large, if it has confidence in its Bureau Chief, because the Commission itself doesn't have the expertise in these technical and engineering matters. They prefer to devote themselves to these social scientists, to matters of broadcasting, at least they did at that time. Things have changed considerably since -- in the last decade or so, as common carrier communications has become such a controversial area, so it's forced to do its homework in that area and do some thinking, but still relying heavily on staff.

**Pelkey:** When you surfaced this idea to the Commission members, what was the reaction?

**Strassburg**: It was positive. We made a pitch. As a matter of fact, that type of initiative was easily sale-able to the Commission. After all, it makes the agency look good, taking some initiative of this type to anticipate these problems. You've probably seen now the First Notice of Inquiry. All the documents are a matter of public record. They're assembled in various books that have been published, and we're now -- the Commission is now finishing up Computer III, but that was the inception of Computer I. We put out the Notice of Inquiry for comment. We identified the various areas of concern as we perceived them, but I felt that we may not have seen everything, or at least may not have given the right definition to a lot of these issues, so I recommended we put the public notice out of comment and response as to whether the issues should be amended or supplemented in any fashion, and in 30 or 45 days we got a fair amount of response.

**Pelkey:** Now is this early in '66?

**Strassburg**: This is in November -- it started in November of '66, and in '67 we were off and running. I think my dates are right. [Moves away from microphone briefly) . . . what computers and communications could do together in the way of making life and education more enriched. We were already talking about a cashless society. I'll see to it you get a copy.

**Pelkey:** So November of '66, you got the comments back or --

**Strassburg**: Then we formalized the Notice. We pushed out the final Notice and --

**Pelkey:** Did very many companies comment on it?

**Strassburg**: Quite a few for that time. There were quite a few. Most of them were very favorably disposed to what we had done and the direction we were taking, and made some suggestions. I don't think we needed any major modifications in the Notices that finally went forward, base on those comments. Then we began. We waited for the input from -- the Responses to the Notice, and they eventually came in. I forget how much time -- maybe almost a year passed while waiting for responses. We set a date far enough in advance to give people enough time to address them. Some companies and associations and groups, like IBM, and all the big data processing companies, and computer manufacturers, and the hardware and software parts of the industry, such as they were at the time, made a substantial input into this thing. BEMA, the Business Equipment Manufacturers' Association, which is now known as CBEMA, Computer Business -- or Communications, but they are a substantial association of the major manufacturers dealing with business equipment. You could talk -- another guy you should talk to, who's very useful, he's also an attorney -- I have the same background, an attorney, so I think in terms of attorneys and economists and engineers, but Joe Kittner, now retired, but he's in Washington. He was with this issue from its infancy. He was counsel for CBEMA, and he can give you a lot of color.

**Pelkey:** K I T N E R

  

**Strassburg**: K I T T N E R. Let's see if I have a number for Joe, in case you want to call him. HIs firm is dissolved, so he's no longer with a firm, and he's retired, but you can get him at 986- 4150.

**Pelkey:** 202, right.

**Strassburg**: 202. That's his home.

**Pelkey:** Thank you.

**Strassburg**: I'm trying to think whether that's 202 or 301, whether he's moved. I think it may be 301, that is Maryland. I'll tell Joe. I talk to him periodically, and tell him that he may get a call from you.

**Pelkey:** He will.

**Strassburg**: He's a very nice person and very knowledgeable in these matters, with very well organized thoughts on the subject. So --

**Pelkey:** It was getting to be the end of '67, and your starting to get comments back.

**Strassburg**: We're starting to get comments; a tremendous amount of input, and several thousand pages of input and exhibits, and we were beginning -- the Commission was acquiring more and more awareness that there was something of importance taking place, because some of these comments were fairly -- they were being reported in the press, which the Commissioners read. We had to read to the comments, but the Commissioners read the press. It made an impression and they got to -- the Commission was impressed with it. So then --

**Pelkey:** And this process was being reported in the Washington Post or --

**Strassburg**: Oh yes, and certainly in the trade press. The general press didn't follow it on a day to day basis, but when the comments were filed by IBM or AT&T, they had press releases that accompanied the comments by those companies, and the general press would carry a story, but the trade press and the specialized press covered it very assiduously, and it got a lot of applause. The FCC was on top of something, so it looked like it might be of some interest and consequence to the public, so the way I feel, the material that came in was very valuable for other reasons, apart from the addressing of the policy questions squarely raised in that Notice of Inquiry. It provided us information with respect to the performance of the existing industry and its adequacy in meeting current requirements for data processing and data communications, and people used that also as a vehicle for ventilating themselves on their frustrations with some of the old time AT&T strictures against foreign attachments and customer owned equipment and modems and things like that, all of which -- and also that the rate structure was not geared to transmission of data: it was basically a voice oriented rate structure. These are things that have to be revisited, but those comments did provide a background for other things that were beginning to take place at the commission at the time, the setting for our approach to Carterfone. Carterfone had filed it's complaint about not being able to have a simple interconnection with the telephone system of an acoustical device, which interconnected mobile systems. It gave input and output between mobile systems and the land-line system. We used the Carterfone issue and the Carterfone proceeding as a vehicle for revisiting the basic policy, which was basically a Bell System policy which had been embraced by the FCC and the regulatory commissions for many generations, against customers, willy-nilly, interconnecting anything they chose to the telephone network, no matter how innocuous it might be unless the item was specifically authorized by the telephone company's tariffs. Well, the telephone company wasn't likely to tariff anything of consequence, so as a result, anytime anybody wanted to promote a piece of equipment and to have it work with the telephone network, it either had to sell it to the Bell System, if it could convince Western Electric and Bell that they had something sellable, or if they couldn't succeed in that channel, then attacking the tariff insofar as it prohibited -- that the claim was unlawful, and that the Commission should order it amended in order to accommodate that. But that was a very cumbersome process to go through - the administrative hearing and the time and the cost involved

  

that, to a small entrepreneur with a piece of equipment, it discouraged people. It discouraged the market from developing, and that's why, I think, the United States was so far behind other countries, because, in terms of customer premise equipment, simply because there was no entrepreneurship out there, the entrepreneurship was blunted and discouraged by this institutionalized practice of saying: "You can't connect with us." In other words, everything that went on had to go on within the Bell System, Bell Laboratories. That was where innovation began and ended, to a large extent.

**Pelkey:** Now is it true, at this point in time, '67, that there were modem companies?

**Strassburg**: There were modem companies.

**Pelkey:** They were selling primarily to the government and to the military.

**Strassburg**: Probably so, because the government and military were the principal users of Vadic communications.

**Pelkey:** Now, to use it in a commercial setting, even on a leased line, would it have required this tariffing process?

**Strassburg**: Yes, that's right, even on private lines.

**Pelkey:** So even on a private line, in the commercial sector, it would have to have been tariffed by AT&T or Western Union.

**Strassburg**: (Affirmative).

**Pelkey:** And jumping ahead, when did they start tariffing, was that post Carterfone?

**Strassburg**: Well, it was post Carterfone, yes. See, AT&T offered -- the use of the switched network, they had what was called a --

**Pelkey:** The Data Access Arrangement?

**Strassburg**: You had to get -- this was post Carterfone, when you got the Data Access and Voice Access Arrangement, but up to then they offered -- what was the name of the service? It was -- this is where the years take their toll on me, but they offered a service where you could use the regular voice network, local call or toll call, to transmit data through a Dataphone. The Dataphone service, a Dataphone, which they provided, which included a modem. They provided the modem. You could transmit whatever was technically possible at that time.

**Pelkey:** Do you recall when the leased-line modem companies were able to sell to the commercial market?

**Strassburg**: Well, that came as a result of the post Carterfone tariff. That would have been when the ban was removed; the tariffs were revised in December of '68.

**Pelkey:** So, excuse me for being slow on this --

**Strassburg**: That's all right, I'm slow on it too.

**Pelkey:** -- but my understanding is that on the switched network, you couldn't attach these foreign devices to the switched network, so AT&T's response to Carterfone decision was this DAA --

**Strassburg**: The PCA, the Protective Connecting Arrangement, with the network- signaling device.

  

**Pelkey:** But that was for the dial-up modems.

**Strassburg**: That was for the dial-up modems, but they also modified their private line tariffs to make the same accommodations.

**Pelkey:** Ok, now how did they cause the private line manufacturers to conform to --

**Strassburg**: When you say the private line manufacturers --

**Pelkey:** The modem manufacturers, how did they end up conforming so that -- or didn't it matter, once you had a private line?

**Strassburg**: Well, let's see. You had to have this Protective Connecting Arrangement. Behind it you could have a modem as well as a signaling device. So long as you used their PCA, their Protective Connecting Arrangement, the customer could use their own modem. In other words, they could buy a terminal with a modem in it. That's my recollection. This has to be checked out. You should check this out.

**Pelkey:** Yes. I have talked to a number of people, but I have to tell you, it's not very clear to me, and you're not the only one whose memory about all of this is --

**Strassburg**: Oh, well, it's 20 years.

**Pelkey:** Now, Carterfone came to the FCC because there was no state PUC in the state of Texas --

**Strassburg**: Well, they came to the FCC as a result of an anti-trust suit that Carter had instituted against Southwestern Bell, on a primary jurisdiction basis, the Court referred Carter to the FCC, saying there were some issues here that first had to be resolved by the FCC as far as this tariff is concerned, and then you can come back here and, depending how the Commission has resolved those issues, and pursue your suit for anti-trust damages.

**Pelkey:** Oh, ok.

**Strassburg**: So Carter came to the FCC. He could have gone to the state commission but it made more sense to go to the FCC, because you were dealing with a national market. The tariffs with the FCC had been the model for the intrastate tariffs, which simply conformed to the federal tariff. Originally those tariffs were all filed, going way back, with the states, and then gradually, as a result of various developments, they filed those tariffs -- a model tariff with the FCC, and all the state tariffs were brought into conformance with it.

**Pelkey:** But I thought that the State of Texas didn't have --

**Strassburg**: It didn't have a state regulatory agency --

**Pelkey:** And that's why it got remanded up to the FCC.

**Strassburg**: I think that Carter had the option -- he could have gone with the state commission if they had one, or he could have gone to the FCC. I think the court recognized this as being a national problem, rather than just a local problem, because Carter wasn't just selling his equipment in the oil fields of Texas, it was usable and saleable everywhere. It made more sense to have a federal initiative resolve the issues, rather than go to 48 state commissions.

**Pelkey:** So the Court said: "Go to the FCC." But there was no place for him to go at the state level.

  

**Strassburg**: Well, you're probably right. In Texas, there was no state regulation yet. There is now. They had some regulation, municipal regulation. The municipalities had authority to regulate rates and maybe other practices too. They had to approve rate changes.

**Pelkey:** So rather than go to the municipality, it was obviously the federal government at that point.

**Strassburg**: It was obviously federal.

**Tape Side Ends**

**Strassburg**: . . . and we felt there was clearly a need for a change. You had to scrap these antiquated practices and procedures that could no longer be justified. You had to find something more suitable to the current environment.

**Pelkey:** Did AT&T fight a lot on Carterfone? Did GTE (unintelligible) Bell?

**Strassburg**: Yeah, they all fought Carterfone.

**Pelkey:** And when did you start that process, in '67?

**Strassburg**: The Carterfone complaint was filed in '65 or '66 -- procedures, even the FCC took a long time, even on that, and it dragged on until, I guess, about '68.

**Pelkey:** So this was going on in your office, even while you were starting to file a Notice for the Computer Inquiry?

**Strassburg**: And also while the comments in the Computer Inquiry were beginning to flow in.

**Pelkey:** Do recall whether the Carterfone filing came to you before you sent out the Notices?

**Strassburg**: I'd have to check. I can't be certain. I just don't have those dates clearly in mind. They're in the book, the sequences.

**Pelkey:** Did you perceive, at that point in time, when you ruled on Carterfone -- did the Commission have to approve your decision on Carterfone?

**Strassburg**: Oh, yeah. We were just a party in the Carterfone proceeding. It was treated as a Complaint Proceeding, attacking the tariff, and it went before an administrative law judge, who held a hearing. The Bureau was one of the parties, and it was our recommendation, so we filed with the Hearing Examiner, that the whole tariff be scrapped, a recommendation, incidentally, that the Hearing Examiner didn't buy, the administrative law judge didn't buy. He thought that Carter had made his case, as far as the Carterfone equipment was concerned, and the tariff should be modified to permit that piece of equipment to be used, but to scrap the whole tariff, that's not within the purview of the issues here. We argued against that. We said there was sufficient evidence to demonstrate that the tariff was inherently unsound and should be declared unlawful, as unjust and unreasonable, and therefore unlawful.

**Pelkey:** He wanted to deal more narrowly --

**Strassburg**: But the commission bought our recommendation. On reviewing the administrative law judge's decision, the Commission bought the Bureau's position. Incidentally, the administrative law judge is right in this office, come to think of it, Chet Naumowicz. He's principally a broadcast lawyer.

**Pelkey:** I'd like to meet him.

**Strassburg**: Oh, yeah.

  

**Pelkey:** So, if you had won your argument, then it would have said that foreign attachments would have been permitted, subject to tariffing of them --

**Strassburg**: Very protective. We still acknowledge the need -- but, mind you, we were also being very cautious, in circumspect, in how far we thought the tariffs ought to be amended and how far we ought to go, because we didn't view the issues in Carterfone of having to do with any replacements or substitutions for the equipment provided by the telephone company, it's how the telephone service provided by the telephone company, including the instrument, the terminal, how it should interface with other equipment and under what circumstances it should be permitted to interface with other people, or connect it to other equipment which it didn't provide. So we said: "We're not talking about eliminating or abandoning this whole concept of end-to-end responsibility by the telephone company, we were talking about what can be done at each end by the customer with the service that he buys from the telephone company," but we weren't talking about replacements or substitutions for any part of the network, from station-to-station, the phone company owned and managed and maintained as an integrated network.

**Pelkey:** Was Tom Carter himself a character? Were there incidents of humor during this time? Did you interact with him much?

**Strassburg**: No, he wasn't much of a character. He was just a guy who had a business and --

**Pelkey:** And felt that an injustice had been done.

**Strassburg**: -- and he had a couple of good lawyers, who finally took over his business. He didn't get much out of the settlement. The Carterfone itself is no great shakes. It wasn't an earth shaking piece of equipment in terms of its innovativeness, but it was -- it leant itself to being a catalyst for getting at the basic concerns we had about these tariff restriction, these historic tariff restrictions, and with the background provided by the Computer Inquiry and its input, we decided it was time for a change, and the Commission was unanimously sympathetic to that. So they wanted to change, and Bell filed the PCA in response to it, the Protective Connecting Arrangement tariffs, which required: "Yeah, you can connect anything to the telephone network, provided you do it through these protective arrangements that we provide at a rental fee." Now, Bell, at that point, AT&T, when H. I. Romnes was president, went beyond what we even conceived of, because they said: "You can substitute a network signaling device for that provided by the telephone company. You can provide it -- We provide this PCA, including a network-signaling interface, where we're in control of the signals and the inputs into the network. You can have your own telephone instrument, your own PBX, your own keysets, your own modems, as long as we can sanitize what goes in and out of the network."

**Pelkey:** Oh, that is interesting.

**Strassburg**: And they did that at a rental charge. Then, everybody raised hell about that. Here, they objected to such a tariff originally, then they said: "No, there shouldn't be any PCA. There shouldn't have to be a PCA. We shouldn't have to rent something from the telephone company, because when the telephone company sells or offers a competing piece of equipment, the customer doesn't have to have this PCA, so we're at a competitive disadvantage." We said: "Well, you may be right, but this is where it is right now, and until we find a better alternative, this is where it's going to stay, because we're not going to open up the network to indiscriminate connections for fear that this would degrade the performance of the network." So, even though the Commission got a lot of accolades, it also got a lot of grief, so then it was -- We started the machinery to look for other alternatives, which eventually evolved in the so-called Registration program. That didn't mature until I retired from the Commission, but I set the procedures in motion to develop a kind of technical and operational data that we needed to make a determination as to what kind of alternatives were feasible. We also had the National Academy of Sciences do a special study of the reasonableness of these measures from an engineering or technical standpoint that they telephone company had provided through the PCA, and what the alternatives they could recommend were, that could perhaps take the place of those requirements.

  

**Pelkey:** Now, Carterfone came out in December of '68, and then the response of AT&T was somewhere in 1969 with the PCA. After that, other manufacturers started to say that this was unfair because we have to rent this thing and they have a competitive advantage. When did you say: "Wait a minute, we've got to start to deal with this differently." Did you start immediately, or was it something that --

**Strassburg**: We started almost immediately to begin to examine the alternatives, or look for alternatives, and set up various procedures and processes on a formal basis to get at the issue, and then we issued a new Notice of Inquiry, apart from the Computer Notice, looking towards formalization of alternatives. We set up technical advisory committees, industry advisory committees, in which Bell and the computer and data industry participated, to study the matter of alternatives and make recommendations. More and more the registration approach began to loom as probably the ultimate practical solution, but from a regulatory standpoint, that wasn't the FCC's forte, at least I didn't consider it our forte. I felt we had to move carefully and slowly in this, because we never had administered such an approval program or equipment approval program, and didn't even know whether we had the funds to do it, or what would be entailed, but there were a lot of things, and then, of course, AT&T, which was cooperative and accommodative up until about 1972 in working with these processes and procedures to evolve and develop alternatives, changed, and they began – H. I. Romnes had been Chairman of the Board during Carterfone and the post Carterfone tariffs. He was an engineer, and he had a very sympathetic view to what the Commission was trying to do and what was motivating the Commission. He also, as an engineer, had a distinctive understanding that AT&T wasn't going to be able to stand still with its traditional practices. They were going to have to make the network more accessible and flexibly adaptable to things other than voice communication and the conventional teletypewriter that it was becoming a competitive world in that dimension, and it would have to do something about it. Unfortunately, Romnes retired, and John Debutts became Chairman of the Board --

**Pelkey:** In 1972?

**Strassburg**: Early '72. He took more of a confrontational position. He felt that, from an operational and economic standpoint, this could be devastating to the health of the network, and the services that it provided would be in jeopardy, and it had done such a wonderful job for over a century of meeting the communication needs of the country. As those needs evolved, why should it be any different today? He thought it was madness on the part of the FCC to encourage these kinds of changes, let alone promote them.

**Pelkey:** I presume you knew him during this period of time?

**Strassburg**: Yeah, we had a few talks. He made some very cogent arguments on the economic consequences of deregulating or opening up to competition customer premise equipment, because customer premise equipment was such an important part of their rate base, it played a very significant role in how revenues and costs were allocated between the federal and state jurisdictions for various services, because commonly used equipment, you take that out of the rate base and the allocation process, it was a loss of dollars to the states. Now the states were almost universal in their objection to these changes. They also thought it was detrimental to their best interests, so we were getting out lumps from the state commissions as well as the industry.

**Pelkey:** What was the reasoning that the states had?

**Strassburg**: Well, the states, first of all, were very oriented towards the kind of service -- the state commissions were very comfortable with this end-to-end concept of responsibility to end-to-end service that would include all equipment, and that the telephone company should be responsible for that. That was number one. Number two: when telephone companies rented extension phones, PBXs and other things, that generated a great deal of revenue that was used to mitigate the cost of basic residential service. They saw they loss of this. Also, a portion of the costs represented by the terminal equipment furnished by the telephone company was apportioned by the interstate jurisdiction. Even though they were offered under state tariffs and at rates and rentals specified in state tariffs, never the less, because of the station-to-station basis of rate making, a portion of the investment and costs associated with these

  

terminals was allocated to the interstate rate base. We apportioned it, and those became revenue requirements for the interstate services, the long distance services, to meet, so in effect, that's why it's the root of the claim, that long distance rates had apportioned local services, and it was through that device, to a large extent --

**Pelkey:** To allow the expense of those costs out of the intrastate tariff picture.

**Strassburg**: Right.

**Pelkey:** But the states, at this point in time, would have to have thought that competition was going to reduce the amount -- oh I see, that would take revenue out of the hands of AT&T -- it would be supplied by an independent vendor that they couldn't touch.

**Strassburg**: And it would also dry up -- it would affect the flow of revenue --

**Pelkey:** -- to AT&T, therefore reduce the amount of cross-subsidy that could take place -

**Strassburg**: Yeah. I never call it subsidy, but --

**Pelkey:** Allocation --

**Strassburg**: It's contribution that the interstate made to the costs of common plant.

**Pelkey:** Right. And if AT&T had less revenue, such as North Carolina, whatever it was, in generating less revenue overall would mean that --

**Strassburg**: If these costs -- these items of equipment generated revenue, which flowed from interstate really to intrastate, to the states, because we absorbed -- to a significant extent, we took a chunk of costs out of the intrastate rate base. It's a little complicated. You've got to understand the separation and the division of revenue processes, but that basically -

**Pelkey:** Let me make sure I understand. It seems like there's two elements. There's one: if AT&T is not supplying the modems, but another manufacturer is supplying the modems, AT&T does not receive any revenue.

**Strassburg**: And none is coming to the local company, because it was the local company that would rent those. Now AT&T on private line services may have rented some modems, I don't know, but --

**Pelkey:** But on the local level, they didn't have that revenue, and they had to maintain a certain return on capital, the fact that that revenue wasn't there meant that that revenue had to come from someplace else in order to get the rate of return, so therefore anything that would reduce the revenue to the local entity would not be viewed favorably by the state commission. Secondly, some of that tariffing of that local unit would in effect get passed up to the interstate --

**Strassburg**: Well it wasn't tariffing -- whatever equipment the telephone company supplied, terminal equipment, including modems, keysets, PBXs, whatever equipment they supplied, part of those costs would be recovered from the interstate jurisdiction. In other words, they would get -- in the rates they charged for the PBX at the local level, the revenue derived from those rates went entirely to the states. That was intrastate revenue.

**Pelkey:** But the cost basis --

**Strassburg**: The costs were kicked upstairs.

**Pelkey:** So they had their cake and got to eat it too.

  

**Strassburg**: They would get a full cost on their rental rates and at the same time they were getting this additional sweetener.

**Pelkey:** So it was a double whammy. AT&T wasn't the provider of this equipment. They wouldn't get the revenue from rentals, AT&T, and in addition, they wouldn't have this luxury of having some of the costs be allocated up to the interstate.

**Strassburg**: Rather than sitting on their rate base that had to be covered in their jurisdiction.

**Pelkey:** It would be covered by what had become long-lines. So the states said: "Wait a minute. Economically, this isn't very good for us. We want to strengthen the local exchange."

**Strassburg**: So the modem by itself is no big-ticket item, but these things were. Even though the telephone company didn't supply the variety of PBXs that are out there today, you had a limited choice, but never the less, they were big revenue items. Take a small telephone company -- and the independent companies were very much affected, because their division of revenues with Bell were also, for long distance services, also reflected their costs. Not only that, but a small telephone company may have one factory or one big motel in its territory which rented a PBX from it. Well, if that system was going to go private, go elsewhere, there was a loss of a big chunk of revenue for a small company. So we heard from the small companies too.

**Pelkey:** Of which North Carolina was --

**Strassburg**: North Carolina was very particular.

**Pelkey:** One other question while we're talking about accounting: There are some people who express the view that AT&T was not an innovator because they would depreciate this equipment over an extended period of time and they wouldn't want to set a short life to a piece of equipment -- depreciate it over ten years, and after five years if it was not good - they didn't want to do that. Other people have told me that, even if they took it off of that depreciation schedule, they could put it over into another pool, and it stayed in the rate base, it got put in a different place --

**Strassburg**: But never the less, there's some truth to that concern, that AT&T, largely because they were regulated and largely because the regulators favored long lives and low depreciation --

**Pelkey:** In order to have a lower cost of service. So you encouraged --

**Strassburg**: We encouraged long lives, so apportionment came about in a very controlled fashion, rather than as it does today. AT&T orchestrated the innovation and the retirements --

**Pelkey:** At a pace that was consistent with the --

**Strassburg**: -- with the depreciation lives on which the depreciation rates were predicated. Now the FCC prescribed those depreciation rates. That's one thing we did. We prescribed those depreciation rates in consultation with the states and the industry.

**Pelkey:** But you were motivated and the states were motivated to have these be long depreciation lives.

**Strassburg**: Yeah, in those days, there wasn't the kind of rate of change that exists today, but as the computer industry began to demonstrate, began to rethink these time worn precepts -- in the days of the good old monopoly, everything was very sedate, controlled and life was -- you could regulate rates and earnings very efficiently, because long distance rates, which was our cup of tea, came down consistently over the years. Most of the reductions were negotiated reductions because why? Even though there wasn't a fervent rate of innovation or a turbulent rate of innovation and change, never the less we were in a declining cost economy and technology, particularly in long distance service.

  

**Pelkey:** But wasn't that largely because of the usage? Usage was growing so rapidly --

**Strassburg**: Usage combined with improved quality of service made possible by improved technology. We went from open wire and buried cable to coaxial cable and microwave relays and eventually to satellites. That, at least as far as inter-exchange plant was concerned, reduced the cost per circuit mile tremendously.

**Pelkey:** Do you thin that the culture that was set in place in the '60s as a consequence of these kind of attitudes, about long depreciation lives and so on, created a culture that has not caused AT&T to be an innovator in some of these areas?

**Strassburg**: I think so.

**Pelkey:** They never built an internal structure to innovate with.

**Strassburg**: That's right. The whole mentality of the industry, as well as the regulator, was predicated on almost a static kind of service, with very measured change, controlled change. I don't say that critically, either, because everything worked so well. We did feel gratified by the fact that long distance rates were coming down dramatically.

**Pelkey:** Oh, yeah. You were getting universal service; the kinds of services were improving. You had reason to be --

**Strassburg**: And usage was growing at a 12 to 16% rate per year in long distance calling. So we got the benefit, and occasionally, we'd even change the allocation procedures, the jurisdictional allocation procedures of local plant, including these terminals, to give the states some of the benefits of those cost savings that interstate was reaping at a much faster rate than the local ones.

**Pelkey:** When you were doing your Computer Inquiry I, did this concept of technological change and shorter product life cycles and the implications of tariffing --

**Strassburg**: I think those things began to crystallize. There was a greater rate of change, maybe not in the basic transmission plant, switching plant -- there were changes constantly under study in the Bell Laboratories, electronic switching and computerized switching, but we saw it was becoming a universal -- it could have many ramifications.

**Pelkey:** So there was this trade-off between technological innovations forcing shorter product life cycles. That meant you had to recover your costs over a shorter period of time, which would be . . .

**Tape Side Ends**

**Strassburg**: . . . Those concerns didn't -- they weren't the primary concerns and I don't think we were on top of them. We were so preoccupied with immediate issues. You've got to realize, a regulatory agency, we're a small group of guys, made up of a staff of lawyers, engineers, a few economists and accountants, a lot of accountants, and we really have a handful of people, and you get involved in any one thing, any one proceeding, it sucks up a lot of your resources, so we couldn't spread our efforts or our thinking to far.

**Pelkey:** Because you didn't have the resources.

**Strassburg**: Very limited, and then, of course, in 1965 also, we did the unpardonable -- we started the first General Rate Investigation of AT&T. Until then we never had a general rate and revenue investigation in the interstate field. We had some sporadic, specialized rate cases on individual services, but we got into, in '65, for a number or reasons, we went to a general rate investigation of all ramifications and all dimensions of AT&T rate making, involving long distance service, and that was proceeding that went on from -- we had an interim decision in it in 1967, and then went into subsequent phases which

  

went on and on and on. There was a lot going on at any one time, so when we moved, dealing with things like foreign attachment tariffs, we moved rather slowly and incrementally, feeling our way. We didn't want to do too much, and we listened. When Bell, AT&T squawked, we felt the pain. You react. We respected them, but at the same time we, I at least, felt there was a compelling reason to be concerned about certain trends that were out there, that Bell couldn't be all things to all people for all times, that the environment had changed, or was changing, and that innovation and creativity didn't all start within the walls of Bell Labs, and all the wisdom wasn't necessarily in Bell Labs. We were also concerned -- I was concerned that AT&T was beginning to grow big, in terms of not only revenue -- they had always been dominant as a corporate power, but at this time it was getting awfully big, so was there room for other participants in this marketplace called communications?

**Pelkey:** Also in '68, the government levied an anti-trust suit against IBM.

**Strassburg**: Right.

**Pelkey:** So this was going on in the background. Maybe IBM is getting too big and too powerful, and here you had AT&T, which was gigantic compared to IBM at that point.

**Strassburg**: AT&T had already been through one anti-trust suit in the '50s. It started in '49 and ended in '56. They got off the hook on that one pretty lightly, and for a number of reasons we won't take time to discuss it now, but -- and the Department of Justice was always -- we were always aware that the Department of Justice was always with the Bell System monopoly, particularly the Western manufacturing aspect of the monopoly.

**Pelkey:** Now, during this period of time, Nixon was president. Was there any sense from the White House, at that level, that these were issues of concern to it?

**Strassburg**: Well, they were issues that were developing that they were concerned with.

**Pelkey:** On the military side, clearly they weren't getting service from AT&T. They wanted more lines into the Asian market and they couldn't get them. They were going to independent suppliers for 9600-baud modems they couldn't get from AT&T --

**Strassburg**: Even the Kennedy Administration got concerned, Kennedy and Johnson after Kennedy. There was, in the early '60s, satellite technology was beginning to be demonstrated as a practical means for relaying communications of various kinds over long distances. The United States had the leadership in space technology and its applications, at least -- after Sputnik, the question was: "What does the nation do with the use of satellites and how should that technology be institutionalized?" This isn't something that grew out of the Bell Laboratories. It grew largely out of a combination of the microwave effort in NASA. NASA was the progenitor of much of the advances made in that field, so the Kennedy Administration saw this as having world wide consequences, this technology, and world wide implications for global communications, and here was an opportunity for us to use our leadership in this new technology to advance world peace and understanding and bring the nations closer together. In many countries, particularly the backward countries, the lesser-developed countries, they had long distance communications with the outside world, which was very tenuous and left a lot to be desired, because they used high frequency radio. The more industrialized nations, particularly in the European basin, had the submarine cables which were beginning to realize some improvements for voice communication, like the high capacity cables laid in the '50s and the '60s, but the rest of the world, to a large extent, were dependent upon high frequency radio, and that's why satellites seemed to be a very economic, attractive means of bringing the world closer together. And it was true, so the Administration did get into these technological advances at that time.

**Pelkey:** Let me jump back to where we were. You convened this advisory committee relatively quickly then, around 1970?

  

**Strassburg**: Yeah, I think it was around '69 or '70. It was probably '70.

**Pelkey:** And this had industry representatives, so you had AT&T on the advisory committee? Who was --

**Strassburg**: Oh, yeah. AT&T and -- it was made up of some fairly good people.

**Pelkey:** Now did they come back and recommend the registration program?

**Strassburg**: There's a guy you want to talk to, another guy, who's still at the Commission. His name is Lou Feldner. He's a great historian on that. He's an engineer and was in this -- I hired him from one of the data communication outfits. He's in the Common Carrier Bureau of the FCC.

**Pelkey:** I have his number.

**Strassburg**: Oh, you do have it. Somebody gave you his number. Lou was around at that time. He maybe could give you the calendar.

**Pelkey:** Did you convene both the National Academy of Science and the Advisory Committee at the same time?

**Strassburg**: About the same time.

**Pelkey:** And you also brought Paul Baran in as a consultant.

**Strassburg**: Yeah, let's see, how did Paul get on that. I can't remember exactly how -- I don't know if Paul was a consultant. Paul did a great deal of writing and speaking on that subject at that time, about the prospects. His name was certainly well known, and I know we had talked with each other. I don't know whether he had ever done any consulting work for me or not. I don't think he did, but at least not in a formal sense that I can recall. We were very much interested in what he had to say, but we also brought in the Stanford Research Institute, SRI. The primary reason for bringing SRI in was because the comments that were filed were so voluminous that we really weren't sure of what we had there. We needed some competent group that could focus on them, take them apart, get them organized in a fashion that they could be used for the purposes of a proceeding and resolving the issues, so to come up with an analysis of the comments, and with conclusions. They put out a report, a two-volume report. You can get it from SRI and -- the guy headed it up, his name was Dunne. What's his first name? It's terrible; I used to be so close to these people. He's a professor at Stanford.

**Pelkey:** D U N N?

**Strassburg**: D U N N E.

**Pelkey:** Now, do I understand correctly that the Advisory Committee came back and said that a registration program --

**Strassburg**: They came back with recommendations of various kinds. There were several advisors --

**Pelkey:** They said you could stay with this protective coupler and that would work. There's another way, which was --

**Strassburg**: Well, it was the NAS, the National Academy that said: "It could work this way or it could work another." They didn't go into the policy issues. They went into the technical feasibility issues. The Advisory Committees -- there was a PBX Advisory Committee, as I recall, and there were two or three. This is where Lou will fill you in if you talk to him. Then our Chief Engineer's office made -- not a part of the Bureau, it was a Commission office, our Chief Engineer came up with some recommendations too. So what we finally did, we lumped -- I mentioned earlier, we started a new Notice of Inquiry to determine

  

what changes should be made to accommodate a program in which the telephone company did not supply every element of equipment. In other words, what changes should be made in the tariffs, for example. We made that a joint proceeding with the states. We invited the state commissions, through the NARUC, the National Association of Regulatory Utility Commissioners, to appoint cooperating Commissioners, or participating Commissioners, to sit with the FCC, or to preside with the FCC, over that rule making proceeding or policy making proceeding. It was a Joint Board.

**Pelkey:** This is when?

**Strassburg**: That came into being in late '71, early '72 as I recall, and began to pick up momentum in '72. We dumped, or directed, that the Joint Board would consider the recommendations of the National Academy of Sciences, NAS, the Advisory Committees, the Chief Engineers Office, and any other comments. That was to be the forum for formally resolving the PCA issues and the registration, formulation of registration or any other alternatives to PCA.

**Pelkey:** And that process --

**Strassburg**: -- went on until '75, '76.

**Pelkey:** Now do you recall the formation of this thing called the IDCMA? When the modem manufacturers get together to form their own group?

**Strassburg**: ADAPSO?

**Pelkey:** No, it wasn't ADAPSO. It was IDCMA. Racal, and Codex, and Paradyne.

**Strassburg**: No, but Lou Feldner would know.

**Pelkey:** Ok, good, I'll talk to Lou about IDCMA. Where was Mike Slomin at this period?

**Strassburg**: He wasn't at the Commission. He didn't come to the Commission until the later '70s.

**Pelkey:** So he was never there when you were there.

**Strassburg**: No, I think he came shortly after I left. I know he wasn't hired while I was still at the Commission. It may have been '75, '76.

**Pelkey:** So in addition to -- now Computer Inquiry I got wrapped up in the early '70s.

**Strassburg**: Right. Came out with a tentative decision and then a final decision which established certain rules and guidelines and definitions, largely focused on the what the telephone companies could or couldn't do in the data processing field, in order not to complicate the regulatory problem, and also not to complicate the data processing market, although the data processing market was not our jurisdictional concern. Never the less, we didn't want AT&T or the other telephone companies to so intermix their operations and make a mess of both markets, both the monopoly markets and their competitive markets. Those decisions are a matter of record, which are easily accessible. So that was the culmination of the first Computer Inquiry. Those rules were challenged in court by GTE, and there were some modifications made in some aspects, but the basic rules stuck. We were concerned about AT&T getting into the data processing market, but there wasn't -- not data communications, because they had all this capability in their own computers, to sell timesharing services and other things but, the one hitch was that, by the '56 Decree that settled that matter, they were barred from going into any non-regulated business. So the industry was generally concerned with how far we went in laying claim to data processing as a regulated area when it used communications, or whether or not it used communications.

**Pelkey:** IBM did not want to be a regulated business.

  

**Strassburg**: That's right. Right you are. The rules addressed -- the policies addressed those concerns, and worked fairly well until then came Computer II, which was in the later '70s, under Dick Wiley, Walt Hinchman, who was my successor. That's as far as I can take you on this, right now.

**Pelkey:** During that period of time, you certainly interacted with H. I. Romnes and you interacted with the officers at IBM. Your office must have been a busy spot at times.

**Strassburg**: Oh yeah. My office was sort of the balance for this industry. It was a very sensitive time.

**Pelkey:** Given the small group, you must have worked enormous hours.

**Strassburg**: Well, we did work long hours. We worked hard. It was very frustrating because you go home feeling how inadequate you are, and that's not a good feeling to deal with. The complexity of the issues made it tough.

**Pelkey:** Did you have a vision of how this was going to turn out, or was it just that you went slow and weren't too disruptive, yet at the same time, you dealt with the reality that the world was changing?

**Strassburg**: I was gratified that, in spite of the frustrations: was gratified with the progress we were making. There was progress being made. We were breaking away -- tearing or ripping away some of the ancient encrustations that were no longer relevant in this day and age, and we were bringing AT&T up to the 20th century, which called for more flexibility in the availability of its services and the usability of its services. Stimulated some thinking on their part, which was hard to do. They were very entrenched.

**Pelkey:** Well, at that point in time, the whole issue of the telecommunications system of the country and who had the real authority, the states or the FCC, that process was still being worked out.

**Strassburg**: There were challenges to our decisions, particularly the registration rules, and there were challenges -- well, we have the famous Telerent decision.

**Pelkey:** And there's the Kansas and Nebraska --

**Strassburg**: Kansas and Nebraska came along and --

**Pelkey:** And said: "Wait a minute, you may be able to do it, but forget about them ever being tariffed."

**Strassburg**: There was a lot of turmoil of that type. As you say, the states were not our most ardent supporters or admirers. It's a lot different today. You've got a new breed out there of state commissioners which have, perhaps, gone to another extreme, very deregulated, deregulation oriented, competition as an end in itself. This was never my -- many people think that I had planned it this way. This is what I wanted. I wanted to see the breakup of the Bell System. No. I never -- that was never my ambition. I was concerned about bigness. I was concerned about their resistance to change and the difficulty we had in getting them to accommodate the change, and I was concerned when John Debutts dug in his heels against the policies.

**Pelkey:** That must have been a disappointing moment when you found out you had gone from this environment with H. I. Romnes who went further than you thought he had to go, which was an enlightened point of view, and all of a sudden Debutts comes in, and all of a sudden you have a man who is being very protective.

**Strassburg**: It was, yes. You find much of this in the books that have been written. Have you read Steve Coll's book, by the way, The Deal of the Century. It's about the settlement with the Bell System, the settlement of the anti-trust suit. He does it in the context of the personalities involved, to a great extent, so it's a very readable book. You can get it in paperback. It's at $8.50, now. I wish our book were coming out at $8.50 in paperback. Then there's another book that just -- let me see -- they put my picture

  

in it too. Then there's another book that you may have heard of. It was written by Alvin von Auw, Heritage and Destiny, which is also a good insider view of what they were going through, their dilemmas. He was corporate secretary and vice-president. It's a little more cumbersome reading. Those are things that could give you some insights on these subjects, of what motivates people, at least from the Bell AT&T perspective. This book is also from the AT&T perspective and was commissioned by AT&T. Our book, the one I'm coming out with, is more of a regulatory perspective.

**Pelkey:** Thank you very much for your time.

END OF INTERVIEW

  