Bruce Bond

Interviewed by

Richard Sharpe

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Welcome to the Archives of Information Technology where we capture the past and inspire the future. It is Thursday, October 4th 2018 and we are in the City of London headquarters of the Worshipful Company of Information Technologists. I'm Richard Sharpe and I have been researching and writing about the IT sector for, mm, many years, since the early seventies anyway. Our contribution to the Archives today is made by Mr Bruce Bond. He's one of the many people who acted as senior executives in this country, coming from abroad and bringing his expertise, in this case from the US telecommunications market, to help build up IT in the UK.

So first, some personal background from Mr Bond. Bruce, where were you born?

I was born in the Oberlin, Lorain, Ohio area in the United States, which is not too far from Cleveland, Ohio.

What did your parents do?

My father had a third grade education and he worked as a driver and labourer in the United States Steel Corporation back there. My mother had a fifth grade education and she was a housewife.

Can you just explain to the UK audience, third grade means what?

Elementary school. Both of them had elementary school, first school type educations. And they had five children, of which I was the youngest by twenty years.

Twenty years?

Twenty years. The oldest, my sister Lucy, just died recently, incidentally, and she was 96 years old. And rose to be a colonel in the United States army and ended up with a terminal degree or a doctorate in law. My brother James Bond was the President, University of California, PhD in psychology, was part of the Carter and Reagan administration. My brother Bud went on to get a masters degree in electrical engineering and was the postmaster in a number of the smaller towns in Ohio. And

my brother Richard, masters at Columbia, sang classical music, and he just passed away in May, at the age of 91.

Did your parents push you on?

In our family, academics was a religion and everybody was expected to get advanced degrees and make a contribution, not just to the community, but to try and make a contribution to the world. And I grew up, again, twenty years younger, and I could see people in my family, my brothers and my sisters and what they'd accomplished, and their expectations for me.

[02:56]
You went through state schools?

Yeah, for the most part we all went to state schools, until I went to MIT to get a graduate degree there as a Sloan Fellow, but the rest of them went to state schools, state universities or my brother and sister were the first people of colour in Lorain, Ohio in the 1930s to make the National Honor Society, which is quite a credit. And both my sister Lucy and brother Monroe were valedictorians, which means they had 4.0 and finished first in their class. Which again, for people of colour with the gender and racial prejudice at that time is absolutely remarkable.

Do you feel yourself that you have to push on?

Well, I'm now 72 years old and I think I've given it a pretty good push. [laughs]

That's enough.

Yeah. But I am enormously blessed and I have no doubts about that. In fact, I kind of think of myself as kind of Forrest Gump, and I don't know if you know that movie, but I've been privileged to be present at so many of the major junctures in the development of the IT industry and to meet so many very, very interesting people. And I think I've made a small contribution, but I got to be there at a very young age and see a lot of the things evolve, which has just been enormous.

[04:27]
But it does take a person to seize that opportunity rather than just let it pass them by. You've seized those opportunities.

Well, yeah. Well, yeah, opportunity and it takes people and mentors that are willing to take a chance on you and give you the opportunity, are willing to value what you say. And again, quite often, particularly when you're young, and unfortunately particularly when you don't look like people expect you to look, you don't come from the class they expect you to come from, maybe they don't listen too carefully to what you have to say. And I've been privileged to where I've been around people who were open and interested and given me the opportunity to try and make a difference. And I can't tell you how much, how I feel privileged about that.

You graduated from the Sloan School of Management.

I did.

At MIT. You are today wearing an MIT cap, when you have one, yes?

True, yes.

And then you went on and did an MBA afterwards?

I came to- it's a funny thing, I came to, I had an MBA that I got from the University of Dayton, which again, very unusual in 1969 to have an MBA, just didn't happen. And that had a lot to do with my career at AT&T as I was just very rare. And I ended up, before I was 30 years old, being in charge of all of AT&T's business service and product strategy. And so – and running major projects with the Bell Laboratories, again, 30 year old kid. [laughs] But, I was seen as very unique and I, and again, I kind of have a mind that doesn't have any, doesn't have any partitions in it. So if I read a very interesting science fiction book, it goes over here to the design of integrated circuits. I mean that's kind of the way my mind works and that's kind of my gift, is to be able to integrate across what look like very different areas. So yeah, I

had an MBA going into it, I got thrown into the fire at AT&T in trying to manage these technical groups. And I had no idea what they were talking about, when they were talking about operating systems and these different programs and routines, different types of memory. Because one of the first things that happened is AT&T put me in charge of developing the first digital PBX system. And here I am 30 years old with a group of 60 PhD computer scientists. [laughs] And I'm supposed to be leading them. And I walked out of the first meeting and I thought, I don't understand anything they're saying.

[0:07:14]
What drew you to telecommunications?

Accident. Total accident. I had tried, I was working for a small machine shop, called Acro Tool & Die Company, which made sipes, which fit into tyre moulds and – this was during 1968 or something – and some of my friends were killed in Vietnam and I began to feel really, really guilty that their lives were gone and I was here, just kind of molly daddling along. And so I tried to join the military and literally a couple of days before I went, I went in for the physical, and they said because I played football, I had a bad knee and a bad shoulder and they said, you know, they can't have some guy who's six foot two, 240 pounds and your knee gives out on you and your mate's got to carry you off the battlefield, you know. And so they wouldn't take me. And so I was so despondent. And my brother Jim was the vice-president of student affairs at Bowling Green State University and he said, I'll tell you what, he said, why don't you come to Bowling Green and work on your PhD in psychology. I'm a psychologist, come follow. And so I moved to Toledo, Ohio thinking I would do that, but I was married and I had a young child and I said, I need to get a job, have to feed myself when I'm going to school. So before I start working on a PhD I'll get a job. And so I interviewed at a number of places and I was offered a job at IBM for what was an exorbitant amount at that time, $15,000 a year, to be a computer programmer. And I was offered a job at the Ohio Bell Telephone Company, to come in and be a salesman, basically. And the IBM job was eons more interesting, but looked like it was going to take a lot of energy, and I really wanted to go back to school, I wasn't looking for a career, I just wanted money. So I actually turned down the $15,000 a year IBM job and went to work for Ohio Bell Telephone Company for $8500 a year.

And this was nineteen sixty…?

This was 1969.

[0:09:31]
1969.

It was. And they sent me to…

Many campuses were burning at that time.

Oh, it was a mess. I mean it was terrible. In fact they were having riots all over the place. The Kent State thing had happened shortly before that and good friends of mine were there. There were race riots going in Toledo, Ohio where I was living. I mean literally up and down the street, I mean it was an unbelievably difficult intense time in United States, even as far away as a little hamlet in Toledo, Ohio, right?

Ohio Bell was then part of AT&T.

Yes.

A monolithic service provider, regulated, but hugely powerful. Ranging from fundamental research in the famous Bell Labs in New Jersey right the way down to a socket in the wall for a telephone connection for people. Entirely integrated. Had a number of manufacturers that it was dependent on, but were also dependent on it. And was beginning to face occasional twinges from the political establishment about is this the right way to organise telecoms and should we allow this monopoly, in effect, to continue. So you were taken on as a salesperson in Ohio Bell, what were you selling?

[0:11:15]
Initially payphones and then P systems. And then the early PBX systems. And a funny thing happened, they came around and said we need ideas for new products and

would people submit ideas. And I wrote up four or five pages of things I thought they could do, and I turned it in to my boss, and he turned it in to his boss, and he turned it in to his boss, and he turned it in to his boss. And it came back, it's just a funny thing, in this entire district we got maybe three or four ideas, and you submitted 50. Right? And so they thought then maybe I was kind of unique, right? Another thing that happened though again, which is kind of dumb again, is that in interviewing for all these jobs you have to take an intelligence test. And I'd interviewed at like five or six different companies before I went to Ohio Bell and they kept giving me the same intelligence test. So by the time I took the Ohio Bell one, I knew all the answers. So I turned it in and it came back, it said I had an IQ of 200. That's one reason they hired me. And they had this image that they now had hired this huge brain, right? And now I submit these 50 ideas. And so, again, I'm what, twenty-three. And so they sent me off to AT&T data school and I got, I learnt how to program in Fortran and COBOL, and began to understand something about how computers work. And they also sent me to the network engineering and design school, even though I was a salesperson. And I'd learned about kind of how the networks work and how the switching systems worked. So then I did get some of this kind of technical background and interest, and that's why when I went to AT&T I was promoted, really just a few years later. I spent like two years as a salesman in Toledo, and then they sent me down to Dayton, Ohio in charge of, as a sales manager. And the sales group I had was best in state and meanwhile I was going at night to the University of Dayton, working on my MBA. And so when I graduated from that they promoted me to a third level manager, sent me to AT&T and put me in charge of developing digital PBX systems.

[0:13:23]
So now you are in the mothership, so to speak?

There I was. There I was, and again, I don't know anything. And I got these really hotshot, pro class engineers, software people and hardware people, and I'm supposed to be managing this group. So I went back – I was out in Denver, Colorado and the group was located in Homedale – so I went back on to Denver where I thought, I'm not going to take this from these guys. So I signed up to work on a masters degree in computer science at the University of Colorado, I'm going to learn the language on this stuff, right? And I started doing that. And a funny thing about that too is while I

was in Homedale, the labs guy, one of the labs guys says, while you're here let me introduce you to some of the people. He took me down the hall and there was these two guys, one was named Thompson and one was named Ritchie. And I walked in there and, what are you guys doing? And they said, oh, we're in this big competition with IBM, IBM's got this operating system that rules the world and that's really the key to their success and we're trying to develop something that we think could compete with that. And so we've been working on this new operating system. And I said, what's an operating system? [laughs] They said, well, it's kind of a traffic cop thing. And I said, oh, okay. And they said, to do this we have to develop a new language to make it work. And they said, and we're on the third version. The first version we called A and the second version we called B, and the third version we called C. We're on the C version of this thing. And he said, this operating system is really different, because it treats everything the same, it's kind of a peer-to-peer kind of operating system. So all the databases and the applications, they're all the same thing. And so we're trying to think of what we're going to call it. And there was no whiteboards in those days, but they had a blackboard and they had a bunch of names, we need a sexy name to put on here. And in the middle they had this thing and it was circled, and it was called Unix. [laughs] Right?

Yes.

And I said, well, that's kind of interesting, I said, could I play around with that a little bit? They said, well, C's a structured language, said can you do, you said you can do C in COBOL. I said, they're very close cousins of each other. And there were no Xerox machines those days, so they had a mimeographed manual about that thick. They said, here. And I had a TI-1000, which was just a keyboard with an acoustic coupler thing on it, you know, and it operated like 300 baud. I took that back out to Denver, Colorado and every night I taught myself how to program in C. And meanwhile, I'm working on this masters in computer science at the University of Colorado. I start playing with this and I said, I realised it had this kind of what they called UUCP, which was Unix-to-Unix Communications Protocol, which would allow all these different things to talk to each other. And so I went back to the labs people, and along the way also I was – I'm a big computer game enthusiast – and I'm playing around with my little Atari computer game, and I'm getting kind of upset with

how fast the damn thing operates and stuff. And so I start looking at the technology and I think it was working on a 8086 processor. And so I'm having lunch with my lab guys and I'm complaining about this computer and how bad the CPU is, and one of them says, 8086? I said, yeah. He said, that's the same CPU we're using in our new PBX system. What? I mean, it's really exactly the same thing? He said, yeah, it's exactly the same. He says ours has a few numerical registers and stuff on it, and can access more memory than that one can, but the basic brain is the same thing. Well, could I play my computer games on my PBX system I'm developing here? They said yeah, you could, I mean it would work alright, but probably work a lot faster than the one you've got on your little Atari machine. I said, well are you really telling me that the communications capability we're putting in this this is basically just another application program? Well, you know, you think of that way, but I guess that's right. Well then, could it also do a word processing program? Yeah, I guess it could. Could it do an accounting program? Well, accounting programs require a lot more memory and… yeah, I guess you could do accounting. Then why couldn't this PBX system become a kind of a general computer system where the communications is just an application, and then we could have something we could really deal with IBM with, because no one has something that does all this stuff. And they said, yeah, we could do that. We could do that.

[0:18:16]

And so I ended up running a project that we collected five of the top best young minds in the company. I know we had a million employees in those days. The best ones from Bell Laboratories, from AT&T Long Lines, from Western Electric, and I ran this group. They assigned an executive vice-president to work with me. And again, I'm now twenty-seven, and I pulled this group together and did a lot of research on technology and tons of presentations, and I ended up giving a presentation to the chairman of AT&T and the entire top 200 management of the companies, from every vice-president and president in the company.

Of which there were many.

Of which there were many, over 200. And we had a big room in Basking Ridge, New Jersey, and they all sat down and I spent four hours going through the development of the technology, where I thought the market was going, and basically that the personal

computer was going to dominate everything and was going to have this general capability that we could put lots of applications on and this idea of these big central office units that really were like mainframes, dumb mainframes was not the future of the business. That this was the way we could transform the company and destroy IBM. I finished this presentation and the room was stunned. Stunned. People just sat there. Not a single question. And we had a bunch of people we'd hired from IBM. [laughs] And one of the guys was sitting in the front row, and he turns to the guy who was the executive vice-president who was my mentor and was supposed to help us run the programme, and he had wire-brushed this presentation like you wouldn't believe, had over and over and over again, because this is a big deal. And he turns to him and he says, you know – forgive my language – he says, that is the dumbest effing thing I've ever heard in my life. He turns to him and he says, are you asking for this? Are you really supporting this dumb idea? He looks stunned. He goes, no. No, no, no. Bruce. Bruce, Bruce! Well then, Alec Feiner, who was the head of Bell Laboratories and was the chairman of the President of the United States Committee on Science and innovation. He is one of the top scientists in the world, Dr Alec Feiner. He stands up and he says, the Chinese say that the mouth is the enemy of the throat. He says, but I'm going to tell you that Bruce Bond is exactly right and if we build this it will make an enormous difference, not just for AT&T, but for the whole country, and I personally promise you that Bell Labs can build it, we will do it. The guy from IBM looks at him, he says, you know what Alec? I know a little bit about computers and you're full of shit too. [laughs] And so then the Bell Labs guys jump in and start defending Alec, and there's no way the business people are going without the technology, they start attacking them. The whole room turns into a huge war and nothing happens. So we go back afterwards and I got my little team of five guys. And one of them was a really, really sharp guy. And he says, that's it, I quit. I said, you quit? I mean your career is soaring along. He said, this place is never going to go anywhere, he said AT&T is dead. He said the body's not smelling yet, but it's dead. He says, I'm leaving. And he said, I don't mind being a duck in a shooting gallery, I really don't, but when the ducks are supposed to be behind you when they open up… [laughs] I said, but you've got this great career. He said, you know what Bruce, I came here looking for a job, I can leave here looking for one and I'm better having been here. And so that was it. That was it.

[0:22:35]
So, what you were proposing was based on the Unix operating system on microprocessing technology, on seeing telecommunications purely as another application along with all of the other types of applications.

Exactly right.

Which had, that insight had been given to you basically by the structure of Unix itself, which you'd understood by programming it in C. And what you were proposing to these people, who had never really done this, was we can take apart IBM.

And you see there are no partitions.

Yes.

Here's Unix, here's UUCP, here's a stupid Atari computer game, Space Invaders, here's this really sophisticated system I'm trying to build over here, and the thought that these two things are really the same thing. They're just variation on the same thing. And then the other thought was, jeez, all these applications, they can be in this processor, but if I have a fast enough connection between them, they could be an adjunct processor, or they could be another computer. I've got this UUCP capability that will move between 'em, and that led to this thought of, we could have a whole bunch of these PCs sitting here, computing it, and we could have this stuff down here. And so I started thinking about what is now thought of as client-server relationships, and clouds, and what today is the internet.

That must have terrified some of the AT&T people because it was going to go against IBM.

Destroy them.

And until then IBM was in computing and data processing, as it was called, and AT&T was in telecommunications and they had just looked at each other over the fence and said, don't come into my patch, and we won't come into yours.

Yeah. It totally, they were totally intimidated because they thought the IBM people were smarter and more sophisticated and had more technical capability than they did. And that's why they kept hiring these people from IBM to come in and help them. They were totally intimidated by that. And they also just simply could not get past a gestalt, a world view of the way the telecommunications system worked. They just couldn't do it, they simply could not break mentally through a completely different model. And then when I started pushing X.25 packet switching technologies, right, and suggesting packet switching rather than circuit switching, oh then it was just against the religion. Oh my god, you know, you are no longer a member of the religion. How can you suggest that? You have any idea what the quality issues are going to be.

Quality issues? That was a big issue, wasn't it?

[0:25:27]
Yeah. And so it was X.25 and it later turned into TCP/IP, type technology, but that was the first thing, it was sitting there and they just thought of it as a joke, I mean as a toy. And these PCs are toys. What are you talking…? Yeah, your Atari machine is a lot of fun but it's not a serious business, reliable kind of a system. And we build things that have 99.99 reliability. I mean, what are you talking about? And I said, but this is today. Look at these curves I showed you. Do you have any idea where this will be three, four, five years from now and it's going to eat you. And so they, you know, they actually promoted me and they sent me out to, back out to Denver and I went back out there, I think it was probably 1980, and they put me in charge of the advance premises switching systems group, which later became part of Lucent.

Became?

Became part of Lucent, and they…

Right, yeah, Lucent. Yeah.

...they later hived that off, right? But they put me in charge of that, developing that, which again just, I went out there and continued to follow this kind of religious idea, right, that these PCs and there really wasn't any difference between central office equipment and local switching, it was just a matter of what you wanted to do locally, what you wanted to do at the service level, if it was just a client level, and that all the telephones are really just another version of local processing versus remote processing. And the whole issue was about the network. I continued to drive that idea, drive that idea, drive that idea.

[0:27:05]

Well, then around that time the president of – it's all the affirmative action stuff's going on, a lot of pressure on companies to hire more people of colour, hire more women. And AT&T was sending people off to the Sloan School, MIT, they had this Sloan Fellows programme. And AT&T was sending, you know, some Anglos, but also trying to send some minorities to the programme. And so were other big companies in the United States. And the whole programme was designed to identify maybe 40 young people that were in their thirties that you thought had the potential to become chief executive officers. And they came from all the top companies in the United States and many of the ones from Japan and other places. Remarkable group of very bright, very ambitious people. And the president of MIT called the chairman of AT&T. He said, you know, you've been sending these women and these people of colour to the programme, and they're absolutely among the worst people we have in the programme. He said, on the other hand, IBM and General Motors have been sending people and they're real stars. He said, what that tells me is your affirmative action programme is nothing but tokenism. You're moving people simply because of gender and colour, you're not moving good people. He says, and that makes me, you might be my friend, but I hate to say this, but it makes me really wonder how genuine your thought is about diversity, because you don't think you can find people that happen to be women or people of colour who are just as good as the white males who are being sent. You're just sending people up here because that's who they are. He said, again, I hate to insult you like that, he says, but that's the way it feels now that I've looked at five years of you sending people who aren't good and other people sending people that are very good. Chairman of AT&T was infuriated. So he called his executive vice-president of human resources, he said, you go find me a monster. I want somebody that's going to blow that damn programme away. So they came to

me. I'd finished my MBA at the University of Dayton, on a 4.0 average, I was working on this computer science degree masters 4.0 and of course was really over-qualified at that point to go do another MBA, right? And they called me up, says chairman wants you to go and destroy this programme. I said, I can't do that. I said, I'm in the middle of this major deadline for the validation of data and we're doing all these great things and I've got these great ideas, I said, what became distributed computing, and I can't go and do that, right. He said, the chairman wants you to go do that. And so you're going to report, at two months you're reporting to Cambridge and that's your job. So they sent me to the Sloan School, paid my full salary, two years of tuition, and sent me out. And I finished first in the class with like 115% every time. Which is what they sent me to do. And then the president of MIT then called the chairman of AT&T and said, you know, there are very, very few people of colour, black Americans, who are really senior people in academia, particularly in business, there's almost none. And they said what we'd like to do is pay for Bruce to get a PhD – another five years – have him stay, pay for a PhD and he'll become a professor here at MIT. And that will be a real contribution to society. Pay his full salary and full things, will you make that investment? Which would have been over a million pound, that's right. And the chairman of AT&T said yes, we will do that. So, the president of MIT and the dean of the Sloan School came to me and said, we did this for you. And I said, thank you very much, but I want to go back to work. [laughs] This has been fun, I want to go back to building things. So I turned that down, I went back to AT&T and I was branch manager there for a year, eighteen months. Again, the best in the country, and then a friend of mine who was an executive vice-president I knew at AT&T said, why don't you come out to US West. So I went out there in charge of Mountain Bell's vice corporate strategy.

[0:31:53]

What date was this then?

This would have been 1985.

Right, now, a really big thing that happened in 1982, in the US…

Was the division.

…was that AT&T had now really become a target for the legislators and the politicians and it was broken up into a long line, long lines company, the core of AT&T, what we would call in Europe, a trunk company.

That's right, that's exactly right.

And also the labs, fine, in one thing called AT&T, but twenty-two regional operating companies, yeah?

That's exactly right. Well, actually there were seven.

Seven? I thought there were twenty-two Baby Bells.

There were seven RBOCs, yeah.

Seven. Regional BOCs.

Of which US West was one of them.

So US West was one of them.

That's right.

And you had to, in US West, use the AT&T long haul, or not?

[0:32:52]
Yeah, US West was prohibited from having long distance services.

Right. But did it have to have AT&T's long distance services?

No, no.

It could have had…

MCI.

… MCI, or the other one was Sprint?

Yeah. It was primarily, at that time it was AT&T and MCI. And MCI had moved from a peer microwave system, which really wasn't very good, and had some facilities of their own at that point. But it was an artificial thing, because US West covered a large number of states and really had been providing AT&T's long distance services in those states. So we had to turn off, had to turn off the switches between the states. And we could have turned them on with the flick of a switch and provide the service, and we couldn't do that. It was really a very hard thing, but it was what it was, yeah. The other thing that happened, which is very important, is the entire cellular business was given to the RBOCs, was taken away from AT&T and was given to the RBOCs.

Right. So mobile telephony…

It's gone.

From '82.

And I should mention as an aside, when I was at AT&T and responsible for their advance, for their products and services strategy, I was part of the AMS project, which was the Advance Mobile Services project, which became cellular radio. So I was in the middle of – Forrest Gump – I'm in the middle of the development of that and trying to, and understanding the analogy between cells and beehives and it was a fab… So I was part of that too. So when I went to US West – I can add as an aside – I go to US West and now they have the cellular business and so do all the RBOCs, but they don't know anything about it, they have not been involved at all. So they pulled together a group of twenty of us. It was supposed to be the twenty smartest people in the country on cellular radio. And we all met in New Jersey, in a Holiday Inn in New Jersey, for two weeks. And went through, the labs people, a whole group, and the

twenty of us talked through what we thought the major commercial, technical, societal issues were, and then put together a list of the ten things we thought were the key things for cellular radio. And I don't remember them all, but the one I remember is we made an unbelievably aggressive and fantastic projection, forecast, that we thought someday that as many as perhaps two per cent of the population would be using cell phones.

Outrageous! [laughs]

I mean it was totally stupid. And what that has taught me is that if you take twenty of the smartest people in the world and you multiply it by zero, guess what you get. Twenty times zero is zero, every time. A hundred times zero, a million times zero. [laughs]

[0:35:51]
You moved on to Mountain Bell as well.

Went to Mountain Bell and I was there again as, I was there, eventually their vice-president of strategy. And then I went up to US West itself, reporting to Jack McCallister, who was the chairman of US West, in charge of the strategy for US West, corporate strategy and planning for US West. Along the way I went to a conference in Vail and met Adam Scott, who worked for British Telecom, and he worked for Iain Vallance and wrote his speeches and was actually supposed to be helping to put together strategies for Bell Laboratories. And we had a lot of discussions. And then about a year later– well, actually, six months or so after that, Adam called me and he said, you know, Iain, recently appointed chairman of British Telecom, and he's interested in kind of touring around some of the telephone companies in the United States to kind of talk about what they're doing and what they're thinking about and he's going to be in New York and he's going to be in California and stuff. And we thought, since he's going to be in the country, he might make a stop at US West. He said, could you arrange to have him meet with Jack McAllister while he's there. Yeah, sure. So Iain came over and I picked him up at the airport, him and two or three of his guys. And I went to dinner with him, sat in on the meetings with him and the discussions about strategy and what they were doing,

with Jack McCallister. He had quite a bit of downtime, he was there for two or three days. So I drove him up to Vail and showed him the mountains and he sat and he and I went back and forth and talked and, right. And then about a year later I got really frustrated because I'm trying to push this idea of networking into what eventually evolved into the internet and this whole idea of adjunct processors and strategy and Unix. And again, I'm getting really nothing at all. In fact, one day Jack just says, you know, we have no idea what to do with you, we really don't. It's a shame. And they said, you know, listening to you talk just makes me want to retire. And I don't understand this business and if that's where it's going, I don't want to be part of it. I've enjoyed being part of a utility, almost a service function, now you describe it, this competitive, cut-throat thing. I don't want to do that.

[0:38:26]
So Lord Vallance became chairman – he wasn't then Lord Vallance – became chairman in 1987. That was three years after the privatisation of BT. Previously it had been split from the Post Office, it used to be a classic European, what we call a PTT, Post, Telephone and Telegraph company, state-owned utility. Now it's a privatised company.

And this is probably, what I'm talking about now is probably '87.

It's '87. He was chairman from '87, he's talking to you, and you move over in '89. And what does Iain say to you?

I call up Adam. I call up Adam and I say, you know, this just isn't working. Is there a possibility I could come help BT with some things. He says, let me talk to Iain. Iain calls me up, he says I know you're an aggressive young man with all these crazy ideas. He said, I think, you know, I think you would be, introducing you into our ecosystem would be an interesting thing, you know, bring that kind of energy into it. And so he invites me to come over and join BT. And he brings me in as a director of strategy, he puts me on the management committee, which shocked everybody, you know, the new guy, and he puts me right on the management…

New guy, American, black.

Yeah. And he goes on the management committee.

He goes straight on to the management committee…

I do.

…and he's what, in his forties?

Oh yeah, I was in my, yeah, I was in my late forties and here I am on the management board. I'm on the management board. And he's got me meeting with main board and talking about… So I mean, I talked to you earlier about people who are willing to give you a chance to express yourself and listen to you when you're very different. And I could not have been a different duck, coming into this environment and you can tell from my style I'm not very respectful of high… bad language, can become crude at times, and kind of thing. It'll be very off-putting to a lot of people, right? And I came in and had these really kind of radical pushing ideas that was challenging right now.

[0:40:47]
How was BT when you joined it?

It was a lot like US West. I mean they're just kind of misunderstanding again, it was similar to what you said about AT&T and IBM. There's this thought that the United States and AT&T are so sophisticated and the American technology and their systems and their capabilities are so much better than we are. But keep in mind that AT&T had just gone through their own break-up and had been a monopoly. And they really, it was very similar, many of the same issues. And the primary issue that exists is not really the technology. The biggest issue is learning to treat people like customers and not subscribers. This idea of really trying to understand what customers need and what they value and trying to provide service and capabilities that meet those needs. As opposed to subscribers, they just take whatever you have, right? And this whole one side splits off kind of approach to things. And so…

And by the way, you see, there is no plug there, it comes straight out of the wall, you can't plug anything else into it. Here's your telephone…

It is what it is.

…and it's black.

That's right.

You know, it's nice and black and it's plastic and it's heavy.

Don't ask for anything else. No, no.

No. 'Scuse me.

That's exactly right. And so that was true at US West, it was true at AT&T and it was true at BT. And when I was at US West I'd introduced a whole bunch of market segmentation strategies and ways to go out marketing and selling, and in the couple of years I was there I took the residential sales revenue, the growth, not the absolute, but the growth in residential sales went up almost four times. The growth rate did. Just by paying attention, basically, and asking yourself why, and why not. And so I came to BT and that was by far the biggest message. Now, it helped that with that message was a reasonable understanding of the underlying technology. So when people say I can't do that, you say, well wait a minute, let's talk about it. [laughs] Why can't we do this, do this, do that. And the other thing that was unbelievable to me, again, as a young man of 40 years old, is I came here and I met with the guys at Martlesham and I found a absolutely world class technical capability. Every bit as good as the people that were at Bell Laboratories. And I knew the Bell Lab people up to here, I knew 'em extremely well. But god, they were good.

Yeah, but Bell Labs had Nobel Prize winners, had transistors, had integrated circuits, had Unix, had so much. Compared with Martlesham Heath here?

Martlesham, they were masters. And the things they were doing, at that time, early time, was natural language processing, artificial intelligence, virtual reality, the things they were working on with streaming technologies and analogue to digital conversation, was absolutely top drawer. The stuff they were doing with fibre work, absolutely top drawer. But they were on leashes. They were not focussed at all, no one was thinking about how they could take the basic research into a development area. And so, the first year I was there I was kind of approving their budgets, and then after a couple of years, Iain gave me more and more control of this whole thing and Dr Alan Rudge who ran the labs, he and I became very, very close collaborators on this stuff. And quite frankly, I ended up driving much of what they were doing. And so here you had, Iain had this guy who was reporting directly to the chairman, and he was giving me control of all this stuff, and basically giving me my head, go and do whatever you want. That's basically what happened. And, you know, he brought in Michael Hepher who would later on put a few handcuffs on all of that, and later Peter Bonfield, but for the most part, for eight years, he more or less gave me a free rein.

[0:45:21]
What was the relationship between BT and the computer industry, particularly IBM?

Similar again to AT&T. When I came in there was this kind of love fest where BT felt like IBM had gotten it all right and that their technical skills and their marketing skills and their business skills were absolutely brilliant. And they were bringing in any number of senior executives that came in from IBM. And you can go through a long list of them, there were five or six when I got there, who were these guys that had been mainly in IBM Europe, who'd come and joined BT. If they'd gone over to AT&T, I describe to you the ones that were there, right? And again, so there was this great love of the IBM people, again, thinking they were all smart and had all the answers. So that was the initial relationship. By the time we had gotten two or three years down the road here, with the things we were doing, I put together a presentation I gave to a whole group of people, including Oftel and a whole bunch of other people, of what BT looked like, I think it was like 1983 or '84. So now I've been here for like five years. At that point, I put together a whole list of the top telecommunications companies in the world, the RBOCs, the MTTs, the France Télécoms, the Deutsche Telekoms, the Telefónicas. All of them, right? And I took the price they charged for

the services, the quality of the service measurements, the profitability of the company, right? Had like ten measurements across here. And BT was first or second every single one. At that point, in 1994, arguably, British Telecom was the finest telecommunications company in the world. And because we were in that position – AT&T was all broken up, in pieces, they were in total disarray, and MTT was totally regulated and the big companies in Europe were nowhere, France Télécom, Deutsche… they were still struggling. And so we were the ones that the leash had been taken off of and we were able to run, and we were running.

[0:47:58]
This is '94, '93/94?

Around '94. And so the big technology companies, the IBMs, the Apples, which were struggling like mad at that time, but the Ciscos, they were knocking down our door to do things with us, to help participate in projects with us, to become partners with us. And ultimately IBM and British Telecom formed a strategic partnership to go after international customers.

Let's just back a second, if we may. How far do you think that is because the introduction of digital switching in 1980 and then its expansion in 1986 with System Y as an alternative to it from Ericsson, and by 1990, the whole of long distance is digitised, which is the first telecommunications company in the world whose all long distance is digitised by 1990. How far is it the technical base that has put BT in that position, or what?

Yeah. There's, as people look back on this period, it's described as the third Industrial Revolution, because you had the convergence of a whole series of technology, some of which you just went through, okay? And so this kind of nascent vision that was emerging in my mind was emerging in minds all over the place, this idea of what was going to be the impact of digitalisation and what was going to be the merging of things we thought of as computing and telecommunication. What was going to happen to things we thought were very, very different things when we look at video, we look at audio, we look at text. And now all of a sudden, wait a minute, they're just zeros and ones, right? Once we digitise them and so we can start to think

about the whole thing about merging, combining, transmitting, moving, presenting, in very different sorts of ways. And so this digitalisation thing was having people, it was dawning then that this is really different. And so we had- and they looked at BT and again, we had these laboratory people who were doing wonderful things. And what I did was I took the BT labs and I built a marriage between them and the Media Lab at MIT. And together we sponsored a lot of projects with the Media Lab. We ended up bringing in some of the people from Cambridge also, into this marriage. So we had these really top class researchers who were bouncing off of each other. And so a lot of the things you see today, even with things like high definition television, things with this facial recognition software, that all came from a project that myself and the chairman at, at Salisbury did. He and I became good friends and he was concerned about shoplifters going down Bond Street. He said, they just go down from one store to the other and they go into the store and they open their coat and they take a whole list of suits and put them on hangers and they put them under the coats. And he said and the same guys, they just walk right down Bond Street, and he said and if we knew they were coming and we knew who they were, we could find them and we can't see 'em. I said, well, what if we could develop facial recognition technology, what if we do that, and we could then put surveillance cameras, when you think you have cameras all over London now, that's where that came from. We could put these cameras up here and we could marry 'em with some facial recognition software and you could see these guys walking down the street and pick 'em out, and when they walk into the stores, there he is, there she is, right? And so because of that idea that he and I had, we went to MIT and we took the BT labs people and they developed this facial recognition software. You could actually take a three-quarter view of a head, almost from the back, and kind of tell you with a 95% probability that that's who that was.

So Negroponte was running the Media Labs, was it?

Yeah, that's it, he was in charge of the labs.

[0:52:25]
He was in charge of the Media Labs. They were coming up with the idea of things that think as well, as a project. That was a little later on, I think.

And so were we.

And so were you, okay.

See again, that was part of the marriage.

Okay, okay.

And so that again, and so that and IBM came to me on some of this, and they said, hey, you know, we want in. Can we work with you and provide the computing power and add some of our scientists into it. Now again, another interesting piece of all this, so I'm looking at all this and I'm thinking, this is interesting. I wonder if we could turn the UK into a digital island and make them the absolute world leader in this thing I see coming. And what would that do, not just to BT, but the whole island. I mean you've got all these creative people, computer games, education, healthcare, if we could just turn all this in. And I thought, you know, this is very different from United States, this is a country where if we could get maybe 50 people in a room and get 'em to agree, they could do anything. That's my hubris. Get this group and agree to do this and push on this thing really hard, we can make an enormous difference to the entire, in what's going on in the world and the entire future of this country. Now, that's coming from United States, big country, I'm seeing UK, a little island, you know, we can do this. And I spent some time with the President of Singapore at that time, and had talked to him about what he was doing in terms of requiring everybody to study computer science. So I had that idea in my mind too. And, you know, the UK started the Industrial Revolution, they were the ones that led the world. Why not do it again, right? And so I had Martlesham working on this whole digital thing and I started a project with delivering videos and movies and educational stuff into homes.

[0:54:33]
You did indeed. Video on demand was first demonstrated 1995 using copper.

We started, well, we had copper, we also had T1 lines for speed. I'd gone to Rupert Murdoch - I got to know Rupert quite well - I went to Rupert Murdoch and he said I

can produce more and more content for you. I was on the board of the Council for Educational Technology and I said, hey, we can do some experiments with delivering technology, so we started Millennium programme with that council and with the Open University, with high schools or public schools to deliver programmes where the server environment, down to that. I went to, I had Bell Labs, I said look, I got a real problem here in that the houses can't handle this stuff. And so I said, what I want you to do is see if you can develop a digital to analogue converter that I could put on a set-top box I could put on top of TV sets. And they went to work on this, and again with some work from MIT, and they came back and said, yeah, we can build one. I said, how much is it going to cost? They said, oh, about £500. I said, too much. I said, you go back and work on it some more. £500, about that big. I don't want that. I want it this big and I want it to cost less than £100. They went back, they worked on it, came back with another version. Not good enough, cost too much, too big, too slow. They went back and worked on it and they came back and said, will this do? I said, yeah, I think that will do.

This was an Apple box, wasn't it? Based on Apple?

Well, it was very similar to that. And then I went to Mitsubishi and Matsui and Panasonic who I knew from other relationships and stuff we were doing. And I said, can you guys build this thing? At the most senior levels of their company. And they said, yeah, we can build it. So then I went to the BBC and I said look, I've got this idea, okay? And I said, I think it would allow you to be first in the world into being able to deliver these digital programmes directly into people's homes using this set-top box, into all these analogue TV sets. I don't want everybody to have to buy brand new TVs, they can do this, right? And it'll put you the first in the world, which'll allow you then to being to take a leadership position as this rolls out globally, you'll be the ones. And I said, but I need £100 for every single person, every household in the country. I said, would you consider taking a part of the licensing fee, just a part of it, and maybe over three years add that amount to £100 and we'll be able to put these boxes in. Oh, I don't know, I mean that licence fee is pretty sacrosanct and once you start going down that road we may end up losing it entirely. And we talked about it, Iain and I talked with them, we talked with them. They finally said, you know, I think we could see a way to do that. They said, now I can see it. [laughs] Because I

also said, you know, hey, maybe in another year or two we'll put a small keyboard on it and basically every house in the country will have a dumb terminal that will be able to type in instructions, going back to a server and we put it in, we move things around. And at that point we have won the game, okay? So I went to Oftel. At that time is was Don Cruickshank, and I told him what I wanted to do. He said, I don't see any reason I should allow you to do that. He said, you do that, it will kill the cable TV companies, it'll kill the competition. I said yeah, but look at what I'm offering, could do for the country. And it's not just the country, I mean this will put us in a premier position in the world, nobody else is doing this. And then I said, what we'll do for the industry, for the people, for the kids, everything. And he said, well, I don't know, and he said, you're working with Rupert Murdoch. And no, I can't bring much and, he said, no, I don't think so. And so I said well, okay.

[0:59:04]

So Iain and I started a major publicity programme. Iain started having these opinion forums. They're called opinion forums and once a month he'd call together maybe ten, seven to ten of the top people in this country, each one in a different sector. We had one with the House of Lords judges, right, this was like your Supreme Court. We had another one with the medical industry, we had one with the people who were working, the top chairmen, right. We had one with the media, with Reuters and The Times and others to come together. And we would have lunch, dinner, up at the top, at the world. at the top of the BT Tower. It would be me, his wife Liz and my wife Mona, and we would have these discussions. And Iain would introduce it and then he'd put the evangelist up there, he had me describe this revolution that was coming.

And what was their reaction?

Very similar to the AT&T reaction ten years earlier. I remember the guy who, I don't remember, who was the editor of Reuters at the time, said, that's ridiculous, this is going to be a revolution you're talking about, people always make that kind of hyperbole. I said, if you don't think about how you present the Reuters information digitally and online, your print stocks die, you'll go out of business, if you don't figure this out. And I said if you start out where people can get it all free, and then all of a sudden you think you're going to charge for it?

That ain't gonna work.

It's not gonna work. Oh, come on, we hear this scaremongering all the time and everybody exaggerating. I said, fine, fine. But in general, there really was a lot of interest and this led to me making a presentation to the people who were in charge of all the media stuff, I forgot what they call them now, for the different television stations and radio stations. This led to me making a presentation in front of the Royal Society and I shared a podium with Arthur C Clarke, who came in from Sri Lanka by satellite. And he made an interesting comment which has been quoted a dozen times since then, where he said, you know, with the technology we were talking, at that edge of technology, it is virtually indistinguishable from magic. He said, people have no idea how it works. They marvel at it, but they don't understand what it is. And people tend to think of it in quantitative terms in that what you're really saying, that I could do the same thing faster and quicker than I did before. They don't understand it in qualitative terms. Like this is really different, this is going to enable stuff I never imagined. They can't make that leap.

[1:01:56]
Right. But basically Oftel were telling you, no way.

They said no way, we're not going to let you do this.

This will kill the cable companies.

We won't let you- if we let you deliver video and entertainment over your network, the cable companies will be stillborn, and we promised them that we were going to do what we could to support them.

So the whole idea was, let's cripple BT in this area.

Totally.

Because these cable companies, and there was a whole number of them at the time laying cable as fast as they could, mostly in the poorer areas, that's where they

began, because it was sport driven mostly, wasn't it? And then they went out into the richer areas and they were laying cable as fast as they could. Some of it was fibre, but that included a lot of capital expenditure…

Was huge.

…which Ofcom was trying to protect them.

No, that's… we're really talking about – and I understand this, I mean I will sound like I'm whingeing and I will sound very critical, and I know that – but I also know that there are radically different kind of world views here. My world view, and Iain's world view, incidentally, was that this telecommunications was the key to this coming third revolution, alright?

Yes.

And that BT was a national champion that had the potential to put the UK at the forefront of this revolution.

After all, James Martin had said it.

[1:03:37]
And that it would have historical implications for the country. We had these lofty views that we, again I say hubris, that we thought that we could take what was a sleepy former Post Office company and we could use that engine to become a major leader in the world. And we thought, again, with our energy and our push, we could get these – and there were a couple of hundred thousand people – and these wonderful people at Martlesham to follow us down that road, and we could win the game. We really thought we could. Oftel was sitting over here, and much of the British government, not having that view of how important information technology was to the whole future of the country, and they were focussed on how can we introduce competition into this game and do whatever it takes to introduce it. I had a meeting early on when Don Cruickshank was appointed, he gave a presentation to the director level people at BT at a dinner, and he was talking about competition and stuff and I

said to him, I said, Don, I'm curious here, you know, I actually, I love competition. I think it really gets the juices going, right, and gets you going. I said, but the question I have is, are we going to be allowed to win. And he said, that's a very interesting question, right? We weren't going to be allowed to win. We were playing a game that I call dodge the bullet. You stand in front of a wide open window, guy stands out there with a rifle and he shoots at you, and you have to run back and forth in front of the window every once in a while. If he doesn't hit you, they have five more guys, and instead of a gun they use a shotgun, a machinegun, make the window wider. Don't have any window, right? And the only way you can survive that game is to keep moving very fast. But eventually, you're going to get hit. And that was the game they were playing, as we continued to do better, which is what they should have wanted, they should have wanted us to improve the quality, they should have wanted us to reduce the prices, they should have wanted us to introduce all these innovative new products. That's why you bring in competition, so that you really energise the whole system, right? Instead, they seemed committed to continue to hamstring and hamstring really the only guy who could win on an international level. The only guy that could win this thing was us, there's no other choice. There's no other choice. If you thought it was important to win, and maybe you didn't. We thought it was, they didn't care. And that's, but again, that's the whingeing response to that. You could have built a monster here who could have been an engine that could have led the country to be a leadership. And then this afternoon, Amazon would be a UK company, Google would be a UK company. In fact I had discussions with Marks & Spencer's and Sainsbury and others about how we could begin to market this stuff online and began to build this whole kind of a picture, right? And they were really excited about that, but it wasn't going to happen.

Wasn't going to happen.

[1:07:01]
And so eventually again, jumping ahead, by the time I got to 1996, I had a very jaundiced view of all this, that it felt like I'd seen this movie before, but now the movie, and I knew how it ended when I was at US West, when I was at AT&T, and here I was again with all this power behind me, but the other political forces and stuff, I had a different view, a different world view, and I had different objectives and

wasn't going to happen. And you could see BT then, when they realised that there was no way they were going to be able to develop this kind of business and this kind of market and opportunity in the UK, started looking more and more about how they could acquire things internationally and move into a different environment. And eventually, actually what they ran into there was a political environment that wasn't going to let them do that.

No.

And so, you know, they were…

Sorry, who are you? BT? And you're in the USA and you're trying to have an agreement with MCI? And you're trying to take business away? I'm sorry.

Wasn't going to happen.

Yes. Hadn't they realised that that wasn't going to happen either?

Wasn't… In fact I had a discussion with the FCC at that time, because BT came in here and literally threatened us over the things we were trying to do, even from here. We were trying to help customers to provide international communication services and private line services, where we would manage it and control it and AT&T came in here and they said to me directly, they said, you know, we punish people. We can choose who we tend to hand off our international traffic to, and right now we hand most of it off to you. And we don't have to do that. We can hand it off to American people, right? And so if you choose to go down this road, that's what we're going to do, we're going to punish you for that. We punish people who hurt us. And I said, that feels like a threat. And he said, that's not a threat, that's a promise. And so then I was talking to the FCC sometime later and I said, you know, AT&T, this is an anti-trust thing, they were literally threatening us if we try and provide these services to customers. And they said, Bruce, I think you misunderstand the rules here. Our job is not to protect foreign companies, our job is to facilitate and protect American companies. We're not here to create a fair world, what the heck do you think's going

on here? You got a problem with this? Go talk to the DTI. [laughs] They're the ones who are supposed to be your advocates, not us. [laughs

[1:09:44]
And you tried to build an organisation called Concert Communications with MCI.

That came from here.

From your brain.

It came from here.

Right. But then a monstrous and, I use the word advisedly, con operation called WorldCom, which it was a fraudulent operation, was it not? Took over MCI.

I ended up reporting to Bernie Ebbers.

Oh, did you?

The devil himself. Yeah. See, I was at AOL working for Steve Case, and then I, and I was running Advanced Network Services, ANS, as their president and chairman. ANS built the National Science Foundation network, which became the internet. So I was running the organisation that built the internet and we still had the network management centre for the entire internet, was in, it was in Ann Arbor, Michigan, and was still being run by my organisation at ANS. And ANS was acquired by WorldCom, okay? And so I went over to WorldCom and working for Bernie Ebbers. And Bernie Ebbers offered me the job as the vice-chairman of WorldCom, after he acquired MCI. The vice-chairman of WorldCom in charge of all their international communications. He said you can relocate it in New York, black American representing us here, and huge political thing. And I said, I can't. He was such a… I just didn't, he and I just didn't get along, we were different kinds of people. And so I was there…

[1:11:32]
How did you know?

How would you know, yeah.

How did you know, and other people didn't?

If they didn't, they weren't looking very closely.

Chose not to see.

He was really a very questionable individual. Although I won't go into other people, some of which had worked for me at BT who were now working for them, who'd worked for me for years who I thought were iron-clad. But I have to tell you, when you have an opportunity to make generational money, people will make compromises you wouldn't think they would have made otherwise.

It was, I've always described it basically as a Ponzi game. He had to keep on growing just to survive.

Well, that and the other piece of it is whenever you've gone through a near-death experience, when you get to the point with a company where the bank people are saying we're going to call you, running after you and call in all the loans. And you're sitting around the table, despondent, thinking it's over, right? And you think, if I just fudge a little bit, not a whole lot, and I can recover it next quarter. If I just cheat a bit, we can survive. And next quarter I'll have a lot more money and it'll be alright and no one will ever find it. If I don't do that we're going to die and personally I'm going to lose my fortune, the people who work for me and depend on me, my reputation, the stockholders, all the little widows who are…

And then the next month you have to do it again…

And it's really not a whole lot. It was a stupid rule anyhow, we all know. It's that rule. And why not? But the problem is that once you cross that line, you kind of have

breached something where it's pretty easy to go across again, and again, and again, and again. And little things become bigger things. It's more or less the same, well, that's the same thing. [laughs]

Is he still in jail?

He's still in jail. But I mean I knew the people at Enron also, and the same sort of thing.

[1:13:47]
What are the biggest mistakes you've made in your career?

I think, we've almost talked about it, I think the biggest kind of misperception I have made is this belief that, again, you get 50 people in a room you can do anything, and if you are sufficiently persuasive, you can take 'em all on. It's not really understanding that people have very legitimate different narratives and different views. And so it leads to enormous disappointment, because you can very easily become seduced in thinking, I know what's best, I know what's happening here and who are all these stupid people around me, that they just, why don't you get it? And that's wrong. It is wrong. There are different ways and different ways to think. So that has led me several times to be very disappointed and almost despondent. And it's also, there have been more than a few times, including here, I've said, I'll just take my ball and go home.

Which you did do?

Which I've done a few times. Okay, you guys, you don't want to play? Rather than saying, okay, let's try it your way. You know, at some point I'll just say, screw it. [laughs] You guys don't get it, you don't get it. And that's led me, that's led me several times to go places and do things. As I reflect on it, maybe I could have played it a little differently.

So one of the Bond rules of thumb is, take your ball out of the game if you think the game's wrong?

[1:15:21]
Yeah, if you don't agree with me, bye, bye. You talk about disappointments. Another example of that – nothing to do with BT – I was on the governor of Colorado's millennium consult, was what they were going to do in the coming, in the changeover to the year 2000. There was a group of like twenty of us that were there and four of them were Indian chiefs that were from Utah, Southern Colorado and Arizona, and they came from dreadful communities, I mean dreadfully poor. Dreadfully poor, Aids rampant, alcoholism all over the place, drug problems, single moms. It was a terrible, terrible ghettoes. And these guys were all on this committee with me. And we're talking and they said, I wonder, you're an executive vice-president of US West, can you help us to get a rail spur on to our tribes, because we have this farming that we're doing and if we had a rail spur we could ship some of these goods out and make some money. And I said, well, you're basically doing subsistence farming. I mean some years you have enough, other years you have famine. This is not a constant source of income. I know, but it would really, really help to have that rail spur. I said, I'll tell you what, I said US West gets millions of people paying their telephone bills every month and they send all these cheques in, and these cheques have to be run through OCR machines, and then they have to be typed in by people, and we are sending all this information over to Ireland and they've got a bunch of people here who transcribes and put this into the system so we can generate the bills. Why don't I have US West provide you with a bunch of computers and we will train your people on how to do this and rather than ship all this stuff over to Ireland, we'll give it to you. And you'll end up with a couple of thousand people who now will build computer skills, initially they're just doing data entry, but over time they'll do a little programming, they'll learn more about it…

And what did they say?

…they'll learn more about it. And you know what, we will turn you into an engine, because if we do it, well then there's a whole bunch of companies all over, they can also do it and you'll end up with this great thing. They looked at me and they said, is there any way US West can get us a rail spur that will… [laughs] Major disappointment? That's a huge disappointment. These people are still starving.

[1:18:10]
So, although you have the inspiration, sometimes it can be very difficult for other people to take that journey with you and have that inspiration as well?

Well again, and again you'll hear me sound like I'm right, I'm not right, I just, I have, but… yeah. But the other part of it, you say, well what's your greatest accomplishment then, right? Well, the truth is that ideas come from all over the place and they accumulate and lots of people have input. It's a complex matrix of things. It's not that I'm totally right, but I've got some ideas and we have some discussions. Other people have discussions. And the total kind of moves along, not as fast as you would like, but it moves. And there's no question that the stuff that we and BT did and Martlesham did and the MIT Media Lab did, had a very positive impact on IT in this country. Now did it go to where I wanted it to go? No. Is it there today? No. But did it move? There's no question it moved. My presentation to the Royal Society, Iain talking to parliament, the discussions we had with John Majors [ph], and later Tony Blair. Discussion I had with Prince Charles. I sat down and spent some time with Prince Charles talking through all of this, right? Those things get in people's minds and they come back and they move, and that's okay. I mean you're really disappointed that it didn't go as fast or exactly where you wanted it to go, or we're in a different place than we would have been, and I need to understand that, and get it past the clenched teeth and not say, oh, but we coulda… yeah, but… Okay. We did what we did and it's better than it was.

And that's why Bruce Bond has made this contribution to the Archives, because we have captured the past, but also inspired the future. Thank you very much, Mr Bruce Bond.

You're welcome, you're welcome.

[recording ends at 1:20:16]