Oral History of Bernie Lacroute

Interviewed by:
Uday Kapoor
Douglas Fairbairn

Recorded November 28, 2018
Mountain View, CA

CHM Reference number: X8856.2019

Kapoor: On behalf of the Computer History Museum, this is Uday Kapoor, a volunteer here in the program to record oral histories. And with me is Doug Fairbairn, a colleague of mine. And we are welcoming Bernard J. Lacroute, a retired executive in the industry, in the computer industry, and also in the venture capital world, and recently, the wine making industry. So welcome, also know as Bernie, welcome Bernie. You were born in Burgundy area of France. So why don't we start with your early life?

Lacroute: Well, I was born in a small village, a very small town. My father was in the woodworking business, and I look very fondly to those early years. It was wonderful. I had a great childhood. I owe a lot to my parents, there were really some fundamental values that they gave me: "Don't give up. Do it right. And be yourself." And that was wonderful. I mean, I hear sometimes people complaining about their parents and so forth. I had wonderful parents and childhood! So that was great.

Fairbairn: What was the village like? Was this an agricultural town? Or what's the--

Lacroute: Basically agricultural town, yes. There were about a thousand people living there, and it was mostly agriculture, yes.

Fairbairn: So you had no acquaintance with technology?

Lacroute: None, whatsoever. <laughter>

Fairbairn: What year were you born?

Lacroute: 1943.

Fairbairn: Okay, right in the middle of the war.

Lacroute: So it was actually during the war. My parents' house was occupied by the German army during the war. I don't remember that, but I heard stories about it all the time

Kapoor: So in terms of siblings, did you have--

Lacroute: I had two sisters. And they were older than me by 16 and 13 years. And they all got into some form of higher education professions, not high-tech business, but my older sister was teaching mathematics in Paris, and my other sister ran a college

Fairbairn: So you were essentially an only child. They were so much older.

Lacroute: They were much older than I was.

Fairbairn: Left home perhaps as you grew up.

Lacroute: They were more like parents than sisters. Yeah.

Kapoor: So your father was in woodworking.

Lacroute: Yes.

Kapoor: And you mentioned something about learning a lot from that.

Lacroute: I did. Actually my entire family, as far as I can trace it back was in the woodworking business. I can go back to the French Revolution, and they were all involved in some form of woodworking. So my father did all sorts of woodworking-- I remember after the war, he converted some American jeeps into cars that were used by people. And all the frame was made out of wood, rather than metal. And so I remember him working on that, and adjusting those pieces together and it was quite interesting. He had a knack for understanding 3D geometry.

Fairbairn: Was he making furniture, or was he selling what he did? Or how did he--

Lacroute: Well, he did windows and doors, and you know, in a small town, you do just about everything.

Fairbairn: Interesting.

Lacroute: Yep, yep, yeah.

Fairbairn: Yeah.

Kapoor: So your schooling was in the village.

Lacroute: It was in the village until I was 11-years-old. Then I went to boarding school, because that was the way to get a better education. My two sisters had done the same kind of thing before me. So I was shipped out to boarding school at age of 11, and it was a very difficult thing for both my parents and me, but it was the right thing to do in terms of getting the proper education.

Fairbairn: How far away was that? Was that quite a distance?

Lacroute: About 60 miles. But in those days, it took a while. I would come back home every three weeks or so for the weekend. And the rest of the time, I was there.

Kapoor: So you would take the bus, for example.

Lacroute: I would take the bus, that's right. Actually, I'd change bus several times. And in those days we actually had classes on Saturday morning. So in the French system, you had Thursday afternoon off, and but you had classes on Saturday mornings.

Kapoor: So any subjects that interested you during the schooldays?

Lacroute: Well, so that was interesting, because it was very much of a track system. So if you started at the top of the track, you could go down, but if you start at the bottom, you could never go up. So I had seven years of Latin, and as well as math and physics and history and geography, and all of those good things that we don't seem to teach anymore these days. As well as English and German. So we had to learn three languages.

Kapoor: So what year did you graduate from school?

Lacroute: What year did I graduate-- so that's let's say I started at 11, so that was 1954. 7 years of school, so I graduated in 1961.

Kapoor: Okay, and then you des--

Lacroute: From school. Do you mean from high school?

Kapoor: High school, yes.

Lacroute: Yeah 1961. Then I spent two years in prep school to prep for engineering school. So that's a brutal program. Highly competitive, and it's mathematics and physics. Eighteen hours of math a week, and fourteen hours of physics a week. And that's it. And if you don't make it, you don't make it.

Fairbairn: So were you always interested in math and physics and--

Lacroute: I was kind of interested, yeah, because my father being really interested in geometry

Kapoor: So then the next step was to look for graduate school?

Lacroute: Yeah, so the way the system works, you take competitive tests, basically. There are, I don't know, maybe 15 or so engineering school in France at the time that were significant. So you go and try for every one of them that you can. And you have two to three years to make it. So when you're in prep school, you can try after two years, and if you don't make it, you can try it another year. And then based on what you decide you take one school or another. Given my parents financial situation, I opted out to go to an engineering school after two years, because that was a safe bet. I didn't want to try it again the following year. So I ended up in an engineering school in Grenoble. And the Director of the school was Louis Néel, who was a Nobel Prize winner, who had worked in electromagnetic field theory. And so I spent three years there, and got an engineering degree in electrical engineering, as well as a degree in physics.

Kapoor: So and when did you decide to leave France for the United States.

Lacroute: Well, I was given the opportunity to get a fellowship from NASA. Professor Néel was on the advisory board of NASA, and had a good relationship with them. So NASA had a program at that time, and they had six fellowships for Europe every year, and I got one of them! So I spent a year at University of Michigan.

Kapoor: This is just for people in general. Technical thing, and didn't imply anything of working for NASA or anything like that.

Lacroute: No, there was no contract to go and work for them.

Fairbairn: So how did you choose the University of Michigan, was that--

Lacroute: That's what they chose for me. <laughs>

Fairbairn: That's what it was, okay.

Lacroute: I was interested in Plasma Physics, so they had a big program there, so I worked there for a year or so. Then I had to go back and do my military service, which was mandatory in France at the time. Part of the deal was that I had to go back to France for a while.

Fairbairn: What year did you go back to France, then?

Lacroute: So it was in 1967.

Fairbairn: And you were there two years or something?

Lacroute: Two years, basically. Yeah, so I came back to the U.S. in 1969, to join the Digital Equipment Corporation in Maynard Massachusetts

Kapoor: So I read that you also worked for a French aerospace company.

Lacroute: Yeah, I worked, after my military service. I was a year-and-a-half in the French Navy. And actually I was very fortunate because I worked most of the time in a computer center. We had a big CDC 6400, and we did simulation work there. When I got out of the Navy, I looked for a job in France. So I joined the Matra company which is an aerospace company. They were well-known for the missiles at the time, but they did other things, like telemetry for satellites and that kind of thing. I worked there for six months and got bored to death. I was exposed to the French minicomputers, the 10010 from the CII2, [Compagnie Internationale pour l'Informatique] and was spending more of my time with a soldering iron trying to fix the darn thing than doing any useful computations. That was pretty, pretty boring. So I decided to go and do something else.

Fairbairn: So what was it originally that got you interested in computers? What was your first introduction to computers?

Lacroute: Michigan, in Michigan, they had their own language, which looked a little bit like Fortran, MAD, Michigan Algorithm Decoder. And we were using that in some of the work that we were doing in physics, because you got to use some sort of simulation and so forth. So that's where I got really involved with computers.

Kapoor: So you got some schooling in computer architecture.

Lacroute: Some, but not so much in terms of formal training, no.

Kapoor: But at least system design.

Lacroute: Yeah, system design, yes.

Kapoor: And you were starting to talk about DEC.

Lacroute: Yes.

Kapoor: So how did that happen?

Lacroute: Well, I was looking for a job in the U.S. and I actually interviewed with a number of companies. And my first reaction to DEC was no way I was ever going to work in this place, it was in the old mill in Maynard, Massachusetts. The offices were made out of plywood, and the floors were all the wood floors from the old wood mill, and you could still feel the oil on the floor.

Fairbairn: Linseed oil or whatever.

Lacroute: Yeah, right. And I thought, "Gees, I may not ever want to work here-- not a place to go! <laughs> It looks quite depressing!"

Fairbairn: And you were interviewing-- what year was it you--

Lacroute: 1969. Actually, it may have been the Summer of '68, '68/'69. Yeah, right. And--

Fairbairn: So what turned your head? What--

Lacroute: Well, after I talked to the people, it became quite interesting. And having worked with the CII 10010 minicomputer, DEC tapes were really good compared to the paper tape! <laughter> They were really good! So I was kind of, you know, very interested by the people I am interviewed with. And the machines themselves and so forth, so yes I decided to join them.

Fairbairn: What were the other companies that you talked to?

Lacroute: I talked to Honeywell, I talked to a couple of other ones that I don't remember what they were, but yeah. So yeah, I decided to join DEC, despite the old mill.

Kapoor: So what was your first assignment?

Lacroute: My first assignment was to put together a database of physicists who were using the PDP-15. That didn't last very long, but that was my first assignment with DEC. Then I got involved very quickly with the RSX-15 operating system, which was a real time operating system. Then I moved on to the same type of stuff on PDP-11, I worked with Dave Cutler there for quite a while, and we built the RSX-11A, and RSX-11M. So they were real time OS for PDP-11.

Fairbairn: So you were mainly working on operating system work, not hardware design.

Lacroute: Not hardware, no.

Fairbairn: And that was-- so the PDP-11, or that family was already out in the market at that time?

Lacroute: Not when I joined. It was the PDP-15, but shortly thereafter, the PDP-11 came about, yes. Dick Clayton was in charge of that particular program, working for Gordon Bell.

Kapoor: So what was your contribution to the PDP-11, the operating system world?

Lacroute: Well, I did two things. I did some coding, as well as putting together the business plans to make it a viable entity, yeah.

Kapoor: Okay.

Kapoor: This is a 16-bit machine.

Lacroute: 16-bit machine, correct.

Kapoor: And then you worked on the VAX apparently.

Lacroute: Yes.

Kapoor: And how did that happen?

Lacroute: DEC realized that it needed to build a new line of computers, because of the limit in the addressing space of PDP-11. I mean, it was 16-bit machine. You couldn't go beyond a certain range. So the idea was to build a 32-bit machine, and they were several competing proposals. One of them was to extend the PDP-11 architecture, to try to make it look like a 32-bit machine, which I thought was a pretty dumb idea. But there were proposals to go and do that. Then there was a proposal to build a brand new 32-bit machine, from scratch, with a new operating system.. And there was a lot of in-fighting at DEC at

the time because the people who were making their living out of selling and marketing the PDP-11 didn't want to see another computer to go and compete with the business that they had built. So there was a lot of politics involved as to what was going to happen. And actually the debate went on for about a year-and-a-half, maybe two years. Debating which ways to go, and making no real progress about making a decision.

Fairbairn: So were both projects underway?

Lacroute: They were not hardware or software projects, but paper project proposals and different-- two different architectures fundamentally. Then the decision was made by, I suspect, Ken Olsen to create a separate team to go and build that 32-bit machine. And they needed a product manager for that. So my role was really to help the engineers define what the computer characteristics would be, what kind of software we would have, how we would target it in the market place. Would it be a purely scientific machine or would it also handle business applications. And so I became involved very deeply. I worked closely again with, David Cutler. And Dave Rogers. I don't know if you know Dave Rogers, he was one of the hardware guys involved in the project. And Gordon Bell was very, very much involved in defining the architecture. And the reason we succeeded is that, at least, maybe Ken, or most likely Gordon, realized that unless DEC created a separate entity to make that happen, it would be hampered by the existing organizations that would try to block it and kill it at every turn. So we were set as separate group, and actually reported directly to the Operating Committee of the company. Although, there was a structural line, we had a dotted line to the top management of the company. And that's what made it happen in somewhat record time. We did this thing in a little over two years. Both the hardware and the operating system.

Fairbairn: That was quite an achievement to do that.

Lacroute: Quite an achievement.

Fairbairn: A whole new 32-bit operating system.

Lacroute: You are right. I mean, Cutler was the main guy. Dick Husvedt was the other major contributor. Dick ran into a terrible car accident a few years later and has been paralyzed ever since. It was very sad. But they were the two major software architects and implementors.

Fairbairn: So was this a sort of a high energy, highly dedicated team?

Lacroute: Oh, very high. Very high energy. Super A team, take no prisoners, get it done, show the world what you can do! And it was not just money. It was motivated by wanting to show what we could do.

Kapoor: This was the kind of pioneering project for extending the addressing modes and so on.

Lacroute: Right, so we threw out all the old stuff. And said, "Okay, let's start from scratch and go 32-bit with a possible extension to 64." And if you look in the original architecture design, it had the path for a

64-bit addressing space. The only regret I have with this architecture is that we didn't apply the same strategy to the IO system. The main bus was a 32-bit bus, but the attachments were remnants of what existed for the PDP-11. And in retrospect, I think that was a mistake, because it would have been a much, much cleaner architecture if we had changed the bus structure for the IO system as well.

Kapoor: So it seems like the focus was on complex operations and extending the orthogonal architecture.

Lacroute: No question, yes. It was a classic CISC machine. One of the decisions that was made to the dismay of some of the product lines was to incorporate a bunch of instructions, which would make COBOL run very efficiently. And that turned out to be extremely useful in the future life of Digital Equipment, because although the machines were originally targeted towards the scientific community, they very quickly found their place in the commercial world.

Fairbairn: So I was going to ask about that, so you said you had a leadership role, perhaps, in defining what that market would be. So your original, or your primary target was the engineering community that you envisioned that it would also be sold into the business community as well.

Lacroute: Absolutely. We had absolutely no doubt in the team about wanting to build a machine that could be used everywhere. Not just the scientific community, but everywhere. Yeah, we can start with the scientific community, but it better be able to address the commercial applications, the communication applications and all that types of stuff. So if you look at the-- some of the instruction set, they were specifically targeted to text processing.

Fairbairn: Did DEC have any products in that space, or were they selling anything in that space at the time?

Lacroute:

There was an operating system called RSTS, R-S-T-S, on the PDP-11 which was a time-sharing system, which was very popular in some banking applications.. The product line managed that segment of the business didn't want it to be upset by anything new. There was also the DEC 10 which was a 36 bit machine.

Kapoor: So for the VAX, you had the VMS operating system.

Lacroute: Yes, Virtual Memory System. Yes.

Fairbairn: And was there-- when did UNIX enter the picture and what was the--

Lacroute: Okay. So one of the target customer-- I mean, actually it's a very good question, because there was a debate at some point. We didn't know whether to build a new operating system or use UNIX. AT&T was a major, major customer of Digital Equipment Corporation. The Labs were a very large

customers of DEC. So they were made aware of the project very, very early in the game. I recall one particular trip to Bell Labs where the six of us went down in three separate planes, because the company was afraid that if we're all on the same plane and we got killed, that would be a disaster for the company--

Fairbairn: The project would be killed. <laughter>

Lacroute: It would be a disaster! So we went down in three planes and spent a whole day with the guys at Bell Labs, because we wanted to make sure that they were going to buy the machines. It's nice to build a machine, but if you don't have any customers, not particularly useful. And they worked very hard to convince DEC to have UNIX as the operating system, rather than VMS. And finally the decision was made, "No, we need to own our own destiny." In retrospect, that might not have been the right decision, but at the time, it was probably the right decision. The other thing that was involved in there was the networking system. DEC had actually a fairly sophisticated networking system called DECNET. And we could incorporate into VMS some of the features that were needed to make this thing work well. Now, again, we could have done something similar with UNIX, with TCP/IP, but in those days, controlling the whole thing, not unlike Apple, was thought to be the right thing to do. So that's why eventually the decision was made to go with VMS. But as soon as the Bell Lab guys had a machine, they ported UNIX on it. And we actually helped them port UNIX on it.

Fairbairn: So they actually ran that as their primary operating system?

Lacroute: Well, it depends which business segment of AT&T

Fairbairn: So it was split.

Lacroute: Some of them were running VMS, and some of them were running UNIX.

Fairbairn: So what year did the VMS project get kicked off and they said, "Okay, go!"?

Lacroute: So late '75, early '76. I don't remember exactly. We shipped the first machine very late on December, 1977. The entire engineering team was assembling the first machine for AT&T. <laughter> And it had to be out that day. <laughter>

Fairbairn: December 31st, right?

Lacroute: The 31st, very late. <laughter> But it left.

Kapoor: So what was the networking technology like at that time, and how did the ethernet come in at that time?

Lacroute: Well, at that time, Ethernet was not there yet. So the Ethernet became a reality at DEC in late 1980, '80/'81 or so. Gordon Bell really sponsored the project, because again, there were competing architectures. One of them, which was Ken Olsen's favorite was to stick up with serial lines, and then

there was the Token ring from IBM, and Ethernet. So Gordon was really championing very hard the Ethernet technology. And DEC partnered with Xerox and Intel to try to make it a standard. And so I switched role in 1981, and became the manager of the networking system for DEC. I worked as the DEC representative in the joint effort with Xerox and Intel. So I had the opportunity to work with Dave Liddle and Bob Noyce at Intel, who was a phenomenal individual. I had a really good time working with Bob.

Fairbairn: Everybody speaks very highly of Bob Noyce.

Lacroute: Pardon me?

Fairbairn: Everybody speaks very highly of Bob Noyce.

Lacroute: He was a very, very, very nice man. Very smart. Very nice. Very good human being

Fairbairn: So what was the motivation either technical or business for-- DEC already had DECNET.

Lacroute: Yep.

Fairbairn: What was the key that made Ethernet an attractive option?

Lacroute: So that was, I think, a stroke of genius. And I think that the credit needs to go to Gordon Bell, who could see that DEC by itself could not establish a standard. In the networking arena you were up against IBM and Token ring as a main competitor. Although DEC was a large company at the time, it was going to be very difficult to go to make DECNET a standard and take IBM head on. And I think Gordon saw that very clearly, and pushed very hard to go with quote/unquote an "industry standard" which would encompass more than one company, and that was a hard-fought battle, too, because again, DEC wanted to stay with DECNET. So eventually the decision was made to port DECNET onto the Ethernet as well as TCP/IP.

Fairbairn: What about from a technical point of view? What would you say the technical advantages or things that allowed ethernet-- I mean, it had these various supporters. Xerox, big name, but not big in computing; Intel obviously big in chips.

Lacroute: Chips, right.

Fairbairn: So what were sort of the key to getting that over the hill? Is it technical advantage, or what--

Lacroute: It was more a strategic advantage. How do you counter IBM? How do you have something which is not going to be under the control of IBM. That was the main motivation.

Kapoor: So you headed the Distributed Systems Group.

Lacroute: That was the networking group that remember I talked about before, yes.

Kapoor: Okay. So how many people did you have at that time?

Lacroute: I don't know exactly but around 400.

Fairbairn: And so besides trying to get Ethernet established as a standard, what were the other responsibilities of that team, and was there a full set of products, and--

Lacroute: DECNET and all the communication interfaces that went on the PDP-11 and VAX, all the DEC machines.

Fairbairn: So the whole communications, it was structured for all digital?

Lacroute: All communication, hardware, software, yeah, the whole thing, yeah.

Kapoor: Okay.

Kapoor: So anything more on DEC before we move to--

Lacroute: Well, yes. So DEC, to me, was a wonderful company. I will always remember DEC with a great fondness. They treated me very well. Very, very good company to work for. The sad part about DEC VAX was the last time where they could accept to change the existing business model. And after that, it just could not happen. Ken Olsen was a great man, and I have a lot of respect for him, but he just couldn't change his mind, and move away from the time-sharing business. That was DEC! DEC was the timesharing company with minicomputers, and that's the way the world was going. And we just could not get him off to change-- There were two or three obvious directions that needed to be addressed. Computer on a chip was one of them and eventually DEC build the Hudson semiconductor facility, but, you know, it took a very long time to have the computer on a chip. Ken didn't believe in that. Then the workstation business was coming. You could see it. Apollo had been created by ex-DEC people. There was the SUNs of the world mostly struggling, but you could see the direction. We actually had a micro VAX running in the lab, which was a wonderful engineering workstation, but that would have upset the timesharing business model dramatically and there was no appetite to go and get that done. So very sad, but DEC just could not make the switch

Kapoor: There's the classic way you've cannibalize your existence.

Lacroute: Absolutely.

Fairbairn: When did it become clear to you that DEC was on the wrong track or--?

Lacroute: Oh, certainly in '82 or something like that; there was a lot of struggling in the company at that time. When I left in '83, there were a bunch of people who left as well. Cutler was one of them and a couple of other people. We could have established VAX as a standard for workstations, there's no question about it. That could have been done. The micro VAX and the networking. But, no, DEC couldn't

move out of the timesharing business. So actually, I think, you know, I was no longer there but I think DEC missed another opportunity when they defined Alpha, which was a great architecture, well thought out. The main architect was Bill Strecker. He was on the VAX team. But again, they could not put all the resourced needed behind Alpha, so it was a half-ass solution between standard VAX and Alpha and this, that and the other. And Cutler, I know, proposed to put NT on it, but it was too confused.

Fairbairn: Was Alpha going to run VMS or was it going--

Lacroute: Yeah.

Fairbairn: So it would have been a compatible operating system, just a--

Lacroute: Right, but I mean, at that time, it was clear that you needed to move into UNIX. --

Fairbairn: UNIX was clear by that time.

Lacroute: It was. So the right thing to do, which we had done with VAX, was to maintain a product line to satisfy the existing customers but on a relatively low budget and put the bulk of the resources on the new thing. But it's just the opposite that happened, so they kept doing the old thing and the new thing never could live. Same old story. You cannot cannibalize the existing business.

Kapoor: So--

Lacroute: So that's very sad.

Kapoor: At that time, were you starting to look at other opportunities?

Lacroute: Yes, I did. Actually, I was, you know, Apollo wanted me to join them and a couple of other places. Motorola was trying to develop a workstation business, believe it or not and I met with Galvin a couple of times. But they were a semiconductor company. They didn't understand systems and there's no way that it could have worked. <laughs>

Fairbairn: Yeah, but Apollo would have been a natural fit.

Lacroute: It would have been natural path, but the chemistry would not have worked for me.

Fairbairn: So you eventually went to Sun. How did that all come about and why Sun versus Apollo and--?

Lacroute: Well, so Sun had hired Owen Brown for president from DEC. So he ran my name by a couple of people and actually Vinod called me and convinced me to come and take a look.

Fairbairn: So you came back to Sun and they twisted your arm or?

Lacroute: I met with the team and primarily Bill and Andy and Vinod and Scott, but primarily Bill and Andy and we talked a lot about what they were doing and where they saw things going. It was just like DEC in the old days, an engineering-driven company and there's no question about that. And they had a vision of where they wanted to go and it kind of matched where I saw the world going. So that's that.

Fairbairn: And did you-- How did you compare Sun with Apollo at that time?

Lacroute: There were a couple of people at Apollo that had left DEC that I didn't particularly care for and I thought they were marginally honest, so that I could not work in that environment

Fairbairn: And what was Sun hiring-- What did they want you to do? What job would it be?

Lacroute: Okay, so, I started as VP of Engineering

Fairbairn: What were you going to contribute and fix?

Lacroute: I started at Sun as a VP of Engineering and I did that for about six months. So Andy was kind of the de facto VP of Engineering but he didn't want to manage people at the time. So it was pretty chaotic.

Fairbairn: Because there wasn't anybody that wanted the job that you displaced, you know, there was--

Lacroute: No they were actively looking for somebody to run Engineering.

Kapoor: So what was the state at Sun at that time in terms of architecture? They were, of course they had Intel, Motorola and SPARC had not been--

Lacroute: It was Motorola for the processor.

Kapoor: Okay.

Lacroute: And the Multibus for the I/O system. SUN switched to VME a little bit later, but the original machine had Multibus I/O system and Motorola as the microprocessor and there was the big screen!, The CRT made a big difference, the first one that shipped was very boxy, kind of ugly, but you know, it was better than anything else that was on the market at the time..

Kapoor: So how did-- What kind of role did you play in getting the SPARC started?

Lacroute: Well, I should talk a little bit about the first year or so at Sun.

Kapoor: Yes. Okay.

Lacroute: Because it's kind of interesting.

Kapoor: <laughs> Yes.

Lacroute: There were many nights where I couldn't sleep because it was really, really, really tough. They had the Sun-2 had just come out and the Sun-2 had an MTBF for maybe a few days.

<laughter>

Lacroute: I sat down with Andy and said, "Well, let's go over the timing analysis, Andy." "The what? What's that?" Well, he knew what it was but he hadn't done it, so we went over the timing analysis and it was out of synch by 10, 15 milliseconds. The reason it worked is that he had a can of Freon in the lab and when you cooled the chip, it worked. But how do you manufacture in any kind of volume? Man, that's not going to work. They had also made the decision to go with a 19-inch CRT, which was built by a company in the Midwest,"Moniterm" and that, too, had an MTBF of hours. So what happened is that inside the tube, the vacuum was not good enough, so there were still particles in it. And when you moved the display, it would arch and zap the motherboard. So we tried every single trick in the world to try to contain this arching until we could get a different display. And at one point we were shipping two displays per machine because if you left them on the desk and did not move them, once the dust has settled, it was fine. But if you moved the thing, it was chaos. So by that time I had hired a guy named Howard Lee from HP who understood analog technology a little bit better than anybody else. And one day they figured out by putting a FET transistor on the neck of the neck board of the CRT, we could actually contain the arcing. Nobody understood the theory behind it, but by trial and error, it worked. So that was a big improvement. We had a better MBTF. And in the meantime, we redesigned the Sun-2 to have better timing tolerance so that it could be manufactured in volume.

Fairbairn: So you really had to redesign all the logic so you--

Lacroute: Oh, absolutely. Yeah. It was just-- It's just it was off. I mean, there's no way it could have worked reliably in a volume production.

Kapoor: So you were building your team.

Lacroute: Building the team, yes, absolutely.

Kapoor: So you were hiring people.

Lacroute: Hiring people as fast as you could and primarily engineers. Andy was an incredible designer, but we also needed implementors. I'll give you another trick then that we played, and this one on purpose. The standard 68020 ran at 16 megahertz and that forced a wait state to be introduced in the memory system. It was just missing by a few milliseconds. And so we wanted it to be faster than the other guys, faster than Apollo, and so we asked ourselves how did we eliminate that wait state? We made a conscious decision to sort the chips at Motorola with Motorola's agreement. So we were shipped 68020 with a little green dot on it, so the chip was running maybe at 16-1/2 or 17 megahertz and by sorting we could avoid the wait state. So the Apollo guys said, "Well, you can never make it work. It's going to fail."

Well, it did work and this time it worked because we knew why it would work. The timing analysis had been done and we sorted the chips and it worked. So that was a part of the SUN success

Kapoor: So how did build the team? What kind of people were you hiring?

Lacroute: My main criteria was what we referred to at Sun as Brain Power. Get smart people. There is no replacement for smart people. Yes, we needed a few guys like the Howard Lees who had been around the block and could help bring the structure, but the priority was to get smart people, guys who didn't know it couldn't be done, were really were very, very smart and could say, "Okay, we are going to do it." So that was the main criteria.

Kapoor: So for example, you hired Eric Schmidt and Wayne Rosing.

Lacroute: No, Eric was here when I came.

Kapoor: He was there.

Lacroute: He had been there for maybe three months or so. Yeah, so Eric was there. He had come out of Berkeley and he was there. And he was a very, very smart guy but did not have management experience.

Fairbairn: So was the first year mainly devoted to getting the Sun-2 stable and shippable and reliable and--?

Lacroute: And then we started on the Sun-3.

3: Redesigning and so forth.

Lacroute: I mean, my philosophy had always been you have at least two generations going at the time. We did that successfully with VAX and PDP-11s. I mean, there is the main project and the one that starts right behind so that when the first one is finished you can put the second one in high gear and be ready for the next generation. I mean, Gordon Bell had this motto, "time to market" which was really, you know, how quickly can you get it done. And I added one, which was "time to money." Because time to market is good but if you don't make any money with it, then that is not going to be sustainable.

Kapoor: So at some point a decision was made to go for SPARC?

Lacroute: Right. So a lot of discussions took place with Motorola on what was the future of the 68000 architecture and they talked to us about 68030 family and we couldn't see how we could get enough power out of those things. Motorola had not started their own RISC program at the time and so it was standard Motorola stuff, 68020, 68030, basically being driven by semiconductor technology rather than architecture and what's the differentiation with the Apollo or the rest of the world. So the decision was made, and Vinod was probably the most instrumental in making that decision, to launch the SPARC

program. That was the end of 1984 and we had just finished the year at around, $4 million dollars revenue. And when we went to the board and said, well, we'd like to build our own microprocessor, they almost threw us out of the room and said, "You guys, are you nuts? You can barely make a 68000 work properly. What the heck do you think you are going to do?" And finally, you know, we convinced them that, it was the right thing to do.

Fairbairn: Whose idea was it originally? Who sort of sparked the idea, so to speak?

Lacroute: I think it was Vinod. Bill got involved in it very, very quickly but I think the original guy was Vinod. Yeah, I'm pretty sure.

Fairbairn: And the vision was to do a RISC processor based on the research that had been done at Stanford and Berkeley, was that the idea?

Lacroute: Well, you know, there was a strong connection with Berkeley because of Bill and Dave Patterson. I had worked with Patterson myself at DEC. He was involved in some of the architecture on the VAX system and the VLSI for Micro Vax. So there was kind of an affinity towards Berkeley, and the UNIX that SUN was running came from Berkeley.

Fairbairn: But they were, I mean, that was the idea was using that, I mean, the RISC idea was the fundamental starting point.

Lacroute: Absolutely. The RISC idea was the fundamental. Yes, that was the basic idea. Build a machine and make it go as fast as you possibly could.

Fairbairn: So coming from a CISC background as you did from Digital Equipment, how did that strike you? When did you see that RISC was a viable path to go?

Lacroute: Well, we had certainly studied what IBM was doing. They had a RISC program. Also I talked to a lot of people in the industry and the research community and it looked like a good thing to do. The other factor was that from a practical viewpoint, there was no way, that Sun could have implemented a CISC machine. We just didn't have the resources, the talent necessary to go and do that. So there was the practical aspect of it, which is, you know, at some point you've got to go and do what you can do and not just what you may be dreaming of.

Kapoor: It also worked for [ph?] operating system and compilers and--

Lacroute: Boy, yes.

Fairbairn: So the motivation was performance.

Lacroute: Performance was critical.

Fairbairn: You were not getting just performance out of the Motorola path--

Lacroute: Motorola could not see beyond the 68030 at the time

Fairbairn: And so what was when you went to the board, what performance gain did you forecast?

Lacroute: I wanted factor of ten. I figured if we didn' get an order of magnitude, it's not worth it. And when the first machine came out and it was running at 4 times the speed of a 68030 based machine. I said, I'm going to kill this darn thing, because it's not good enough. So that's when the operating system guys came into play and tuned the heck out of it. So we got about when the first machine came out, maybe 5.5, 6 times the performance of the Motorola machine. But we didn't make the 10 times, which was the goal.

Fairbairn: You got to start with 10 to make sure that you get something worthwhile, right?

Lacroute: Right. I mean, if it's 2 times more performance, not that interesting. I mean, you got to make enough of an impact.

Kapoor: So what roll did Bob Garrow and Wayne Rosing and those people play in that?

Lacroute: Well, Garrow came later in the game. Wayne came earlier in the program and was very much involved in the RISC project managing a big piece of engineering. I don't remember if he and Howard were on the same level or what. Eventually, Wayne managed all the hardware side. But Howard might have-- I'm pretty sure that actually, Howard managed the 68000 projects and Wayne originally was involved with the RISC project, yes.

Kapoor: Right. I know because he was like my counterpart when we at Cypress were working with Sun.

Lacroute: Right. No, that's right.

Kapoor: And he was reporting to Bob Garrow at that time, from what I remember, but maybe not.

Lacroute: Which year was that?

Kapoor: This was like 1984-85.

Lacroute: No. No, Wayne didn't report to Garrow. He reported to me. He may have reported to Bob after I left, but it was not then.

Kapoor: Because we had some issues to resolve and Bob was always there to help out.

Lacroute: Okay. Well, that's maybe so, but, no, Garrow was in the Manufacturing-- on the Manufacturing side and he was-- Wayne didn't work for him at all at the time, no. That's right.

Fairbairn: So was the SPARC project, was this a huge project? Was it just a couple people working on that? What was the nature of that?

Lacroute: It started with a small team, about 15 people or so, and again, the motto was brainpower, get the best you can and get it going. So very, very small team to start with. And that's one of the lessons I had learned from Gordon Bell. Don't overstaff. Don't overfund. Just get smart people and leave them alone .

Fairbairn: What about the impact on the operating system? How big of a job was it to port the operating system?

Lacroute: Significant. A significant job. So the Dave Shannons of the world really did a very, very good job porting the OS, rewriting the compiler, the C compiler. I mean, most of the operating system was in C and there were a few sections that were in assembly language, but mostly in C, so the first job was to rewrite the C compiler. So it was a big job. A big, big job.

Fairbairn: And how did that project go in terms of timeframe, cost and so forth versus what your plans were?

Lacroute: Timeframe, we were maybe less than a year late. Nine months, maybe. Not bad. Money-wise it was not too bad either. I mean, we spent a fair bit of money but not really outrageous.

Fairbairn: What was the total time of the project from kickoff to--?

Lacroute: Well, so, we started, we made the decision was made at the end of '84 and the first machine shipped in 1987, in June or July of 1987.

Fairbairn: And what was the state of Sun at that time? Were you still doing well? Was that necessary to kind of kick things up a bit or what was the--?

Lacroute: Once the redesign of the SUN2 had been done, Sun started to get in shape, starting to make money again, although we had been almost out of money in late '83-84. Customers didn't pay. So the income, the cash flow started getting better. We got some more money from the venture guy, Dave Marquart and John Doerr were on the board and we got some more money. There was a big marketing push, towards standardization: UNIX , Ethernet ,Open architecture. SUN pushed very hard for Open Architecture explaining to customers they were at the mercy of the company they were buying from if the architecture is not open. Some of that was real and some of that was BS, but it was good marketing BS. It really stuck in the mind of companies, and SUN continued making money and making inroads with the customers. So and certainly, the best marketing person that we had at Sun was Bill Joy. He could sell anything.

Kapoor: And he also had a good chip strategy in terms of working with multiple vendors and--

Lacroute: Oh, absolutely.

Kapoor: Yeah.

Lacroute: So that's, yeah.

Fairbairn: And what was the acceptance of the customer base to this new architecture, the new chip architecture?

Lacroute: Okay, before I get to that I want to say a few words about manufacturing of the first RISC machine because that was an exercise in frustration. So we had pretty much decided to go with the gate array technology because we just didn't have the expertise to build a chip from scratch. So we went to all the American manufacturers that we could think of to see if they would build the thing for us. And they all told us to get lost, that we were crazy, a bunch of idiots that it would never work. You're going to go out of business. That was unanimous, from Motorola to Intel and everybody in between

So we ended up in Japan with Fujitsu. The Vice Chairman was Dr. Yasafuku, a wonderful man that Bill had met, and I had met him at DEC, because he had done some work at Stanford and he was selling memory to DEC. And so we went to Japan and we met with Yasafuku and his team and although the Japanese have the reputation of being very slow at making decisions, the man made the decision within two weeks. He said, "Yes, we're going to do it. Here is the technology, CK-22. And we're going to work with you and make a triple ported memory so we can have the video system coming out of it and so forth." And here we went. So, after that, when the first machine came about, Sun got a lot of shit from the industry. "You are selling out to the Japanese." Well, we didn't have any choice. So I will always recognize the contribution that somebody like Yasafuku made to the success of Sun because we wouldn't have made it without Fujitsu. Nobody wanted to build this thing. Now after the first machine success, it was a different story. There were lots of people who wanted to build the chip, whether it be TI or TJ or even Intel. But for the first machine, nobody wanted to touch it

Fairbairn: And this was a new process and a new chip for Fujitsu, is that right?

Lacroute: Oh, yes.

Fairbairn: They were--

Lacroute: New process. The CK-22 gate array had not been released and it was tweaked to meet our needs.

Fairbairn: So when you said, so you said the manufacturing of the first SPARC machine, was that mainly associated with the chip or were there other challenges associated with the manufacturing process?

Lacroute: Well, the other manufacturing was pretty standard. We knew when to build a VME board and we used WEITEK chips for the floating-point processor. So, some challenges, but nothing that could not be mastered, and Sun had learned how to do it that by then. We had put CAD tools in place. And that was a big thing that I had to push for, put CAD tools in place so that we don't have to go and do that by hand and minimize the rework

Kapoor: Sometimes I played a role in that, too. <laughs>

Lacroute: Yeah, right, I mean,--

Kapoor: Yeah.

A It's--

Kapoor: When the Cypress relationship and--

Lacroute: We put in place various simulation tools and that made a big difference.

Kapoor: In fact, Verilog played a big role in--

Lacroute: Absolutely. Verilog played a big role into that, yes, that's correct.

Fairbairn: So I wanted to go back. You said when you were originally hired, you were hired as VP of Engineering but then your responsibilities expanded or--?

Lacroute: Yes

Fairbairn: Tell us about that.

Lacroute: So, when we had those manufacturing issues with the CRTs, there was a guy from Intel, the name is going to come back to me, who was actually a very good guy. He was running Manufacturing. But he was fighting engineering every turn of the way. I mean, it was constant fighting. And finally, I said, "Look, guys that cannot continue. We've got to work together." I had the engineers on the floor working out some of the problems, but we had constant conflicts-- You got to go and fix that, so let me manage manufacturing, which I had done at DEC with the network products. Otherwise, you know, it's going to be chaos. I had a strong background in understanding the business side, and I said, "Let's put marketing, engineering and manufacturing under one roof". All the product components together, which to me, makes a great deal of sense. So you can minimize the conflicts between marketing, engineering and manufacturing and get the products done. And I was accused at Sun to favor engineering, and I did.

<laughter>

Lacroute: And I make no qualms about it. I think in a tech company, engineering is key. I mean, look at the dot.coms. Marketing alone doesn't pay. You have to have good marketing, don't read me wrong. But if you don't have the products, then it does not work.

Fairbairn: And if you don't have good manufacturing--

Lacroute: If you don't have the product to start with, that's not going to work.

Kapoor: So you were working closely with Scott and--

Lacroute: Oh, yeah. Very much so.

Kapoor: And so, how was that relationship?

Lacroute: Well, I mean, it was very good for a very long time. I think we understood where we were going and the common goals and how to grow the company and there were lots of challenges. One of the big challenges was getting enough cash, because in those days there was no contract manufacturing, so we owned the inventory. And we were pushing technology, so we were always getting the fastest parts. Well, guess what? You buy the fastest part today at a premium; six months later, the price is down so if you sit with it an inventory, you are losing value. That was a big issue. That's why AT&T came into play and injected a quarter billion dollars in the company to help us fund this puppy because it was tough to get enough money. So anyway, getting back to the relationship with Scott, I mean, for quite a few years, it was very good. We really saw the things going in the same direction. I think we always did see it going in the same direction. I had a lot of respect for Scott. But when he started pissing off on the industry, it really irritated the crap out of me. There was one event where there were three fire hydrants on the stage. One was called HP, one was called IBM, the other one Microsoft, and he brought his dog to pee on them. I don't know. I came from a different background. So eventually, it really got me pretty irritated, and I was very tired, because I was working my ass off and I said to myself "Eh, it not worth it. Let's move on."

Fairbairn: So how long did you stay at Sun?

Lacroute: Six years.

Fairbairn: And so you left in '80--

Lacroute: '89.

Fairbairn: '89?

Lacroute: Yeah.

Fairbairn: So what was the progression? Take us sort of through the major steps after you got the SPARCstation out. And then eventually Sun became a much more sort of enterprise-level company--

Lacroute: Oh, very much so, yeah. So again, there was an interesting level of discussion there. There were two schools of thoughts. There were the desktop people and the server people, and originally Sun wanted to be a desktop company, really even compete with Microsoft and Intel and Apple. But we didn't understand the user interface well enough. It was designed by engineers for engineers more than a Steve Job designing for the consumer, okay? So there was this dichotomy. Do we go more towards servers or more towards desktop? And eventually Sun moved in the right direction my opinion, which was focus on the servers and desktop on the desk, right, but have a big networking and server stuff on the background. So that's where it evolved, and I think it was the right thing to do, the right evolution.

Kapoor: That's where the growth of the company.

Lacroute: What?

Kapoor: The growth of the company--

<overlapping conversation>

Lacroute: Yeah, absolutely, because those are very complex engineering problems. The engineering department at Sun at the time was very, very strong, a lot of very talented people who could build complex systems, which not too many people could do in the industry. And there was a strength not just in hardware but also in software. The software guys were key, because they really understood networking and Unix and all that stuff, and so it made good sense for Sun to move into that space, yes.

Fairbairn: And were you part of that decision? Was that a major decision to move into the sort of--

Lacroute: It was an evolution more than a formal decision. It evolved into that, yes.

Fairbairn: So what was Sun's business when you left? Where were the major product lines?

Lacroute: We had just finished two billion dollars.

Fairbairn: And that was coming from combination of servers and desktop or mainly servers at the time or--?

Lacroute: Well, it was a combination of both. I don't recall the exact ratio, but it was both.

Fairbairn: Desktop was still significant at that time.

Lacroute: Was still significant. If you look at the revenue itself-- I don't remember, but what I remember clearly, the profit margin was coming more out of the servers, because we had made some really interesting marketing decisions. I remember two of the controversial marketing decisions that were made. One was the Sun 3-50 pricing. It was a desktop machine, and Apollo was priced at about 5000 dollars for a comparable machine, and we were still trying to attract applications to port Sun. It was maybe '85 or

something like that or late ‘84, ‘85. And so there was a big debate as to what we should price this thing at. And so there was the classic marketing proponents saying “We have to have a 50 percent gross margin, and the other side of the room-- I certainly was one of them and so was Bill-- say “No, we’ve got to get market share. We don’t want to lose money in those things, but we’ve got to price at 3500 dollars.” And that made a big splash in the industry. “Wow, look at that. So how could you not buy this stuff? 3500 bucks versus 5000 for Apollo? Here we go.” So we attracted a lot of attention and applications were ported to the platform, so that was one key marketing decision, and Bill was instrumental in that. I remember Bill and I argued to death with a lot of other people for doing this kind of thing, which was disruptive, but it made sense. The other significant strategic decision was made when the first RISC machine was introduced, so we were five, six times faster than the other guys on the block, so we should price higher, a lot higher. No, no, no, we are going to price 10 percent under. And again, guess what? You have a machine that is much faster, it’s less money than the other guy; come on, go and buy it, and that really took off. You have a compelling argument. My view in this world is you never want to lose money. Losing money is stupid. It makes no sense, but market share is critical.

Kapoor: And the other strength was the reliability.

Lacroute: Yes, but if you can make it easy to sell, or actually the fundamental goal is that “you don’t want to sell, you want people to buy from you” and so you make it attractive enough so that they “can buy”.

Fairbairn: You want the pull from the customer, right?

<overlapping conversation>

Lacroute: Well, yes absolutely.

Fairbairn: So when you decided to leave, what were kind of the things that came together? Was it pulling from something else, tired?

Lacroute: I was tired. I was exhausted. And there was something which I thought was totally stupid, which was to change the inventory system on the last months of the fiscal year. Come on, you just don’t do that. You wait until the next fiscal year. So for three weeks, Sun couldn’t take orders. But you know what it takes to switch <laughs> database. And I told “you guys, that’s crazy”. So anyway, but I was exhausted.

Fairbairn: So was there a pull also? Was there an opportunity, or you just said “I just need to get out. I’m tired”?

Lacroute: No, no. I need to get out. I’m tired. That’s it. No, I had nothing lined up. I took some time off, because I just needed to take some time off.

Fairbairn: So this is 1989.

Lacroute: Yes, 1989.

Kapoor: So what were you thinking then after that?

Lacroute: I was not thinking. I said "Let's go and take some time off, spend some time with the kids and not do anything for a while, so that's that.

Fairbairn: And how did the next step evolve?

Lacroute: The next step, I had a lot of calls. I met with bunch of people, and John Doerr was on the board and I knew Pierre Lamond at Sequoia pretty well, and I spent some time with all of them, also Larry Ellison. Larry was enamored with the hardware already at the time.

Fairbairn: He has already taken a look, huh?

Lacroute: No, it was a different machine. Oh, no, no, no, it was a completely different machine. I can't remember name of the architecture of this thing. I could never work for Larry anyway. <laughs> Would not have worked for me.

Fairbairn: How long did it take you to settle on something?

Lacroute: Oh, maybe six months or so.

Kapoor: So you decided on Kleiner Perkins.

Lacroute: Yeah, yeah.

Kapoor: So you were thinking of investing in areas that you really liked.

Lacroute: Yeah, what was attractive to me is that I could stay involved in technology, which I enjoyed-- I really enjoyed technology-- but also being involved with very bright people. Both at DEC and Sun, I was working with smart people, people who were much smarter than me, but I enjoyed working with them because of the stimulation. You could throw ideas, you could argue, you could debate and come up with better answers. That to me was really, really an important part of whatever I was going to do next. And some of those entrepreneurs are really, really, really smart. They force you to think, think out of the box and have different ideas and do things that have not been done, and so that was very attractive to me. That part I really enjoy.

Fairbairn: So a classic problem operating people moving into venture capital is you can advise, but you can't tell them what to do.

Lacroute: It was hard. No question. I enjoyed my time in the venture world, but I enjoyed the operating role better than the venture world. There's nothing right, wrong or indifferent; that's me. I would much rather get involved in things.

Kapoor: So I interviewed-- HAL computer.

Lacroute: Who? Pardon me?

Fairbairn: About the HAL computer.

Lacroute: Oh, yes.

Fairbairn: Did you play a role in that?

Lacroute: Well, <sighs> I spoke with Heller, who was kind of... sitting.. in a maybe advisory-- I don't know-- a totally informal way at KP at the time. And I tried to hire Andy at Sun, because he... has incredible brain. He's impossible to manage, but he's very smart. Heller is very, very smart, and he understood semiconductor technology very well. So I kicked the idea around with Andy to start a company... and at the end, I could not do that to Sun. There is no way I could have done that, so that's that.

Fairbairn: This was while you were at KP, at Kleiner Perkins, you were talking to--

Lacroute: I was at KP, yes. Yes, I had joined KP at the time, yes. Yeah.

Fairbairn: So what were the two or three investments that you lead at Kleiner Perkins that you felt happiest about, proudest of or that you--

Lacroute: Well, one of them was in manufacturing, and that was Flextronics International. Sequoia and Kleiner Perkins were the two investors in the company. We bought the company for 12 million dollars and rebuild it to be at some point the largest contract manufacturing company in the world until two Chinese companies merged . But that was fun. That was good. It was not straight engineering, but again, people made a big difference. We'd hired this guy, Michael Marks, as the CEO; he was an incredibly good guy who understood business and strategy and the technical aspect of the business. And I had a really good time working with Mike Morris. We worked well together.

Fairbairn: So your experience at Sun informed your vision about what this company could do?

Lacroute: Yes. Oh, no doubt, yes. You see, contract manufacturing was just starting again to go and become significant, and we could see the trend where lots of company would not manufacture themselves anymore. They would subcontract to companies like Flextronics and so that was the bet.

Kapoor: Same as fabless.

Lacroute: Yeah, same idea. Another one which was a lot of fun was Tivoli System, which was a network management company out of Austin, Texas. KP actually made a lot of money on the company. We built it up from scratch. There was another venture firm, Austin Venture, which we worked with on this one and took the company public; very, very successful. Then IBM came and said "We'd like to buy it." I said "Yes, for the right price," and they had the right price, so we sold it. So those two are what comes to mind, but I was involved with a bunch of other things not as directly. The way KP worked in those days-- I don't know what it is today-- is that there was a primary person responsible for the company, but various partners would go on the board and work with the primary person to bring the right level of expertise to the company. So Juniper Network was an example of that where Pradeep is somebody who worked at Sun and I got involved with it. So I got involved in a bunch of other ones.

Fairbairn: Right. So how long were you at KP?

Lacroute: I started in 1989, and I stopped making investments in late 1990 or maybe 2000, so I stayed on boards after that. When you start or is responsible for a company, you finish it up, but I stopped making investments in late '90s or 2000, right when the dot com crashed.

Fairbairn: Before or--

Lacroute: Yeah, before. I had one that crashed, but none of the other ones. <laughs>

Fairbairn: Did you see it coming?

Lacroute: <coughs> Yes and no. It was like the housing market. You know it's not sustainable. You have no revenue, you have no product, and you go public with the valuation of 200, 300 million. It was crazy. It cannot last. It defies the laws of physics <laughs>. Yes, you could see it coming.

Fairbairn: But it was going to go for some period of time.

Lacroute: Oh, yeah, it was fun. <inaudible 01:20:12> but not always. One of the initiatives that KP, was involved with was Pen Computing. And we tried to make it work, but the technology was not good enough, so I ended up working on cleaning the mess. That was not a fun thing to do, to go and clean it up and get AT&T involved to bail us out. That's the dirty part of the venture business, when you have to shut it down. John was involved with GO at the beginning, and when I got there, eventually they asked me to come and clean it up, which I did, but I didn't enjoy it. That was not fun.

Fairbairn: How did you find working with the other venture firms? Was it very competitive? Was it collaborative?

Lacroute: Yes to both. You see, very, very competitive to get a deal, but once let's say a deal was made, we had common interest, and so I worked with a bunch of people, like Mike Moritz and Burt McMurtry and several others. I could work well with most of those people. Very, very few exceptions. It could be cutthroat to get the deal, but afterwards I think quite good cooperative work.

Kapoor: So you were look at retiring from that as well and then looking at your winery?

Lacroute: Yep, yeah.

Kapoor: So can you tell us a little bit about that?

Lacroute: Yeah, so I phased into the winery gradually. I bought land, started planting and spend most of my time in the valley. Then eventually moved to Oregon.

Fairbairn: The Willamette Valley.

Kapoor: The Willamette Valley.

Lacroute: No, Silicon Valley.

Fairbairn: Silicon Valley.

Lacroute: I still lived in Menlo Park for quite a while when I got the winery started and I until got some production. I didn't move permanently to Oregon until late 1990s.

Fairbairn: So what made you choose Oregon, and what compelled you-- you must've had a passion about getting into wine. Tell me about where that came from.

Lacroute: Well, I was born in Burgundy region, so wine was something which was natural for me. I enjoy growing things. I have a big garden now in Napa, always been gardening. So growing grapes and making Pinot Noir, which is the hallmark of Burgundy, was something that was interesting.

Fairbairn: So even though your father or family wasn't in the wine business, did you kind of understand the business sort of at a gut level or anything?

Lacroute: No. No.

Fairbairn: You were just around it; it was--

Lacroute: Yeah, interesting. We had wine every day, and I tell the story about my grandfather, my mother's father. For breakfast every day, he had a bowl of wine with two or three cubes of sugar and would dunk bread into it. He lived to be 86, and it was long time ago, so yeah <laughs>. So it's something that I enjoyed, and it was kind of interesting to start another thing from scratch. I bought the land, planted and built the winery and spent a lot of time researching what to do and how to do it.

Fairbairn: So this was bare land. There was no wine, no winery, nothing.

Lacroute: Nothing, no, nothing. No, nothing.

Fairbairn: And you chose that because it was good Pinot Noir territory and that's what you had grown up in.

Lacroute: Yeah, absolutely. Yes. If you want to make a Pinot Noir in the style of Burgundy, Oregon is the place. California makes a different style of Pinot Noir. I'm not saying it's bad, but it's different, so I was more attracted to making something similar to what's done in Burgundy.

Fairbairn: Is that because of the weather, the soil?

Lacroute: Yeah, it's the weather.

Fairbairn: The weather?

Lacroute: It's the climatic conditions, fundamentally the climatic condition and the soil define the wine. But I had looked at other options. There are a few other places that make good pinot noir, Burgundy being one of them, but I didn't want to go back to France, because there are too many rules and regulations on how you can grow things. You cannot irrigate and a bunch of other restrictions. If you do not comply you lose your Appellation d'Origine Contrôlée, which means your wine is one-third of the value of the guys next door, so I was not going to put up with this stuff. The other place that was interesting to me was New Zealand, Central Otago-- oh, it's a beautiful place, but it's little far, so I settled in Oregon.

Fairbairn: And how much land did you have?

Lacroute: 420 acres.

Fairbairn: And did you make all your wine from your own grapes? Did you buy grapes from others?

Lacroute: Oh, yeah, oh, yeah. No, I didn't buy grapes, I didn't sell grapes.

Fairbairn: It's all self-contained.

Lacroute: All self-contained, the good old French way: You go from <laughs> the grapes to the bottle. <laughs>

Kapoor: So besides the winemaking and wine growing, were you at that time looking at any other investments that you wanted to make?

Lacroute: No. No, when I decided to leave the venture business, I followed a philosophy that I believe in very strongly: You are in, or you are out. You are not halfway. It works for some people; it would not work for me. You are committed, or you get out. In my career, I have seen CEOs who retired but stayed on the board and wanted to micromanage the new CEO. No, no, if you are done, you are done. Get out. Go and do something else. Or if you are going to be in, well, you be in. That's it.

Kapoor: So since you have left the winemaking, have you been looking at some other investments? And other passions have--

Lacroute: No. No, I'm not doing investments. I enjoy what I'm doing now. I plant a large garden, I cycle, I ski, I travel, and I tinker with my Citroëns. I've got four of them from 1937 to 1970, and that keeps me busy.

Fairbairn: Do they all run?

Lacroute: Oh, yes. I drive them regularly.

Kapoor: What I remember was that you have to lift the window up with my hand.

Lacroute: Yep, yeah, you do. So that's fun. And I do some woodworking too.

Fairbairn: Yeah, going back to your winery in Oregon, people talk about how difficult it is to make money in that business. Were you able to make it profitable?

Lacroute: No, that is true, it is difficult. Absolutely. My goal was never to make a tremendous amount of money but not to lose money either, so we always made money. And I reinvested a lot of the money we made into people. For instance, I had health benefit for my vineyard workers, which was quite uncommon at the time, but we could afford to do that. I didn't need to make a fortune in the winery, but not lose money. I always tell people there is an infinite amount of difference between a company that makes a buck and a company that loses a buck. The mindset is totally different. That I would not tolerate. Losing money is not something that I would do.

Fairbairn: It's a tough business.

Lacroute: It is a tough business. So what I did, which was very helpful, was to sell direct. At the time selling direct was not nearly as common as it is today, but half of my revenue came from selling direct.

Fairbairn: To restaurants or--

Lacroute: No.

Fairbairn: To stores, grocery--

Lacroute: People came to the tasting room, our cellar club program where we ship regularly several bottles a year to the customer. So half of the revenue came from those sales at a much better margin then selling through distributors, and also much more enjoyable. I didn't like the distribution business. It's totally fragmented in the US. That comes from Prohibition area, and the reason it's fragmented is that the distributors have a monopoly, so they want to prevent wineries from selling directly to shops or restaurants. Within California you can do it but try to sell direct to a restaurant in New York from a winery,

you can't. It's illegal. Eventually, that will be turned down just like it was for consumers. We had a very similar problem selling to consumers through all the states in the US, and finally it got turned down by the Supreme Court. The Court concluded that it was a violation of the interstate commerce laws, and eventually I think the same thing will happen with the distribution business. But the distributors are well-funded. Fortunately, we've got people like Costco who are getting in the wine business, and they have the resources to go and push it to the Supreme Court.

Fairbairn: So was the wine distributed throughout the United States?

Lacroute:, Yes.

Fairbairn: But worldwide or--

Lacroute: Well, we did a little bit of sales in Japan and South Korea, and we had just started a little bit in China, which is very difficult business.

Kapoor: But it was served in White House and so on.

Lacroute: Pardon me?

Kapoor: It was served in the White House.

Lacroute: Oh, yeah, oh, yeah, absolutely. Yes, we build a good plan, had good brand recognition, no doubt.

Fairbairn: How did that come about? How do you get into the White House? Is that through connections?

Lacroute: No, actually I don't know if this is still the case, but they had a good program. Their wine buyer, which had worked for four or five different administrations, came and visited a bunch of US wineries both in Oregon and California, and if he liked something, he just bought--

Fairbairn: That was it.

Lacroute: That was that. He was very good guy. I actually enjoyed meeting him.

Kapoor: So I read that you have a passion to invest in some fundamental research.

Lacroute: Yeah.

Kapoor: Can you say a few words about that?

Lacroute: Well, I think fundamental research is maybe underfunded, so I'm very interested in seeing that some of those programs, which may not provide an immediate return, can be funded. And some of them are not going to work. That's what it's all about. It's like venture capital. Some of it works, some of it doesn't work, but we have to continue to provide resources to fundamental stuff. I've been involved mostly on the health side. I notice you had the name Eric Gouaux from OHSU, which is doing fundamental research on brain connectivity of neurons and how it applies to people who have mental disorders. So that's good. I've been involved quite heavily with Doctor Gary Steinberg at Stanford, the neuroscience surgeon. Actually, if you haven't seen that, go and see his VR lab. It's pretty amazing where they can actually visualize the inside of the brain, and before they do surgery, they take a combination of various MRIs and CT scans, combine them, and they can see and have the surgeon research where the tumors may be before they operate. They also use that as a teaching tool. Pretty amazing stuff. So, yeah, I'm interested in those things, yes.

Fairbairn: How did you get connected into that? Was it something you went off to look into?

Lacroute: Steinberg saved my former wife's life. I had a business plan for him and told him that I wanted to see a brain transplant in my lifetime, and they're close. They're pretty close. They've done it on mice.

Fairbairn: That's a scary thought.

Lacroute: No. I've got to graft all those guys in Washington. <laughs> All of them. <laughs>

Fairbairn: Who is that person once they have the brain of someone else?

Lacroute: Well, maybe we can <laughs> figure out whose brain we want to put in there. <laughs>

Fairbairn: What about Doctor Gouaux's work in Oregon?

Lacroute: So that's the one who is doing research on neuron connectivity and how it can help mental disease and so forth, yeah.

Kapoor: Any words of advice for people that are starting a career or any other--

Lacroute: Yes, that's what I was saying before. Sometimes people ask me that question. I say if you're not passionate about it, forget it. Passion, passion, passion, and you can overcome many obstacles if you are driven. Oh, that's the other word I could use instead of passion: driven. That's part of it. The quarterback of the Patriots, Tom Brady. He graduated from University of Michigan, and I was visiting the University of Michigan long time ago, maybe 25 years ago. He was just about to graduate, and they asked if I would meet with him, because he was not sure what he was going to do, whether or not he wanted to go and continue in grad school or go in the football business. And said "Tom, where is your heart? Where is your passion? What really drives you? What pushes you? And that's what you should do. I cannot tell you to go to law school or do the quarterback thing. It's in your head. But if you have the passion for doing it, that's what you should do." He's been pretty successful.

Fairbairn: Pretty clear what the choice was.

Lacroute: But I really believe in that.

Fairbairn: Anything else you'd like to conclude with?

Lacroute: Well, you guys are doing good work, so keep computing, and <laughs> we'll be in business tomorrow.

Fairbairn: All right, great. Thank you very much. Appreciate your spending some time with us.

Lacroute: You're quite welcome.

Kapoor: Thank you, thank you so much.

Lacroute: All right, good.

END OF THE INTERVIEW

