Interview With Larry Bohn

David Walden
Annals Editorial Board

■ **INTERLEAF, INC., WAS** founded in 1981 and was acquired by Broadvision in 2000. Larry Bohn was with Interleaf in 1986–1993, serving in a variety of senior management positions. This interview took place in Cambridge, Massachusetts, on September 24, 2019, at his place of work, General Catalyst.

Walden: Please tell me about your youth and education.

Bohn: I grew up in Milton, Mass. I went to public schools. My dad ran a luncheonette in Boston, and he died when I was 16 years old. He had been a World War II pilot, got shot down, spent a couple of years in a POW camp, so as a result of that I actually inherited his GI benefits, and so I was able to go to college. I went to UMass, majored in English, came out, went to graduate school at Clark University, and got a master's degree in English Linguistics while I taught writing. I taught writing for a couple of years at junior colleges in the Boston area and realized this was not something that I wanted to do for the rest of my life.

I had a couple of skills. I was a good writer, and I knew a little bit about computers from taking one Fortran programming course; so, I was able to actually get a job at Data General, which was just an emerging company in the area, and I was a software technical writer. I wrote books about programming computers, and that led me to my interest in document processing because it was really at the very birth of word processing, text processing, etc. I was at Data General for a couple of years, and then I went to Digital Equipment Corporation, where I managed a couple of groups. This was the time when some fundamental parts of the declarative markup language was being developed, called SGML, along with the way in which you could develop documents and structure documents, etc. I became very interested in that and ultimately went to Apollo Computer. Apollo was a workstation company. It was one of the first companies to integrate text and graphics, and so it provided the benefit of actually being able to show a document in what was called WYSIWYG form, What You See Is What You Get, and it was one of the first platforms at this startup in Cambridge called Interleaf—actually built its software on it.

Walden: At Digital, you said you led a couple of groups.

Bohn: They were the Operating System Documentation Group; I led that; and then I had a small development group that was building

some software to automate the text processing business.

Walden: Before we move on to Interleaf, I read your website where it talks about your unusual path to becoming a venture capitalist: delivering groceries, driving a taxi, working on a farm, being a short-order cook, and managing a pool hall.

Bohn: That was before and while I was going to college. And then, when I went to college I did work on a farm, sadly, in exchange for housing, and I managed a pool hall in college.

I was sort of the scrappy guy. I had to sort of find my way early on and help a family whose dad had passed away; so I would say I learned to work hard early on, and that has benefited me throughout my life.

Walden: So at Apollo you were already seeing text and graphics.

Bohn: Yes. Just to back up: I learned a lot about document processing at Digital because it was at the beginning of when Donald Knuth, who was a famous computer scientist, developed what was called TeX, and TeX was a programming language for documents. I learned a lot about that and was very interested in the whole way in which computer markup worked, typesetting, and the interface to typesetting. It was a very proprietary world that was starting to open up, and I became very fluent in the technologies that were emerging around document processing. I then went to Apollo. The thing about Apollo was it was the first workstation with a big screen. You could see a document, and Apollo was very interested in moving the whole documentation process online so people could retrieve documents electronically. I actually led a project with a small development group that was in the document retrieval business, using some underlying technologies around TeX to do it. Then, we found Interleaf, a startup company in Cambridge—very small. It was a handful of people, probably ten people, but it was building something very, very advanced. I got to know the founders.

Walden: This is while you were still at Apollo.

Bohn: This is while I am still at Apollo. I met the founders of Interleaf, Dave [Boucher] and Harry [George]. I met the development team, Bob Morris, Steve Pelletier, etc., and I negotiated a license deal between Interleaf and Apollo so everyone at Apollo could use the Interleaf software. It was a big thing for Interleaf, and it was a big thing for Apollo.

Walden: Early software before any real release?

Bohn: No, it was just being released, so I helped them get Apollo systems. Originally the software was developed on Sun's Microsystems, which was a competitor. I helped fund the effort for them to port the software to Apollo, and then we used that within Apollo. About a year later, I actually talked to Dave and Harry and joined the company as head of product planning at Interleaf. The first job I had there was Vice President of Product Planning, working with the development group on sort of where the product should go, how it should be built, what the market was, etc.

Walden: What technologies were there from the TeX world that you used? Do you remember by any chance?

Bohn: TeX was a very low-level language for document processing, but there was a higher-level version called Scribe, and Scribe was a more declarative language. I think it might have even used TeX. Brian Reid developed it, and it became very popular, and it was something that we started to use at Apollo to do our documentation and to use it so that we could produce both high quality copy and online versions. So these were the main sort of developments in document processing at the time; and so when I went to Interleaf, Interleaf was very different because Interleaf was a completely interactive system. It did not rely on any sort of low-level language. It did not rely on actually putting declarative markers in a document. It had a user interface that allowed you to create what are called components, and so it was really in many ways the first interactive structured document editor.

Walden: My understanding is that some of at least the Interleaf prototype came from the Etude project at MIT.

Bohn: A number of people from the Etude project, which was Mike Hammer's project. That was a project in office automation. The document processing was one of the central parts of that. I would say that was the basis for Interleaf. The inspiration came largely from Xerox PARC and the Star document editor. The Etude project

was sort of the foodstuff of the first Interleaf version.

Walden: One of the things I have been trying to understand is that while Etude was written in CLU at MIT, I believe Interleaf's original project was written in C. Do you know who did that conversion?

Bohn: I cannot say who actually did the conversion. Most of the Interleaf people who were developers were very strong C developers, and so the original product was written in C. Ultimately one of the things that Interleaf innovated on was building an interpreter as the customization layer. It was an AI language called Lisp.

Walden: So, at the very beginning, the programmers, as far as I can tell, who were at the company to for instance get the first demo going in 1984 were Bern Niamir . . .

Bohn: He came from MIT. He was sort of the person who came from the MIT project, but he was not the lead developer.

Walden: Other relatively early programmers were Jim Crawford, Steve Pelletier, and several others that Pelletier brought in, such as Mark Dionne, Kimbo Peebles-Mundy . . .

Bohn: What happened is Pelletier had worked for a company out in Colorado, and he had recruited Kimbo and Deborah Landsman and Kimbo's wife . . . to the company because they had worked on a word processing system. They brought that sort of heritage, and they were very strong developers. Crawford came from Harvard. He was a brilliant developer.

Walden: Do you have insight into why the founders, David and Harry, chose a publishing system as their product?

Bohn: They were very interesting guys. Harry was sort of a poet by background although he later became the CFO, and Dave was—I think he might have been an English major at MIT. He was not a hands-on engineer. But they had done a lot of research in office automation, and I think the relationship with Mike Hammer was fundamental to understanding that there were a lot of problems in document processing around cutting and pasting text and graphics together, and so they saw that that core innovation—being able to take text and graphics on a page and show it—could provide real benefit, and that

that was fundamentally enabled by high-performance workstations.

Walden: I have read in one of the Seybold Reports that when Dave Boucher was invited to an early Seybold technical publishing meeting, he turned it down because he said, "We're not a technical publisher. We're in the graphic arts business." And then a year later, he said, "Whoops, we are in the . . ."

Bohn: What happened to the company, which is true of a lot of startups, is that they basically believed that they were creating a new kind of product that could be a widespread product basically like a super word processor. Some of the fundamental benefits were: it was WYSIWYG, it was easy to use, it was highly interactive. But one of the things they failed to realize was that the cost of deploying an Interleaf system was so high because it ran on a 32-bit workstation, which cost $80 000. That relegated it to a sort of specialized high-end market. The first market of the two early markets for Interleaf was the graphic arts business and companies that were doing directories and things like that, so Donnelley was a customer—big publishers like that. But the bigger market was what I would call it the military specification technical document market. The reason for that is, you have to understand, that the software only ran on high-end workstations. Most of the high-end workstations at the time were being sold into defense contractors around electronic CAD (computer aided design) because this was the Reagan buildup at the time—Reagan's Star Wars. There was a massive investment in the defense area, and a lot of it was around embedded electronics, so these workstations were actually being used for ECAD [electronic computer aided design] to design circuits. They were also needed to produce all the complex documentation around these embedded systems, so all the people in the military who were producing these Mil-Spec technical documents saw the potential of the Interleaf system, and they had a lot of money, so they were more than willing to fork over lots of money for both the workstations and the software. That basically guided the company to focus on the technical documentation market.

Walden: There also were big companies that need documentation.

Bohn: Yes, exactly; so basically Interleaf moved from sort of an office automation orientation to much more of an industrial one.

Walden: As I understand it, the very earliest Interleaf systems had some Interleaf hardware in them like an Interleaf scanner of some sort.

Bohn: Yes.

Walden: I think that Jon Barrett developed some kind of a raster image processor which was licensed out. Can you say something about the idea of building their own hardware in addition to the software?

Bohn: So, the original Interleaf business model was to build their own workstations. And what Dave and Harry realized very early on—it was a very smart decision—was that they were not going to be able to compete in the dedicated workstation market and that Sun Microsystems was coming out with the Sun-1, which was the original workstation, and that could be a platform for the software that would make it much more economically advantaged. But one of the core investments that they made in terms of the technology was in raster image processor [RIP], the thing that put together a page on the screen around a printed page; and one of the things that they saw would be an opportunity would be to actually build a printer, a laser printer, that used that RIP and could produce documents at very high performance. We actually did a deal with Dataproducts. Dataproducts was a big printer manufacturer. They were a laser printer company, and so they licensed the Interleaf RIP to embed in that printer. For the first handful of years most of the Interleaf customers bought a custom printer from Interleaf that had the Dataproducts printer along with the raster image processor.

Walden: Do you know how the founders got connected up with Bob Morris?

Bohn: Morris was teaching at UMass. He was a pretty well-known professor of computer science. He was also a developer, a pretty good developer, so he came. I do not know how he was recruited into the company. He was in the company when I came.

Walden: Regarding the founders, what do you see as their strengths and the different roles each played over the years?

Bohn: Dave Boucher was sort of a visionary, and I think he had a great vision for the company and the technology and what it could become. He was not, I would say, a great hands-on manager. He was much more of a product visionary. Harry [George] was a very good fundraiser, and we needed to raise a lot of capital to fund the company, and he was very good at that, and he became the CFO in the company. The other person who was very notable early on was George Potter, who was in charge of sales. They recruited George from Wang, where he sold word processing equipment, and he was a very sort of aggressive, boisterous sales exec and did a great job landing the first handful of accounts and OEM deals, etc. One of the things that is sort of notable about the company is Interleaf developed a somewhat problematic relationship with workstation vendors early on because the product was really impressive. It was a great product, and all the workstation vendors wanted to have it on their system, and so the company would work with these workstation vendors to have them pay a lot of money to port the software to these different workstations. The problem was that it created a huge amount of channel conflict because all these companies were selling to the same end-user customers, so someone like Boeing would have five different vendors trying to sell it Interleaf software. The most notable of these was Kodak. The first big OEM deal that George did was with Kodak, and Kodak literally bought a full perpetual license to the software to run on their workstations, and that did bring a big revenue stream into Interleaf, but it meant that when Interleaf was starting to sell its own product directly it competed with Kodak everywhere, and so it was a really difficult situation.

Walden: Was that product stream different than the investment that Kodak made in the company?

Bohn: No, it was part of that. They made an investment in the company, and they did a commercial deal in which they had license to sell the Interleaf software on Sun workstations with their own printers, etc.

Walden: Were you at the company at the time of the IPO?

Bohn: I was there. They had two IPOs.

Walden: I have heard that the first IPO was rescinded.

Bohn: Yes. When I came to the company, part of the reason I came was they needed some management. I had some management experience, and this was at a time when the company had just been awarded a huge government contract; the contract was out of the Army, and it was called 600-S, and this was a huge multimillion dollar contract that really made the company and allowed for the company to plan for an IPO. The government contract was to automate the way the Army did technical manuals, so you could see this as multiyear, millions of dollars. The system integrator was EDS [Electronic Data Systems]; EDS won this award to automate the way in which the Army did technical manuals. We were a subcontractor, but we were going to get rich off it; so, as we won that contract, we filed to go public. What happened is that there was an impropriety in the way in which EDS met with or solicited some of the Army officials. They basically met in violation to what they were supposed to do. The whole contract was rescinded, and it was rescinded on the day the company went public, so that is why the whole IPO had to be rescinded because the basis of the IPO was gone. This caused a huge storm in the company. There had only been one IPO that had been rescinded before that; but to the company's credit, it readjusted its numbers, and it had a strong business and was able to go public for a few dollars less a share a few weeks later—I think it was not even a month later. Ultimately the company did go public, but it did not have that backstop of the big contract.

Walden: You said that it caused turmoil in the company. Was that at all levels? Were the employees were looking forward to this?

Bohn: Yes, because it was a big event, a big celebratory event, so when ultimately it was rescinded it was like, "What happened? What do we do now?"

Walden: Was there despair or did everybody know that it was going to be taken care of?

Bohn: There was definitely despair, but I would say the company handled it pretty well and was able to go public despite the loss of that contract.

Walden: Did the IPO hiccup matter much to the financial markets or to the customers?

Bohn: I do not think it mattered much to the customers. The company was valued less than it would otherwise, but the company was able to go public because the company had a strong business. It really did.

Walden: Once the IPO was successful, did the company change?

Bohn: Well, the company grew quickly, and the company was under pressure to make numbers. The company I would say was generally successful in the public markets although there were times in which the company did miss its numbers. As the company grew it became clear that Dave did not want to be the CEO of a public company. Probably the biggest thing that happened in the company after it went public was that we recruited in a terrific guy named Dave Collard to be the CFO; Dave had been the CFO at Prime Computer, and when he came into the company he looked at the cost structure of the company. You have to understand, Interleaf through the time it went public was a systems company. It would sell software and hardware together with printers, and they did that because there were few ways you could distribute workstations because you could not buy them in a computer store. The only place you could get them was directly from the manufacturers, and the manufacturers were focused on selling them through OEMs like MentorSystems and Cadence, and Interleaf was an OEM. We basically bought the computers, loaded them with software, and shipped them to customers. During that period after we went public, the distribution model changed a lot, so people were able to buy hardware directly from the manufacturers rather than through OEMs, so it meant that it was very hard for a company like Interleaf to charge the premium for a system, so when Dave Collard came in he looked at the cost structure of the company and realized that the company should be restructured: it should get out of the systems business and just sell software. What is interesting is the company's revenues, which were growing very fast, continued to grow but not as fast as before, but the margins for the company increased dramatically, so overall it was a very positive thing, but it was a big shakeup in the whole company because we ended up laying off a lot of people in manufacturing, etc.; we had built a big manufacturing facility.

Walden: Before this shift, there already were lots of direct sales offices around the country and in certain parts of the rest of the world. Were they selling to OEMs or were they selling directly to users?

Bohn: They were selling directly to users.

Walden: You had these OEM channels, and also you had all this direct sales force.

Bohn: Yes, there was a lot of conflict, and part of it was that when you are in the systems business you are selling a two or three hundred thousand dollar system to a defense contractor in Los Angeles, and you have to support that system as an OEM, so you have to have hardware technicians, and it is a very expensive operation. In the early days you had to do it, but as there was more distribution of the hardware directly from the manufacturers it became uneconomical, so there was a big changeover. Interleaf was one of many companies in this transition. All the ECAD players went through the same thing, and so ultimately the restructuring of the company was a huge shakeup to the organization, the business model, etc., but the company actually came out the other side in a much better way.

Walden: In 1990 when this transition was sort of happening the company lost sixteen million dollars. Was the problem only that revenues and expenses were not well matched, or was there also a big restructuring charge?

Bohn: I think it was probably the restructuring charge then.

Walden: What other roles did you play in the company? You started, you said, as Director of Product Planning.

Bohn: I became Vice President of Product Management and Planning. I became VP of Marketing at one time. I sort of managed a lot of the peripheral parts of the development group, the groups that did the porting and other things. I was one of the senior execs that sort of managed a lot of parts of the business. At a certain point in the company's history, Dave Boucher brought in Bob Weiler [who replaced Boucher as president and CEO in 1990], who was an exec from Lotus, and it was at a time when we were trying to concentrate on certain markets. So, I led an effort to focus on the aircraft industry to develop the product more in line with new requirements that were coming out of that. That was pretty successful.

Walden: People I have told that I was going to interview you have said, "He's a great guy."

Bohn: Well, that's nice of them.

Walden: Can you tell me something about your theory of managing people and technology and so on?

Bohn: In my career, I always worked with very, very smart engineers, and I think I learned that there are ways in which you can work with engineers and there are ways you cannot work with engineers. It is very hard to tell engineers what to do. You have to sort of work with them around common goals, and at the end of the day you learn a lot of management skills around how do you organize people to get the work done as a company and at the same time get the work done of their interests, and so I would say I came into Interleaf as one of the first outside managers. And I think I was successful because I had good interpersonal skills, I could communicate and really understand both the side of the engineers and the side of the salespeople. I was right in the middle, right? And in the tech business it is not like a factory. In these companies, the brains run in and out every day, so a very important part of managing a technology organization is try to find alignment across the different organizations, especially in the technical roles. The way in which you manage technical teams is quite different than the way you manage sales teams. Those teams are very coin operated based on incentives of making money. Technical teams are in some ways very based on meritocracy and the ability to execute, create creatively, and usually there is a lead developer that can inspire and shame developers into doing great work, and Pelletier, who was the VP of Engineering, was brilliant at that. He was very good at managing people to both their own interests and to the company's business.

Walden: I have been making kind of an approximate list of Interleaf's product offerings over time. Can you say something about Interleaf's product strategy?

Bohn: One of the things about Interleaf's product strategy is that you pay a penalty for being first to market, and the penalty that Interleaf paid was that it literally needed to

invent itself all the components of the system. You know today, with open source software, you assemble stuff. Everything's already been built. You just reuse it. In contrast, one of the first groups I had to manage was literally the font group. I had a group of graphic artists who were developing typefaces for the product. Now, the amazing thing was that, fast forwarding three or four years, you could go to the computer store and buy fonts for, you know, $30, right? There was a massive change in the availability of underlying technology to support document processing. But Interleaf had to develop its own proprietary user interface, proprietary font system, and proprietary window system. As it was developing functionality for just core document processing, it was also in the process of having, at different times, to unbundle the things that they had built previously to use more standard fonts, windows systems, and user interfaces. And the interesting thing was that the classic point was when we did the ports of the Macintosh. Steve Jobs was really excited about Interleaf porting its software to the Mac because we were the leader in this high-end desktop publishing—he really wanted to own that. But when we ported our software to the Mac, the first version had our own user interface. They went nuts because everything else on the Mac was the seamless experience and everything looked the same and here was this different Interleaf user interface. So, we were under wicked pressure to reengineer our product to work within the framework of the Mac user interface, which took a long time.

Walden: Back to the fonts for a second, you said you had developed your own font. Do you happen to remember what font technology you used?

Bohn: What we did was we literally had artists who would do pixel placing. They would literally draw fonts on the screen. It was our own proprietary technology. They were raster fonts. Ultimately, we did go to Bitstream; we licensed technology from Bitstream.

Walden: Can you say something about the competition over this time?

Bohn: Here is what I would say that happened in the market. When Interleaf first came to market and had a certain belief that it was in the office automation market, it realized that it could not compete in that because of our system requirements. So, the word processing market went to Microsoft and Microsoft Word, and in some ways, people will say that Word was a poor man's imitation of Interleaf. Our system did handle a bit more structure. It ran on a PC and, at one point, we did port our software to an IBM PC. We did a big deal with IBM. I think it was an early version of IBM's PC, but the problem was that the PC required—it required so much memory that it was just out the league of most companies so . . .

Walden: Was this the IBM RT or something else?

Bohn: No, the RT was a UNIX workstation. We also attempted a port to OS2? The first IBM product ran on DOS with an extender—a memory extender. There is a company—I think it was from Phar Lap. They had a memory extender so we were able to run under Microsoft's DOS with a huge extender for memory, but it was sort of kludgy because it required so much extra memory that no one could afford it.

Walden: In the second *Annals* special issue on desktop publishing, there was an article by one of the Frame founders, and he says, "We directly targeted . . .

Bohn: Interleaf. Yeah.

Walden: . . . Interleaf."

Bohn: Totally.

Walden: The Frame founder said, **"**Interleaf was the market leader and we went after them."

Bohn: One of my partners here, David Orfao ran sales at Frame. That is how I knew him. The founder of Frame was a brilliant British engineer, Charles Corfield. One of the things he realized was that by the time that Frame entered the market, there was enough of a substrate of window technology, font technology, etc., so you could build on top of that, and build an easier-to-use, lighter-weight product that you could sell indirectly and compete very effectively with Interleaf. So, what happened is when Frame came after Interleaf, it came after the segment, which I would call the sort of secondary segment—the occasional user. It was not the dedicated publishing group. It was much more the engineers who are doing ECAD, who needed to do specs,

etc. So they did a lot of OEM deals with all these CAD vendors, and in some ways it really ate away at the bottom end of the Interleaf market. So that forced Interleaf to focus much more on what I would call the long complex document market, which was much more the Mil-Spec—hundreds of thousands of page documents, etc. They did good job. They targeted us. They undercut us on price.

Walden: But ultimately Moore's law made the small hardware more powerful so somebody could take that business away, too. Yes?

Bohn: Yeah. The high-end of the market Interleaf tended to own because it became a sort of a very specialized market because of the features and functions and it was defensible, but Frame did a very good job taking away a bunch of the commodity level market.

Walden: When we were talking a little while ago about distribution and direct sales versus OEM, was that the same internationally, as well? There was both direct sales and OEMs.

Bohn: There was. And early on, you know, we expanded a lot to Europe. We did a deal with Japan. We expanded internationally very quickly. Probably, it was a mistake, and we set up offices and the offices were expensive and the personnel were expensive. So we invested a lot. You have to understand, the early—in the system's business—setting up all these offices, etc.—you had to hire field service people. It was a nightmare.

Walden: Did the customers pay separately for field service and maintenance and all of that or was that somehow bundled with the price of the product?

Bohn: No. Basically you would buy the product and then there would be a maintenance plan.

Walden: And was that a useful, stable revenue stream?

Bohn: It was. Everyone bought it, but I would say it was not sustainable as a business model long-term.

Walden: What do you see the key mistakes Interleaf made that caused it to have problems? I think you sort of said that they were early and innovative, and the world changed out from under them too quickly.

Bohn: I think the key thing was the company did not anticipate how quickly standardization would come into the market and this was standardization on things, like, you know, page description. Adobe came in and changed the world in terms of, you know, PDF, etc. Motif and Xwindows, which was a workstation windows system, came in and took over. You know, fonts came in. So the company was too tied to its own technology, which in many ways was superior. This was true of, you know, if you follow the history of Apollo computers, it is very similar. They built the wrong windows system. They built their own ... And some of this people claim was sort of an East Coast liability—that companies on the East Coast would be very good a building fundamental technologies but hang on to them too long as standardization came into the market, and Interleaf was not quick enough to abandon what it had built and move on to standardization.

Walden: But, of course, you had this big legacy installed base that presumably, wanted to be supported.

Bohn: Yeah. So that was part of it but I would say the company was just not agile enough to make those transitions quickly enough to meet the market.

Walden: Did Interleaf have a user organization or more than one of them?

Bohn: Interleaf had a really big user group—a very passionate user-group. Yeah. A lot of users were, say, these sort of young women who sat in front of terminals and did document processing. They loved the product. They just loved it. There was very, very high satisfaction with the product, especially in the early days. And there was an international user group ...

Walden: And the company supported that?

Bohn: Very much so. You know, it is one of the things I tried to do is to really be close to customers and see where customers were going. The Interleaf user group was both a real asset and a demanding part of the company. They were demanding to the company about new features and future developments.

Walden: What you say about "demanding to the company," being in this very high-end business, or quite high-end business with companies doing different kinds of things, I assume that each company was asking for modifications to address its detailed needs.

Bohn: Well, let me give you a couple of examples because, in some ways, I learned very interesting lessons in the tech business when I was at Interleaf. As Interleaf emerged into more demanding markets, like, the Mil-Spec technical manual market or the pharmaceutical market, these markets had very specialized requirements.

So, for example, in the Mil-Spec technical market, there was a security clearance requirement so that if you had a certain level of security discussion on a page, you had to indicate it up in the top, right part of the page. Every page was earmarked with what level of security. So, this was a super-important feature for people who are doing these documents because you have got thousands of pages and trying to keep track of where the security clearance is. I remember working with the development organization, pushing them to solve this problem of Mil-Spec technical manuals and to make it so that people who were documenting these pages did not have to worry about how the documents would get published with this upper right-hand security mark. It took forever. I fought with the development group to do it. They finally did it, and it was, like, a knife through butter in the market. As soon as we had that, people ran to us. It solved such a big pain point, but it was a very specific vertical market feature for the Mil-Spec market.

Similarly, in the pharmaceutical market, they had a requirement, which was called the "big page number," which means that when you do an NDA, a New Drug Application, you are putting together hundreds of documents into literally a million pages, and what happens is you have to, at some point, repage the entire collection with a big page number on every page. Again, this was one of these things that you see when you are building out this big published set. To do that was sort of complicated and hard because it meant that you are taking collections that had been paginated. You have to repaginate it. Finally, we did it, and again, the same thing happened. It meant that it was so easy to sell to pharmaceutical companies because we had the big page number problem solved.

Walden: And is this an example, as well as, of the fact that sometimes you have to cajole the engineers?

Bohn: Yes. They hated it. They hated the idea of doing it.

Walden: Do you have any insight about the effectiveness of the board over the years of Interleaf—from founding to acquisition?

Bohn: I feel Mike Hammer was helpful. Mike was a great guy and he sort of was an enthusiast on the board. The others, the investors, were from Advent. Advent was the biggest institutional investor, and there is a guy named Clint [Harris], who later ran another fund. I think he was helpful. But George Potter was on the Board and Harry and Dave. There were no real industry outsiders on the Board, which I think was a limitation. I would say, I think the Board it did its job, but I do not think it was super influential.

Walden: There was a succession of CEOs. Bouchet, Weiler, Rupert, Koepfler ... there was Rory Cowan on an interim basis before Ellertson came.

Bohn: So Ellertson was a workout guy and he was famous for doing these workouts.

Walden: Workout means what?

Bohn: He will take over a company that is sort of in distress. He knows how to rework it in the public markets. He is a money-maker.

Walden: So getting the big price for acquisition ...

Bohn: He did that. Yeah. He did a very good job. The other people I would say ... Weiler was a pretty interesting guy. He was energetic. He dealt with some of the issues. He was only there for a year. Rupert was his sales leader, and he was very much a sales guy, and in many ways, he became CEO and he alienated many parts of the company.

Walden: Then there was Koepfler.

Bohn: I do not know what his background was. I think I left when he came.

Walden: Many people, primarily engineering kind of people that I have been talking to because that is my connection, have said that Interleaf was the best place they ever worked.

Bohn: It was a great place.

Walden: And my question is, what is your perception of the culture?

Bohn: It was a very product-driven company. Very innovative company. It allowed engineers to take on projects on their own and to develop ideas. The benefit of that was that out of this

sort of, you know, petri dish, there was a lot of really interesting technology that was developed. The downside was, if you look at the company, it is engineering expense was off the charts. It spent way too much on engineering and when you look at a standard public company; but it was a very high performance development team that challenged each other. It was very much a meritocracy, and I think Steve [Pelletier] and others led it that way, and if you were not up to the task, you were gone. In some ways, it was very demanding place but it was a very energetic place.

Walden: Was there a collaboration or friction among the functional organizations?

Bohn: I would say there was both, but there was some good friction. You know, the sales people wanting certain things. The developers not wanting to do them. There was that classic tension. I was often in the middle of that.

Walden: Mark [Dionne] mentioned that early on, the software engineers did the product design. Do you have an opinion of how things went once product managers came on the scene?

Bohn: I think it was in the classic case as the product developed. It was hard for engineers to be close enough to customers to really know what to build. Product managers came in. It was also at a time when the market had changed so more standardization was coming in. So, there was definite tension between the product managers who said for instance, "We need to support this PostScript printer because everyone's supporting it," and the developers saying, "Well, we have this RIP printer; it is five times as fast."

Walden: You mentioned, for instance, the benefit of building a small thing—maybe hard—but small that the customer really needs such as in the security area and the big page number area as something you learned at Interleaf. Were there other lessons from Interleaf that helped you in your later business?

Bohn: One of the things I learned, is that you have to be very careful about too much pride in authorship. In other words, you know, you develop a product and you put your heart and soul into it, but you have to understand, the markets evolve very quickly, and if you cannot adapt to market changes, you are going to die. Some of what I learned is that. You know, I keep relearning this—that what works today is likely not to work in a few years, and you have to really anticipate change and embrace it. So that is one lesson I learned, and the other one I learned is that you really have to stay close to customers. At this level. at the application level, you can invent things and you can be ahead of customers but at a certain point, you have to satisfy their needs, and usually, an early technology solves a small, but important problem, but overtime, you have to solve more of the problem. You have to be close enough to customers to both anticipate what they are looking for and to be able to develop it in time.

Walden: How did you come to leave Interleaf?

Bohn: What happened is I had been there about seven going on eight years. I had done a lot. I had been with the company from the early days. The company had changed a lot. It was becoming slower growth. Weiler left, a new CEO came in, and it was clear that I had done about everything I could there. And by that time, I felt like I had developed enough confidence and I said I want to run my own company, and I got recruited by a company in the document management market called PC Docs, and this was in the network document management market. One of the things that happened, if you look at the history of publishing, is that the first generation was all around creation systems—tools to create documents; and then the next generation was around managing them. So, there were companies like Documentum and PC Docs, and we [at Interleaf] had a product called RDM [Relational Document Management]. So RDM was a document management product but it was a pretty clunky product, and we competed against a company called Documentum, which was a West Coast start-up that did very, very well. PC Docs was sort of in the volume end of the document management market around the emergence of PC networks. I wanted to get into running a company, the software business, application level in the volume business, and so this was a really good fit, and so I was recruited to be president of the company. I think I started out as the executive vice president. I became president of the company and ran the company. It was

actually a division of a Canadian holding company that was in several different products in the legal software business, and one of our biggest markets at PC Docs was the legal business. I ran that for a few years. We took the company public. It was a very successful company, and then toward the end, we had some acquisition offers that made a lot of sense and I wanted to do it and the chairman did not, and we decided to part ways.

Walden: After you left Interleaf, did you keep following what was happening up through the acquisition by Broadvision?

Bohn: Pretty much. Yeah, not super-closely. But the company, I think, went into sort of a moribund state because it was, you know, flat growth, the public market. What happened is that Interleaf, in some ways, anticipated but missed the Internet boom. I remember looking at Mosaic at Interleaf when Mosaic, the browser, first came out, and I think there were a lot of opportunities for Interleaf to participate in sort of an early Internet applications, but for a lot of reasons—people had left—the company had lost a lot of innovation. It did not really innovate through the first internet wave of technology. So what happened is Broadvision, which was in the website development business, was a big company. It grew and at a certain point, it too had run out of gas, but it could buy. One of the things that Interleaf had was all these customers, and all these customers needed websites, as well as documents, and so it bought Interleaf and it paid a good price.

Walden: $840 million.

Bohn: $800 million, yeah, which is a good price, which sort of saved the company. It actually saved the company because I think Interleaf would have just declined after that. It was a very good outcome for the shareholders.

Walden: When you meet people and they learn you were at Interleaf, do they know about it?

Bohn: Today very few people remember Interleaf. But people who worked in Boston at that time and anyone who was at Interleaf, really remembers it fondly because it was one of the really two software companies in the Boston area that was very notable. It was Lotus. It was Interleaf. Really, those two. The ex-Interleaf list called "Interleft" was an active mailing list for 20-something years.

Walden: Was Interleaf already at Canal Park in Cambridge when you joined the company or it is still on Mass Avenue?

Bohn: I joined on Mass Ave. and made the move to Canal Park. (I invested in HubSpot, and HubSpot is in Canal Park now.)

Walden: Let us talk about after Interleaf, I read again your website about you like building companies and you have had some successes. You mentioned one of them that you went to after Interleaf.

Bohn: PC Docs.

Walden: What else happened?

Bohn: So then, I was at PC Docs for a few years, took it public. We ended up selling the company. I left. I took some time off and then I took over a company called Net Genesis. Net Genesis was an MIT company—very early company. I took over CEO in I think 1998, and took the company public in 2000, and it was one of the first web analytics companies. It would analyze logs and tell you what visitors were doing on websites—like Omniture and companies like that. I was a very early pioneer in the web analytics market. It was a good company. Young founders out of MIT. You know, the "go-go" days of the Internet. It was super fun and exhausting.

Walden: You mentioned that the company you went to immediately after Interleaf was in kind of the document business. Were any of the others in the document world?

Bohn: No. I went from Interleaf to PC Docs to NetGenesis to here.

Walden: Can you tell me what you do in the rest of your life, besides work for General Catalyst—hobbies and so on?

Bohn: I am an avid biker. I am a 21-year rider in the Pan Mass Challenge and I play a little golf. I read, I travel, have two kids who are grown up now, which is great.

Walden: Is there anything else that you would love to speak about that I have not asked?

Bohn: Not really. I think this is a pretty good history. When I look back at Interleaf, I remember a company with brilliant promise. An example is, Interleaf and Adobe sort of got started about the same time, and it is a great example of West Coast/East Coast and focus. Adobe, you know, was a very focused company, built, you know, the page description language. Used that

as an OEM—OEM printers—then build on that. Today, it is one of the biggest software companies in the world. It built a market around its technology and expanded it very, very effectively. Interleaf came out with a product that was brilliant—everyone will say it is brilliant—but it was very proprietary, and the proprietary nature of the product prevented it from becoming as wide-spread and adaptable as it would need to build a huge company. It is so true of companies in some ways on the East Coast. You look at DEC and you look at Apollo and people have long commented on this is—that the East Coast mentality was very much systems oriented, proprietary technology, very advanced technology. The West Coast was very components oriented, standards oriented. At the end of the day, the West Coast model became more adaptable and sustainable. And so, while Interleaf had really good success, especially early on, it did not endure. It did not endure and there is some sadness about it, but it was a great company. I loved working for it and had I not worked at Interleaf, I could never have had the career I have had as a CEO or Venture Capitalist.

Walden: Years ago I heard someone say, "The VC world in California is just much more willing to take risks and so on than the VC world in New England."

Bohn: I think that there is some truth to that. Absolutely, but, you know, VCs do not make companies. Entrepreneurs do, and I would say if you look at what happened, you know, there's a famous book by a woman who was a professor at Berkeley. It is about comparative advantage [Annalee Saxsenian, *Regional Advantage: Culture and Competition in Silicon Valley and Route 128*], and it talks about the history of the technology business on the East Coast and the West Coast, and if you look back to the 1970s and 1980s, both coasts were very much the same. They were very defense oriented. The culture our of Stanford, the culture out of MIT. The change was that the semiconductor business developed very much out of the West Coast and it was a components business, and the East Coast developed into a systems business. You know, like, DEC, right, was building its own computers, its own chips, etcetera, and that orientation towards integrated systems versus assemblable components showed up in a lot of different ways. So it showed up in Interleaf. In other words, you know, Interleaf was building all of its own pieces, and the trouble was that at a later stage of life, it ended up having to unbundle itself to reinvent itself and that was a big cost; whereas, Frame and others were able to take advantage of these technologies. It is not so much the VC; it was sort of the orientation, and I think there is still some of it. It led into why the West Coast built great Internet companies.

Walden: This has been fascinating. Before I knew only a little about Interleaf—the company eventually was in a building I would drive by on Route 128, in Waltham, with "Interleaf" on the side of the building; also, I believe we had an Interleaf system at BBN.

Bohn: You did.

Walden: Okay. Thank you very much for taking the time to do this interview.