Oral History of Ed Fries

Interviewed by **Michael J. Halvorson** for the Microsoft Alumni Network

August 22,, 2023

Preface

The following oral history is the result of a recorded interview with Ed Fries as conducted by Michael J. Halvorson on August 22, 2023, at Microsoft Studios in Redmond, Washington. This interview is part of the Microsoft Alumni Network's Microsoft Alumni Voices initiative. The goal of this project is to record the institutional history of Microsoft through the recollections of its former employees, so that the information may inform and inspire future generations.

Readers are asked to bear in mind that they are reading a transcript of the spoken word captured through video rather than written prose. The content reflects the recollections of the interviewee. The following transcript was edited by the Microsoft Alumni Network, which holds the copyright to this work.

Interview

Michael Halvorson: Hi, my name is Mike Halvorson, and I'm excited to interview Ed Fries today. It's August 16, 2023, and we're going to talk today in this interview primarily about Ed's work in the Applications group on Excel and Word. So, thanks for being here today, Ed.

Ed Fries: Yeah, thanks for having me.

Michael Halvorson: Great. Can you tell us a little bit about where you were born, what year that was, and where you grew up?

Ed Fries: Sure. I was born in 1964 in Seattle. I have a twin sister, so we came at the same time. From the time that I remember, we were living in Bellevue, kind of in the Robinswood area.

Michael Halvorson: You went to school in Bellevue and eventually went away to college. Is that right?

Ed Fries: Yeah. So, I went to Sammamish High School, and basically fell in love with computers. Do you want me to talk a little about my parents?

Michael Halvorson: Sure, we'd love to hear about them.

Ed Fries: Okay, sure. So, both my parents were engineers. They met at Bucknell University, engineering school, dad, studying electrical engineering. My mom studying chemical engineering, and they both ended up moving out here to work for Boeing. And worked for Boeing for several years before they had us kids. My mom left her job to raise us and then when we were in about- I was in sixth grade, I think, when she went back to college, went to UW [University of Washington] and got a master's in computer science. Some of my early computer memories are going with her to watch her submit her batch jobs on punch cards on these old computers, University of Washington, that kind of thing. And then my dad being an electrical engineer, we had a big workshop in the house. I mean, it was his workshop, but he was very open to

us playing in there as kids and so I grew up kind of soldering things together and learning how these different components work.

Ed Fries: He had everything in the neat little jars of resistors and capacitors and all this stuff. We all kind of learned a little about how electronics work, and yeah, and once I was a little older, my dad would bring back kind of programmable calculators from his job at Boeing, which were rare and valuable things at that time. I remember playing *Lunar Lander* on a calculator and this HP-90 or HP-95 or something that had magnetic strips you could put through it and you could put programs on through that. So, there was *Lunar Lander*, which was pretty cool, because that was when the moon landings were actually happening. So, I remember that being a big deal to watch on the little black or white TV, first landing on the moon.

Michael Halvorson: Now when did you actually get to use a computer? What were the first computers that you played around with?

Ed Fries: Yeah, so I consider these little programmable calculators as computers and they were certainly some of the first. My mom would bring home sometimes a printing terminal, which is like a computer without a display. It's just a keyboard and a printer and you're talking to some computer over the phone. And so, I got to play games on that and that was very fun. Like I said, I remember going with my mom when she was working on her master's but I don't remember actually getting to do much on the UW computers. That was a time where there was time-

share, right? It cost money every minute you were on the computer.

Michael Halvorson: That's a real privilege to use those timeshare machines, right? They weren't accessible to everyone, especially if you had the ability to play some of those games. Now what were the games like if you didn't have a display and you just had the teleprinter to print out stuff?

Ed Fries: Yeah, I mean, there were some games that were lightly graphical in the sense that they would print out a little bit of like a screen over and over again. So, there was like a *Star Trek* game that would print out a little radar image of the galaxy and where the enemies were, that kind of thing. A game called *Daleks* I might talk a little about later. Which is where you're just trying to get away from some robots. The best thing for sure was the text adventure games. The original *Colossal Cave Adventure,* and then what became known as *Zork*. Those two were the kind of text-based adventures back then. And that was amazing to be able to explore this world and collect items and that was just super fun.

Michael Halvorson: It's also a kind of a shared experience, right? Because if you met someone else who was interested in that world, similar to watching a television show like *Gilligan's Island* or something, you would immediately have something in common with them. You could talk to them about *Colossal Cave Adventure*.

Ed Fries: Yeah, plus, it was all printed, right? You had the whole log of your adventure. So, that was nice, too. But at some point, we got a couple of things. My dad brought home a kit for a 6800-based microprocessor and we built that and had a little hex keypad. Basically, programmers like to talk in base-16, hexadecimal, and so as the numbers from zero through nine and then the letters A through F and so we put that together and I could write little programs on that in assembly language or in machine language because I didn't have an assembler. I also had a cardboard computer called *The Cardiac,* which was a cool thing made by Bell Labs, and it's literally a computer made out of cardboard. And it's easy for you to look up online, but you basically do everything by sliding little levers and moving a little program-counter around. I'm kind of weird in that I sort of started with machine language and then learned higher-level languages later. But the next thing would be getting an Atari 800 personal computer when I was in high school.

Michael Halvorson: And did you type in some computer games then or some BASIC programs or things like that?

Ed Fries: Yeah, that was the thing. By then I was going to Sammamish High School. This would be 1979. I had Apple II computers, original Apple II's. And so, I was with a group of people who spent our free time in the new computer lab, playing on those machines both writing programs in BASIC and in playing games when the teachers weren't watching. There were rules against playing games, but we still did it as much as we could. I thought I wanted an Apple II. But for Christmas, I found an Atari 800 under the Christmas tree. And it turned out that it was a much more interesting machine. It has a lot better

graphic capabilities. And so, I really fell in love with that machine. And I really wasn't sure what I wanted to do when I grew up until I got that machine and then it became clear to me that this was what I really enjoyed doing.

Michael Halvorson: Did you type in any programs [from books or magazines]? I was just thinking of David Ahl's [*Basic Computer Games*] or *Creative Computing* magazine? Let's talk about that [coding] culture because a lot of people don't remember that at all.

Ed Fries: Yes, I can remember a few magazines that I would get. One is called *Creative Computing*. Another one was *Byte* magazine. And then there was a magazine specific to the Atari called *Antic*. And so, I definitely would get those anytime I could and I would type in the games from them. There were different flavors of BASIC. So, for the ones [magazines] that were more generic, like *Creative Computing*, you had to kind of understand what was happening well enough to make it work on your machine. But also, the act of typing in a program, seeing how it was structured as you type it in, and then having to go back and fix it to debug it, I think was a really great learning method for the kind of people in my generation. Because it's just sort of forcing you to understand how a program works.

Ed Fries: And especially if you have to fix it because you made some mistake. I wrote a program to help me type in those programs. So, I had a thing where I could hit a single key for each of the BASIC keywords and then I just made it faster to retype them in. Plus, at first I only had a cassette tape to save

programs on and it was pretty often that I would think I had saved it properly and it would fail. And so that meant I was sometimes typing the programs in more than once.

Michael Halvorson: Yes, the [machine's] user interface would say, "Press Record and Play," [and other] quirky things. I remember that also. For example, [a computer] like the Commodore VIC-20 microcomputer had some of those keys like you're talking about, [where] you could press a key, and it would be LET, and you could press a key, and it would be PRINT, and so on.

Ed Fries: Exactly! My computer didn't have that. I had to write that.

Michael Halvorson: Yeah, you wrote it. That's amazing! One of the things that [gradually] happened is that... until the Internet became available, people would type in programs from books, right? Because even when discs became available, it was expensive to bundle a disc with a book, and sometimes discs would disappear [from] the public library or something. So, typing in [code] was something people did throughout the '80s.

Ed Fries: Yeah. And once you've typed in a few you start to understand how they work. And then I started to think about what other games I wanted to write. And I had a good group of friends. We played a lot of cards. I picked one of the easiest card games I can think of: Gin Rummy. And I wrote a Gin Rummy card game called *Compufoe*. And I would have my friends play against me on *Compufoe*. I made a robot battle game where you could basically write in its own assembly language, you

could program these little robots and then they would run around this battlefield and fight each other. And that was another thing I encouraged my friends to do, even though the programming was a little tough for them. But we would make little robots and send them out and they battle against each other. I probably had an unfair advantage, but it was fun.

Michael Halvorson: Were you getting a sense that the games were something that was sort of marketable? People were exchanging their games, you could read about games in the back of these magazines that people were selling. Did you get a sense that, "Oh, there's something kind of commercial here?"

Ed Fries: Yeah, there was a thing called the Atari program exchange. That was a thing where Atari encouraged people to send in programs and they would publish them. The first kind of bigger assembly language game that I wrote on the Atari was my version of the game *Spacewar!*

Ed Fries: *Spacewar!* is a classic game where you have two ships battle around a sun. So, I wrote this game in assembly, I sent it to the Atari program exchange, and they rejected it. And I remember being disappointed and I moved on and worked on another game, which was a *Frogger* clone, which I'll talk about in a minute. But I actually found that "rejection letter" in quotes the other day. A few months ago, I was looking through some old stuff, and I found it and it was like, "We really liked your game; there's just three things we don't like about it. If you would fix these things, then we'd be interested in publishing

it.” So, it's funny how my memory is so different from what the letter said. That's maybe something about growing up.

Ed Fries: So, then I went on and made a *Frogger* clone called *Froggy*. And for that one I didn't have any commercial intent. I was just constantly looking for things to program at that point. I knew I loved to program and it was a challenge. It was the early 80s so the arcades were really big. There was a local bowling alley, we would go down to, and I would see games there and then wonder if I could recreate them back on my machine at home. So, *Frogger* seemed like a pretty simple game- it’s just a frog trying to get across the road. And so that was the next thing that I wrote, and we can get into it… but that program kind of spread around from a bulletin board. There was no internet then, but there were these things called bulletin boards. And it made its way to [Campbell,] California, a company there called Romox was just starting up, and they needed games and they saw this and they contacted me. Then they tracked it back to me just with a name and I'm still not sure how they did that. There's no internet. I wasn't anybody anyone would know, I was just a high school kid. I mean, they could use the phonebook. But all it said in the program was “By Eddie Fries”, and they found me anyway.

Michael Halvorson: Can you give us a sense for what language you wrote this in then and how long it was? How did you go about making this game?

Ed Fries: Yeah, so the game was written purely in 6502 assembly language. And it was 4K, so 4000 bytes. There were 4K

cartridges for the Atari. How I went about making it: I had an Atari Assembler Editor cartridge [that they sold] and I wrote the assembly language [for the 8-bit system]. I don't know- There's a lot of programmers, especially these days, that are afraid of assembly language. At Microsoft, it was very common. Once I got to Microsoft, I found a lot of people who were good or better than me at it. But for a lot of people it's kind of a mythical language because it's so esoteric.

Michael Halvorson: Well, its ability to compact and fast code is the reason that you would do that, and it was super important in those environments.

Ed Fries: Yeah, well, to give you a sense, this machine had 48K of memory, which is not a lot by today's standards. [laughs] So, things in BASIC, they just couldn't run very fast. So, if you were trying to do something fast, like an arcade game, you really needed it to work in assembly.

Michael Halvorson: And I wondered if you had any manual for this processor? Did you have maybe a book, with some sort of tutorial in assembly language when you were starting to go? Sometimes people break out their legendary assembly language tutorials and show them to me.

Ed Fries: It's a great question. I had a BASIC manual on the Atari which didn't tell me a whole lot. These machines had very primitive operating systems back then, and you pretty much didn't use them at all if you were writing something in assembly. But

there were locations in memory where you could control the hardware. And so, it was more about putting values in certain places in memory to make the machine do things. The Atari had pretty fancy graphics and had this thing called a Display List, where you could have different graphics modes per line on a screen. And you could even have these interrupts that would run when the electron beam was drawing the screen and hit certain points on the screen. And so, a lot of that stuff was difficult. That was more difficult to do on the Apple II and was easier on the Atari.

Ed Fries: But it's still pretty technical. So, we didn't have the Internet. I remember when I was working on *Spacewar!*, I needed a square root routine. And I'm working in what's called fixed-point math. And this is to do the gravity for the sun. I went to the library and looked in the card catalog and found an article in a magazine about how there's a way to do square roots that's kind of like long division. And then that was translated into 60502 assembly. Anyway, the article was written by this guy named Steve Wozniak [the Apple co-founder], who is, of course, famous. It was tough, you know? There weren't the resources today, you couldn’t just look on Stack Overflow or something.

Michael Halvorson: Can you talk about how this interest and high level of skill was translated into going to university and studying? I think you studied computer science in school? So, tell us about how you decided to do that and where you went, what your program was like there, and what you got out of it?

Ed Fries: Yeah, so I was working for this game company on the side. They wanted to take *Froggy* and convert it into something where we wouldn't get sued. Which became a game called *Princess and Frog*. And I had applied to just two schools. I applied to the University of Washington, Computer Science [department] and I'd found a little school in the middle of southern New Mexico, called New Mexico Tech. I got accepted to both schools. I knew about the University of Washington. It was so close to where I grew up. It seemed like a lot of my high school was just going there. My twin sister [Karen Fries] was going there. My brother was already there. My mother had gone there. The computer science program was very good, but there were long lines for using the computers and big classes.

Ed Fries: The school in New Mexico actually had a lot of interesting hardware. They had a big DEC-20 mainframe, and they had a VAX-11/750 UNIX machine, and there was access for a relatively small number of computer science students. So, I decided it was an opportunity to go somewhere new and picked New Mexico Tech. So, I went to the middle of the desert for four years in New Mexico. It's in the town of Socorro is about 80 miles south of Albuquerque. It's a town of about 8,000 people with a 1,000-person college in the middle of it. So, when I [went] down there, at that point, I knew BASIC and Pascal, and I knew assembly language. I had probably done more programming than just about any entry-level person in computer science in my class or whatever. But I didn't know C. One of the first things they do there is teach you C, and C is a really important language. I think a lot of programmers sort of have a reverence for it. I don't know how to explain it. It's a certain sort of, almost religious sort of feeling programmers have about certain things, and C is the

language that evokes those kinds of feelings. But anyway, so I was learning C, working on my project on the side doing computer science. Yeah. Tell me where you want to go from there!

Michael Halvorson: Well, I am aware of some people that were really relatively self-taught as programmers then go to study it academically and find it to be sometimes really exciting and sometimes unusual. You know, often they will put you into a mainframe type of environment where you're learning about those types of things and it's not really related to what you did. You would have had to study math, calculus, linear algebra, and things like that. I just wondered if that was kind of a rocket booster for you or if that was, you know, not particularly satisfying?

Ed Fries: No, to me I remember it as being quite interesting. I remember the computer science classes being relatively easy, and finding ways to try to go beyond the curriculum and do harder things. But I was also constantly learning a lot of important things. I mean, one problem with being self-taught is that you're self-taught [laughs]. So, you don't have any idea what you don't know. And it turns out there was a lot of computer science I didn't know. Certainly algorithms. How to do things well, there are different kinds of sorts and they have different performance levels. How operating systems work, how compilers work, all of those were great classes that I took.

Ed Fries: They taught people assembly language, which I knew pretty well, but I didn't know, mainframe assembly. So, I got to learn some new assembly languages. And I would always try to find

a way to make it more interesting. Like I had written a chess program on my Atari and so I ported that to the DEC mainframe. And that was fun. People thought I was crazy when I said I was going to do a chess program but I knew I could do it. I got a lot out of it. I thought the teachers were, in general, very good. Very tough math there at that school, and very tough physics. One of my teachers worked on the Manhattan Project. He was a physicist on the Manhattan Project, and he's up there, scrawling these equations and you're trying to have enough math to keep up with that. So, it was not an easy school.

Ed Fries: A lot of people flunked out of the school, and would go to one of the easier schools in New Mexico. I remember when I showed up, talking to some people there. [I would say] I was going to graduate in four years which is the regular program, and they're like “nobody graduates in four years.” But I was able to and it wasn't true that nobody did it, but it was a tough school with a tough reputation.

Michael Halvorson: Well, computer science in the 1980s was taking off. But even then, most of the jobs in the industry were held by people who hadn't studied formally, right?

Ed Fries: Absolutely.

Michael Halvorson: There were so many who had learned in other ways, and it was an interesting discipline that you were kind of in there on the ground floor. Ed, can we talk about life after college and how eventually you got to Microsoft. Do you have some stories related to that?

Ed Fries: Sure. I worked for that game company for the first two years that I was there at college. And did three games. Then basically what happened in 1984 is kind of a famous thing in the game business. The whole game industry melted down and a lot of the game companies including the one I worked for, went out of business. That would be another thing maybe we could talk about during the game section, but so I had to get a real job. They had a new thing in the computer center called a laser printer and I had been playing around with that just because I'm always interested in new stuff and kind of showed them some of the stuff I was doing on that. Through that, and I guess what people knew about me at the school, I got hired to be a system administrator running the VAX-11/750. So, there were a couple of us that did that. And that was a good job. But then, you know, for summers I needed to get a job to pay for college.

So, the first summer I sent out a bunch of resumes to all the Seattle area companies that I could think of, and I got an interview and a job at a little company called StarCom. They were in a brick building right next to what became the Microsoft campus, actually. So, I worked for them between the summer of my sophomore and junior year. So, that would have been in the summer of '84. And it was a tiny company that was working on basically a kind of database software. They had a product called Files and Folders. And it was really

small. The secretary was the CEO's wife, there was a sales guy, there was a programmer, and me. When I came in, the programmer moved his computer to one end of the table so I could have mine on the other end of the table and worked on a bunch of stuff on Files and Folders over the summer. It was a good job.

But when I had gone around and interviewed that summer at different companies, several times people were like, "Well are you applying to Microsoft?" And I hadn't even thought of Microsoft. Microsoft wasn't well known then. I knew that they made DOS and there was this mouse [product] but there wasn't much to do with this mouse- Anyway, it was in my head, so the next summer, in '85, the StarCom people really wanted me back to continue to work with them, but I also sent a resume to Microsoft and they responded and offered to fly me up during my spring break to interview. And we can talk about that. But that was the start of me going to work at Microsoft that summer. I think on your list, you mentioned interviews, like what the interview was like and stuff like that.

Michael Halvorson: Before that just briefly, so that I have it in my notes here: that Files and Folders product- Was that for the PC? Was that basically for the new IBM PC XT?

Ed Fries: I'll say it was for the "PC" but I'm going to put quotes around it because the PC wasn't at all standard yet. One of the first things that I did there was make variants of it to work on these PC-like machines. I made it run on the DEC Rainbow [100] and the machine I was working on was called an Apricot or all

these different PC-like things and they're trying to get versions of it out there for that but I ended up doing a bunch of stuff in the core of it. I changed the way that it stored data in the database, for example, using a different kind of tree structure. But yes, it was a PC.

Michael Halvorson: I remember that in ‘83 or ‘84 hard disks were kind of new on those devices and people were bewildered. So, I got the sense that maybe storage on the system was what that company was doing.

Ed Fries: Yeah, I don't think my machines had hard disks. That summer in ‘84 when I went to work at Microsoft, I found an old hard disk, it was as big as [the original IBM PC case]. My computer there was an IBM just straight up PC, no hard disk, and then I found a 10-megabyte hard disk that no one was using where the case was as big as the PC itself. [Ed. Large hard disk expansion units were in use before the IBM PC XT was released in 1983, which had a built-in 10-megabyte hard disk.]

Michael Halvorson: Well, we'll talk about that kind of tech in a little bit. But yeah, talk about interviewing at Microsoft and kind of getting connected with the company.

Ed Fries: I was excited to get the offer. Made me feel like a big shot. This company was going to fly me back to my hometown for an interview. I went in for the interview and didn't really know what to expect. I'd been through a few interviews, you know, that summer before, but this was like an all-day affair and it

was quite extensive and exhausting. It was a lot more than I knew I was getting myself into when I went in. And it was a typical Microsoft interview, you know, every hour you were taken to talk to somebody else and they asked me a lot of hard questions. I had to talk to people from the Systems group. I remember them asking me questions about 8086 assembly language. I was a 6502 assembly guy and you know, honestly, at that point, kind of a snob about it. I remember me saying, "Why I like 6502 assembly better than 8086 assembly." Probably why I didn't get a job in Systems. [laughs]

But anyway, I interviewed with Tom Reeve, in the tutorial group and they were responsible for tutorials for all Microsoft applications. So, things like Multiplan and Word. This is the character-based app. And I got to see early glimpses of Windows [1.0]. That was the first version of Windows that was in development that summer, that had been delayed kind of famously. And then my final interview, which in Microsoft terms, would be my "as appropriate" interview was with this crazy Hungarian guy named Charles Simonyi, and he was super smart and asked me this question that was all written in 8086 assembly language. And I told you [Michael] it's not my assembly language. But I guess I convinced him enough that I understood what was going on in this program (Basically here's a bunch of code, [he said] tell me what it does and how it works) that I got a job offer and the job I got was to work for Tom in the tutorial group, and I was excited to go and have that job.

Ed Fries: Do you want me just to roll right into the job?

Michael Halvorson: Yeah, sure!

Ed Fries: Okay, so this is Summer of ‘85. I'm working in the building next to Burgermaster in Bellevue, right by the freeway [SR 520]. In fact, we had a thing we could type on our phone and it would ring at Burgermaster to order our lunch. It was like **5 or something like **8. I wasn't sure what this job was going to be like but it was super fun. There was a friendly group of programmers; CV Layerlee is one of the guys I remember. All the real programmers were working on the tutorial system for Windows trying to get ready for the launch of Windows. And so, they were busy. And there was no one to take care of the DOS version of the tutorial system. So, that was my job for the summer was to maintain the DOS tutorial system, improve it and basically work for the artists and writers who were down the hall from me using the system. So, I was like their support programmer and that was a great job. There were three parts. They were called Ted, Pack, and Runt. Ted was the tutorial editor. Pack was what it sounds like. It was a compression thing. It would pack the thing down to fit on floppies. And Runt was the runtime. So, not the most creative names, but they were good.

And I ended up working on all three of those programs and modifying them and making them go faster and have new features and stuff like that. And it was super rewarding because my customers were literally right down the hall right next to me in some cases. And they'd say, “How come this doesn't work the way I expect? Or it would surely be neat if I could do this.” And I would put the changes that they want in the program. And after a while they decided that I was pretty good at what I did. They started calling me “Fast Eddie” so

that became my nickname because I was fast making the changes.

Michael Halvorson: To connect the dots here, were you using one of the assembly languages that we've been talking about to do this work or did you kind of get to do this in C or something like that?

Ed Fries: Yeah, this was in C but Microsoft had its own C. It's all of its own tools, its own compiler, linker, debugger, and it was all running on some computer somewhere else. We would interface with it through a terminal, which I was used to in school. So, type on a terminal, there's a computer somewhere, and then you would compile it on that big computer somewhere, and then download it to your PC and run it on the PC. The PCs then were a little weak for trying to do that compiling, but also these machines ran in a whole system that was set up to run in what's called a p-code or the P system. So, what that means is that instead of compiling into an assembly language, it would compile into an intermediate language that was for a virtual machine, a made-up machine. And then those instructions would be interpreted at runtime by a little interpreter. Sorry, it's hard to explain this in a non-technical way [laughs].

Michael Halvorson: Well, no, actually some of our listeners might be really interested in the way it was done at an earlier time knowing that they know how it was done later.

Ed Fries: Yeah, I would just say it's very similar to what many years later like things like Java worked.

Michael Halvorson: Did we have a DEC PDP-11 then or something like that? Is that what you're talking about?

Ed Fries: I honestly don't know what the machine was or the machines that were out there. There were, I think there were several of them. They had different names. They ran a version of UNIX, and I was familiar with UNIX.

Michael Halvorson: Microsoft, at that point, did not have Microsoft's C 1.0 Compiler that they were selling? Maybe they did?

Ed Fries: Well, they may have but we never used it. We didn't use Microsoft's tools that were sold to other people until much later. That was something that I helped with once I was tech lead on Excel. I helped us switch to at one point. But the Microsoft p-code system was a thing that was very specific to the Applications group. And we had our own team of people that worked on it. And I got to deal with them too, because these tools were under development. They had bugs. Sometimes you would write code, the code is perfectly fine, but it didn't work because there was a bug in the compiler, or a bug in the linker, or something like that.

So, you couldn't really trust it, [laughs] but in a way, it forced you to really understand the whole system and that really helped me later when I went to work on Office. But they were all friendly and helpful and if I found a compiler bug, I would have been happy to show them- "Hey, what's wrong?"

Michael Halvorson: So, then you went back to school, though. That was a summer job. Is that right?

Ed Fries: Yeah. So, I worked the summer there, in the summer of '85. I went back to college to finish my degree for my senior year. And while I was there, they let me know that they were going to make me a full time offer. I wasn't sure what I was going to work on. I got a call from Jeff Harbers. And Jeff said he wasn't sure what I was going to work on. He said he couldn't tell me what any of the projects were. But he says, "I have a new thing and I have an old thing. Which sounds more interesting?" Given all that information, I guess the new thing sounds interesting. And then he called me later and said the new thing didn't work out. I think I'm going to put you on the old thing instead. And like, okay. So, I graduate and show up in the summer of 1986. Can I tell a few more stories back from there?

Michael Halvorson: Of course!

Ed Fries: Okay. A couple of things. So, 1985. The company hasn't gone public yet. And I would hang out with some of the other programmers sometimes, and I would hear them and there

was a lot of whining, complaining, maybe I'm not sure it's the right word. About how tough the job was there, how long they worked, how they didn't get paid that much and all this stuff. This was summer of '85. And maybe it was just some of the programmers I was working with, but they were all off working on the Windows versions of stuff. Windows was a really difficult project and it was way behind schedule. I think that was part of it. But one day they couldn't go to the weekly Windows development status meeting. None of the programmers were available, so they sent me instead.

So, I go to this, they're like just sit, take notes and let us know what happened in the meeting. So, I went into this meeting, there's a normal kind of Microsoft conference room, not that big, maybe 20 people or less. Steve Ballmer is leading the meeting because the head of windows had quit because Ballmer and him didn't get along. So, Ballmer is now leading the project. And there was a chart on the whiteboard. It had a graph that was like a solid line and then a dotted line. And that was the chart of the bug count. And then what the bug count needed to be to meet the ship date that Steve Ballmer wanted. And I'm just an intern, but [even] I though, this just isn't gonna happen. I just saw these very tired looking, very discouraged looking people. And Ballmer is up there doing the Ballmer things. "You can do this, you know, we can make this chart happen." And it just looked to me like these guys had nothing left to give like they're clearly burned out. But that was my impression.

Ed Fries: So, anyway, I go back and report and none of that was news to the team, but it's news to me. Later that year, they did ship on the date that Ballmer wanted. They shipped something

called the preview edition of Windows 1.0 out which was just a total marketing thing. They took the version of the build as in the state that it was in and packaged it up and shipped it. They didn't make that many copies. I have a set of the discs here but they're pretty rare. They just made enough to send out to the press to try to be able to claim they made their date and then they worked on it for another three to six months and really shipped Windows 1.0.

Ed Fries: So, the reason I tell all this is because when I was coming up to graduation, I had the software from Microsoft, but I also sent out resumes to a bunch of other companies because I really wasn't sure- I had had a good time at Microsoft. The little group that I worked in was great. I had a great experience with the people I worked with but I also had heard some of this negativity and seen it firsthand. And so, I got two other job offers. One was to work for HP in Silicon Valley, and one was to work for a UNIX consulting company in Chicago. And I really considered them hard but I decided to go take the Microsoft job and go back.

When I walked into Microsoft, in that summer of ‘86, it was a completely different place. The company had gone public in March, the new campus had opened and there were buildings one through four around the pond, around Lake Bill. Everybody was happy as far as I could see. The people I had seen before who were grumpy now seemed like they were all smiling and I think that had to deal with the value of their stock options. But I also thought, “oh wow, I really missed the opportunity here”. I got here a little too late because the company had already gone public.

Michael Halvorson: Yeah, that's fantastic. So, you came up when they had moved to the new campus, which was in 1986. There are these four buildings. Do you remember which building you worked in?

Ed Fries: Yeah, I was in Building 3. I came in and, it turned out the new project was Microsoft Works. The old project was Microsoft Excel. It was old because they had shipped the Macintosh version. I was put on the team that was porting it to Windows for the first time and adding a bunch of features to it. I was happy on Excel. It was a fantastic project and team, and a massive learning opportunity for me. My job was basically to be the understudy of a guy named Mark O'Brien, who was the tech lead for the project. So, that was a great job too. They could have assigned me to doing printers or something which is like "he's the new guy, you know." [laughs] They let me work all across the program. Porting this Mac code and modifying it to work not just for Windows but incorporating the changes that they were making and working under the lead programmer, the tech lead, who, taught me so much. I couldn't say enough good things about the job.

Michael Halvorson: Ed, for people who might have experience with a later version of Microsoft and the way the teams were organized, can you describe Windows Excel; that early version a little bit? Was there a product manager and a program manager and then teams based around those leads?

Ed Fries: Sure. So, let me talk about our team first, and then go out from there. There was a dev manager, who in this case was Chris Peters. And Chris was our manager. He was our boss. He's another great guy and a great manager, someone I have a huge amount of respect for. We should talk about project scheduling and stuff like that, because that was something he was really good at. But, he was far from the best programmer on the team. He was a very good especially assembly language programmer. He had written [the game] *Reversi* for Windows, for example. I think he wrote the original Mouse driver, too. He was a great assembly language programmer. He was not a great C programmer. I mean, he wasn't bad. There were just better C programmers in the team. But he was a great leader and a great manager. So, anyway, you have your dev manager, but then you also have a tech lead. And the tech lead isn't there to manage people but is the technical leader of the programmers.

So, the programmers in a way have two bosses. They have the tech lead. Anytime they have a technical problem, or they want to know how to solve a problem, they go to the tech lead. And if they have a management related problem, they go to the manager. That's that group. Then there was a program management group, which was starting just like one or two people at that time. So, by the way, our core team was seven. So, not huge, considering we're taking on Lotus, which is bigger than all of Microsoft at this time. Then there was then a smaller Macintosh Excel team, that was continuing to work on the Mac version. Anyway, then there's the program manager, a couple of program managers, in my memory, and there were the product managers who were more like the marketing guys, and I dealt with them very little. You know, I have this for this meeting. I brought this mug. [shows vintage

Microsoft Excel coffee mug] It says, "Microsoft Excel: The soul of the new machines." This was the motto made for the first Windows version. [A play on Tracy Kidder's earlier book, *The Soul of a New Machine*.] I think that came from Phil Welt, who was the product marketing guy, but I could be wrong. Then we had a test team, led by John Hopper. And there were roughly one-to-one testers for programmers, so that group was bigger than you might think. All of that rolls up to a business unit manager, which at the time would be Jeff Harbers, who at that time probably had multiple projects under him. He was the big boss.

Michael Halvorson: And were there maybe embedded user education folks somewhere supporting the team or was that done by a completely different group?

Ed Fries: I'm sure they must have existed. I just honestly don't remember.

Michael Halvorson: So, did you have status meetings where you're a team of seven and you'd meet all the time, but then some of the other folks you wouldn't see as often like the product managers? You wouldn't see them very often?

Ed Fries: Correct. The program managers we would deal with a lot. Basically, as soon as I show up, what Chris teaches me is: "Okay, here's the schedule. Every week, you mark off what you get done in the schedule. I expect you to get 40 hours done in the schedule every week. And I went ahead"—this is him

talking—"and estimated your first set of tasks, but from now on your job is to estimate how long each of your tasks are going to take to get them done."

So, everything revolved around the schedule in his system, and he made it clear that staying on schedule and shipping on time was his key priority. At first, I thought, wow, this schedule thing I personally have never done before… but why? Why are we doing this schedule? Is that the right thing for us to be doing? We're really good programmers. We're not schedulers. [laughs] But what I learned was that it was really important that we had the schedule, and built the schedule, and used the schedule, because we were under constant pressure to add features and change things and the only way to stay on schedule was to have the schedule in the first place [laughs]. Because if you didn't have the schedule, you might say, sure I'll add this extra feature. I'll do this, I'll do that. And we saw this happening with other groups. But the what the schedule says is what reality is. We have all this work to do.

So, the program managers, who we dealt with all the time, would come and say, "Hey, I have this great new idea." And even me, as young programmer, could [now] say, "That's great. I'm glad you have a cool new idea. I will schedule it for you. I'll tell you how many weeks it's gonna take to do… For example, four weeks. Now you need to look at the schedule and tell me which four weeks you want to take out of the schedule to put this thing in. Because the schedule is full of other great ideas. Then [often] they'll say, "Well, okay, I don't really want to get rid of my other great ideas to put this thing in. So [the approach] became like a shield, in a way. A shield

that's unemotional. "I'm not saying no to you. I'm not saying I don't like your idea. I'm just saying, here's the reality."

Michael Halvorson: I have two questions about this, Ed. One would be, is there a specification that is driving the schedule, a list of features which is set and driving it? And the second is, eventually Microsoft will come up with an 18-month schedule for many of these products. But you were added in the middle there. So, give us a sense for that. Where was the schedule on that first project? Or was it a kind of a port in which there was no set schedule and it was gonna take a while?

Ed Fries: No, there was absolutely a schedule. From day one, I knew when we were shipping, that's the date we shipped, by the way, 18-months later. I was coming in but it was more near the beginning of that porting process than in the middle. There was a full specification, but the specification was also changing. The schedule is the thing that let us make good decisions, both our team and the program management team, on what features were going to come in and go out and still make our date, and our date was aligned to line up with a ship date of Windows 2.0.

We were dependent on features in Windows 2.0. We were using an early version of Windows 2.0. Windows 2.0 is the first version of Windows that had overlapping windows, for example, [rather than tiled windows]. Pretty important thing to have multiple spreadsheets on your screen. To [help users] them move between them. So, we required a bunch of features in Windows 2, and could only ship with Windows 2.

Now as it happened, we shipped on time and Windows 2 did not ship on time. [laughs] This version of Excel was called Excel 2, to line up with Windows 2. We actually shipped with a runtime version of Windows, because Windows wasn't ready to ship so it would basically install enough Windows to let you just run Excel and then quit again. And then when Windows 2 shipped, you just installed Windows and the same version of Excel would automatically work in Windows [i.e. the upgraded or new version].

Michael Halvorson: Ed, according to my notes here, I think that version of Excel, Excel 2.05 or whenever, shipped in November of 1987. Does that sound about right?

Ed Fries: That sounds exactly right. Yeah, so I started in the summer of '86. November '87 is 18 months from when I got there. Yeah.

Michael Halvorson: Great. And then the features were designed to compete with Lotus 1-2-3, right?

Ed Fries: It was super clear that we were there to battle Lotus. And that was also an exciting thing. Microsoft, as a whole, was smaller than Lotus. Microsoft wasn't the largest microcomputer software company at that time. Also, I also happen to have a rejection letter from Lotus because I had sent them and many other computer companies job applications. And so, I had that on my wall to remind me every day that this company didn't

want me, so I didn't feel guilty trying to kill them [laughs]. So, we had a very clear focus on what we were trying to do.

Michael Halvorson: Right. And in getting into ‘87, we have computers with hard disks. They have improved video displays; laser printers are expensive, but they're coming out. Your product is allowing small businesses and people to track their finances, to do forecasting, to maybe make charts. I mean, it's really part of what would later be called “The PC Revolution.” Or I guess at the time it was called that. So, it's a really opportune time to do that. Was Microsoft getting much input from customers at that point? Maybe corporations that were wanting to use the spreadsheet or maybe from individual customers? Or was it really looking at the Lotus product and saying we’re going to beat this? And of course, your Excel product for the Mac was already out.

Ed Fries: Yeah. It was a mix of both things. As far as getting feedback from customers… the programmers… we didn't do that stuff. You know, all that was filtered through the program managers. So, we didn't always know where they were getting their ideas or how they were doing them. They would just come to us with ideas. They were a sharp group. Very talented, a lot of respect for them. They often had computer science degrees, which for us was actually kind of a problem, because they would come sometimes and they would try to tell us, not just what they wanted, but how they would do it if it were them.

But they didn't really understand anything about the internals of Excel. So, when they tried to explain it, it's kind of like, “Just

don't even try that part, just tell us what you want. How do you want it to look on the screen? How do you want it to behave? Then we'll make it work." So, that was sort of the relationship we had with them. But I generally think of it as a good relationship.

At that point, we're moving away from working on a terminal and being able to actually directly develop on the PCs, which was nice. Getting into the 286 and then 386, faster processors, so we could develop on our machines without this abstract thing. We're still using the p-system, though. We're still using all our own custom tools. As far as the features go, a mix of both. Let me just mention a few people to you. Mike Hoss was the head of that Macintosh team and then there was Jon DeVaan. Rick Powell left after the first version of Excel. Mark O'Brien, who was the technical lead, moved on, and Rick Powell took over as technical lead on Excel. Doug Klunder, who was like the spiritual father of Excel in every way, was sort of in and out of the group, and in and out of the company, and an incredible person.

I mentioned Jon DeVaan. So, Jon DeVaan ended up taking over for Chris at some point to lead the group. All these guys had different backgrounds too, most of them self-taught, like you said before, if not all self-taught. I mean, Jon was like a car mechanic. He's just good at fixing things and understanding how systems work. Steve Hazelrig. He handled all the horrible stuff with printers. That was a thankless job.

But basically, coming into the next version of Excel, which was called Excel 2.2, if I remember right. I think that's right. (At least internally.) What we had to do was, we basically ported the Macintosh version to Windows, but now we had to do another Macintosh version. And there was OS/2 Presentation Manager, which is a whole nother thing that's happening. So, at this point, we don't want to just port it back to the Mac again, and then keep porting it back and forth. So, that next version was all about building this thing we called The Layer. The Layer was a basically a machine-independent platform, so that we could basically have Excel run on one set of code and then there would be a thin layer that translated it to Mac or Windows or OS/2 Presentation Manager. That's what that was. That was the next project. The team grew from like 7 to 15 people at that time. I remember being worried about that, what effect that would have on the team and the team dynamics.

Michael Halvorson: Yeah, that's challenging, but a really good idea to have a kind of a shared code base and then this layer you're talking about between them. So, how did that go?

Ed Fries: I'm looking at our time for the first time and realizing we're way over time, and going into more detail than I should go. [laughs] Can you let me know how you want to manage the time?

Michael Halvorson: I have time and we can go a little bit longer.

Ed Fries: We can go a little longer.

Michael Halvorson: Yeah, good. In terms of this shared code base and this layer concept, you know the long history of [Microsoft] Office and how that worked out, can you say something about that? Was that something that you were working on with a shared code base in Excel that would eventually be successful? Or did you end up going in sort of different directions with those two products and those feature sets and the code?

Ed Fries: Yeah. I don't know how it ultimately ended up. The Layer was still there when I left and went to run Word which was a few versions later, but I don't know after that.

Michael Halvorson: It was successful for those next couple of releases?

Ed Fries: Absolutely. I'm really glad that we did it. I feel like we did it right. Rick Powell was an amazing technical lead. Super great guy. Really good to work with. He and then Dwayne Campbell were very similar. They were really, really good programmers, but very kind of quiet and unassuming and the kind of people who if they didn't like your code, they quietly rewrote it overnight while you're asleep. [laughs] They really understood the system well. They're really heroes, from my point of view, on Excel and Word who probably don't get as much recognition as they should because those projects would be a lot worse if they weren't on them.

Michael Halvorson: Which versions of Excel did you continue to work on? Excel 3.0, which came out in 1990?

Ed Fries: Right. So, Excel 3 by then. Rick had gone on to work on what became C#. And I became the technical lead. That team got bigger. We were 35 or 50. At that point, we were moving away from the p-system to using Microsoft's tools, Microsoft's commercial tools, compiling into actual assembly. And that was part of the effort that I led. I rewrote parts of Recalc to solve some fundamental problems in Recalc. I was also doing during those versions the first dynamic data exchange and OLE [object linking and embedding] work. Making it so that outside programs could connect into Excel and feed data into Excel and that kind of thing.

Michael Halvorson: Yeah. And then did you work on Excel 4.0? That's the 1992 product. Now you're getting into the time of Windows version 3.

Ed Fries: Yes, but I left Excel part way into that version to go work on Word [for Windows].

Michael Halvorson: Some of the Excel features were quite impressive, you know. Gradually the charting functionality of Excel really expanded. Things like PivotTables became the sort of impressive marketable features.

Ed Fries: So, PivotTables was originally based on an idea that I had and I worked on the very start of that feature before I got called away to go be the dev manager at Word.

Michael Halvorson: Talk about that a little bit. How does a feature like that get started and then ultimately implemented into the software?

Ed Fries: So, there were some products which, I'm not remembering the names right now, that were somewhere between a database and a spreadsheet, and that some of our competitors were playing with. And there were some cool ideas about them. But what I didn't like about them was they were a completely separate product. First, that was one thing I didn't like about the product. So, if you were working in Lotus 1-2-3 and you want to use this pivoting kind of idea, although it's really not what PivotTables became. This more data-basey, the database querying idea, you had to use a completely separate thing. It had a completely different interface and all this stuff. So, that's one thing.

The other thing that I didn't like, is it was really strict about the idea of what a database is. And I was thinking about that. And you know, a database has basically columns that define types of things like a name and a price and a description. That kind of thing. Then it has rows of data. But to me, I thought, why does it have to be that strict? I was thinking about well, what if I want to sell my product at three different price points? Under a traditional database format, you'd have this column that price and you'd have a bunch of prices. But you could never take that and do what I just said. Well, what if I wanted to

pivot the data and look at it from the point of view of the three prices that I sell my things at. There's a difference between the data and the definitions of the columns of the data and to me that seemed artificial.

And so that was really where the core idea came from. Me thinking about that problem and saying no, what if I want to pivot it this way and look at the data in these different ways. So, I had proposed that we do something like that and I had started to work on it. Now when I was starting to work on it, it was still like a completely separate sheet type. You have a spreadsheet, you have a chart, and this thing was completely separate, so I imagined you like grabbing columns and dragging them around and doing the stuff. So, in that sense, it was kind of like what others were doing. Although they didn't have this distinction between data and the definitions of data, which I didn't have. But after I left, they figured out a way to integrate it into a sheet which made it a lot better. So, I'm not trying to take anything away. A lot of work was done after I left. I'm just saying that I started this project with some of the core ideas that are there.

Michael Halvorson: And it sounds like you advocated for it and you showed it to people. One of the questions I had is when an engineer, a thought leader like you comes up with an idea like that, it sounds like the team was functional enough that you could bubble that idea up. Someone would add it to the specification and say: “Hey, this is kind of cool. Let's consider putting this in.”

Ed Fries: Yeah, I think everybody knew that this was something that was happening out there and could potentially be a threat. But also, it's an opportunity for us to put our own spin on it and do something new. And that that was really what I was trying to propose.

Michael Halvorson: Yeah, Ed and I was aware of that feature when it came out. I didn't know that you had anything to do with it. That's really cool. But it was one of those features in the industry that was a competitive advantage for Microsoft and for Excel. And that people would talk about in their magazine articles and in their reviews and books and things like that. Microsoft software is starting to slowly sort of become a commercial product in which people are talking about these little features. Including something like IntelliSense, which I think also was a marketing sort of term that was absolutely marketing stuff. Can you say something about that? Because I think that's an interesting time when you know that there's a marketing term that is trying to highlight a feature.

Ed Fries: Yeah, it was really funny. Like when we're working on, I think this was Excel 3.0- We were all doing complicated, difficult features. For me, it was rewriting the core of Recalc, which is a really important part of the spreadsheet, to give it a better performance basically. And, Chris Peters was off working on this... Chris was a programmer. He spent part of his time working on the program, which I think was smart, even though he's the manager of the team. Because it kept him in the code and understood what other people were doing and things like that. But his feature, all it did was just insert something in the formula bar. But we would tease him. It seemed so trivial. What it inserted was like a Sum statement,

right? And this is what became AutoSum, [a button on the toolbar]. So, you'd push a button, and it would stick the letters, an equals sign, SUM, [then] parentheses. There was more to it than that, but not that much.

And so, for us it was like, "Really? That's all you got?" [both laugh] But the marketing guys latched on to it. They love this AutoSum feature. And, when the [shrink-wrapped software] box comes out, I think this is Excel- I could look at it over there on the shelf. They put this huge AutoSum button on it, and we're all like, what? We worked on all these super cool hard things. And a button that inserts some text in the formula bar is the thing? But they knew what they're doing. And they were selling to people like, "Hey, this is something you do all day long. You press here, we make it easy." I think that that was sort of the beginning of this idea of IntelliSense. But hat's the real world, right? That was a lesson for us, you know, to see that happen and to see it come out and actually to see a bunch of good press around this feature. What's hard to do isn't necessarily what makes people's lives easier or what they want, the customers.

Michael Halvorson: I don't know if this is true, but I heard that Steve Ballmer in fact, at one point, was kind of railing about the issue that some of the features in Office were the features and individual apps just weren't being celebrated and talked about and we [Microsoft] need to come up with ways to celebrate these features, which is a good insight. And may have started the marketing folks to think about, well, gosh, what are we going to talk about?

Ed Fries: It could be. It was a little mysterious at first for us. But like I said, I think I learned a valuable lesson there watching that whole process happen. Seeing what's really important to customers isn't always the thing that's hardest to do.

Michael Halvorson: Well, let's talk about your movement to Word now and just and what you did with the Word team and how that became your project.

Ed Fries: Yeah, so basically what happened is, you know, Excel was doing pretty good and Excel had a reputation of shipping on time. And the Word project did not. It had a troubled kind of history from looking at it from the outside. And I don't know, this is better to get it straight from Chris Peters, but at some point, I don't know, maybe Jeff Harbers asked Chris to go over and fix Word, so he put Chris in charge. And what Chris found when he got to Word was, they were doing two versions of Word simultaneously. They had a team working on the old version of Word, just kind of maintaining it, and then they had taken all the "superstars" (in quotes) and put them on a complete rewrite of Word from scratch.

And this is something that just philosophically we didn't believe in in Excel, every version of Excel we would try to make it stronger and better and find parts of the architecture that are kind of creaking under the weight of the new features and upgrade them. But we would never think of throwing the whole thing out and trying to do it from scratch. It's sort of a classic programmer thing. You think wow, look at this routine is so terrible. It's got all these weird cases and all this stuff. I'm

gonna rewrite this from scratch and you go and you do it and you come up with this really beautiful looking thing. And I'm like, wow, my version is so much better than that one. You know, those guys are so dumb. I'm so much smarter than them. But then you realize, oh, but my version doesn't handle this and then you add that. Oh, it doesn't handle that, and pretty soon you end up with a lot. Hmmm. Those guys knew what they were doing.

So, anyway, this is just a little [programming] philosophy. [But] there's a lot more religion and philosophy in programming than you might think. So, Chris goes over and says "This is dumb. We're not going to rewrite it." And he and the development manager have a fight, and the development manager quits. So now, Chris has this messed up project. He has no development manager. So, he came over and asked me if I wanted to be the dev manager. And I had been tech lead for a couple of versions of Excel. I'd worked on Excel for five years and it had been great. I really loved working for Chris, and you know, it would be a step up in my career to go from tech lead to dev manager. So, I went to work on Word for Windows.

[This ends Part 1, Oral History of Ed Fries]

Michael Halvorson: This is the second of two interviews with Ed Fries, who is talking to us today about Windows Word, Microsoft Office, and a bunch of stuff about gaming. Thanks for being here, Ed!

Ed Fries: Yeah, thanks for having me back.

Michael Halvorson: I appreciate you sharing your stories with us. I wonder if we can kind of pick up as you're leaving the Excel group [in about 1991] where you had been for about five years, and you're going to this new Word for Windows team? You're also going from a role in which you were a development lead to now being a development manager. Can you talk about that transition a little bit?

Ed Fries: Yeah, that's right. I was the technical lead and also managed a small team. Then I moved over to run Word, which was a big group. I mean, roughly the size of Excel. (I was running Word development, to be clear.)

There were about 60-ish programmers. As I said, when we talked before, I was kind of following my boss from Excel, Chris Peters, over there. So, he came over and went up one notch [laughs] to be a business unit manager. (Yeah, that was his title.) Then I was development manager under him.

I kind of came into a group that was in chaos, because Chris had come over, and had a fight with the old development manager, and he left, and that's when he brought me over. The fight was over whether there should be just one version of Word for Windows, or whether there should be two, basically. Half the team was working on maintaining the old version, and the other half was rewriting the entire program from scratch. [This] is something that's always tempting to do as

programmers but often it's not very effective in the end, and Chris didn't like that idea.

So, I came over, thinking this was going to be great, and I found, basically, two groups of people. One half of the group was upset because they had been working on this new version of Word, rewriting it from scratch, and all that work just got canceled. So, their work for at least a year was just wasted, effectively. No one likes that. The other half had kind of been treated as second class citizens, though. It's like they had taken the best and the brightest, in somebody's mind, and put them on the rewrite and put everyone else on maintaining the old version. So now, all of a sudden, all the best and the brightest had to go work for the people who were considered not as good or who are going to take the old version of Word and move it forward.

I don't think that was true, by the way. I don't think that the people who were working on the old version were worse. In fact, some of them were the very best in the team, in my eyes. (But anyway-) So, basically, I came in and I spent the first few months trying to just find my way around and trying to keep everyone happy and trying to talk the people from the canceled project into not quitting, and trying to, you know, just sort of manage through this kind of crisis.

And at the end... of about three months, I was just unhappy. [laughs] I mean, [I was] spending all my time trying to appease all these different people and it wasn't working for me. Finally, one day, I had this realization, which I call, "If your job isn't

fun, you're not doing it right." I heard that phrase in my head and [thought], okay, "What am I doing wrong?" Because my job is definitely not fun.

I decided, we knew what we were trying to do. We're going to build this new version of Word. We're going to build it. We're going to take the old version of Word and make it great. We're going to do it in this certain amount of time. That's the project. Either you want to be part of that project or you don't. And that was kind of the big thing, to call the team together and say, "Look, if you're not happy, you should leave. I'm done trying to make people happy. This is what we're doing. Anyone who wants to work on it can stay, anyone who doesn't can leave, and the people who stay: we're gonna make it and it's gonna be great." So I gave that speech, and some people did leave. And from my point of view it was like, night and day after that.

Everyone who was there was dedicated to the mission. I had a great set of people to work with. We hired some more people to augment the team and went forward and, you know… my job got a lot better. I was a lot happier. And I think the rest of the team was a lot happier. So, for me, it was a big learning experience kind of on the difference between management and leadership. You know, and sometimes those two get mixed together. [In the beginning,] I felt like I was managing, but I wasn't leading. And once I started leading, saying, "This is the way we're gonna go- get on board or get out of the way," then everything got better. So… as a young manager, that was an important moment for me in my career.

What I found in this group was that it was quite a bit different than the Excel team that I was used to. There was kind of this thing between how much do I want to make it like Excel and how much do I want to… Like, except what it is or even realize that it is better than Excel in some ways. That was a process I was going through, too. One of the biggest differences was, the team was older, in general. Not a lot of years older, but a few years old, which meant more of them were married, more of them had kids.

The Excel program team was exclusively men when I left. I mean, there were 50-something men. I tried to hire this female programmer. When I was working on Excel, I didn't even notice, it didn't even occur to me. Until, one day I was interviewing this really fantastic female programmer named Gemini Lasswell. And Gemini came in and she was blowing everyone away, blew me away on my interview questions. And I'm like, "I want you to come work here in Excel." And she turns to me and says, "I'm not gonna work here." And I'm like, "Why? This is the best product in the company. This is the best team." And she said, "I am not going to be the only female programmer on a team of 50 guys." I was like, "Oh, yeah."

So anyway, when I got to Word, there was a manager named Jodi Green. And Jodi had really been trying hard to bring more women into the team. And so, I found a team that was probably 10 women out of 60. Which, still not where we'd want it to be today, but was way better than where it was on Excel. And, it just had a different feeling. It operated in a different way. There was less kind of macho and more kind of, let's work together. More sort of a family feeling.

Word also felt a little beat up, and I was trying to think of a way to improve their egos. I was thinking, what is something we could do to beat Excel at? There must be something that this group is better at. I'm looking around and like, these guys play basketball during breaks. I know that nobody on Excel plays basketball. They're not good at basketball. [laughs] So, I come up with this plan to challenge the Excel team to a basketball match, and surprisingly, they accept. Jon DeVaan is running Excel at this time, and we make this bet that whoever's team wins, the losing development manager, so me or Jon, has to give a speech in front of the other team and the other team writes the speech. I'm like, okay, great. I'll do that.

Michael Halvorson: This is great.

Ed Fries: So anyway, it comes time for the big game, and we've got our guys and our guys are looking good. Their guys, they look like they can barely bounce the ball. But there's one guy I've never seen before. I think his name was Darrell Lewis. And Darrell comes out. And he looks like a basketball player. I'm like, "Who is that, guy?" And he's like, "Oh, it's one of our interns this summer." I'm like, "Oh really, he's an intern?" Anyway, you can see where this is going. It turns out this intern played college basketball and he would practice with the Seattle SuperSonics. They were still there [in Seattle] at the time. And what I learned when we lost was that, in basketball, one guy can score all the points. [laughs] It doesn't matter if the rest of our team was better.

Anyway, we lost and I had to give the speech. And the main line that I remember from the speech was- and here, I'm giving a speech to my old team. So, this is especially humiliating, right? But one of the lines said: “Excel does everything first, Excel does everything best.” Okay. Fine. So, then like a few weeks later, I start to see this little video going around and videos were really new then. Little AVI videos. And it's just a clip of me saying that. I'm like, “Okay, fine. That's funny guys.” So then, we went to the company meeting, and Excel always did something to stand out at company meetings. This year, they brought along these inflatable beach balls. We're at, I don't know, maybe Key Arena [in Seattle] or something. And I start to see these balls and people are batting them around the arena blah blah blah, and eventually one comes over to me and it's a big white beach ball and it's got a picture of my face on it. It says, “Excel does everything first, Excel does everything best.” I’ve got one over there- [gestures to bookcase]

So, that didn't go quite the way I wanted it to go. But, the Word team was really great. The technical lead, Duane Campbell, was fantastic. I had great managers including Antoine Leblond and Marc Walker and many others. Everything went really smoothly on that project, until we got to a time where we had completed all the features and we're in the sort of final debugging to ship. And just like the story I told you earlier where there was like a graph on the wall for Windows, we had that same kind of graph. I could see that we were falling behind. Every week we were 10% behind our goal. And on Excel, people were so used to working from a schedule. Almost nobody had families and kids and stuff. People would just stay a little later and get it done.

But I couldn't get the Word team to do that. I tried to motivate them in every kind of way I could think of to do 10% more work this week, and we'll get there. Finally, just out of desperation, I tried every idea I could think of and my last idea was to ask the team for an idea, which should have been my first idea. So, we had a meeting and [I said] "Hey, guys, we have to solve this problem. How can we get this 10% extra done between now and ship?" And pretty quickly out of that came the idea of what we called Workaholic Wednesdays and basically what the team said to me was, "Hey, we have got a lot of other things going on in our life besides just work. But if we could put all of it into one day, we could schedule for that and in our lives and make that work and so instead of doing a little bit every day, we will put it all into one day." And so that became what we call Workaholic Wednesdays. So, once we have that idea, I'm like, "Great, I'll make sure everyone gets dinner, [and] we'll do a midnight snack." We're gonna be here til we get to our goal. It's kind of a fun atmosphere, we're working hard but we're just doing it one day a week. And sometimes we'd be there until two or three in the morning. But we would meet our goal and people would feel good about that. Then our project would be heading towards shipping on time.

There were a few problems though. The one problem is that the testers started staying later. And so anytime a tester entered a new bug, that moved us farther and farther away. That was a problem. [laughs] Because, we needed to ship this thing. And it was discouraging when these new bugs would come in, you know, after 9pm or something, and we'd all realize we're gonna be here even later. So, the testing [team]

didn't work for me though, just the programmers. So, I couldn't tell them what to do. But I decided I could threaten them. [laughs] So, that would be my strategy. I said to the testers, "I don't want to see any new bugs after 9 p.m. on Wednesdays. And if you do put out a new bug after that, something bad is gonna happen to you." [laughs playfully] I didn't say what, but I implied that it was going to be bad. Then I went out and I bought a case of Silly String. I handed out Silly String to everybody on the team. And so, we all knew what the plan was. Sure enough, some smart aleck tester at 9:05pm entered a bug. So, everybody on the team knows what to do. We all go down there and we just like, [spray sound] Silly String all over his office, all over him, his chair, all over his office, everything. It's like my plan is working. This is great. He's not going to do it again.

But then people just kind of went crazy and they just kept spraying Silly String. They sprayed all down the test hallway. And then they even went up and sprayed some all around our hallway. It's like I created this mob and they couldn't be stopped. We were always a little punch drunk on Wednesday nights, whenever you're working hard. And so, anyway, the entire place was trashed. I mean, it was like Silly String everywhere. We worked late that night. [But then,] the cleaning crew showed up- the janitorial service… at some time after midnight. They took one look at it and [said], "This is not our problem." So, my admin Pam Wagner had to arrange for a special cleaning crew to come in [and] clean up the Silly String. But I think we all remembered it fondly. It was like one of the moments of team building. I think for both teams, and from then on, the testers behaved better [laughs] after 9pm on Workaholic Wednesdays.

Michael Halvorson: I do think these kinds of stories are kind of part of Microsoft's DNA about heroically staying late. I know other teams have done that. And I know you did that in earlier teams too. Thinking about the issue of bug counts and managing these complex software systems, do you feel like Microsoft had been learning how to do that a little better over the years [since] you first [described] the story about the Windows [1.0] bug counts that were going crazy? This is an issue [that has plagued many development teams]. Software is extremely complex. I mean, going back to the 1960s, with the IBM 360 stories [narrated in Fred Brooks' *Mythical Man-Month*]… we know that it's very hard to manage the complexity, and you can't just put more developers on a project. But Microsoft had been learning and I think you had a reputation for really doing this well. So, what was Microsoft figuring out or what were you figuring out?

Ed Fries: Well, to give you a sense, there would be about 50,000 bugs in a version of Word at that time. By the time we had shipped, that would be about how many would be in the database. So, that's a lot. There were some different philosophies people tried. Doug Callender had a zero bugs kind of thing, the idea that tried to push it down to programmers, to say, "If you just don't make bugs, then we wouldn't have bugs." [But] as a programmer I was skeptical. I think we were already writing the code the best we could, with the system that we used on Excel and that I brought over to Word. Chris and I brought over (which is really Chris Peters' system), there would be a period of development that was all on the schedule, so we would do scheduled work for six weeks or eight weeks. And then there would be a period called an "integration phase."

And during that time, you were just making sure that everybody's features were working together well, and you were bringing that bug count down so that you didn't push all of that bug count to the end. We always had the philosophy that the build needed to run every day, and be usable every day.

But if you just let little things accumulate over a year and a half, two-year project, you'd have a lot of little things at the end. So, those integration phases gave us time to bring the bug count down before we went back into feature development. Then there was this big phase at the end where you then kind of brought the bug count all the way down to be able to ship. And I mean, one thing that's really different, of course, now [compared to] then was we couldn't do patches. There was no Internet to distribute things. [laughs] [The product] was manufactured on CDs and went out to customers and it had to work. And so, I think some of what happens now really depends on the fact that they can just ship an update and update it [online]. You know, that's just a very different environment that we work in, so anyone who's like using modern ideas to judge [what] we were doing needs to take that into account. I'll just say that. They need to think about what that was like.

That [challenge] actually was quite scary. It was very scary when you're getting down to the end and wondering if there's something you missed. There's some big bug out there. It's also not even that it was scary in the sense that there could be bugs that when you went to fix them as a programmer, you realized, the whole design of this feature is impossible or wrong or I can't just put in two lines of code to fix this bug. I

really need to rethink the whole approach. And you never really knew whether something like that [a design defect] existed or not. You know, there was… sort of a dread, I would say that, [that] we would have near the end- that we hoped we didn't miss something important like that. But anyway, that's the system that we used. Since then, there's things like Agile and other development methodologies- they'd probably call ours a modified waterfall approach. We didn't use any of those terms back then we just had what we were doing and it worked for us. But, from then on going forward, from the mid-90s on, I was doing game stuff and at a whole nother level of management. I can't really speak to how things evolved past- So, it is kinda like right as the time the internet was coming, being publicly available, was the time I moved to games. So, I just have my perspective all from that pre-patch, pre-internet time.

Michael Halvorson: Right and then you know, for our readers or listeners, there's a whole issue of classifying bugs, right. I mean, everything is recorded as a bug, but that's a very broad term. Sometimes they were nice things to have, they might be features. They might be really dire, you know, faults in a system or logic errors, but increasingly, it could be the user behaviors or outside conditions that would make these things happen, right. So, there's a whole world of that. Can you talk about the machines that people were using, Ed? The actual development systems, this was about '91 and '92 if I have this right for Microsoft Word for Windows, so were you developing on [PC-based systems]?

Ed Fries: I'm talking about the Word 6.0 project there.

Michael Halvorson: Which comes out in '93 eventually? I think so.

Ed Fries: We were doing a Windows version and a Macintosh version. [Ed. Microsoft Word 6.0 for Windows shipped in late 1993. Microsoft Word 6.0 for the Apple Macintosh shipped in early 1994.]

Michael Halvorson: Yeah. That's released in 1993. I just wondered if you were actually developing them on IBM PCs using maybe Microsoft C, or were you using a special custom development system?

Ed Fries: Yes, so the last version of Excel, which I had worked on, but didn't ship till after I left, was Excel 4. I can't remember if we moved away from the p-system on Excel 3 or Excel 4, but it was one of those two, away from that interpreted p-code system to actual compiled native code. And we would have used... we would have used the Windows Visual Studio compilers. I don't think we used their debugging system, but we might have, I don't know. But when we moved into Word, Word was still using the p-system. And that's one of the things that we changed in Word 6. So, I had just done it for Excel. But you asked about classifying bugs, and I didn't answer that question. Maybe we should get back to that real quick. One of the things I found as I moved up in management is it's harder to stay in touch with what's actually going on in the project, and like who's doing a good job and blah, blah, blah. And so, one of the things that I did, the whole time I was on Word, as development manager, was I assigned every bug.

Every bug that came in, would go through me and I would assign them out to the people to work on them. And by doing that, it really kept me in touch with who was working on what. How many bugs were coming in to each person. If I got a bug that didn't really fit into any one person's spot, I would sometimes take them for myself, because I still was programming part of the time and it was fun for me to spend part of my time fixing stuff instead of just assigning it to other people. [laughs] Part of that ends up being severity things and the severity stuff is really a skill you have to learn. Like when you originally come in and look at bugs severity. It's like okay, this is a crashing bug. It has to be the worst category of bugs. But that's not necessarily the case at all. I mean, there could be an incredibly obscure set of things that has to happen that leads to a crash. That is just not going to happen. And then you could have a simple UI thing, where something's misspelled or something, where that really makes your work look terrible. It makes it look sloppy. [laughs] So, bug categories around the behavior they have isn't a very good system. Its really more of an art than a science. It's something that we- especially as we got near the end of the project- we were being really [nuanced about].

The last month or two you would be really careful about which fixes you took. Like you might know there's a bug, [and] you might know what the fix is, but the fix is scary because you're not sure what other implications it's going to have. You know you have a working system now. So that's when those bug categorizations really matter. It's like, "No, we have to fix this, even if caused other bugs, because it's embarrassing or it's a

crash that could very well happen and so we need to take care of it." So, that's [why it] was more of an art than a science.

Michael Halvorson: Your team probably didn't interact with end users or customers too often. They were programming. But, did you become aware that there were certain features that people were asking for, you know, that this is the era of converters, file format converters, things that people are struggling with going from WordPerfect to Word for DOS to back to Word for Windows- these are some of the features that you're implementing. Did you get the sense for how people were using the software?

Ed Fries: We had some people who really focused on that [converters] on the team. That was an important part of Word. I mean, another example was lawyers. You were battling WordPerfect very much at this time. One of the things people loved about WordPerfect… One of their constituencies that loved the product was lawyers because the WordPerfect people had listened to them and given them all this stuff that they needed. And, you know, it wasn't obvious to us what lawyers would want… it's all this markup stuff and being able to look at different revisions and different versions and all this stuff. So, that's a case where, yeah, we really, to be competitive, we had to understand what features were important to that constituency, and then serve them. It was also the first version where there wasn't a localization group that we would throw the product over the wall to them and they would localize it. We had to make this version work in Arabic countries, where text goes backwards, and we had to make it work in Japan where they actually had a really different idea of how tables

work. So, we needed to get smarter about that and even bring in some special people.

I remember when I first realized we going to need to bring these Japanese features in and so much of the stuff was in Japanese and nobody on the team could speak Japanese. I'm like, oh my god, how am I going to find… hiring is really important in this job. [laughs] When I came into that job, I told people on the team, "Your number one job is hiring." The managers were like, "Really?" And I said, "Yes, your number one job is to find the very best people we can for this team. Because if we don't, nothing else matters." So, we were picky and we would go through a lot of candidates to find somebody really great. But [I thought], "Oh, now I have to find somebody who can also speak Japanese? That's impossible." The next day this candidate comes through, [and] his name is Higgy. (I think that was his nickname, and his actual name was Higashi.) He was amazing. He was an incredible programmer, and he was Japanese, and a very fun guy, too. It was just for me like a lesson about hiring. It's just, never say never. You never know. It's like fishing or something, you never know when you're going to get a big tug on the rod and pull up something really great. Higgy was the example for that literally the day after I was despairing, he walked through the door.

Michael Halvorson: Ed, as you move through these Word versions, gradually Microsoft Office is also gaining steam, right? Particularly with Windows 95 and Office 95. But even before that, did you start to work with other people in the old Excel group and then now these new PowerPoint and even [Microsoft] Access folks? I realize Office is a marketing and sales vehicle as a bundle,

but there's also development things too there. Did you start to do that, collectively?

Ed Fries: Yeah, and I left before it got to where it ended up getting... it was just starting kind of in the last version of Word that I was there. Before that, like you said, it was just kind of a marketing strategy more than anything. But, I knew, mostly it was about cooperating with Jon DeVaan, who I knew well, [because] we'd worked together. And we were looking for things that we could maybe do together. And one of the first ones that seemed obvious was the toolbar. And I think the toolbar taught us both how hard this was gonna be to do [laughs] in a couple different ways. Toolbar seems like a perfect thing to pull out. They both have toolbars and we'll just write one set of code and they'll make these things. But it turned out that the two products had very different ideas about what was important on the toolbar and the toolbars were a couple of pixels different. Excel's was two or three pixels shorter than Word's.

Michael Halvorson: Oh, I didn't know that. That's really interesting.

Ed Fries: Yeah, and so you think okay, no big deal. Well, Excel's was small because if it got even one pixel bigger, it would push another row off the bottom of the standard screen. And that'd be one last row of data that you could look at. So, for them, it was really optimized for showing them as many rows as possible of data. In the case of Word, Word was trying to

make the icons on the toolbar big enough that people could recognize what they do. [laughs] And made it clear to them, and it didn't matter—one more line of text is off the screen—you've got a lot of lines of text, compared to lines in a spreadsheet. And so, there was instantly- neither of us saw this coming, we thought, "Okay, this will be fine." Instantly, there was this war about what size is the toolbar going to be?

It went all the way up to our Vice President at that point, which was Pete Higgins. And, so Pete's given this impossible task to decide how many pixels the toolbar is, and that's when I learned something that was—I don't have a slick way to say this—what I learned was that the things that bubble up… tend to be the least important things. They [are typically] things that don't matter. The most religious things… So that was one thing.

Michael Halvorson: Ed, before we move on, who triumphs here? I don't want to say who won, but…

Ed Fries: I'm pretty sure "the baby was split" in some annoying way that made no one happy. [laughs] But I don't remember the answer to that question.

Michael Halvorson: But Office is coming together. And… obviously Word and Excel are the most closely integrated, so that makes sense.

Ed Fries: For the time that I was there, that was the only thing that was attempted. We were probably starting to reach out to PowerPoint, but that would have been a whole nother thing and all that stuff happened after I left, which I was happy about because that was a lot of politics and not a lot of coding, which is more my thing.

Let me just tell one more quick story on that. So, when we decided we're going to have one set of toolbar code. Jon's like, this is dumb, you guys have, you know, 10,000 lines of code to do the toolbar. We have 10,000 lines of code to do the toolbar. And that all goes on disk, so we're gonna save space. And I'm like, "We're not going to save space, Jon. I will make you a bet right now that the shared toolbar code is larger than the sum of the two individual toolbar codes. [He replied,] "No way, you're crazy!" So, we made a dinner bet and I won easily. I think it ended up being three times as big or something like that. [laughs]

Michael Halvorson: Yeah, that is so good. All right. So, I mean, I love talking about Office. But I am also excited to hear a little bit more about your work in Microsoft Game Studios. How did that happen? How did you go from this big, powerful Office group, which is trending, to do games?

Ed Fries: Chris got promoted, actually to be a Vice President, and kind of oversee the whole Office thing. I got a new boss, a guy named Peter Pathe, or people know him as "Blue." And, it just kind of felt like my career kind of stalled for a while. I always felt like I was learning new stuff under Chris, and he was kind

of moving me along, but it just didn't feel like that [anymore], but I was fine. I was learning to be a better man working on Word. I mean, Blue and I got along fine. But then at some point, I think this might have been Pete Higgins' influence, somebody basically said, "The next step for you and your career- you should be thinking about it- is being a business unit manager. You're a dev manager, obviously the next thing is a business unit manager."

They got me thinking about that and I [was] starting to look around the company and I looked all around, and there was an opportunity to do some kind of thing with Hank Vigil... some kind of Interactive TV thing, and I went part way down the road on that. I flew down to meet with the PowerPoint team to look because they needed someone to run that team, [but] I just didn't really feel like that was the right move for me. There was a search thing that was starting up that was going to be kind of a Google competitor. This is when Google was very early. The [commercial] internet was just starting to emerge. That might have been interesting.

But around the same time, I ran into somebody in the airport who worked in the Games group, and that just reminded me that Microsoft had a Games group. [laughs] I was a big gamer at the time. I had been a big gamer since I was a kid, and of course I'd written games, which we talked about earlier. And so, it just got me thinking, "Hey, maybe this is really the job for me." I mean, I really had two things I loved to do. I love coding and I love playing games. I love games. So, I knew when I stepped up to this business unit manager or general manager level, I couldn't do what I was doing now, which was coding half time on Word. If I was going to give up one thing I

loved, why not do the other thing that I really loved? So, I talked to a bunch of people and they tried to talk me out of it.

Nathan Myhrvold called me in and told me I was committing career suicide. I think Pete Higgins called me in and said, "Why would you leave Office, one of the most important parts of the company, to go work on something no one cares about?" Just a few years later, Pete was running the Consumer Division, by the way. [laughs] But that's the way things go. (And was my boss again.) I went to talk to [Executive Vice President] Mike Maples. I had known Mike Maples [in the Office of the President] because when he first came to the company, his office was right next to mine when I was working on Excel. And so, he would say "hi" in the morning. And just as a young programmer, there was the president, right there. [laughs] So, I went to see him and then in typical Mike Maples fashion he's like…, I'm telling him I've got these three different jobs I'm thinking about. There's this game thing and there's this search thing, and this other thing, and I really can't decide and I'm going crazy thinking about these different things. And he looks at me, and he says, "Ed, sometimes you can't predict the future. There're facts you want to have, but you just don't have them. Sometimes you just gotta decide and see what happens." That probably seems like obvious advice but to me it was not obvious at the time and it was like such a relief.

I felt like a weight lifted off my shoulders. I'm trying to think through every possibility and I should just decide. So, I decided to take the Games group job and I got over there and I had interviewed with them and I had met the key people and saw what was going on. It was very exciting. They had a game called *Age of Empires* in development with a company down in

Texas, making a real time strategy game, and I had been playing *Command and Conquer* and *Red Alert*, and real time strategy was a very hot area. So, I had opinions about that category and so to see them with a good looking product in development was exciting. I come over and like the day I get there, they're like, "Hey, we have a trip planned to Tokyo next week. Do you want to come along?" I'm like, "Yeah, I'd love to go to Tokyo." And so, I went along with the team and we ran around and we met with all these different game developers in Japan.

And I just remember that first night, walking back to the hotel and its nighttime in Japan, in Tokyo, and all the signs are lit up. And I just spent the day meeting with all these really kind of heroes of mine. Sega and Konami and all these other places. I was just thinking, I have the best job in the world. That was the thought that went through my mind. It really was such a great opportunity to grow Microsoft's presence in the game business.

Michael Halvorson: I think you said this was 1996. Is that right?

Ed Fries: Yeah. Beginning of '96.

Michael Halvorson: So, you call this a small games group or, you know, hey, what's going on here? They had *Flight Simulator*, which was continuing to be successful. And what other games did they have? I'd like to talk about *Age of Empires* but in addition to

that, what was in their portfolio and where were those games coming from?

Ed Fries: Yeah, so, a few things. The team size was roughly the same, like 60 or 70 people as the Word team I was coming from. But when I got there, I realized there's a whole nother layer of contractors and this was really true in that part of the company. So, it's probably almost double that size. Once you add the contractors in, there was almost like one-to-one contractors [compared to] full time. That was of course back then a strategy people used to get around headcount limits and stuff. My predecessor had just acquired BAO [the Bruce Artwick Organization], the company that was making *Microsoft Flight Simulator,* and so one of the first things I got to do was move them out here to Redmond and get them settled and working on the next version, and *Flight Simulator* was far and away the cash cow. I was working in the Kids and Games group. My boss was Charlotte Guyman and she was a great first boss.

Kids and Games shows you how little the company cared about games. It wasn't even the first thing there in the name! There was a whole separate group that was doing kids' stuff. Like *Magic School Bus*, that kind of thing. Both of those were part of a bigger group that was doing CD-ROM stuff. They had also done a deal with DreamWorks Interactive, and they weren't putting that under me. But they still made me responsible for it. And so, I still had to go visit them and we published the stuff in there. Anyway, it was a little weird. Definitely not where it was going to end up. But I worked for Charlotte Guyman for three months or so, and then she left and then I didn't have a boss and I was working, I think, for

Patty Stonesifer. I worked for her for three months. Then she left and then I think I was reporting directly to Pete Higgins then, and I was missing two bosses. [But] now I was reporting to the guy who told me not to have this job in the first place. And I knew him and he was nice, but I was in way over my head. I mean, I didn't have a business degree. I was doing all this business stuff.

I remember my first meeting with Pete. We're talking about my P&L [profit and loss statement], and I didn't even really know what a P&L was. I had a copy of the spreadsheet, but you know, he's bouncing all over. He was like, "Hey, how come you're projecting that your revenue is gonna grow by 10%. But your marketing spend is growing by 14%?" I couldn't even... I didn't even know what he was talking about and so it's kind of a fake it till you make it kind of a situation there.

Then about three months after that, he brought Robbie Bach over from [the] Office [group]. And Robbie kind of created a layer between him and a bunch of different groups. So, I worked for Robbie, so did Encarta, so did Expedia, so did a whole bunch of experimental projects that they were doing over in the Consumer Division. And, that was great for me because I needed a little buffer and I could learn from Robbie. Robbie was more from the sales and marketing side and I was a very much a product development kind of guy. And so, our skills were very complimentary. And, he was a good boss. He left me alone when I needed to be left alone, and supported me when I needed it. He was my boss until I left the company almost eight years later, so that was a really good relationship. I'll pause in case you have any questions and then I'll keep going.

Michael Halvorson: The context is such a cobweb of constellations. But yeah, you're in charge of products, and you mentioned that there were vendors outside the company too. But yeah, how does the product mix work?

Ed Fries: Yeah, so that was something very new to me, right. We had basically… I had a group of managers who worked for me and each of them had an area of games that they were interested in. They were interested in like adventure and strategy was one, and sports was one, and online gaming was one, and they might have maybe one internal development team, at the most but the rest would be working with independent game developers around the world. And those are separate companies. And you signed a publishing agreement with them.

And so, I got to learn about these publishing agreements and how they work and we were negotiating them constantly. I remember one of the projects that was going on when I came in was to do an F1 racing game and we're working with a team to build this *Formula One* racing game, but we're also working with the league that runs Formula One, and we had business people who would negotiate these deals. And, the guy working on that came to me one day, I mean, when I was very new on the job and said, "Hey, this is the deal. We want you to sign for this F1 thing. It's a million dollars to get the rights to *Formula One* for games. And I'm like, Okay, let me talk to Charlotte. I talked to Charlotte and I'm like, "Charlotte,

somebody just asked me for a million dollars. Can I do that?" [laughs] And she's like, "Well, you should look at it closely and see if it makes sense. If you think it's right, then yeah, go ahead to sign it. It's a million dollars." [laughs] Okay- I [can] just do that.

So, it was a little weird at first getting used to what I could and couldn't do in the scale that we were working on. But we were doing these kinds of development deals all over the world. We worked with a little company called Rainbow Studios on a game called *Deadly Tide*. They were in Arizona, we were working with a group whose name just went out of my head, who did a game called *Hell Bender,* but they had done a game for the group the year before. Let me talk a little about the names and what we could do. So, at that time, first person shooters were really the big thing that was coming out of games like *Quake* and *Doom*. And they tended to be really gory and they tended to get M Rated. What I found when I got over there was the biggest thing Microsoft was afraid of is that we would put out a game that would hurt the Microsoft brand that's on our box, because we could do so much damage from their point of view to Office or Windows. If we pissed off somebody and then they boycotted Office. In that first year, we were always trying to expand what we could get away with because we knew we couldn't just make a family friendly games. We couldn't compete in the game business.

My goal was to increase our market share in the game business and become the best publisher of video games. And we couldn't do that with one arm tied in our back. We were always trying to get a little more permission to push the boundaries. So, we went into that first year. We wanted to

choose some names that we thought would be a little uncomfortable for our management and marketing guys who came up with these names that I mentioned for two games. *Deadly Tide* and *Hell Bender*. And this was a meeting we were going to have with Steve Ballmer, Bill Gates, and the head of marketing for the entire company at that time, who was a Procter and Gamble guy, like Ballmer was. We knew… seeing Microsoft's name next to the word *Hell* that we were pushing our luck, but actually we were more worried about *Deadly Tide,* because tide was the name of a product from Procter and Gamble where both Ballmer and what's his name had worked. So, anyway, we have the meeting. We do this really big presentation. We show all this stuff. And I can see Ballmer and the other guy getting very nervous as we're showing these names. But before they can speak, Bill chimes in and is like, "I think this is good. I like these names." [laughs] And then they had to be quiet and it was nice that we got the names that we wanted and we shipped and it didn't cause any problems. We incrementally got more breathing room to do the kinds of games that gamers wanted to see. But it wasn't until *Halo* that we did a first-person shooter and that was quite a few years later.

Michael Halvorson: And the platforms that you're working on, are these kind of PC games for only PC? Yeah, maybe eventually Windows?

Ed Fries: You're right. By the time I came in, everything that we shipped under me were Windows games, and mostly 3D games. So, that was the time when 3D accelerators were just coming out and that was something that we were leading in adopting.

Michael Halvorson: Yeah, I think it might be interesting for our readers, I'm always thinking about future readers, because I'm a historian, but, this is before an Xbox console. This is before there are consoles out. But this is kind of before some of those Steam Machines I guess. So, you're kind of thinking about the era of DOS-based or maybe Windows 3 and later that they would have these cool accelerator cards and a nice video setup, but they're somewhat limited and they're not- they might have a modem but they're not really broadband or internet aware. Can you speak to that kind of time period in which the hardware was getting cooler, but it was kind of limited?

Ed Fries: You're right, there was a lot of stuff that was changing back then. There was the movement moving from DOS to Windows. That was happening. And games were moving from DOS to Windows. And to get people to move from DOS, and to get game developers to make Windows games, Microsoft had to create a layer. Basically, what Windows is, what any operating system is, is it makes a bunch of different pieces of hardware look the same to the piece of software that runs on it. And so, we needed a layer in Windows that would make the machine look the same to the game even if the hardware underneath was quite different. And that for gaming [at Microsoft] is what's called DirectX. It's still today called DirectX, the DirectX part of Windows.

And so, there was a DirectX team developing this stuff, DirectX evangelists, all this was happening. But, right around the time that I came in [early 1996], they were doing big parties at the Game Developers Conference to promote, that you should move your games to Windows. So that was happening, but... the graphics cards were one of the big reasons why you would

want something like DirectX because there were multiple competing standards and you want to write your game just to one thing and have that thing worry about the different standards. Kind of like I talked about the layer earlier, that we created a layer so we could develop Excel once and have it work on Mac and Windows. And in that case, OS2 Presentation Manager. Same thing for developing a game once but have it work on lots of different graphics cards. So, you had the DOS to Window shift, you had the graphics card stuff and then, as you point out, you also had online gameplay coming in and the games I mentioned before like *Doom* and *Quake*. Those started as just thinking you could just link PCs together in a local area network [LAN] and play. But after a while, the internet was becoming more capable, and then people could connect and play with people around the world through the internet. [Ed. The internet is also characterized by further abstractions from the underlying hardware.]

And so again, a lot of what I mentioned like *Command and Conquer* supported that as well. So, it was happening not just in first-person shooters but in real time strategy games. In fact, PC gaming was very much the leader in that kind of thing. Although there were early experiments in online connected play on various consoles that go all actually all the way back to the original NES which would be 1985 or so. But anyway, all that stuff is happening at this super interesting time.

Michael Halvorson: Can you talk about *Age of Empires* a little bit because that early history-based strategy game was an important investment and I think success for Microsoft [with] many

versions. When you came, what was happening with *Age of Empires*?

Ed Fries: Yeah, I'll give a little product history and a little business history on it, too. You know, I came in, I think Stuart Mulder-- and Ed Ventura was the business guy for Stuart—Stuart was one of the heads of my groups, and head of a group called Oz, which was an adventure-something strategy game… [laughs] They were working with a company called Ensemble Studios down in Dallas, Texas, and I went down to meet with them. Tony Goodman was running that group, a fantastic company. But they were new; they had never made… I think this was their first game. They certainly never made a real-time strategy game before. But a hard-working team and really a group- Like Tony was an incredible leader. Everyone was super loyal. And they loved to work there. They said it was like being part of a family. So, they all said every time I talked to someone who worked at Ensemble, that it's like being part of a family and a good family apparently, but anyway.

So, I look at the publishing deal and we were gonna pay them, I think it was a 15% royalty rate. And we had the right to do three games with them. And that's kind of a low royalty rate, but it wasn't way out of line for that time, but it was on the lower end, but that's not unexpected because they were a new team and for new teams you generally get when you can get. But they finished the game, Stuart's guys. So, when we were working with one of these external teams, we didn't just like give them money and it was done. There were milestones they had to meet every few months and there was a producer on our side—a program manager in Microsoft speak—that was helping decide what features are happening. Tim Znamenacek

was the guy doing that. Ed Ventura was managing the business relationship. We did all the testing, all the marketing, and sales. So, all that goes beautifully with this game and it comes out a huge hit. Obviously, we have two hits on our hands [now]. We have *Flight Simulator* that's making a lot of money and we have this game [*Age of Empires*] that's making a lot of it. [So,] Ensemble comes back and they want to renegotiate the contract. And it's like, "Well, this is the contract. I mean, we agreed on three versions at this rate."

They're like, "Well, then we don't think we're going to do the next version." [But we say,] "Yeah, but the contract says you have to do it anyway." [The dispute] didn't get very far. They had a guy who's still in the business named Bob Wallace. And he was a very tough negotiator. Very experienced, much older than me. [laughs] Much older: maybe ten years older. Seemed like a lot at the time. Anyway, he and I could not get along, we could not. But then at some point I went out of town. I think I might have gone on vacation for a week or something. And Robbie took over. And he immediately renegotiated the deal to be 25%. So, I was like, "Well, you just caved on all this stuff I've been fighting about for a year." And he was like, yeah, we needed to get this done. And he was probably right.

Anyway, so that's the business side. And then what happened was with the next version, we started doing the math. Well, we're paying a 25% royalty, and you know, this thing's selling really well. At this point, it's going to be cheaper for us just to buy the damn company than to pay that much royalty. And so, then we ended up acquiring them. So, they became an external studio that we kept down in Texas, but was owned by Microsoft. And that kind of became a model for other things

that we did. We acquired Access Software in Salt Lake City. They had been making Microsoft's golf game called, cleverly, *Microsoft Golf*, for many years. Then we could take over their *Links* series as well, which was a big seller. And they went on to do games up through the Xbox [era].

We acquired FASA Interactive, the creators of the *MechWarrior, BattleTech* series, *Crimson Skies*, those kinds of games. My group from Chicago, we moved them out. That brought this kind of legendary designer Jordan Wiseman, who I just saw yesterday. (He was pitching me a new game yesterday.) And, they brought a real, more true game development experience into our team. We had kind of like some Microsoft people who knew how to write code but didn't really know that much about games, and so to have more DNA from the game business really good for our internal teams. And we just kept kind of going around and signing publishing deals or doing acquisitions, or both, depending on what made sense. By the late 90s, the group was doing well; I mean, our market share. By then we were in our own thing, we were in Microsoft Game Studios. At some point I changed my title to general manager instead of business unit manager. I kind of promoted myself when no one was looking. But it didn't really mean anything different in Microsoft terms. And yeah, things were going good on the PC side, and our market share was getting into the kind of high teens where we could have Electronic Arts in our sights. The market very fragmented among different game companies, but Electronic Arts was always like the Lotus or the WordPerfect that I was aiming that. They were the one to try to beat. But yeah, I'm kind of transitioning into Xbox.

Michael Halvorson: Before you do… and I want you to but yeah, you did such a good job of describing all the different partnerships that you have made. Was there a point when you were able to get on a whiteboard with people and say, "Hey, these look like the genres within the gaming world now. We've got strategy, we've got first-person shooter, we would have these different categories of games, but you were kind of trying to have a complete portfolio. Were you able to kind of decide, "Hey, these are the categories and we want one in each or several?"

Ed Fries: Yeah, that's basically the way our group was organized, even kind of from the very beginning. And so, I tweaked it some but I didn't change it a whole lot. So, the teams got bigger, and it's typical, like seven or so people who work for me, and most of them were heads of different kind of categories of games. We also had an online games group, which I mentioned before, and that is something [where] we actually acquired a little company called the Internet Gaming Zone. It was a few guys we went down to meet with, and they had to kick their mom out of the house because Microsoft was coming in later. [laughs] We acquired their little company and moved them up to Redmond and that became the core of what was called the Internet Gaming Zone [and it] became the MSN Gaming Zone. And that was a lot of card and board game stuff and early internet gaming stuff that we learned a lot from.

But I mean, all during this time I worked for Robbie, but generally, the rest of the company, every once in a while, we'd meet with Bill or Steve about what we're doing, but no one really cared what we were doing, which was so great there to work in the office. I could just do what I wanted to do, I can

make the decisions I wanted to make. I had Robbie, run an air cover for me and just grow the business and as long as I wasn't losing money, I felt supported by Bill and Steve that they would support my budget every year. They'd approve it, but there wasn't a lot of political fighting or anything like that. It was really, really fun for me. I felt like I owned this business and was trusted enough to grow up the way I thought was best. I had a partner Shane Kim in the sense that Shane was my business guy, and Shane really came from much more of a business background. Like Stanford, undergrad, Harvard MBA, something like that. I may have those two reversed but he would ride shotgun on the acquisitions and work with the finance parts of the company to make sure that happens. Or I remember talking about Microsoft accounting people and there was no accounting system for doing what we were doing. Like, hey, I have this many people working on this project on my side, and this much we're putting out and I want to know, at the end, did I make money or not on this project? And it's like, oh, actually, we don't do that. [laughs]

Because all those successful Microsoft businesses [have], like, the cost of, you know, programmers on Word or something is like a fraction of a percent of the total revenue. So, they weren't really built to run 50 projects at once and see which ones are profitable or not profitable. We had to kind of create our own accounting system to be able to do this and stuff. It was all common sense, but it was not something that the company was used to dealing with.

Michael Halvorson: Understood. Well, so then how do you first hear about this console initiative?

Ed Fries: Right, so what happens is, it's like 1999. And these guys walk into my office from the DirectX team. And they have this crazy idea. And even before they walked in, I had been starting to see that the PC market was getting harder and harder for us to gain share in. As I got closer and closer to EA, every percentage got harder to get. But there's this whole other market, console games, and we'd had nothing in that. We were building these games, but maybe I could take them and put them on these other consoles and make money. But it was just kind of a half thought in my head. I had no idea how to do it.

And these guys walk in from the DirectX team and they have this crazy idea for this thing they call the DirectX Box or just shortened to Xbox. And that's what they pitched me. What they pitched me was, it was just going to be like a standard Windows PC, disguised as a game console. It would be a Windows PC in a box that makes it look like a game console. Then it would run a special kind of thin layer of software on top of Windows that pretended it was a game console. So, like you'd put in a PC game, and it would quickly install it on the hard disk. And then run it just like on a console—when you drop in a disc and it just runs, which back then, didn't happen on PCs. You put in a disc, and you had to go through the setup and install the stuff. So, in a way it was just like a glorified launcher as it was originally pitched.

But I was excited because I was like, "Hey, here's a way I could get to what I want to do. I could take our existing portfolio of PC games and make more money from them in the console

world. So, I said that I was excited about this idea and I agreed to team up with them and help them bring it forward. Then they formed this special task force and we started to put together and they recruited Rick Thompson who was the head of the Hardware group came over to be the business guy over it. Rick was one of the few true business people at Microsoft. He ran the Hardware group which was kind of like my group, in that it had lots of different projects that you would experiment with and some would succeed, like joysticks or mice, and some would fail. He really needed to know what was going on in this business and [could] manage it.

And so, he was a really good choice to come and run this thing. And one of the first things that happened was we collided with another group at Microsoft. There was a group out of the Systems- out of the Windows team, actually, and they had paid Sega to put Windows CE on the Sega Dreamcast. On the Sega Dreamcast, there's a little Windows logo on it, because you could reboot it into Windows mode. Nobody did it. And, I think one game was made or something to show off this capability. But anyway, after that project, they proposed that they were going to make, basically, a whole Windows console. And so, we're proposing this Xbox and they're proposing this Windows console. And pretty soon, they gathered a bunch of vice presidents around them and we gathered a bunch of vice presidents around us, and its Microsoft politics, and then we had a big battle of the vice presidents. So, we have a big meeting with Bill and Steve to see which group is going forward.

And so, they present first and they present something that was very similar to the Sony PlayStation, that was just really

taking the market by storm, right then. [It would have] custom hardware, custom software, a straight-up game console. Then our guys went up and presented, and they were kind of like, "That project. I mean, it's so off strategy." It was like Microsoft speak: "They're not running Windows. You're not using a PC architecture. We're using a PC architecture. This is a Microsoft on-strategy project." What you just watched was like, Microsoft going into the hardware business. We don't do that. And so, I'm summarizing, like a couple hour meeting. Probably not fairly but anyway, that's effectively what happened.

And so, at the end Bill and Steve said, "Okay, we like the Xbox project better than this one and so that other project got canceled and some of those people who were ex 3DO people came and worked on Xbox after. (3DO was an early American game console.) So okay, we had won the political battle, and we had a year to basically come up with a plan to actually do this thing.

And so, the task force went off and did this thing. I was one of the few people on the task force, who was working part time because I was running our games group, and refused to give that up. But this task is going and Rick is leading it. And one of the first things they do is they go out and they talk to all the OEMs and say, "Hey, we're going to establish the standard for this gaming thing. And we'd like you guys to make the hardware and then we're going to make the software for it." And basically, the OEMs laughed and said, "We're not that stupid. We know how the console business works. You sell the hardware for a loss, and you make it up on the software, and you want us to make the hardware for you." So, Rick comes back discouraged. "That didn't fly. We're gonna have to make

our own hardware if we're gonna do this." As the year of digging in deeper and analyzing stuff went on, the product more and more shifted towards that other product that was pitched at that meeting. It didn't go all the way there, but it went more and more and more in that direction.

Okay, actually, we're going to have to make the hardware and then okay, we can make it look kind of like a PC but it's not really going to be a PC. And oh, Windows is actually pretty fat and we know game developers want a lot of memory to run their game. So, we can't really run all of Windows, we can only maybe run just enough to say it's a little bit of Windows kernel. And so, as we get near the end of that year, the other thing that became clear was we're going to lose a lot of money on this project. At least a billion dollars. Probably at least a billion and a half dollars. At that point, Rick Thompson quits. [laughs] He says, I'm a businessman. I like to work on businesses. This is not a business anymore. Businesses make money, this is losing money. I don't want to lose money. He leaves. So that's not good.

So, what are we going to do? What we need is a senior manager. What about my boss, Robbie [Bach]? So, Robbie, steps in for Rick and takes over and he stays as the head of the Xbox project then through launch and quite a bit beyond. That kind of leads into the meeting called the Valentine's Day Massacre that happened on Valentine's Day [February 14], 2000. So, we could go there next. It's good time for me to take a sip of tea I think.

Michael Halvorson: Yeah take a sip of tea. I have talked to Robbie about some of these things and Robbie, since we're talking about it, of course he is very, very fond of you and I know that feeling's mutual but he basically says he kind of was aware of the Xbox sort of initiative but didn't really pay that much attention to it. And then when he was asked to kind of be the leader, it was a stretch for him in some ways. Is that kind of the way you perceived it to be? Also, you were part of that you were kind of a part time member of this task force but he wasn't.

Ed Fries: Yeah, and you got to remember, at that time, Robbie was the manager of a bunch of different businesses, of which my group was just one of them. But those businesses had kind of slowly become less important like Encarta, and the CD ROM related businesses, didn't really exist anymore as the internet grew. Like I think Expedia got sold off. And some other things. And so, I think he was ready for a bigger challenge, but he was a general-purpose sales and marketing guy. He wasn't really a game person. What he knew about games he probably learned from me. [laughs] Because, you know, I reported to him and told him what we were doing. But he was what we needed for the project, for sure.

Michael Halvorson: Talk about the St. Valentine's Day Massacre and your perception of how this meeting went.

Ed Fries: Yeah, so, this was Valentine's Day 2000. Meeting started at about 4pm. And it was in the corporate boardroom, so kind of the most important meeting room in the company. And we're gonna meet with Bill and Steve and present basically the

results of that year, and it was going to be the place where it's the go / no go meeting for Xbox. Either it's gonna get approved or it's gonna get canceled. If we go past this meeting, the next thing we're going to do, in less than a month, we're going to present it to the game development community at the Game Developers Conference. We had decided that game developers were really the audience we want to appeal to first, even before customers. You want to get content for your platform or it doesn't matter. And we want Bill to be on stage again. So, that was one of our asks going into this meeting, if it gets approved. If it gets canceled, then we go back to our day jobs. I'll go back to running the PC game business, which was a job I liked.

So, we go in and we're all sitting around everyone's there, and Bill walks in a few minutes late and he doesn't look very happy. I don't know how much of this is for show but he walks in, he's got our presentation on a PowerPoint deck in his hand. And he slammed it down and he says, “This is”- as I remember it- “a fucking insult to everything I've accomplished at this company.” That's what I remember him saying, anyway. You can talk to other people who were there and see whether they remember but that's what I remember happening.

Michael Halvorson: What's he's so mad about?

Ed Fries: We all know why he's mad. He's mad because the last he heard this was gonna be on strategy. [laughs] And now, we're presenting something that's off strategy. We are going to be in the hardware business. We're going to manufacture this

stuff, it's not really going to run Windows, and I think that that was the most recent change that he probably wasn't up on and so I turn and I look at J Allard because that's J's job, the system software. Bill's mad about the software. But J isn't saying anything. He's kind of like a deer in the headlights, that's kind of the look on his face. So, I'm like, fine, I'll say something. I tried to argue with Bill for a minute or maybe even less, and he shoots me down. And then Robbie tries to argue with him for a minute, and then that doesn't go well, and then J wakes up and starts to argue with Bill. Then they have a little technical argument for a bit, and meanwhile, Ballmer is flipping through [the report] and he's gotten to the page that says we're going to lose a billion and a half dollars. And now Ballmer wants to talk. And anyway, it goes on like this.

We're an hour or two hours, three hours. Literally, you know, it's like seven o'clock and we've been yelled at, in turn, by Bill and Steve. And we just kept saying the same thing. Which was like, you know, you asked us to go look at this, [and] what it's going to take to do it. This is what it's going to take to do it. If you don't want to do this project, that's fine. We can do something else. But if you want to do this project, we're really confident that this is the best way to do it. This is the plan that will be successful. I know you don't like how much it's gonna cost. I know you don't like the technical decisions that we were forced to make. But we're really confident that this is the strategy to do this. And this is what we want to do. So that was Robbie, me, J, we just kept saying the same thing over and over again. So, you know, it gets like three hours in and now we're all in trouble not just at work but we're in trouble at home because we're like it's Valentine's Day, where we've missed our Valentine's dinners or whatever everyone has

planned, so now we're really in trouble. And then somebody in the meeting room- It got to some sort of a lull, the yelling at us- a kind of natural lull- And then somebody pipes up just for a second, and they say only a few words. I think it was Craig Mundie. Robbie thinks it was Rick Belluzzo. It doesn't really matter. One of those guys said just this: “What about Sony?” And the room got really quiet. Those words meant something; it wasn't just a random set of words.

The reason it meant something was- and this is why I think Craig Mundie said it, but either way, it has to do with Craig Mundie. Craig Mundie had for years been writing this series of memos about the threat that Sony represented—the existential threat Sony represented to Microsoft—in Microsoft’s corporate [mission statement] was [the phrase,] “a computer on every desk and in every home running Microsoft software.” And we were doing pretty damn good on every desk in offices. But at home we were not doing that well yet, at this point.

But Sony was a really popular consumer brand. At that time, Sony was like the brand you wanted to have for a TV or whatever. And what these memos that Craig was writing were saying was, “Well, you know, they're kind of sneaking a PC into the home in a series of parts. There's a hard disk in their DVR. There's a microprocessor in their PlayStation. And all they'd have to do is bring these parts together and stick a mouse and a keyboard on it, and you'd have a home PC that would be a threat to the company. I’m not sure I really bought this argument but everyone in the room had seen these memos. We all knew they existed. And we all knew that that's what that phrase meant. What about Sony?

So, there's kind of a pause, and then Bill says, “What about Sony?” He looks thoughtful. He looks over and Ballmer says “Yeah. What about Sony?” And then Bill says, “I think we should do this,” and Ballmer says, “Yeah, we should do this.” And, then they start getting excited, like, “Okay, we're gonna do this. We're gonna give you guys everything you asked for.” You wanted to move off campus to your own place. You can do that. If you want a $500 million marketing campaign, you can do that. We're gonna keep the rest of the company away, like you asked. We're going to just let you guys go off, do this thing, make it a success. Go do it. You have our total blessing. This is approved 100%. [laughs]

That part of the meeting took five minutes. And I just remember getting up and walking out just bewildered by what I had just been through. I looked up at Robbie as we were walking out and said, “That was the weirdest meeting I've been in in 14 years in this company.” But that was the approval of Xbox, in my recollection. I’ve told the story many times.

Michael Halvorson: It's an amazing story. Just a quick follow up about that, for those who are reading this or interested in it and haven't sat in a room with Steve Ballmer and Bill Gates. Can you comment on the way that they discussed ideas, the way they used their team leaders, like you all, to make decisions? Because it's not like Bill came in and said this is canceled and just leave. It's almost like he said, "I'm interested in this idea, but there are real problems that you guys need to [account for] or convince me [about], right? You need to persuade me. Is that

something that he would just regularly do? Did people recognize this as his strategy or were people kind of like, what the heck is going on here?

Ed Fries: Yeah, I'd say Bill's behavior was very much to be expected, even though it probably sounds shocking to an outside person. [laughs] He was always testing us, but you always felt, I always felt anyway, that you could change his mind if you had a good argument. There were many times when I was working on Excel or Word where I had to say “no” to him. Which, how many times you have to say “no” to the CEO in a company? But he would, he would take a “no.” He would dig down first and ask hard questions and if you could convince him that you understood the problem better than he did, and you had a good reason why you were saying “no,” then he would agree.

And so, to me, it felt very much like that it was just more dramatic and that the stakes were higher and you know, the fact that it was on Valentine's Day and it was going to really affect our careers and the future of the company in this one area. But it was vintage Bill and Steve. Also, Bill and Steve dividing the project [among] themselves very naturally. Bill focusing on the technical aspects of it and Ballmer focusing on the business and marketing aspects of it, even though they both knew those areas pretty well. They would defer to each other, and so you’d get this sort of super CEO [relationship]. Every CEO has their strengths or weaknesses. But these two guys together had very few weaknesses. They covered the bases pretty darn well. But that could be annoying- they were good at working like one, in the sense that they could agree and move forward.

Michael Halvorson: That's really useful. Well, what did this mean for you then? Xbox has been approved and funded. So, what does it mean for you?

Ed Fries: Yeah, so for me it was like all hands on deck. I mean, at that point, my group was up to maybe 400 or 500 people. It would grow to 1200 in the next year. So, we were growing a lot. A normal game takes about three years to develop at that time. And we had 18 months to make games for this [new Xbox] platform, where we didn't have the hardware, and we would not have the final hardware until just a few months before shipping. And again, even though the internet exists then, the idea that you could have patches for games [i.e. online updates] was not a concept [yet]. That didn't come till much later because even though we shipped [Xbox] with a hard disk, it wasn't big enough to hold the games, and so that meant the games had to be done, actually several months early, stamped into CD (or DVDs, in this case) and put into boxes. So, it was like, "Okay, we're gonna do this, but November 2001 now doesn't look very far away at all."

From my group, all the people that worked for me, everybody understood that Xbox [was a] priority. We were de-emphasizing our work on the PC side. Looking all over the world. We had a good network of scouts, who were in touch with different game developers. And we just started piece by piece to put together a plan for launch and beyond as far as having a launch portfolio. We knew we wanted a sports game. We knew we wanted a racing game. We knew we wanted an action game. We knew we wanted an adventure game. Those

kinds of things. Going through the categories again, where could we go? What are our choices? What could we take and repurpose? What can we steal from Sony or Nintendo? [laughs] Buy one of their favorite developers and move them over. And we did all those things and many more. What could we do with Hollywood? We did a whole big deal with Steven Spielberg around the movie *AI* which turned out to be a bad thing. [laughs] But we tried lots of stuff. We spent a lot of money. In the end, all that really matters is one thing worked. And that was *Halo*. And we shipped with some, you know, good games, and then we shipped with one great game and that's what we needed to be successful.

Michael Halvorson: Describe the *Halo* project and how that came together. When did you first learn about that? Or how did that begin for the Xbox initiative?

Ed Fries: Yeah, let me talk about- there was one other one first. There's a company called *Oddworld Inhabitants* that made a series of games for the Sony PlayStation and that was one of the first kind of coups for us was stealing them away from Sony to make their next game. Which was called *Munch's Oddysee* on Xbox and that was a complicated deal [because] another publisher owned half of the company. They owned the other half… [So, we] do this deal to steal them away. And that was kind of the first well-known console developer that we brought over to make this game, *Munch's Oddysee*.

But then I knew the guys from Bungie. I had played some of their games in the past and I had a lot of respect for them. I

knew their head of business, a guy named Peter Tamte. And out of the blue one day, my phone rang. It was Peter and he told me that the company was already one-third owned by Take-Two, an independent PC publisher, and that they were going out of business, and that Take-Two was going to buy the rest of them unless someone else was interested. And he mentioned that they had this thing called *Halo* that they had been working on. And I had seen one of the videos of *Halo*. Bungie was a Mac-first developer, and so they had shown a video at one of the Macworld conferences. So anyway, I told him, I'm very interested. I had a lot of respect for the Bungie team. And we would try to work out a deal. They had two games under development. They had a core team in Chicago working on the beginnings of *Halo*, and they had a team in California working on a game called *Oni*. And so, I called up the head of Take-Two, a guy named Ryan Brandt, who I didn't know very well, and started to negotiate with him about what to do with Bungie. And basically, I said, he can have all the back catalog. They've been making games for 10 years, you can have all the games that they've made in the past. Plus, I'll finish the game *Oni* and deliver that to him, so that they can ship that game. All I want is the new game *Halo* and the development team that worked on that and he can have everything else.

And we worked it out and he agreed. We did that acquisition and moved them out from Chicago to be part of our team here [in Redmond]. And they were an amazing team that worked incredibly hard. And they really did the impossible. I mean, they built that game in 18 months, pretty much from scratch, and along the way really influenced the Xbox itself. They worked very closely with the operating system team and taught them what they needed to do to support a high-end

game like theirs. They also put in the first multiplayer stuff first. The original version is just LAN based, but people used that to do LAN parties with *Halo*. But then they also had a lot of influence on what became Xbox Live and the interface for Xbox Live and how it worked with games which ultimately shipped in *Halo 2* so they were an indispensable part of the success of Xbox.

Michael Halvorson: Ed, did they kind of keep their spec and their plan for their game or did you all meet about the game and say, hey, maybe we can change it in these ways or develop these characters? Or did they just kind of take their plan and then, you know, from an engineering point of view, you all implemented it?

Ed Fries: Yeah. So, I mean, it was like working with a third-party team in that it was under Stuart Mulder. It was in his Action/Strategy group. He had a producer on it. And, he had a testing team that was led by a guy named Harold Ryan, who later became the President of Bungie for a while. So, it was kind of a hybrid- they really valued their independence. So, I put them in a special part of a building. They had their own card key access to it and stuff like that.

They didn't even let the test team in at first. They weren't sure they needed a test team. So, I said, “Okay, you're gonna need a test team.” So, I parked the test team right outside their card-key door, [but] outside the entrance. And after the first version shipped, they moved their [card key access] door to include the testers. [laughs] The testers earned their respect. Because they were way more than testers- they built all this

technology to help make the game work better. It would get technical [to explain it now]. But as far as me goes, I'm running around the world with my hair on fire, talking to teams and trying to get support all over the place for supporting Xbox. So, I can't really claim that I had an influence on any one particular game.

I would have maybe a couple of meetings with the team in the lifecycle of the game and I would give a little feedback but it would be crazy to give me any real credit. On *Halo* they actually have me come in just for fun at one point and read some lines of dialogue for one of the characters but they didn't even end up using that. But I love the game from the moment I got my hands on it, and I certainly did a lot of promoting of the game to the press. And so, the press would have seen the game through me in a lot of cases and probably given me more credit than I deserve.

Michael Halvorson: Yeah. Before we talk about the way these games are talked about in the system, how was developing games for the Xbox a real change for Microsoft as a software company? Because now you have animators and sound people and producers and sort of different roles, although you'd had them in the gaming group for a while. Was that a new challenge for Microsoft?

Ed Fries: I mean, sometimes it was a challenge in silly little ways. Like, what's the career ladder for this job function? What number [level] do we put on it in the system? You know, that kind of thing. So, it was more stuff like that. We knew what we were

trying to do- Sometimes we would call our product managers… [pauses] Our program managers would be producers in game [industry] terms. So, sometimes we would call them producers. Our product planners, there isn't really an industry standard name for it, but sometimes they get called A&R people, which is a term that comes from the music business, and it stands for artists and repertoire. And it means kind of like talent scouts that are out keeping their fingers on the pulse of what's happening out in the game development community. They know when a team we might want to work with pops up and then they manage the business relationships. So, Ed Ventura would be a great example of one of those people on our team. But we had dozens of them, by the end. All of that falls under the category of first-party games, in game speak. So, first-party games are games that are made by the first party, or the one's making the Xbox. After the Xbox launch, Robbie also moved third-party under me, so we can talk about that too, if we have time.

Michael Halvorson: Describe the launch of the Xbox and, something I would note is that, you're often described as one of the great evangelists of the Xbox initiative. People really appreciated that. So, how did you see your role as a person who needed to tell the world about the Xbox and get partners excited about the Xbox?

Ed Fries: Yeah, I mean, the advantage I had as an evangelist, from the very beginning was I was a gamer. I had written games as a kid, and I had played plenty of games. When I was working at Microsoft, on the side, it was certainly my hobby to go home and play games when I wasn't working. And so, I could speak authentically to people from the press about games. And even

though they were very skeptical that Microsoft was getting into games and what does Microsoft know about games, especially in the beginning, when I was starting to do the PC stuff, at least having one person they could talk to who could talk like a gamer to them and have them feel like, this person gets that and they're in charge to some degree. So, maybe something good will happen, after all. Maybe I don't have to be so skeptical about Microsoft's ability to do this. That was basically what I focused on. And I would try to have very authentic and real conversations with them. Not be like a marketing parrot that's reading a press release kind of thing. I wanted them to know I'm a real person. I'm a gamer like them and I have the same passion as they do for these products, and I think that's why I was relatively effective.

Michael Halvorson: Talk about the launch a little bit. How was that a unique experience for Microsoft and for you?

Ed Fries: So, it's hard to talk about the launch without mentioning one other thing really quickly, and that's the 9/11 [attacks on the World Trade Center in New York City]. So, we're launching in November. Originally, the plan was November 8, 2001. On September 11th, of course, the Twin Towers were attacked. I was in San Francisco on a press tour. Robbie was in New York on a press tour. Seamus was landing on a plane in New York that morning. And yeah, well, everyone who was alive then has their own memories of that. But it had a big impact on all of us. For me and my group, in particular, [there were] some very concrete ones. The terrorists had trained on *Microsoft Flight Simulator*, our product. We had a project, one of our main titles, our key racing game was called *Project Gotham Racing*,

racing through New York, that had the Twin Towers on the cover of the box—that's what the featured thing was.

We were in the middle of negotiating with a group called the ESRB, which rates video games, for *Halo*, and we were trying to get *Halo* to have a Teen rating, rather than an M [Mature] rating, because that affects how it could be shown in stores, and who could buy it in some cases, and all this stuff. And we had just about had them convinced that it was going to be Teen rated. And then after 9/11, it came back and said, M rating. So, it affected us in lots of ways, big and small. Robbie was a great leader through that crisis and was really helpful in making decisions about what to say and do about *Flight Simulator* to the press. What to do about *Project Gotham Racing*- that we're going to not only pull the Towers off the box but pull them out of the game, which we were able to do. But just in the first week, it just took us- no one could get back. I was one of the first people in the senior leadership team to get back [to Redmond], which I was only able to do because I was calling the "Gold" line at 3:00 a.m. to get on a flight. The flight I was on was only half full. People just couldn't get through. But there were some flights starting to go.

Robbie ended up having to rent a car and drive all the way across the country, which hopefully he told you that story. He wrote a very nice memo to the team when he got back about his experience. So, the net of all that was we slipped the project one week to November 15th. But even when we arrived, the US launch was going to be in New York City, at a Toys R Us that just opened on Times Square. And Microsoft had rented all the big signs, and they were all big Xs. [It was a]

huge thing. Bill Gates was there to give away the first Xbox. Seamus [Blackley] proposed to his bride that evening, after midnight, when the first Xbox was sold.

All this dramatic stuff happened. But the New York City Police wouldn't let us have a huge line of people lined up to get the Xbox, which, of course, you wanted to show for press reasons. There were a lot of people who wanted to come but they wouldn't let a group bigger than like 20 show up at any spot because [things were] still very touchy about the 9/11 stuff but we ended up getting able to have some people lined up and get the shots the press people needed and stuff when we gave away the Xbox and all that stuff. And so, it all happened and it was just really memorable to be there in Times Square and see something Microsoft does really well. It's the great thing about working at a big company and having the resources to make a big splash and this was definitely the biggest, product release splash I had seen in my career.

Michael Halvorson: And it seemed to be a real success. You know that people appreciated that the product- that *Halo* and other games were exciting for people to play, and the reviews were good and able to move the initiative forward. What was then your role after the launch? Can you talk about that?

Ed Fries: Yeah, so as I mentioned, Robbie moved the third-party under me as well, which mostly meant a guy named George Peckham came and worked for me. And George didn't need management. He is a great guy. He had a great team at work for him. But sometimes he would need a senior man. He

would need someone senior to pull some strings for him or to show up at a meeting to let people know it's important, that kind of thing. And so, I would do that but I didn't dabble in his day to day business. But it meant a lot of flying around for me. A lot of, you know, meeting with the people who are actually my competitors, like big meetings at Electronic Arts or Ubisoft or other things. People I considered my competitors when I was running the PC business, and so they always were a little uncomfortable with my dual role but they made it work. [I] spent a lot of time in Japan both before and after launch, trying to convince the Japanese publishers to support the platform. I also had a group that worked for me in Japan that made games for the Japanese launch. I was there in February of 2002 when we launched the Japanese console, and then I came home to have my first son Xander, who's named after the Xbox, X-a-n-d-e-r. So, in March of 2002, I kind of took off and had a baby. [laughs] For the next few years we were, you know, acquiring game companies, growing even bigger.

We did the biggest acquisition we had ever done, we acquired a game company called Rare. Rare was one of the crown jewels in Nintendo's game business and so to steal them away was a big coup. And we were also starting to plan Xbox 360. We were basically learning after we got about a year into Xbox that we hadn't done a great job of planning for how to reduce the cost of the console over time. Because we had the graphics part that was licensed from Nvidia, and the processor was licensed from Intel, and there were a bunch of other Intel-specific parts on it, we couldn't do what Sony would do, which is to integrate those chips into one ship over time and shrink it and make the whole thing cheaper.

So, that meant that the lifecycle of the console needed to be shortened. Because we couldn't make it cheaper. If we were going to lower the price, we were just going to lose more money. But we needed to lower the price to stay competitive as our competitors were lowering their price. So, we needed to get the next console out early and that meant Xbox 360 planning started quite soon after Xbox launched. And so, there was a lot of planning that went into that and especially about whether it should or should not have a hard disk and should or shouldn't be backward compatible with the previous version. And those are some of the issues that I got involved in.

Michael Halvorson: So, eventually you left Microsoft and I wanted to ask you about that and then also what you've done since that time, which is a long time you've been involved in many different things.

Ed Fries: I can cover that relatively quickly. By the time we got into kind of 2003, a couple things were going on. I had been at the company coming up on 20 years at that point, I've been there 18 years. I didn't really need to be at the company anymore. I had my dream job which was great. A part of what made it great was that no one cared what I was doing. And I could really run this game business the way I want it to. And it was hard for me to go from that to a world where things were more group discussions about what's the right strategy for games in the gaming business.

I had opinions about what was the right thing to do. And I was used to having my way, I guess, but the Xbox was now bigger than any one person. One thing is also just, I mentioned the birth of my first son, and my second son was on the way at that point. I was turning 40. Lots of different things all came together and I decided it was a good time for me to go, so I decided to retire and leave the company at the beginning of 2004.

Michael Halvorson: So, what have you done since then?

Ed Fries: Yeah, I wasn't sure what I was going to do when I left. I didn't have some big master plan. I just started having some people approach me to be on boards or to be an advisor to them in various game companies or even game-adjacent technology companies. I did some stuff on boards of some Silicon Valley startups. Learning how startups work. Help friends start companies and run some game companies. I used to have tons of coffee meetings and I used to call it, "Helping friends having fun." Just avoiding having a full-time job, especially at a big company, but staying active in the game business.

So, I still had some influence and still had a chance to work in the area that I enjoyed and that took a lot of different forms over the years and helped several spin out Microsoft companies. I started my own little startup called Fingerprints where we did color, some of the really first 3D color printing of characters out of video games, and that was a fun little business I ran with three friends, and more recently, about five years ago, I started a venture fund to invest in game companies. That's called 1Up Ventures and we have made our 67th investment in over a little over four years.

Michael Halvorson: What are your guiding principles for those investments, Ed? What are you trying to do there?

Ed Fries: Well, what's special about 1Up: First of all, we only invest in video game development companies so we don't even invest in game tools or platforms or technologies. All our companies are startups with great founders who are making games and then our special sauce, I guess, is that we connect the founders together to form a community of founders, where they can all share information and help each other to be successful.

We just had one of those community calls this morning. And it was really interesting because one of the founders, his co-founder, just had a sizable tumor removed from his brain. And we knew this was going on over the weekend. And he survived and is doing well and he was sharing what it was like to go through the experience. And through his relationship to his co-founder, as opposed to his wife. And just the people around these companies. It's a very difficult business. And so, anything we can do to get them to build kind of a support network around them, so that they have peers who are facing similar challenges and they can share with, that's really what we're all about. That's why we've been relatively successful as a fund.

Michael Halvorson: That's fantastic. I know they must appreciate having time with you and learning from you, as well. When we look back at

your Microsoft years, which is a lot of them, 18 and then more after that, what are some of the takeaways that you have from Microsoft as a company? What are some of the things that you thought, "I learned that there" or "I picked that up"?

Ed Fries: Yeah, I tried to throw those in [during] our four hours of talking- [laughs]

Michael Halvorson: You have!

Ed Fries: I am not sure there's that much I would add. In general, I really loved my time at Microsoft. I was a little frustrated when I left but I think of it as, you know, 17 and a half years of a really good time and maybe six months of frustration. So, I wouldn't change it if I could go back and do it again.

I feel I was in the right place to experience an incredible time in the history of computers, just the progress that's happened. Machines are a million times more powerful now, a million times the memory, but they still have some of the same problems. [laughs] We were running Excel back in the old days and we are running Excel now.

It's been a really interesting time. I continue to see the progress with AI and all the things that are happening. I feel really lucky to be born at the time I was born. Just because we've got to live through a period where, I think, people will

look back at and see, it's a time when the world really changed. Human beings have really changed. And games are really a part of it.

Games are just books or movies or plays--things that have been around for 1000s of years, but with computers attached to them. The power of software [is] changing what entertainment is, and that's going to be around for 1000s of years, too. This idea of interactive entertainment, the idea that entertainment isn't just some linear medium, but something that you can interact with, and it can react to you. It could still have a story, and have meaning, and teach you something about being a human being, but do it in a way where you feel like you're in charge. You're the master chief... you know? You're the one who is winning the fight, right? You're not just reading about it.

Michael Halvorson: Agreed. And Microsoft also changed as a company, as a result, right? And you played a very specific part in that as it went from a business [type] of software company to an entertainment company, in part, and in which they brought gaming to so many people.

Ed Fries: Yeah, it's fun for me to think about being told, "nobody cares about games" [laughs] to seeing a time where, it's in the quarterly reports, and they're talking about what Xbox did. It seems to be a brand that they're taking good care of, and [that] they care about. I'm glad for that.

Michael Halvorson: You can tell that it would have been hard for them to launch the Xbox initiative if they hadn't had that experience in gaming. The things that you were doing in that gaming group, even though it felt under the radar, it really did set the stage for all the licensing and third-party work for them during the Xbox.

Ed Fries: Yeah, I'm proud of the work that I did there. I've been well rewarded for the work that I did. [laughs] I mean, we got to be there at a time when this little company- I mean, when I worked in the [Bellevue] office by Burgermaster, that's pretty small. If you'd told me then that it was going to become one of the biggest, most powerful companies in the world, I'm not sure I would have believed you but it was sure fun to be on the ride for that.

Michael Halvorson: Well, I'm going to thank you for this interview, and for two really nice interviews. With that, I think I'll close. Thank you.

Ed Fries: Great. Thank you.