NetApp Oral History Panel
Dave Hitz, Don Valentine, and Dan Warmenhoven

Moderated by:
John Hollar

Recorded: November 7, 2014
Mountain View, California

CHM Reference number: X7285.2015

John Hollar: All right. Let's get going today. So, Dave, you begin your own story in the book that you wrote about working with Mike Malcolm and James Lau at Auspex. And then leaving, and then coming back together in 1991 to start this idea. Can you talk about that process?

Dave Hitz: Yeah. Well, James was my boss at Auspex. I went through in pretty short order two or three bosses, and they just kept boom, boom, boom, not being my boss anymore. I pissed them off or-- and then James was the boss that stuck.

And so James was my boss for a couple years at Auspex, and then we left together-- originally to do a pen-based computing company, which didn't end up happening. But we got a phone call from Mike Malcolm, who we'd also known at Auspex. The VCs hired him to do due diligence on some stuff. And he had been a professor out of Waterloo.

He called us up with this crazy idea. And Mike and I had lunch on December 2, 1991. James was busy, and then I think James and Mike had dinner the next day. And so that was the second. By the 17th, I think might be the date of the first business plan we were trying to write together. And by that January we were out shopping stuff.

Hollar: What was the commercial context at the time for this idea?

Hitz: Our goal was to do storage for Unix workstations over Ethernet. And at that time, Ethernet was a pretty rinky-dink protocol. These days we sort of think it runs the world, the internet, and all that stuff. But back then it was much more of a work group kind of protocol.

And we were targeting storage systems for a group of engineers. Maybe 5 or 10 of them doing software development, doing chip development. The big distinction between what we were doing and what other people were doing, we wanted to do a box that did nothing but storage for Unix systems. So we called it an appliance. And the best analogy we could come up with in the early days of routing, people would buy a Sun workstation to do their TCP/IP routing.

And then Cisco came along and said, we think this TCP/IP thing might be here to stay. You should buy a box just focused on that one thing. And we thought that the same thing was true when Cisco started. TCP/IP was about 10 years old when we started. The NFS protocol, which was the protocol that was used for Unix storage, was about 10 years old.

And we said, hey, we think this thing is here to stay, and we want to do an appliance, a box just for that one thing. So we thought maybe there was a billion dollar total market for that particular kind of thing. Or half a billion, growing into a billion. Something like that.

Hollar: And did calling it an appliance have some marketing value too? Was there something you were trying to connote with that?

Hitz: Well, as it happened, the marketing value was that no VCs would fund us. And people thought it was a toy. What we were trying to connote was that it would be simple. It would be easy to use. You could plug it in like a toaster and it would just work.

So we talked to people about their Cisco routers, and say, could you even run your network with Sun workstations anymore now that you're used to Cisco routers? And what people generally said was, technically we could do it. But we wouldn't know how to manage it. It would just be too complicated.

And so we were trying to capture that idea of simplicity. And I was told later by one of the VCs that turned us down, I think it was Andy Rachleff with Benchmark. He said, not only did we screw up not investing in you guys, but you guys started a whole new zone of style of company-- this hardware appliance that just does one thing like that.

And we pay very close attention to startups of that nature now. So we viewed it as we were copying Cisco. But I think Cisco didn't explain it as a sort of an idea. This idea of taking something, a general-purpose computer, and skinnying it down, and doing that one thing better.

People struggled with that. We had so many meetings with VCs, and they would say, so you do everything a Sun workstation can do and more, right? And we're like, no, we do less. And we struggled to explain-- like we said if you want to make toast, you could make toast in your oven. But a toaster's better.

It's not the case that a toaster will do everything that your oven will do. It does less, and that's a good thing. Because it does that one thing really well. That was sort of our vision of what we were up to.

Hollar: What were the engineering challenges in building something that was that simple on these networks that were still not so well established?

Hitz: The big engineering challenge was the data storage. Around that time-- these days people typically build storage systems with lots of disk drives all ganged together. That's a normal thing. You've got

RAID systems. Back then, people had multiple disk drives, but each disk drive would be its own-- for old timers like the A drive, and the B drive in a PC. Each disk was its own separate thing. And we wanted to group them all together into one. So that required us to implement RAID, which was not the normal thing in Unix systems.

And that caused a lot of technical issues. We had to implement our own file system. A lot of stuff we got for free out of the Berkeley open source at the time. So we got TCP/IP, we got the basic-- we were running on x86 hardware. We got all the basic stuff to do that. The drivers. So the innovation was largely around the file system, storage RAID, of Disk Management.

Hollar: So Dan and Don, this is late 1991, early 1992. And Dave and these guys are talking about this single-purpose, scaled-down appliance idea. Were you aware of this at all? Was this an idea you were familiar with?

Dan Warmenhoven: No, I first became aware of it when I got a call from a recruiter in, basically, the summer of '94. And he talked to me about it. And I went and had a meeting with Mike Malcolm, who at the time was the founder and still the first CEO. And I was intrigued by it. The analogies to Cisco, I think, are even broader than what Dave just indicated. The notion that we can take multiple protocols, and we go from Unix to the Windows world and so on. And so I really became intrigued by it.

When I was at Hewlett-Packard in the late '80s, the second half of the '80s, one of the groups that reported to me was responsible for the networking of HP'S Unix workstations-- the 9000 series, used to compete against Sun. But the de facto standard was NFS. And it always got to be that the deciding factor in the customer selection between us and Sun was always performance.

And so, I really got to understand network file system for Unix, and how the file servers are configured. And so I had a background and understanding of what they were doing. And the notion of specialized appliance that was then extensible to other environments really resonated. So I really got to get very interested. Did some more research on it.

Around the same time was when Don got involved. It was about late summer I guess or midsummer of '94. The company was in the process of raising a series C. And we already skipped over the A and B rounds, which we should come back to. But that's when Sequoia started looking us as a potential investment. And I'll let him speak for himself. But that's kind of when we both connected on this particular opportunity.

Hollar: Yeah. Don, as they were putting this new business idea together, as Dave was saying Cisco said, or Andy Rachleff I guess was the one saying, we didn't think this was going to happen, but now we pay

very close attention to it. Were you aware, or was Sequoia aware generally of this kind of business bubbling up from the ecosystems?

Don Valentine: Yes and no. I started at Fairchild, which was a largely silicon logic level kind of a component company. And memories had not been invented really yet in silicon that were big enough, and fast enough, to be useful. One of our early investments was Apple, which made me very aware of memory. Because the memory system in Apple, initially in 1977, was an audiotape cassette from Ampex, just to establish one of the founding companies of Silicon Valley. And it couldn't have been slower. And it couldn't have been less reliable than anything you could imagine. So I became both aware that I had to get into the memory business, and I had to get into the memory business fast, or the personal computer would never start.

So the parallel twin to the microprocessor was eventually an IBM product called Winchester disk drives, without which we would have never been able to do anything based on current memory things in the late '70s and early '80s. So I became a big fan of following all of the forms of memory. Largely looking at how to facilitate Apple beyond Ampex's very feeble product.

So what I did was follow it from a silicon point of view as RAMs and ROMs get bigger, and bigger, and bigger, they were taking up a memory function in a computer. But it certainly wouldn't ever be the main memory, because it was just too small to ever be adequate for even-- the lack of real clever applications to use the first Apple Computer. So I was searching at all memory directions. We made some investments early on in the early and mid '80s that helped me understand what TCP/IP was. I think long before a lot of other people understood the critical letters were IP.

And Tom Perkins and I financed a company that was, hard to believe, lacking in success, but very, very technically strong from an educational point of view-- my education, about the future of what was really going to happen. And at about that same time we financed Bob Metcalfe at 3Com, who despite Dave's aspersions about the Ethernet, was all we had. It's the only way we could link one PC with another.

So I kept plowing into the space. Cisco's entire thrust initially was to the internet oriented. They were solving a problem of broadcast storms, where the packet coming from somewhere in the Midwest or the east was not finding the host in the west. So there were data collisions all over the place. Memories were not fast enough.

And they came up with a router. And the most clever thing they did was once they had the IP router fixed, they then ended every protocol sponsored by a computer manufacturer. So Xerox had one. IBM had one. DEC had one. And they managed to embed the capability in memory that allowed them to sell to a whole bunch of companies. And whole bunch of applications which would not have happened. I won't have to do this with John Morgridge. You can just take this part out.

Hollar: That's right. We'll just cut and paste.

Valentine: Plug it into the Cisco story. So we were late to the party certainly, because we were not looking at being in the toaster business. We were more interested in being the general purpose business, where the Cisco theory and concept from a marketing execution point of view was to have every protocol possible. And do as many different things as possible. In contrast to the-- and I still have the shirt from network appliance with a toaster on the back-- it took a long time for me to get comfortable investing in a toaster. Which is why we were in B round, I think it was.

Warmenhoven: C round.

Hollar: C round, it seemed like.

Hitz: Even with the multi-protocol though, a Cisco box still did significantly less than a Sun workstation. You weren't letting people type their own programs and run them, so it still meets my definition of an appliance. And Dan's right, I mean as we copied the multi-protocol aspect of Cisco, we added the Windows protocol, and then we added the fiber channel, SAN protocol. At that point, again, we were-- I don't think we were so explicit about copying that aspect of it early on. But you grabbed it very quickly, and sort of said, oh, well if you say like Cisco, why don't you be like them that way too?

Warmenhoven: And you'll find in the prospectus when it went public. The S1. We talked about the strategy. The core business is Unix. Next business going to Windows. And so it's way back there.

I want to add something to Don's comments. I remember one comment he made 10 years after the company went public. He was addressing, I think it was the senior leadership group, and kind of reflecting on the history. And he described his investment in NetApp, which was then Network Appliance, as a contrarian investment. Do you remember that comment?

He said, here it is. It looks like you, in one sense, are a disk reseller, which has got to be low margin, going up against some very entrenched competitors, like Auspex and Sun, who are known to be aggressive and killing anything that their shadow gets cast upon. And yet they decided to proceed. I'm not sure why you guys decided to do that. Worked out OK.

Valentine: Because I recruited a terrific president. How do you like that line?

Warmenhoven: That's actually worthy of some commentary too.

Valentine: See part of the answer to your question on a semi-serious basis is we tried to avoid investing in things that were one of. So when we invested in Apple, or when we invested in Cisco, we knew we were going to make 12 investments or so in that category. And we always talked internally at Sequoia about these being aircraft carriers. We knew we would be desperate for memory systems. We knew the memory systems had to have better and better disks. We knew eventually that the disk drive had to be portable.

So when we chose a company, we were trying to choose a category. And this was a company we had a hard time trying to visualize what the alternative things were, from a systems point of view, that we would logically invest in. Cisco must have bought a dozen companies from us, because we were investing in that aircraft carrier to facilitate other functions we thought they would need. So this was a company that looked like-- we were not clever enough to recognize, and I had a titanic argument with Dave once, semi publicly-- the wimpy director telling the head of engineering that we were going down too narrow a road. Remember this conversation?

Warmenhoven: Yeah, it was during the SAN conversation. I remember the punchline.

Hitz: We were trying to decide whether to add the SAN protocol, which I was on the wrong side of that argument. I thought that we should not, and James Lau thought we should. And I remember Dan brought us to the board-- it was a friendly argument, but we had different views. But Dan said, why don't you share your thoughts with the board? And I just remembered--

Warmenhoven: It's actually a fundamentally strategic question. Because it was going to take a lot of investment. It wasn't just add a protocol. It was actually create an entry into the market space, that was going to be fairly hard to penetrate. And the implications on being successful.

There were lots of investment, and I think the argument was, do you go after this larger market, and pour most of your future investment there? Or do you stay in the file server business, and continue to grow your share there? And James was on the no, you gotta go to the SAN. I remember Dave saying, look, we don't have the capability, the financial resources, et cetera to do that well. We should stay in a file server business.

Hitz: And that's the future of the internet EPs. It's the one that's growing, and the other one's not. I was wrong about that.

Warmenhoven: So anyway, here's the two founders. Both of whom-- it's too bad James isn't here-- both of whom have quite a compelling argument. As a CEO, I couldn't sort it out. And so I said, look, why don't you guys just hold this debate in front of the board? And we'll get them to opine, and share their wisdom. And sure enough, that's what happened.

So, Dave had the side of, we're not going into the SAN business, we're going to continue to focus on just the, NAS, Network Attached Storage business. Ethernet stuff. And at the end the debate-- Dave had already concluded he was going to lose the argument before he got in the room, just in the preliminaries leading up to it. So I'm not sure his heart was in the argument by the time he got in the room. But, go ahead. You finish it.

Hitz: I just remember Don said something like, you tell me if you remember it this way. But he asked, do any of your customers tell you that they'd like to buy this from you? And I said yes. And Don said something like, in this economy, if a customer would like to give you money, I recommend you take it. I just thought that was such crystal clear business wisdom. Is that how you remember it?

Valentine: It was a Pyrrhic victory. You don't want to embarrass the head of engineering in front of the other board members. You can embarrass them privately. But the SAN market just was much larger. We had been following a company called EMC, which was a competitor for Network Appliance from inception. My view was, from inception, the customer had a choice. And there were more forces selling SAN successfully, and it worked, than there were selling our crown jewels. And my position is, let's find out what the customer is buying. I don't know if you know the Nordstrom rule-- the customer is always right, is rule number one. If you're confused, revert to rule number two, which is the customer's always right. And all I wanted to do was get more revenue.

Hitz: And there was one more thing going on, just in the context of the industry. The high-tech internet rah-rah guys, at that time, typically were using Ethernet and file based, the NAS approach. And the more traditional enterprise space was typically going the SAN fiber channel approach. And we were selling more to those rah-rah tech guys, and EMC was selling more the traditional enterprise guys.

So part of the backdrop of this argument is, do you want to continue betting on these new generation of internet tech guys? Or do we need to graduate from that set of folks and go enterprise? And in retrospect, the thing that is so good about the fact that we did broaden into that enterprise space, once the tech crash hit, the fact that we were aiming at the enterprise folks with the stuff that they wanted, I think that's what kept us alive, rather than dying in the dotcom crash.

So it was really a technical question about those technologies. But it was also a broader question about the kind of company we wanted to be, and when it was time to aspire beyond the tech niche, and into the broader enterprise niche. And Dan had a really strong feeling in a number of places. Like we were selling so much just to tech and internet companies. And then he started a program to, I think there were six of them, but like telcos, major manufacturing, health care, oil and gas to really try and broaden the span of our business. Because he felt frighteningly concentrated on this one area that was going gangbusters that I was all excited about. Right? I was a young kid. I think some of the guys with more experience in business were a little bit more familiar with boom and bust. You might want a more diverse business. I don't know if that was the driver if you're thinking as well, but in retrospect I know it was of yours.

Warmenhoven: Yeah, that was even before the SAN pieces. So just to put things in a time context, we were a Unix only system, in '95, '96, I think '97 we came to market with the Windows protocol. And we allowed customers to share files between Unix and Windows, which was kind of breakthrough. So that's really what got us in the enterprise was for Windows mail servers and things like that. And then the SAN piece was probably in 2002, or 2003, so it's a couple years later.

Hitz: We might have shipped it then. We started sooner.

Warmenhoven: Yeah, we started sooner. But yeah, I think that's when they got the market. But we already had the focus on enterprise. That's actually what saved our butt when the dotcom bubble burst, in 2002, roughly. At that time-- we were a billion dollar company. 70% of our revenues came from technology companies and internet companies. And those are the two sectors who just got hammered. And from a revenue viewpoint, it looked like our business was in an absolute free fall. I think we went from a billion to 800 million, so down 20%. But you couldn't tell at the time where the bottom was.

And I think Dave's right. We were fortunate that we started the customer vertical expansion with this choice of the six verticals a couple years earlier. Because the sales cycle on a new product like that, it's actually changing-- for a customer, he's changing his architecture for his infrastructure. It's a big decision. And it takes a long time. The sales process was typically a year for a new customer. And then once they buy a little, they try it for a while. They don't buy a lot. They don't commit to it. They kind of sample it. And then they'll start working into their architecture if they're happy with it later on.

So altogether, before you get a customer really ramped up, you're talking 18 to 24 months. So we started the diversification process in '99. And we started getting some traction 2001, just before the tech bubble burst. You saw the mix shift of the customer community really quick to the more traditional IT. Enterprise IT. And that's what we decided, OK, we gotta go for the SAN business as well. But it was quite a series of transitions to go through.

Hollar: Well, and these last 20 minutes or so has set out some of the big themes that are part of this. And I want to go back and explore a couple of them in a little more detail. And it's also showing the great chemistry among the three of you, which I think is also an important part.

Valentine: Oh, we've forgotten all those arguments we used to have.

Hitz: I thought we were very good at arguing.

Warmenhoven: I thought so too.

Hitz: I thought that they were respectful, and we were trying to figure out the other one's opinion. I actually feel really good about that. The style of intellectual engagement in which we disagreed. Let's call them arguments, but it was good.

Hollar: Now that's not always easy, so how did you come to that?

Warmenhoven: I don't know. I think there was a lot of chemistry among the first of two founders. Two core founders of James and Dave. That got expanded to a bigger set, executive team. And Don was always extremely supportive and extraordinarily helpful. Not just endorsing what we're doing, but throwing in lots of new ideas and challenges. That was good chemistry all the way around.

Hitz: You were very focused on culture and creating. I should comment a little bit about Mike. Mike's the one that called James and me. Mike's the one with the idea. Mike Malcolm. And when Mike left NetApp, he went and started another company that also went public. So clearly a genius guy.

He was not a genius at management. I thought he was very good with tech trends, with how stuff can work, strong technical background, operating system, PhD, and professor. And so he did not have a good mental model for discussions, disagreements. People would go into Mike's office, and convince him. And the plan would change, and everybody else would be unhappy. And I remember when you first joined, we were having a big technical question. We had two products, and which one should we ship first, and it was going back and forth. And we were fighting. One was based on the Alpha chip, DEC's Alpha. And the other was based on Intel. And we were hoping to do them both.

Anyway, Dan just said, you know what, the plan of record is that first, this one ships, then that one ships. And that plan's not changing for 60 days. Go back to work. And in 60 days we'll have a meeting, and we'll talk about it there. So would you all just calm down til then.

So it just drained a lot of the politics about it. We could chat about it. What we should do in 60 days without worrying that someone was going to sneak in and change the rules. I don't know what all you were conscious of, but very quickly you drained a bunch of politics and animosity out of the conversations and created a safe place to just chat.

Warmenhoven: There were several factions, much like the SAN/NAS. It's a good argument. At the time, Intel was really focused on the PC. And so our strategy for hardware was industry commodity stuff. We weren't going to build any hardware. We were going to use somebody else's.

Well, if Intel's going towards the PC, performance is not necessarily high on their list. And yet we are fundamentally, in a market sense, a high-performance solution. So the only way we were ever going to get enough performance to beat Sun and SPARC was to use something like Alpha.

So that's how the two camps emerged. Would you like to hook your wagon in the Intel or hook your wagon to Alpha? And it's a great technical issue-- as well as it's got a lot of implications on how competitive we are in the marketplace. And the first system these guys shipped was in fact an Intel-based system. And so, it's obviously a lot easier to get the second generation on Intel. And then worry about it. So in a sense, we couldn't have done the Alpha system if we wanted to. While the argument about which way should you go was clear from a technical view-- I mean, the issues are clear. The practicality was, if you picked Alpha, you couldn't execute.

Hitz: But in the end, we did ship them both eventually. But I'm more interested in the cultural piece. You showed up, new CEO, these guys are squabbling. They don't seem very good at fighting. I know culture was strong in your opinion.

Hollar: Just before you go there, I want to get to how Dan got to the company the first place, which is really such a major part of this story. And you were so central in it. So can you talk a little bit about that?

I have that in my notes here that the company had already, by mid '93, was shipping product and growing. And that you needed capital, he'd gone out and raised a round of $5 million. And then in September of '94, you were raising another round that was $6.5 million. And that was when you met Don, and Don, when you met the team. And then you made your analysis, and reached some conclusions. And one of them was that you needed a CEO. Can you talk a bit about how that all happened?

Valentine: It wasn't any innate brilliance on my part in terms of the recognition of the need for a CEO. The founders came to me and said, we think we need different and better leadership. Do you have any ideas? And I was not an investor. And my position always is, in that case when the founders are dissembling, I will not invest without a change. A new sparkplug the team that's going to galvanize all of these arguments into a single, narrow focus direction.

So Dave is the only person-- and we've been in business over 40 years, who ever came requesting a conversation about what it is we could contribute basically, beyond check writing. Now this is a company that had trouble raising money. And I came from a company that couldn't raise money. Fairchild could not raise money, and were turned down by 30 different organizations. There were no venture partnerships. There were no dollars dedicated.

So there is a common denominator as will be felt as we talk longer, among the three of us. Because Dave had-- Dave. What's your name?

Hollar: Dan's the other one.

Warmenhoven: I'm Dan, he's Dave.

Hollar: Dan, Don, Dave-- it is confusing. The three big Ds.

Valentine: Dan came from a company that was dysfunctional. So I came from a company that couldn't raise money. Network Appliance, with the historic leadership, basically couldn't raise money. It's not as simple as blaming it all on one person. But he could not articulate a strategic direction. And for me, you have to come up with a quantitative market that's gigantic. Because you cannot build a great, big company if you have to spend dollar for dollar with General Electric in creating a market. That just doesn't work on an economics basis. So I've always been driven by the market dynamics. And that has been a useful category for us to measure, because the squabbling that goes on among different teams happens privately. But eventually the teams begin to crack and disintegrate, because the leadership doesn't cause conclusions to be reached, agreement to be made, and people have marching orders.

So here's a company that is in the category that Sequoia's watching, listening, trying to understand why this could be a huge company. And the introduction I got was from a founder who had been there, been part of this team in a predecessor company, Auspex was not an especially great company. The pen-based company that they were interested in had no market. It was based on a product that was a complete failure. So you have people that are sort of cautious, and damaged, and who have been rejected. And that rejection makes, usually, for a terrific team, if you can find a leader.

So my challenge was to make an investment, or ignore the opportunity, or to contribute by getting a president candidate for the board. It was a board I didn't know at all, and had never made an investment with. And what I did was piss off all the directors. Because when I encountered Dan in the search, I found a guy who had been at war with his board. It was a company that was dysfunctional from my point of view, from the outside looking in. And a company therefore not interesting to me from an investment point of view, because you had all of this noise. And it wasn't harmonious noise.

Hitz: This is NET, Network Equipment Technology, where Dan was prior.

Valentine: I didn't want to single out those poor devils. But yeah, I had a very frank conversation with Dan, and discovered that it was an unhappy circumstance. And Dan was very wary about the behavior of directors. And there were too many agenda, maybe, among the directors that were not harmonized.

So I asked the obvious question, not having a clue about how I'd ever implement it, suppose you could pick the board? I mean, we're talking about replacing the president. I don't know who is on the board. But

suppose, as a condition of your employment, you got to choose the directors. And he said, yeah, that sounds OK. So I wrote a letter to the board members, asking them all to resign. That they had 30 days to meet with Dan, and to have Dan describe their role in the company. And either he bought your capability and your interest, or you were out.

Now, these were directors who would never signed up for this idea. It's not something that I've done 54 times before. So it's a very novel approach of meeting the new directors in a company in which we're about to make an investment, having forced them all to sign a resignation letter. And it was one of those letters, simple, undated. Dan had 30 days, by which time we only had four other directors, Dan?

Warmenhoven: Yeah, I think that's right. It was Mike Hallman, Bob Wall, Kurt Jaggers, and one other venture capitalist.

Hitz: Was Owen still on?

DAN WARMENHOVEN: No. Owen was gone. I forget the other gentleman's name, but one other VC who came in in Series B. And that was it. So with you, it became five.

Hollar: Did you ever dream that you'd get an offer like to essentially interview the board?

Warmenhoven: You know, Don, like you said, we had a very candid conversation about what went wrong at NET, and what led to my departure and all the rest. And I told them about the board dynamics. I said, it was just very difficult to get agreement at the board level about the future of the company.

I viewed that as part of my problem. As a CEO, you gotta be able to convince the board what the right answer is. But I said, I felt like there were factions that were very difficult to deal-- and I said, one thing you can't do is fire a board member. Which I think is where the idea hatched that we would collect these letters.

And Don actually took it from there, and he even delivered one with his own signature on it. For completeness, I said, Don, I don't think that's necessary. He said, well, I don't want any special circumstances. So I still have a folder with five signed, undated letters of resignation from the original board. And I never had to use one.

But it's interesting how it changed the dynamics, too. When a board hires an executive, hires a CEO, there's kind of parent/child relationship that starts. I hired you, I can fire you, et cetera, right? And it's not adult/adult relationship. And I was pleased at how quickly that situation changed. And I just think it set

everything on the right course. The board was very supportive at that point. It was ironic. Kurt Jaggers, who was the partner from-- not even partner at that point-- TA Associates, had worked for me at NET. He saw the dysfunction from the inside.

He ran our product management group, got out of the industry, and went into venture capital. And I think NetApp was his first big investment. And I remember Kurt wasn't particularly a supporter, because he had seen all the confusion, and all the rest at NET. And I won him over as well. And I think that was probably the one that clinched the deal.

But yeah, it was an interesting time, to say the least. I left NET on January 1 of '94. Didn't really look actively for anything else to do until the summer. Came across NetApp, and a number of other things. And the NetApp one really resonated with me. That's when I went to lobby the directors. And I had met Don before. I knew Don a little bit, and asked for his support. Basically, he had not yet invested in NetApp at the time. The way the timing went, the closing of series C was at the end of September-- I think September 27 of '94, something like that. That's when Don officially joined the board, and that's when he was elected chairman. And I was hired, I think, on October 17, roughly three weeks later. So the search had really culminated, there was a series of candidates, et cetera. And so my goal during the September, October period was to lobby hard for that job. And it worked out. It worked out fine.

Hollar: Don, you also told an interesting story about how Dave did due diligence on Sequoia. Seems like you guys were doing due diligence on each other at the same time. Can you talk a bit about that?

Valentine: Well, it was, and remains, a novel experience. Or it may be one of those times where the word unique is applicable. Because in 40 years, nobody has ever come to us-- what we historically have done, we give the new entrepreneurs who are forming a company the names and telephone numbers of companies that we have financed, to help them do the diligence that we do on them. We want to make sure they know who they're going to be in business with, because it may take three or four months to make an investment, but it takes six or seven years to liquidate an investment successfully. So we want to make sure that the people we're partnering with understand that we're going to be at this together for awhile. And make sure you get your money's worth.

At Fairchild where we couldn't raise money, Bob Noyce a long time ago, who was sort of my personal mentor. He said, it's important, even when you can't raise money, to be very selective about from whom you take the money. Because you're going to be in partnership with them for an unknown number of years. And I've always followed that. Trying to get the people that are courting us to check out who we are, and whatever our strengths and weaknesses are. Our existing presidents are very forthcoming. And Dave was the only one that showed up in person.

Hitz: I had a very simple goal. The back story is James Lau, myself, and Charlie Perrell, who we hired to run sales and marketing. Quite early, within six months of the founding, and we gave him founder shares. The three of us had gone to the board, probably a year before this, and said, we think it's time for another leader other than Mike Malcolm. Technically good. His management style, I would say, was like a professor with a handful of grad students, which in fact was what his background was. And when we were in that phase-- you commented once, you weren't sure you have the right stuff to start it from zero. Which Mike did, and then did it again. But when it got to be big enough to have skip level management-- anyway, we went to the board, and that board at the time basically said, yeah, yeah, OK, we'll take care of this.

And the next year was a complicated year, because after every board meeting we didn't know if they had fired him yet. And they had given us indications that they would, but then they didn't. And you can imagine it was tense back home in that situation. And so Don describes it kind of generously as I was doing due diligence on them, I had one teeny, little question which was, I think we need a CEO. Do you think so?

And Don's answer was yes. And then we chatted about other stuff. As I recall, I asked him questions about the role of founders, and he'd seen some that were destructive and said, well, you might buy a house high up in the hills and stay there. He doesn't remember it that way.

Valentine: It sounds like something I would have said. Or I'd like to take credit for it.

Hitz: But that was that one teeny question of-- I just didn't want to go through another year of warming up another set of board members, that we needed this transition. And as you heard, you made that decision, you were nominated and elected chairman of the board, I think that first meeting. And then Dan was on board two weeks later, or something like that. So there was not a long delay.

Hollar: You wrote in your book, Dan was an engineer at heart, and understood completely what we were trying to do. When did that become clear to you, and how important was it at that moment?

Hitz: You know, Mike also was an engineer, and understood technically what we were trying to do. So while I think that's true, the fact that he'd already been in the networking business, and we were a network device, and the fact that he knew what NFS was-- just very quickly it was clear that he understood that. And that was like a foundation. And then, OK, fine, now we can move on.

To me the more important thing was it was like grownup management, you know? The stuff about decision making. And here's the plan of record, go do your work. I mean, just really, not in a bad way, but just very clear about how you run a business and get some things done. It was just sort of like he wrapped his arms around all of the pieces, and figured out what was what. It was very reassuring. It was like, OK, I'm starting to get how this might work.

I strongly believed in our technology. I felt we had really good solid technology. In terms of how it could be a business was a lot more confusing to me. In a place where Don said he didn't see Mike's ability to articulate that and I didn't either. So that's frustrating. And Dan-- I remember very early on you were trying to get out of me, like, why do you win? What do you do when I was describing different things? And you said, great, it's fast, simple, reliable. That's what we'll talk people. Fast, simple, reliable.

I was like, I just spent 15 minutes, and Dan edited it out to three words. And that was our mantra. We made bumper stickers. We made T-shirts. Fast, simple, reliable. So it was very, kind of, quick, insightful, clear thinking. It was a good combo though. It was fun.

Hollar: You went from joining the company in September of '94 to an IPO in November of 1995.

Warmenhoven: Yeah, October of '94. November '95.

Hollar: So an incredibly short period of time. Talk about what had to happen in that incredibly short period of time. Took all three of you to make that happen.

Warmenhoven: We had to win a few customers. When I joined the company, I think the quarter I joined, the revenue levels were about $3 million. And we lost money that quarter. But more importantly, the pipeline wasn't very built out. We had only four sales reps. We had a new head of sales called Tom Mendoza who ran North America.

Hitz: He joined in April, maybe.

Warmenhoven: I think, yeah, April, May. I think it was May. But yeah. So he'd been there four or five months. And there's a story that actually we should have Tom tell. Within the 30 days of me being in the company, I kind of concluded that the product we had was very salable. But we weren't very good at it. We hadn't targeted particular customers or applications. We hadn't built a reference network.

There was a bunch of other things. But it was pretty clear that one of the issues was we just didn't have enough sales coverage. And so I basically told Tom I was going to make an investment in him. That we were going to take the lion's share of the money we had just raised and go build a sales organization. The company had already been through a lot of internal discussions about is it direct, or indirect, or whatever? We decided it's going to be primarily direct sell. And I think we went from four salespeople to 12 in six months, five months. And it really paid off.

That year, we finished at $15 million. The following year, the year we went public, we were $45 or $46. So we tripled in one year. And it was all a result-- the product was fundamentally the same thing we had the day I walked in the door-- but it was all a result of finding a sales strategy that worked. Finding a customer profile we could kind of really focus on, and building some momentum. I remember the account that took us public, if you will, if there's one that took us over the top, it was America Online. We won the infrastructure for their mail system.

Hitz: AOL Mail.

Warmenhoven: AOL Mail. You've got mail. They got mail, I got money. And it was great. I should point out, Dave said they designed a system that was really good for engineering environments. It turns out that the internet was just starting to show up. And there were two applications that the internet providers, service providers, really had to deploy quickly, and had to have high reliability and high performance. And that was mail, like AOL, and Usenet news. I don't know if you remember Usenet news. It was the news spools and the news feeds and all the rest of that were a performance nightmare.

Hitz: Reddit of the '90s.

Warmenhoven: Yeah. And those two applications we were just spectacular at. And so it's not hard to find a sales guy that understands how to sell then to somebody, because you've got him armed with why it's the right solution for the customer, and a couple references behind him, and everybody's dealing with the big issue, and here's a solution for you. And so we really ran that pretty hard during the '95, actually '94, '95, '96 period.

There were actually two apps that we focused on in engineering. One was a semiconductor design. And there was a particular case at Western Digital that they actually would endorse-- they had a chip that, using the highest performance servers then available on the market, took 18 hours for the job to complete chip simulation in an application called Cadence Dracula. When they took out their servers, the file servers they were using and put in a NetApp, it went from 18 to 2.

But it changes the economics. Not just engineering productivity, but time to market. If you get one shot a day to do a simulation, you spend all day as an engineer working at your desk and getting ready for the next one. But if you can do it in two hours, you could actually have several turns during a day. So productivity improvements, time to market improvements.

And the same effect was felt in software builds. In fact, one of our first customers in that area was our companion down the road from us, Cisco. Their software libraries grew pretty big. And to do a full build took hours. And we cut that down. I think their time went from nine to three. It wasn't quite as dramatic, but nonetheless it was much faster.

So, OK, we got two apps now with two reference customers. We've got Western Digital telling the semiconductor world, this is good. And we've got Cisco telling the software world, this is good. And we got guys like NetCom, here in San Jose, telling the rest of the internet community, this is good for mail and good for news, and off we went.

Hollar: I want to ask two questions at this point then about that. First, Don as the chairman, did you imagine a company would go from October '94 to November '95 to that kind of growth, and then an IPO? Did you believe, at that moment, in the context of the market that that was possible?

Valentine: Yeah, that's the basis on which we make our investments at Sequoia, is the dynamics of the market. How fast can you finalize the product? How fast can you conceptualize a marketing plan of targeted customers? How fast-- and the person that I always think of as hiring first in a company is a killer salesman.

Warmenhoven: We had one. We have one still. Mendoza.

Valentine: See, and I hired the sales manager, the first sales manager at Cisco. Because John hadn't reported yet. And we had a lunatic, but a killer lunatic. And it's hard when you have a board that doesn't understand channels. It doesn't understand the application. It's why I'm always very interested in who's on the board, functionally. What do they know? What specific skill? We don't need anybody who knows anything about finance, because we don't have any financials. So forget that. We need killer sales and marketing guys once the product is ready.

And once you get that product ready, you're spending now. Hiring 12 people means offices. Means a lot of things. It's all expense. So unless you can do things like triples, you're going to be spending money and driving yourself more negative cash flow. And that's why, to me, the constitution of the board, functionally, should represent an ever-changing view of the company and the opportunity, so that we get people who have done it before, on the board, in their particular skill set. And most boards in Silicon Valley are not constituted to the company's needs. They're constituted to the investors' needs, which is ridiculous.

We do not need three venture guys on the board. We could use them if we're in a business where they have different skill sets. So triples, once you have the killer sales manager, and the customer's chosen in a channel formation, triples are common. And disappointing if you don't do it, because you're spending like you're going to do it.

Hitz: I got interested in that early era of how fast a company could grow. And this was early enough that it was-- the internet didn't just have conveniently have all that stuff. I went down to the library. But I'm curious in your perspective, for the kind of company that we were, selling a box that was in the tens of thousands, that needed direct sales-- what I saw was there were a handful of companies that have gotten

to $100 million in their first year. Compaq had done that. Sun did that. I can't remember if Cisco did. So apparently you could just kind of go all go out, and sell that much. Beyond 100 million, I didn't see companies do better than doubling annually.

And I came to believe that that had to do with people. It's pretty common for there to be half a million in revenue, per head, for the kind of company we were. So 100 million means 200 people. If you're going to double 200 people to 400, you're outside the zone of people just know each other. Like how fast can you conceivably hire and maintain a culture? And what I saw was, a lot of companies-- not like it's the norm, but a lot of companies had doubled on up to a billion. And a billion seemed to be the limit. After that, I didn't see much growing faster than 50% per year.

But there were a handful of exceptions in the later era of the internet era. Cisco doubled, I believe, roughly doubled annually to six, and then to nine. So they didn't hit the 100% growth rate goes to 50% growth rate until 6 billion. And EMC, also, I think, doubled up a bit.

And I always wondered, was that some new thing? The internet technology let them be more efficient? Or was that just like it was such a crazy boom time era? But so the context is, at 15 million, yeah, you ought to be able to do a triple. You ought to be able to turn it to 100. If you get the pieces right. I don't know if you had quite that mental model. But after 100, it was harder to just do a triple.

Hollar: I see Don shaking his head.

Valentine: Well, you have to get out of conventional thinking. And the company, from my point of view, made a very clever personnel conceptual change in the formation of the company. A whole bunch of people were outsourcing, so you were not in a box building business that had a lot of intensity of boards, and the number of boards, and all of chips, and all of that crap. You can outsource that. So Silicon Valley really has to be criticized, as well as complimented for doing that. Because we shipped hundreds of thousands of jobs out of the 415 area code, which is the negative-- but what do you do in addition? Why do you need a finance guy and a manufacturing guy if you're outsourcing manufacturing?

And finance is largely inventory control and accounts receivable. So if you get a really motivated guy who can do more than one thing functionally, you can put together an organization that moves faster. Decides faster. Because you have different quality people now than the traditional lineup of structure, which causes all this noise in the system, and takes time away from the executive decisions that are made in the product area and in the distribution area. And that was one of those things that hadn't been done. And I think we ought to talk about that.

Warmenhoven: Oh, that was a great hire.

Hitz: Talking about Jeff Allen?

Warmenhoven: Yeah, Jeff Allen. So when I joined the company, I hired an individual named Mike McCluskey as CFO. And Mike was heavy in the operation side as well.

Hitz: He got us public.

Warmenhoven: We went public. Mike went off and became a CEO somewhere else. And I think this was now January of '97 to replace Mike. So we were still a pretty small company. We brought on an individual who had been my controller or whatever at Hewlett-Packard. I had known for 20 years, and I thought he had exactly the right profile, because of exactly what Don just described. Jeff was a finance guy. He was qualified to be a CFO. But his hobby, as he put it, was manufacturing operations, or how to minimize it. How to get time and execution-- his motto was, time two. Whatever time we had, that took you to do something, cut it in half. Just go faster. And Jeff brought a level of maturity and a conceptual model what companies should look like financially and operationally. In fact, I remember, at the time that I was interviewing him. Because we knew each other. We've known each other for years. But I'm interviewing him for this job.

Actually, I should back up. I tried to hire him before we went public. I knew Jeff would be absolutely the right guy. But he was at Synoptics, which was just merging with Wellfleet. And he had committed to the company that he would stay and integrate the two manufacturing operations. He wasn't in the finance group at that point. He was actually running the factory. He said, I've already given my commitment. I can't do that. So it was 18 months later when I went back to him, and said, OK. You turned me down once. It's not often the same great opportunity comes by again.

But I knew Jeff was absolutely the right guy for the job. But when I talked to him, I was originally offering the position of the CFO. He said, I'm not interested in that. I'll be your CFO, but only if you give me the manufacturing operations as well. Because, in a company like ours-- I should describe a little bit more. We were doing our own manufacturing, but it was really final assembly and ship. Because we couldn't find anybody who wanted to put all the parts together. Like Don said, this was all basically off the shelf components.

Disk drives are in the industry. Disk packages, we actually got from DEC. I forget where the motherboard came from. But we didn't design anything. We just put all the parts together. But it was at such a low volume, you couldn't find a system integrator to do it for you. So we had a small operation in the back room.

But Jeff understood immediately how to work that supply chain. So we didn't have to touch the inventory. Just get it all out of here. And ship from someplace in-- I guess we went to Jabil Circuits. So we shipped out someplace in Tennessee. But the issue is, we don't need to do that.

And it was great. Jeff eventually decided he wanted to step out of the CFO role, and he moved into the head of product operations. Running product management and all the rest. But he, I think, set a tone for the company about speed, quality of execution, all the rest of those kinds of things without having to put a staff in the company.

Hollar: So that takes me directly into the next series of questions I want to ask, which is about to the double or die strategy. But before I do that, I want to ask another question which is, you had come in under the radar screen as this company that was building an appliance, that was, as Don said, seemed like it was unique, and it wasn't clear exactly what the market fit was. But then as you begin to triple, and then you IPO, and it's clear you're going to get bigger. You have all these other potential competitors out there who might have said, yeah this is a market segment we're going to attack. And we're not going to let these guys own it, and would come in crush you as a small young company. Why didn't that happen?

Warmenhoven: Well I think a lot of them tried. EMC ultimately came out with a NetApp killer about 1998 as I recall. If I can remember they sent some folks around Wall Street, calling on the analysts that covered us dressed in Superman outfits, EMC logo on the back.

Hitz: They had some kryptonite that was going to kill NetApp or something.

Hollar: And was that what they called, it a NetApp killer?

Warmenhoven: Yeah. Oh yeah. They were right up front with it. Sun never quite got their act together. And I'm not quite sure why. In a sense the dotcom boom was a good cover for us. Because Sun was focused on being the dot in dotcom. We were a nuisance, but they were too busy doing other stuff.

There were some startups. I remember one, I always chuckle at. They chose the name Invincible Technologies. They weren't invincible. Auspex was early established. I believe, and continue to believe that there was no market at our price range. They were high end systems, and couldn't move down.

But you look around, and I think we had a fairly clear runway for quite awhile. And there was a lot of skepticism about whether or not there was a real market for file servers. And how big was it? And how extensible was it? And there's a wide-held belief in the industry, you couldn't run databases on it, for instance. So there's a variety of things like that looked like it was going to be a small market. I think that

probably kept some of the bigger companies on the sidelines. But I don't know. We were lucky. For five years we had competitors from Auspex. And eventually had them from EMC.

But the company that could have done damage to us was Sun. And they never responded. In fact, we used to tell the sales reps at that time, look, just follow around the Sun sales rep. And wherever he's going to sell a bunch of servers, you take the storage. We'll call it Sundown. And it worked. It worked very well. Because they didn't have a really good, competitive product in storage space. But, why, I don't know.

Hitz: Do you have a theory?

Valentine: Yeah. I was going to make an observation on both Sun and EMC. Starting with EMC. There's a linkage between Chambers and the prior president. Joe Tucci. OK. Chambers and the head of EMC. So there's a communication link between the two companies, and just sitting still and quietly I just listened. And I got to hear a lot about what EMC was not doing. And they made the wrong decision. They owned a big part of the market that we were not in. And they chose to ignore the market we were in. So we didn't have a lot of competition of the same quality from EMC as we should have had.

Sun, by comparison, made a different decision, which is what killed the company, in my opinion. They backward integrated. Now you're in the box business. They have Java. They have a lot of capability that is not SPARC. And they backward integrated into silicon. Very expensive proposition to be in the silicon business, especially if you're not commercially in the silicon business. And they were up against Intel. And yes their silicon business could do different things and better things, but Intel had the market, through Gates, probably locked up for 15 years. They exchanged people, they exchanged capabilities. They were locked into using the Intel chip.

So you had two really bona fide companies that were defocused away from a smaller market. A dinky, little company that would probably blow up and go away, which was sort of Ken Olson's position, despite his picture. A lot of people have to make just minor mistakes of defocus, and it provides you with enough-- if you get the energy together, enough window to get into the market in a significant way. So we did better in the timing of our entry into a second protocol than did EMC. And just a timing mistake, a technical mistake.

Hitz: So I agree with everything they both said. One of my favorite books is Clayton Christensen's Innovator's Dilemma. And he argues that the most dangerous companies are ones with a low-end product that the big guys view as a toy. And especially one that succeeds in a new market that the big guys see as not the threat to their main market. And that was exactly what fueled us in some ways. I commented earlier that the grown up, the enterprise storage was this fiber channel stuff. That's what people ran their businesses on. Whole different network at that time, a higher quality of service, higher performance. The Ethernet stuff was this newfangled stuff you ran engineering in. And then we focused entirely there. So

we were kind of a toy because of that. We were building out of x86 chips. Anybody knew that a real server, a high performance server should be built out of SPARC or MIPS or Alpha. x86, really, it's a toy.

And largely the market that we went after in those early years, like Dan said, it ended up being the emerging internet market. And so we weren't taking share from anybody. We were doing awesome in this whole new space. So, you know, the normal antibodies of people going, oh my god, they got a foothold in my-- we weren't winning by getting mostly a foot. I mean, Dan started the enterprise thing later, but we were off a lot of people's normal radar. And Christiansen's theory is, if you get a company that, off the radar, gets to half a billion or a billion, at that point they're kind of a pain to kill.

So we got to that scale largely on the back of internet, and this emerging TCP/IP workgroup market. The tech like Cisco, and the internet like AOL and Yahoo. And we got to a size and bulk, and so quickly. We doubled annually through that whole period. We got there so quickly, our numbers were roughly-- Dan will correct me, but we did like $14 million. No one notices. We went public with $45. Then we did $90. Then we did $150. And then $300ish. Like, boom, boom, boom. It's like, holy shit, they're a billion. I mean, that's fast.

Hollar: So you did. You set that goal. Double or die.

Warmenhoven: Yeah. Well, actually, there's a lot of issues to the double or die. That was the outcome, but there were a lot of components that went into it. One was the notion that we had an opportunity that we were pretty much unfettered by competitors, and we better hurry. The second was relevance. I mean, if you're actually going to go after an enterprise customer, they want to know you're going to be around for a while. They're going to make a long term commitment, so what stage are you relevant? We figured a billion was kind of ante to get in to talk to a Morgan Stanley or somebody. Get to a billion.

And like they said, if you look at very high growth companies, at least in the systems business, not so much in the software business, but the box business, especially with a new concept, it's hard to imagine growing faster than doubling. And so we set a goal to get to a double-- actually, it was double net profit every year. That was a mistake. That was meaning hold the business model, as well, because I forgot about taxes. We weren't paying taxes. We changed it to double the operating income. But yeah, it was double for five years. That was the goal. After the five year period, we had a compound annual growth rate of 87%. We didn't quite make it.

We had one bad year, 1997. It was really our fiscal year of '98. And I remember we grew at 70% that year, and then we went off site, and try to figure out how we blew it. What did we do wrong, and what are we going to different next year so we can get back to the growth track. And we in fact went from 500 to a billion before the bubble burst. Got back to the doubling rate. That was kind of an objective that the whole company bought into. We gotta figure out how to double.

Valentine: Let me just add something here, because people oftentimes don't understand the meaning of a casual news bulletin. And I can't give you a good date, but IBM announced that it was getting so expensive to make semiconductors, they were going to do a joint venture with Toshiba. So the fab facility which would cost in the billions now was just too big number, that they didn't want to go it alone.

Now put yourself in a position of being a silicon user. Your choices-- among your choices are IBM, DEC Sun. All three are not silicon manufacturers. They do that with their left hand when the board's not looking. Why would you choose them as a vendor? You better go with Intel, or somebody that's in the semiconductor business if you want to be in business. A lot of people didn't make that intellectual jump.

Now, my favorite story about DEC which was -- I was reminded of and shared with Dan an hour ago, was a picture of Ken Olsen. And DEC is a mistake that IBM made. There should have been no minicomputers. IBM controlled the world with software. They had all the installations, and their seven competitors were called the dwarves. Aggregated, they didn't equal IBM. So along comes this window of performance and price that caused the minicomputer business to happen. Broadly. Must've been a dozen startups in that space. And somebody had the right newspaper subscription that was a director of DEC.

And they asked Ken, I keep hearing these names. Who are these guys on the west coast? Who would name their company after the Beatles record company? What the hell is Sun? They don't even call what they make a computer. So Ken came out. Did the diligence, reached an incredibly terrible conclusion. The report was, one is a toy company, and the other one is a workstation company which is not a bona fide computer to compete with our $250,000 mini. Two years later they're out of business.

Reading the tea leaves has been an important part in the technologies strength of this part of the country. For some reason or other, until the Chinese came along, for some reason or other the eastern part of the United States must have suspended all their magazines, all the newspapers, which would have helped them understand, you don't bet your company on a semiconductor supplier that is not a semiconductor supplier. And they did. So Sun is gone.

And you have to ask Larry, why did you ever buy a hardware company? You're accustomed to gross margins of 80%. You aren't going to do that with hardware. Are you going to do Oracle?

Hollar: As an oral history? Yes. Although it's going to be very difficult to get Larry to cooperate. We've tried multiple channels.

Valentine: Well you see, that's not unusual. Larry is, by purpose, difficult to deal with. So that just increases your challenge. But he has two chief executives, which is relatively unique in the hallowed halls of management theory. The same two people that were president are now chief executives. But you can guess who runs the company. Brilliantly.

Hollar: What are the challenges of scaling at that speed, and at that level?

Warmenhoven: Mostly operational. Well, it's two. One is hiring people that fit a particular almost personality profile, that will fit in the culture very easily. And then helping them get integrated. But the other is every system you put together breaks. You architect whatever system for particular transaction level, and as that doubles often the infrastructure underneath it just can't scale. I think we changed software build systems twice in the five years. I know we changed the ERP system twice, I think, in the five years.

Hitz: Most of the tools you buy-- you buy a finance system for $100 million company, it's designed for $100 million to $200 million company. It is not designed for a billion dollar company. So you just look at the doubling rate, 100, 200 400, 800. Four years later, you're so far blown through the operational constraints of what that system was designed for. Or even if it was a system that in theory could be bigger, you didn't install it that way. You can use Oracle for a big range of stuff, but you install it differently for the sizes. So we broke everything.

Warmenhoven: Yeah. Customer support, you name it. Anything, any function in the company, you just gotta figure out how to scale without spending. I mean, that's the other thing. You want to provide a global customer support solution without having people everywhere. So everything's gotta get re-architected, re-engineered on a regular basis.

I remember the finance system, for instance, we decided to put a big press on Europe about 1996, 1997. The finance system didn't have capacity for international currency. So we had to cobble together a system that could actually translate every euro currency. At the time there was no Euro. It was all national currencies. And how do you put those into our limited financial model? It was challenging.

So yeah, everything breaks. I think the other thing is that organizations break too. We tried to hire people that were very scalable on the assumption that they were going to have to take on lots of responsibility. So I met the first sales rep in Germany. Not only built the team in Germany, but then he went on to run all of Europe.

One of the earlier reps in Australia not only built Australia, but went on to run all of Asia Pac. So we tried to hire people that were very, very scalable, and had appetite to want to go do that. That helped a great deal.

Hitz: My mental model of that was, I like to find people who had done the ride. So if we were $100 million, if we could find someone who came from a billion dollar company, and they had grown it from that size-- and maybe they weren't the head of marketing, because that person probably doesn't want a job with us. They might. But maybe it could be someone on their staff that would have seen that. So they kind of had

a sense of the bigger place we were trying to get to, and stepped backwards. It was up in a role, but company size down. And that was kind of my mental model of what the ideal candidate would look like.

Hollar: And how successful were you at finding those people during that time?

Warmenhoven: I think very. I think very. The turnover rate was very low for a variety of reasons. And I think we did a pretty good job of keeping a fairly consistent culture, as you would too. And operational simplicity, Jeff was really good at that. And so, all the pieces kind of worked together. I think to the executive team, there were certain people that felt like they couldn't quite keep up. I remember James Lau, who's not here, but is a founder. James ran engineering when I got into the company. He walked in my office one day and said, you have to replace me. And he said, I'd like to stay with the company, but I can't run engineering at this scale.

He was right. James was not a great communicator. Very good engineer, and everybody loves him. But that wasn't his strength. It got to 50, 100 people. And so we brought in Helen Bradley from Sun. And Helen did a wonderful job building the organization and the engineering processes. So we were pretty good at picking people like Dave.

So we try to figure out who's done this before, who was willing to take it on the smaller scale, and help us get to where they were. And Mark Santoro was already in the company when I got there. Mark had run the Western area sales for Crescendo, which got acquired by Cisco. Well, Mark was terrific. He had not only built up the entire Western area for us, he actually took over North American sales shortly thereafter, and built the whole North American team. He was great.

So yeah, we found people who had done it before, and wanted to do it again. Be a high-growth company. But it's an interesting career shift to say, OK, I'm at a company that's at a billion dollar level already, and I'll go to a company that's got $15 million in revenue, and do the equivalent job. But hopefully bet on future. So they're all really committed to make it grow. We hired a profile of people who really wanted to be in a high growth company.

Hitz: People-- it's hard to get your head around exponential growth. People think linear, and when you just look at the dynamics-- I jokingly call myself the VP of doubling sometimes. But I would just try and shake people up. I would talk to someone and say, you're running a group of 10 people, and we're on a doubling curve. So in a year, it's 20. And two years, it's 40. In three years, it's 80. Do you know how to run a group of 80 people? And that means you'll need eight people who run a group the same size you're running now? Which of your 10 can do that? And people would be shaken up by that. Either you figure out how to do that, or it won't be you running your group. Like, one or the other.

But the cool thing about that growth rate is, you double your group from 10 to 20, and you double it again to 40. And then someone says, whoa, I can't do it, like James did. You bring someone else in, and you go back down to managing 10, and a year later it's 20, and a year later it's 40. Maybe the next time you do manage to keep it. It's so dynamic. The people worry less about the fact that they didn't keep it also. You must have seen hyper growth other places and have some thoughts.

Valentine: I have a thought that hyper growth is impossible. Take a look at the S&P. The companies that were there 20 years ago are gone. Companies like Eastman Kodak go out of business. There is no way in a condensed period of time-- Intel's stuck. Cisco's stuck. They can't get any growth anymore.

And it's because they keep adding people, instead of getting fewer people, and being more clever about how things are done from an outsource point of view, or however. Not backward integration. But look at the examples. There are no examples of companies zipping through that are not natural resource companies, that have oil or something like that, but regular manufacturing companies.

The board at Eastman Kodak endorsed a battle against Fuji film at a point in time when everybody was advertising digital cameras. What am I missing here? You've got to go out of that business. You've got to shut down the chemistry business. Not an easy decision, because it's reverse growth, which is the perception of a negative.

So one of the things that I do just for entertainment-- it's like killing insects. A lot of nonprofit companies want to grow. I'm thinking, why do you want to grow? Christ, you have to raise twice as much money next year, if you keep adding all these people. Cut back on the output that requires people. If in fact, you want more revenues-- and I can't imagine why a nonprofit wants more revenues-- but they're stuck in this mindset that growth is the managerial execution of brilliance.

To me, it's the managerial execution of stupidity, because there are no success models. Tell me a company that has gone from $40 billion to $60 billion in the last 10 years. Anywhere in the country. Anywhere in the European-- in China, maybe it's possible, because they do things differently. A lot differently. As you'll discover when you encounter Jack Ma.

Warmenhoven: Well, Google did it. Google did it, as well.

Valentine: Yeah. But Google is a 14-year-old company.

Warmenhoven: They actually kept growing past the $40 billion mark.

Valentine: And we're leaking people out of there at a fierce rate.

Hollar: Were you counseling this, at the time, Don, as the chairman? What was your thinking, and how were you communicating this?

Valentine: I was caught up in the fact that infinite growth was just a matter of being technologically more creative and developing new channels of distribution. So how do you have a stable distribution operation in the Orient, where we had lots of turnover, turmoil, and a little bit of thievery? There are problems growing with humans. So you have to come up with a way to grow a business that doesn't require adding more and more humans all the time. Because they've already demonstrated it doesn't work. So, I don't know what happens, because my appetite is determined by the length of my partnerships. So the partnership lasts 10 years. I've got to liquidate everything in 10 years. Because the limited partners want cash and marketable securities of our fund.

So it's easy for us to have an objective, because they dictate it. And we don't grow much physically. And the amount of money grows exponentially. So we have more money than we know what to do with. And growth ain't it. So I don't know what the answer is, but I am fascinated by the problem that this worshipping growth has not worked so far.

Warmenhoven: Actually I think in our case, it was the question relevance in the market and share. I mean, the issue was necessarily just growth. It was gain of share to be a player. And doing that as quickly as possible.

Hollar: So what size did you shoot for? How did you know when you would have had that-- reached that milestone?

Warmenhoven: The way we looked at the market we were serving, at the time is about, roughly speaking, about $12 billion. So at a billion, we're still only 8%, roughly. That's not a lot. And we're up against guys like EMC, who had 30% plus. Most of the server vendors were in the 10% range. IBM a little higher.

Hitz: That was good news. Cisco had 60%, 70%. So 8% against 70% looks pathetic. 8% against EMC's 30% was lower, but not as pathetic.

Warmenhoven: But I think Don's point is legitimate. If you look at the storage market today, it's gone from roughly 14 or 12, when we were doing metrics in the late '90s. It's now about-- the market NetApp can address is roughly about 20. So it's gone up by a little more than 50%. NetApp has gone from 1 billion to 6. Market share is-- actually storage is the 20. Only half of NetApps six is storage. So 3 out of

20. 15% roughly. That share is not going to change much, because the market is at basically no or extremely slow growth. So the share position are kind of stuck now. EMC's at 30 something, and NetApp's at 15. And it's very hard for the shares to change, or for either company to grow, because the aggregate market's not growing. So, I think if you look back in history, in the early days, the idea was take share from, basically, the server vendors-- remember my discussion about Sundown? We went after HP the same way. I mean, they didn't have a very strong storage product line, right? OK. We did an OEM deal with IBM to have them just use our stuff as opposed to their own.

But the idea was to get to a share position that was the sustainable, right? If you're too small, you're always at risk. And we got to that 5% to 7% point before the dotcom bubble burst. But I think if we hadn't been there, we would have been really at risk when the bottom fell out.

Hollar: Let's talk about that. Let's talk about what happened when the bottom fell out. Did you see it coming? Did you have a sense that this was about to happen?

Warmenhoven: You can sense a slowdown, but you can't sense the magnitude of the speed. You can see things that are going to-- certainly the dotcom bubble was an indicator that can't be sustained-- the high prices, including ours.

Hollar: The stock price-- the high stock price.

Warmenhoven: Stock Price, I think we went from-- we were at 153, or something like that, and then came down to six when the air came out. But the--

Hitz: That's pretty close to hitting bottom.

Warmenhoven: That's pretty close.

Hitz: 150 to 6.

Warmenhoven: I mean we could see, based on customers, et cetera, that they were slowing down spending plans, et cetera. The thing you can't tell is speed or angle-- how fast and how far. And when the bottom actually did fall out, it was really difficult to determine what was the new baseline of our business in terms of revenue.

One of the criticism that I took from Wall Street during that period is we did not have a layoff in our April, May quarter at the end of the fiscal year. Our fiscal year ended in April. And you could see by that time

we were deep in the downturn. And somebody asked me why. And my answer was because I don't know how far to cut yet, and doing it quickly isn't going to make any difference anyway, and I'd like to really only do it once. And so sure enough, when we got the new baseline during the quarter that ended in August-- the first quarter of the fiscal year-- and cut the company by 10%, in terms of employment. But you just couldn't tell. There was no metric you could look at that gave you any indication of how steep, how fast, how low will it go.

Hitz: You know, Dan had commented earlier that we went from a billion to 800. And so 20% reduction-- that's a significant reduction. But I don't think that that captures well what it felt like, because every part of our system-- like I said before-- was structured for doubling. So you can say we went from a billion to 800. From a planning horizon perspective, we went, over the course of a year, from a planning hope of 2 billion to 800. We were hiring to the $2 billion. We were targeting building space-- you know, offices-- for $2 billion. I mean, everything about what we were doing, and that was we had been in that doubling space since '94. The tech crash hit us late summer, fall 2000, coming into 2001. And so I'm not sure it's fair. You're not hiring a full year ahead, but just in terms of so much planning mechanism, structure, expectation, it was $2 billion to $800 million, and that's a shock to the system at that point.

Hollar: And how did your decision-making processes keep up with that, as you say, when the decline is so steep, and you don't really know where it's headed?

Valentine: What's the set of metrics that we should be planning for, I think is the company problem in a lot of companies. The share price went from 150 to 40, roughly, right?

Hitz: Six.

Warmenhoven: No, six-- it bottomed out at six.

Valentine: No, I mean now.

Warmenhoven: Oh, yeah, back to 40. That's right.

Valentine: So we're at 25%, roughly, of the peak value of the company. I don't know if it ever achieves the peak value, but clearly you have a different company. It's not new. It's not hot. As far as I know, it's a cash-generating mechanism, which is always one of the things you would measure if you were interested.

But how do you get the company not only resuscitated from a pure sales point-of-view, but from a value point-of view? Because the beginning was launching the company and surviving, and you do all kinds of

clever things. And you do different things in distribution. You have different people, but everybody slips into the quantitative model. We have to grow, so therefore we have to hire more people. And as far as I know, there's no model. There's no example ex-natural resource companies were that works. Cisco is a fraction of their peak value. I think they may have hit 500.

Warmenhoven: They're the most valuable company on the [INAUDIBLE].

Valentine: It's 25 now, or a number like that.

Hitz: What's your thought on-- so if you're 10 people, I imagine you-- probably like Dan said-- what's the sort of size to be taken relevant? Is your model you grow to some point fast, and then think of different things, or even at the very youngest stages is your don't grow model?

Valentine: I think the entire energy in the companies that start and have some momentum is exciting. You're not there anymore.

Hitz: That's right.

Valentine: So part of the vitality, part of the thought and wisdom-- all that's gone. Very typical in Silicon Valley, which is where we have mercenaries-- people get options, and they're out of there in two exercises, three exercises, and on to the next one. So you have a very unstable, highly moving target of how you run the company and for whom.

You believe that Hewlett-Packard, when Dave and Bill were alive, ran it for the employees. You are witnessing Hewlett-Packard going out of business right now. They're gone. They don't have a product line that the customers care about or that the employees care about. Terrible thing.

Hollar: You had a product line. You had real customers. The internet was still there. That wasn't going away, so how do you how do you persevere through that L-shaped period where it's all so very different?

Warmenhoven: Just suck it up. It's like having a losing season, like being on the Raiders. You're still going to go out and perform, right? There is an awful lot of, as Dave said, unwinding plans, and so on, and recasting. There's also a lot of re-strategizing. What's the world going to look like when we come out of this? An assumption this is an economic cycle, and not a Great Depression-- what's it going to look like, and how are we going to bounce back? That's where the diversification strategy came from, in terms of verticals diversification.

We really doubled down on financial services, and few others. And sure enough, financial services-- we got our real break during a downturn. I remember this day very well. My phone rang in my office. First of all, I'm rarely in my office, and secondly, if I am, I don't answer the phone. I happened to pick it up. I don't know why, and it was Guy Chiarello, at the time was the CIO of Morgan Stanley. And I had known Guy a long time. He had been my customer at NET. And I had been trying to sell to him NetApp for five, six years. He calls me, and basically it was a very short conversation. He's a New Yorker, so you can imagine-- very curt and to the point.

He says, does your stuff do what you say it can do? Guy, you know, of course. He says, well, if it does, I'm going to buy a lot. So send your sales guy in to see me tomorrow. OK, fine. We got a big entry into Morgan Stanley. That was our first entry into the financial services sector.

Hollar: When was that?

Warmenhoven: That was in 2002, I believe. When was the downturn? It was early 2002.

Hollar: 2000 to 2002, basically.

Warmenhoven: When did the bottom fall out of the markets? January of 2002?

Hitz: No, wasn't it summer 2001?

Hollar: It was.

Hitz: Everyone thought storage wouldn't fall, because it was consumable. So then it took about six months later, and everyone decided we were doomed too.

Hollar: The NASDAQ peaked in March, 2000, and then took a dive.

Warmenhoven: It kept going down. Our business kept going. We hit the billion dollar mark, I think, in fiscal year of '02.

Hitz: Which was early 2001. Right, because that's when we hit the--

Warmenhoven: No, I mean April, 2002, but anyway. You can look it up historically, right? It was within six months of that. In fact, it was in that spring. So it was probably May of whatever that year was.

Hollar: Why did he call?

Warmenhoven: Oh, he just said, look, we got significant budget cuts, and I can't afford to do what I've been doing. I've got to do something different, and if your stuff can perform and meet our needs, then we'll buy a lot of it. He was looking to make some architectural changes basically to save money. I mean, that's what it was driven by-- lower acquisition costs, lower operating costs. That's what we'd been preaching for a long time.

But here's the point. Once Guy put it in, and was satisfied with it, he was willing to be a reference to the other financial services CIOs. And we went from none of the top 10 financial services firms as customers on when bottom fell out to 9 of the top 10 were customers within 18 months.

So it kind of broke open the dam for us, right? But as a result, we had to change our selling style. Let me give an example. When we sold to tech and internet guys, we would ship a box. And they would take it out of the box, and put it in their rack, and they would configure, and they would run it and operate it, and-

Hitz: They liked that.

Warmenhoven: They liked it. I mean, they were techies. When you ship one to Morgan Stanley, they don't want to ever touch it. You take it out of the box. You put in it in the rack. You put it in production, and if it breaks, you fix it. We weren't prepared for that. It's a whole different support model. So we put together professional services and a variety of other things. The point is, we had to re-engineer a lot of pieces of the company to go after the enterprise side.

And it's different partners. You couldn't run in a Microsoft environment without Microsoft endorsement. No customer was ever going to say-- they were never going to go against Microsoft's recommendations for what to use as the infrastructure. And same with Oracle, so we had to build a relationship with Oracle.

So if you think about how the company evolved, we went from having relationships with technology companies to relationships with major ISVs, who solid enterprises that were running on top of NetApp. It was quite a re-engineering job, But that's all took place during the downturn.

If you can figure out what the future looks like and focus on the future, people don't focus on the current fact that the stock's at six, and we're not making much money.

Hitz: The downturn-- I mean, what Dan just described was how the downturn helped us get out of tech and internet and into enterprise. During the dotcom boom, the financial industry was not interested in re-

engineering or saving money. And it was a little bit weird to go, what do you mean? Our product's this much cheaper. We can do this much better. And their attitude was, we are just struggling to keep up with the growth rate that we've got. And if you get a CIO, roughly their mental model is as long as it doesn't break, nobody cares how much I spend. As long as I can keep up with the growth, because they were growing fast too.

When the financial downturn hit them, they suddenly had a heavy-duty financial problem, and they were suddenly willing to consider alternatives that they wouldn't have. It forced them to. That's why Guy called. And so that created an opportunity, very fortunately for us. Dan, having started in '99, '98, this broadening, that created the opportunity for us to transition from tech internet to enterprise. Here's a stat, just to kind of get your head around what happened. We were $1 billion at the tail end of fiscal '02, '01, whichever one it was. We were at $1 billion. It took us two and a half years or so to get back to $1 billion.

The first time we were at $1 billion, 70% of our business was tech and internet. So $300 million was this new enterprise stuff we were going after. When we hit $1 billion the second time, that ratio was flipped. So it was $700 million of this new enterprise-y stuff. So during the depths of the downturn, when our top line was only flat, this new part we were focusing on went from $300 million to $700 million. We more than doubled that part of the business.

So at the top, it was sort of like nothing's happening. But under the water, the feeder frantically-- we were fundamentally-- three years later, when we came out of that we were no longer a tech and internet ra-ra start up, completely immature. It was sort of initiation by fire, and we came-- I mean, we were still relatively immature as an enterprise company, but that was the point where putting services in place, contracts in place, partnerships in place-- radically different company.

And that is what we did in flat from $1 billion to $1 billion, troughing out at $780 million, whatever it was. So it was a radical re-engineering during that period and set the stage for the next level of stuff.

Hollar: Let's talk about that. What the next level became, and what it is today.

Warmenhoven: Oh, in many ways the customer base is very similar. We've added more verticals and things like that. And the geographic mix has incidentally stayed pretty constant, as well. When we came back out of the downturn, we were roughly 35% of the business in Europe, 50%-- 52%, actually-- in North and South America, and the other roughly 13%, 14%, in Asia, Pac, and Japan. And that mix hasn't changed much. The customer mix hasn't changed much. What's really changed a lot is the product mix. Different styles-- the natural evolution of technologies, et cetera, but also what people use it for. SAN is now, I think, about 60% of the mix, still. It went from zero. And the file services side is about 40%. So that's a big mix.

But it's just the natural evolution of things, right? We've got different styles going to market. Roughly $1 billion of revenue now comes through a loose affiliation-- I say "loose" for-- I'll describe why-- loose affiliation with Cisco. We put together a scheme by which one of our major two-tier distributors can take product from Cisco, who has servers, and add to that product from NetApp for the storage side, and create customer-specific SKU, and it's integrated in the channel. It's supported by both Cisco and us, but there's no corporate relationship in the sense of shares or anything else. It happens in the channel. It's now $1 billion of NetApp's revenue, whereas just five years ago that was nothing.

So the method of going to market has changed quite a bit-- far more through integrators, far more now sold to cloud providers. It's interesting. Most analysts don't understand that a lot of the NetApp business always was cloud providers, but they were called.

It was AOL. Yahoo! was our single largest installed account. We were infrastructure for everything in Yahoo! since 1994. I remember it was odd when they bought RocketMail way back when. They got into the mail service by an acquisition call RocketMail. And RocketMail's based on NetApp. They decide to stay with it, and it's now-- do you have an idea how big the infrastructure is? It's got to be 10 petabytes or more. It's enormous.

And then we were the infrastructure for Oracle On Demand, which was their first entry into the outsourcing market, kind of a SAS model, if you will. So we've had really great success in some of those. But I don't think the analyst community really fully understands how much of the cloud infrastructure is based on NetApp.

So it's a mix issue. But the business hasn't-- in a sense, it's still focused on providing storage solutions and addressing basically that same core market. We haven't gotten into the server markets. We haven't gotten in the communications markets. We've stayed pretty much in the storage infrastructure, and it's worked out pretty good.

Hitz: So through the downturn, and then the re-tooling-- you know, I saw you at board meetings once a quarter or so, and you sat at the head of the table and occasionally asked a wickedly barbed question, but I heard about you--

Valentine: Is that a compliment?

Hitz: It is. It is.

Valentine: I just wanted to make sure. There haven't been a lot coming my direction lately.

Warmenhoven: There've been a lot of good stories, though.

Hitz: But I heard about you all the time, because after every board meeting, I think you and Dan would powwow, and there was something about that relationship that I don't have good visibility on, except for your half. But Don always seemed like he was your number one go-to guy mentor.

Warmenhoven: Don actually played the role of chairman. I mean, not that he just had the title, but he fulfilled the role, which is being essentially an aggregator of all the viewpoints of the other members of the board so we could have a one-on-one conversation, and have it be a high-quality interchange. And he did it very well. So, yeah, I'd meet with him after the board meetings and things like that, one-on-one, generally over at his office or something, and get the feedback from the meeting, and then recommendation.

But Don was a great mentor, So just for the record, Don became chairman before I was hired. But he stayed on as chairman for at least 15 years during my CEO tenure. And, in fact, we both kind of transitioned out roughly at the same time. And I always felt like that was a fantastic resource to have.

Don's got a great sense of humor. I'll tell you a couple of stories. The first one was just before we went public, and we were ready for the roadshow. I'd been through the training-- that Jerry Weissman training-- and I'm all ready to go. And I'm thinking through this process, and I got to the point of questioning what was going to happen at the pricing, because at the end of the roadshow you've got the shareholders-- or the potential shareholders who expressed interest. They build a book of interest-- the bankers do. And then, based on how much demand there is, they set price.

And I called Don. I said, I don't quite understand the dynamics of this. So it seems to me when we get to the pricing-- we did this on the phone-- that we don't have a lot of leverage. I mean, you can't take the deal back off the street if you don't like the price. It's like day-old fish.

And I said, I'm not understanding what leverage we have, except for powers of persuasion. I mean, we can argue about why it's the wrong price, but fundamentally we have no way to influence the outcome. His comment to me was that's right. That's very perceptive.

He said, you have only your powers of persuasion. But, he said, I must warn you that all bankers have the single anatomical deficiency. They have no ears. You remember that comment? There's great wisdom, here. He's been through this process many, many times. The other thing he says, and you should watch. He said, they will always find some way to spit in your soup to bring your price down. The market turned upside down at the end, whatever is, he said, they'll find some way to question whether or not the price is going to be the right price.

Anyway, so that was one. I found that both humorous and insightful. The other one was one that's kind of renowned now in the lore of NetApp, and it's a comment Don made in one of the board meetings. Jeff Allen, who we all admire, was a CFO at the time. And we had a supplier called Eurologic. Eurologic I think was the name. Anyway, they were the disk shelf manufacturer. Remember, we don't do our own, right?

So we found one. They were an independent third party. And they were a small company located in Ireland. And as our business grew, they didn't have quite the financial capacity to keep up, and so they asked us to make an equity investment. And so Jeff's making this presentation at the board, and he says, so we'd like to make a small investment for $5 million.

And Don looks up and looks at Jeff, and it's funny, because Jeff's at one end of the room, and Don's at the together. And just the silence for a second-- all heads turn to Don.

Hitz: He didn't talk very often.

Warmenhoven: He didn't say a lot, but he said, Jeff, are you practicing to be a senator? Where I come from, $5 million is not a small investment. It's a big investment. But again, it was with wit. He approved of the deal, but it put everything back in context. In some ways, as people move through the transactions, they lose sometimes the framework for what real value is.

But that's just two. Anyway, so most of his, as you put it-- what was it-- barbs were actually delivered with the humor and wit. And yet they made their point.

Valentine: I should add to that repertoire, because after your offering, one of the things that became clear to me is you should always have three investment bankers. One will be the lead banker. And the other two have lower cuts and are more followers than leaders.

And when the news-- it's generally a conference call-- when the news is being delivered about how things are going to be, you terminate the lead investor. Now you have two, which is the right number. That's worked lots of times.

Hitz: I'll have to remember that.

Hollar: They keep coming back to you, though, it seems, even knowing one of them's going to get terminated.

Valentine: Well, they're a little more timid when they count that there are three. And the best example happened at Google. The two founders are just exceptionally smart and in the most important way-- they know what they don't know. So mighty Goldman Sachs, in response to their request, that the offering be of two classes of stock-- A and B, votes different, that kind of stuff-- and Goldman Sachs said, no. We won't do that. And they asked why not. And nobody does that.

So they ask for a list of companies who have two classes of stock, and they ask for the chief executives' telephone number. And they call them all. And the most noteworthy call was to the Oracle of Omaha, who said, I'm a major shareholder of Goldman Sachs. And you can tell them for me that I endorse your approach, that I'm now a counselor and adviser to Google, and that they should beware.

Google maintained their position. Goldman Sachs maintained their position. They were thrown out of the deal. And that's Wall Street. I mean, there's a DNA in people that go to and survive life on Wall Street. They're fairly ill-mannered. They're highly insensitive, and, boy, do they get paid a lot of money. And they insult the customer, which is amazing. So I'm not a great fan. And I don't try to join clubs that they control.

Hitz: My conclusion was we weren't the customer. We were the product. They were doing quite nicely by their customer. They got their customer a discount.

Valentine: You were the pork chops that week.

Warmenhoven: Don told me that before the IPO. Just remember, we're not the client. They're very focused on you at the moment, but you're a transaction, and their client are the funds which continue to give them business. And that's exactly right.

Hollar: This is actually an interesting segue into another attitudinal ecosystem question I wanted to ask here at the end, which is about the Silicon Valley ecosystem and the influence of the factors that all exists here in Silicon Valley, and its effect on NetApp. I guess the first question I'd like to ask all of you is could NetApp have been a company designed and launched anywhere else other than Silicon Valley?

Warmenhoven: I think the odds would be long, personally. Part of our success actually came from proximity to Sun. We hired a number of the engineers directly from Sun, who'd invented NFS. And they're not going to move. They might change their commute pattern, but they're not going to move.

So part of it was availability of skill. Even more then when we got going in the early '90s, there are service providers in the Valley that minimize the costs associated with starting a company. I mean, you can get HR services. You can get financial services. You can get IT Services. You can get manufacturing services. And so all you really have to hire are the people who are going to generate intellectual property,

and you don't have to hire any of the support staff. You outsource it. That is much more mature now than what we started. But there was already a lot. We didn't have to do any fab to speak of. We could always go find a fab shop somewhere. It was moving in that direction, and it's much more mature now.

But today, if you were to start a company, and it's a technology company, you don't even have to buy your own computers. Just go get a cloud service. And so the cost of a startup is significantly diminished. It's all people costs at this point. But only key engineers until you actually have a product.

Hitz: I think people now are better at-- with the internet, remote work is more feasible. You got to remember, we started in late '91, '92. I mean, there was an internet, officially, but there wasn't a web browser, right? That hit '93, '94.

So there was a lot of skill that we were picking up. I mean, when you're doing a little startup, things that a big company might have a couple of, you don't need that person. I remember when we were teeny, we had a problem with our box would just shut down, and we figured out it was a static electricity problem. And we had no clue how to go about fixing that, and giant companies would have two static electricity guys.

But we went and found a contractor and paid him $10,000-- or whatever it was-- and he told us to run a big, heavy wire from here to here. And it was $10,000 for that? He's like, no, it's for knowing where to run the wire. But he went and analyzed the whole thing, but we could never have afforded to hire that guy. But we could get him. And that happened over and over on any dimension, whether it be a financial thing, a patent thing, an internal engineering think.

The ecosystem of skills and capabilities around Silicon Valley… Maybe Boston was doing a little bit of that. Although it seemed like they were already going down. But now for some kinds of software you hear Austin, but there's not a lot of places, and especially for hardware. That that narrows it more.

Hollar: Well, and you yourself, Dan, were a product of the ecosystem. You had been at HP. You had the experience at NET

Warmenhoven: People forgot I was 13 years at IBM on the East coast.

Hollar: And IBM on the East coast.

Warmenhoven: I'm a refugee from the East. I came out to join Hewlett-Packard in '85. And then I started to understand what the Valley was all about. Certainly I would never move. And if I was going to start a company. I would do it here.

Hollar: So how would you describe that, when you say you began to find out what the Valley was all about?

Warmenhoven: You have a perception of it when you're at IBM, and you're either in Poughkeepsie or in RTP, and we had relationships with companies like ROLM and Sytec, and a number of others, but you can't quite understand the interpersonal dynamics and the networking dynamics that go on from afar. It's like the Ken Olsen visit. They just didn't get it.

And I think until you're actually immersed in it and understand the ecosystem, the venture capital system, all the rest of the firm's, that it's really hard to appreciate from the outside. And I will say that I think the thing that I did not appreciate when I was part of the IBM mafia on the East was the extent to which venture capital firms not only fund but nourish their investments. And you think of a startup as not having a lot of experience or not having a lot of cash.

The experience comes largely from the investors. Like Don said, you want to know who's in the room, who's got skills they're going to contribute to this. And you don't see that from afar. And I couldn't get a full appreciation of that until I actually got into Silicon Valley.

Hitz: I was going to go venture capital next, as well. My first job out of school-- in '86 I went to MIPS, and I was there for two years. And when I told my boss that I was resigning to go to Auspex, there was like some kind of company picnic or something, and one of the board members was there-- a venture capital guy. And my boss was like, oh, he's going to bring a board member over and explain why should stay at MIPS. And he asked, where are you going? I said, Auspex. He said, oh, they're another one of ours. They need good people. And my boss was pissed, but it was a lot like a CEO of a company, and the VP of marketing's mad, because one of his good people's going to go over to engineering, and you just hear the CEO going, that would be a good mix up. It's a different perspective when you think of common people on the board of directors. And board of directors in big companies-- that sounds so big. This might be 100 people, and that's 200 people. These are what you would call not a VP yet at a lot of big companies.

And Don described this earlier with Cisco. You were describing-- you're with Cisco, and we were looking to make investments of other companies that Cisco would need, so we could sell them to companies. The ecosystems are more complicated. Like, I talked about low-level consulting people, but when you start looking at the higher level managerial skills and how things are being put together, there's a whole other dimension there. It's like black magic to me. But Don's the master of it, or one of the handful of them.

Warmenhoven: Don told me a stat one day that really struck me, but also provided a great deal of context. And I don't know what the count is anymore, but at the time NetApp joined the NASDAQ 100 in 1997. And I remember him saying, oh, that's good, we got off of 10. I said, what do you mean we got off of 10? He says, you're now number 11. He says, Sequoia was the lead investor in 11 of the NASDAQ 100. I think the number has moved up, I suspect. Although M&A activities do, in fact, effect that.

But the point is they're not just lending money. Like you said, they're building great institutions. And they look for companies that have a lot of potential longevity, and that could be sizable players, and so on.

Hitz: And they put people in them.

Warmenhoven: Yeah. they help build the teams. So it's not just a money investment. It's a talent investment.

Hollar: Well, this question, Don, could be an entire oral history with you about the Silicon Valley ecosystem, but I'm interested in your perspective on NetApp in particular, and that question about could a company like NetApp have started and thrived anywhere else other than here?

Valentine: I think the probabilities elsewhere-- and you can choose the geography of your preference. North Carolina was going to be a place that both the federal government and the state invested heavily in, and nothing happened. It was fairly sterile, in terms of numbers of companies introduced, number of successes. I mean, nothing happened.

Seattle has more success than most eastern cities in the venture business. So for a whole variety of reasons not mentioned yet, I'm going to talk about it. It happened here. And it was evolutionary, of course. But we have all of the functions that you need to start a company, and they're basically available to you for free.

I mean, lawyers are trained. Accountants are trained. Manufacturing people are available. I mean, all kinds of skill factors are available that are not available in anywhere the quality or quantity elsewhere in the country. I don't know of a city that has any significant recent marquee names.

Now to me, the biggest part of the infrastructure that never gets talked about is Silicon Valley is a creation of immigrants and emigrants. If you sat in our lobby for a week you would contact the ACLU and turn us in as not being an equal opportunity company. The lobby is filled with Indians, Chinese-- and I don't mean Chinese-Americans-- Chinese-Chinese who are here in our schools. And every once in awhile, we'll be listening to a presentation, and somebody who's making the presentation-- might be an Indian-- will say you don't realize what you have here.

There's nobody that we can turn to-- no banks, no venture people, no institutions no universities-- that will be financially supportive of the company we want to create. And the company they want to create is rarely for financial gain, which is kind of amusing. They have a technical problem that is really bothering them, and they're not driven by becoming super-rich.

Jerry Yang at Yahoo was a great example. After all the success and everything happened, he called and said, there's one thing you didn't tell me about. I said, OK, I'm not going to guess. What is it that I didn't tell you about? He said, you didn't tell me that half the people in the United States were going to call me and ask me for money.

I mean, he's part of the Chinese connection with China. The people from the universities over there are highly selective, brilliant students. They have schools like the California system, where there are multiple campus locations, and their graduates are desperately interested in coming, and the faculties of the different schools, especially want to have them as students, then as master's students. And somewhere along the line, they become RAs, helping teach.

So you don't think of Dan as being an immigrant, or I am an immigrant. I came to Mountain View, California, on purpose.

Warmenhoven: He's a Fordham guy.

Valentine: Because that's where the leading semiconductor company was forming. You have a big picture downstairs.

Regrettably, too many of them are dead. But it's interesting that they would be called the Traitorous Eight. But I came here very purposefully to work at the advanced level of a semiconductor business.

And that's what's happened for 40 years in my investment experience, 13 or 14 more years in the semiconductor business, and we are enriched by these people. And as far as I know, there are no schools in North Carolina that they want to go to. Or there are no schools in Pittsburgh or Kansas City or wherever. And I think that's what caused this happening.

We had a large number of, in my opinion, I think of them all as Indian leaders that we had in different technical functional areas. I think these were an exceptional asset of the company. We don't--

Hitz: At NetApp, you mean?

Valentine: Hm?

Hitz: At NetApp?

Valentine: At NetApp.

Warmenhoven: And others.

Hitz: Absolutely. But NetApp, oh yeah, true.

Valentine: But other companies of ours are enriched by this kind of an influx of people. They have terrible problems to get in and to stay in. There's a centered group that's blocking the number of characters that are allowed to something like 65,000 a year, because they're concerned they're going to take jobs from Americans.

Well, these are guys that have master's degrees. And they're concern is they'll take the jobs at McDonald's. Why? So we have a big problem to keep them coming. And places like MIT is trying to get them, and Harvard's trying to get them. They all want this highly educated and enriched population to come to their company or universe. And it is a huge asset here, uniquely here.

Warmenhoven: It's self-perpetuating. Now, as a young man, I wanted at some point to go to Silicon Valley. I mean, as an engineer, you're in the technology sector, whatever, if you're going to do something, it's got to be there. But that then becomes self-perpetuating.

Hollar: It regenerates itself.

Warmenhoven: And like Don said, this is still the talent magnet in the world. If you're in India or in China, you want to go to Silicon Valley.

Hitz: So you came when?

Warmenhoven: I was a slow learner. I got kind of bogged down a little bit at IBM. They kept promoting me, and I lost my way. I came in 1985. I was at IBM 13 years, and came here in '85.

Hitz: Because I faced the same choice from Princeton. I was doing computer science and system-related stuff, and my conclusion-- you asked it from the opposite perspective. Could NetApp have started anywhere else?

My conclusion was for the kind of work I wanted to do, there were really only two places to go. I could go to Boston, route 128. Or I could come here, or I could have gone to New Jersey Bell Labs, but that was different. But to actually go to a company and do something, it was Boston or here. And this one seemed more dynamic to me in '86. This was straight out of college. That was where the Berkeley, hot, Unix people, Sun, Cisco-- that was the cool place and stuff. So that's the flip side of it.

Like, why did it start here? Well, why did I choose to come here? Why did Dan choose to come here however many years sooner? Why did Don choose to come here?

Warmenhoven: This is where it's happening. This is where it's happening.

Hitz: They kine of go hand in glove, I think.

Hollar: They do.

Valentine: And if you scratch the surface, you'll find it was quite a number of small technical companies in Palo Alto derivative of the graduates of Stanford in World War II, making traveling wave tubes, different kind of radar components, very advanced kind of radar products, right in Palo Alto on Hansen Road right off the campus. And many of them are now just milestones or street names. But it was a very enriched place in 1950.

So it isn't something that has been recently created or shows difficulty in sustainability. As long as those-- from my point of view-- as long as those immigrants are coming and emigrants are coming, we'll have the key component, the key ingredient-- smart people.

Hollar: You just answered my next question, which is what will it take to sustain the ecosystem here?

Warmenhoven: I think this one's self-perpetuating. I do worry about can another one emerge? And certainly if it's going to emerge somewhere in the world, it's probably going to be in the area around Shanghai, because they've got a lot of the same phenomenon going on that started the Valley, and the venture capital firms are there. So you find a lot of same infrastructural kind of components available.

And I think the question is, does the Valley sustain itself, or do you lose leadership, in terms of entrepreneurship and creativity, to something like Shanghai? I think that's yet to be played out. I do agree with Don. I think the extent that we make it difficult for people to come here and start their company here, or difficult for them to profit from the success of it, I think you're going to drive them in a different corner. And we'll see.

I think the national policy-- I personally think that the governmental policy has been kind of anti-tech anyway. We don't seem to be very effective on patent reform or immigration reform or a number of other things. Even the annual R&D tax credit is always up for cut, and it gets extended for one year. If you have enough government behavior that's anti-business, eventually people will effectively say, Shanghai's just easier. And I think, like you said, there's a question of sustainability from the policy viewpoint. If the policies were positive and reinforcing, I don't think anything in the world could catch us.

Valentine: The irony to me, and let me not leave you with the impression that I understand Washington. I do not-- we're more receptive to hundreds of thousands of illegal Mexicans coming in our southern border than we are having these-- just use the Chinese as an example-- Chinese or Indian master's degree people, who are in line trying to get here and get here and get a green card.

We treat the Mexican invasion entirely differently than we treat that asset that's trying to get here. And I don't understand why that's good policy for the country. It's certainly not a great policy for the state. Puzzling.

Hollar: Let me ask you one final question, which is how do you feel NetApp has contributed back to the ecosystem of the Valley in return?

Warmenhoven: There's a lot of different vehicles. Let's take the most basic one first. NetApp has always had a pretty active program around giving back to the community, in the sense of financial or talent. And I think it's always been viewed as one of the leaders, in terms of philanthropy and adopting causes and things like that-- Second Harvest, American Heart Association, whatever it may be. And a lot of employee activism around that.

We were the first, I think-- certainly in the Valley-- but I think probably in the nation that started a program around not vacation, but volunteer time off. So that employees could take a week-- up to a week a year-- and donate their time-- didn't have to borrow from their vacation plan. It was totally segregated-- donate their time to any nonprofit they chose. Could be a school, could be whatever, could be Second Harvest stuffing bags. Extraordinarily well-received.

I think we've also been, in a sense, the model-- as I think Dave was referring to earlier, or Don-- of a different style of company. And much more focused on a single kind of niche business at first, but billions

of dollars in the market. And I think that model has been now understood and adopted. So I think it's changed, if you will, the way people think about a systems business, who, in our case, ship boxes, but 99% of engineers only write software. I mean, we're essentially a different style, and I think that style has now been replicated and propagated.

I think in another of sense, we've donated a lot talent. We've developed a lot talent. One of my favorite metrics, as an individual, as a former CEO, is that eight people that worked at NetApp during my tenure went on, for their next role, to be a CEO. And some of them are running Sequoia companies, competing with NetApp. But I view that is a great achievement, in terms of development of good general managers.

Hitz: You know, make it vice-presidents, and you'd have a much bigger number. I mean, you can judge a company by the people who've left. And it's sad, and I hate it when good people leave. But at the same time, when you see someone that you thought was doing really good, and then they go and, they run the whole thing-- the same thing I said that we were looking for-- someone who's been on that journey-- and they get to go do it somewhere else, there is something-- sometimes they end up doing business with you, too, if they're not a competitor. There's some fun synergy there.

Warmenhoven: We also got involved as a management team primarily through Sequoia, but in terms of being board members of their firms. And I think I've been on now altogether roughly 10 Sequoia boards over time. Some of companies have been sold, like Redback, et cetera. But there's a lot of mentoring that goes on in those situations too, in terms of somebody who's had a lot of operating experience coming in and helping maybe a more junior team deal with a set of issues, et cetera. And I'm currently on two that were Sequoia investments, and got on those two largely at their invitation, their suggestion. That's Aruba Networks and Palo Alto Networks.

But there's a lot of talent like that. I mean, Jeff Allen, I think is on two or three. I can think of several other executives at NetApp that have gone on then to play board roles, meaningful board roles, in significant companies. It's hard to estimate what's the value of that talent. I mean, you know? But again that's part of the Silicon Valley ecosystem, as you put it, right?

Those executives were brought together on a particular firm that Sequoia happened to invest in. First introduction, and now they've gone on to form a loose affiliation, but one of great value to both the Sequoia Fund, but more importantly, the startups.

Hitz: I think we've left an imprint with our culture. You and Tom were both very conscious about what kind of culture you wanted to create. I think coming out of HP you'd seen what you felt was a good, effective culture and struggled at any T to make it happen in a company that was big already. And you showed up, and NetApp was 40 people, and you had very strong ideas. And you and Mendoza really resonated. Me

and James were kind of clueless. We like engineers. Eventually you convinced us. But it didn't come from us. It came from you and Tom and other hires. I mean you made hires on that basis.

And we've done a lot of work with a great place to work. I think we've created something special, and I think a lot of the folks who've left that you talked about-- the CEOs-- in the same way that I think you carried a piece of HP with you-- the good, the old, not the one going out of business now, but the pre-Carly-- I think people are carrying pieces of NetApp with them as well.

Hollar: That's a great answer. Don?

Valentine: Of the three people, I'm-- and the firm I have been associated with is-- a major beneficiary. We had the access, and it was mutual, from my point of view. We invited rising stars at Network Appliance, but also other investments, to be on the boards of our small companies, largely because of what they knew and learned about a small company, but also to learn how other people manage companies.

So their rise to success is not limited to just what they learned at Hewlett-Packard and Network Appliance, it's an experience where they participated as a member of the board, as a technical advisor, and rolling out a brand new company where the problems were useful for them to see solved and participate in the solution. So I don't know how many investments we have made with alumni of some of our successful investments. But it's a lot.

And the number's even bigger of the number of people that were generous enough with their time to be directors and advisers for us. Because we're very sensitive about the constitution of a board and the feeling we have about contribution. At a lot of investors go on boards for reasons that I don't understand at all. But we try to get people on the board. When the laws changed, which is apparently very common these days, and we had Sarbanes-Oxley, and things like that, with the exception of one person, really, whether it was a senior financial executive or not, no one knew anything about accounting. And we came up with two guys. One ran a national firm, and as far as I know Nick is still on the board.

Warmenhoven: No, Nick got off in September when I did. He just finished his term.

Valentine: OK. And what about Alan?

Warmenhoven: Alan Earhart's still there, and still chairs the audit committee. And he's been there now for at least 10 years.

Valentine: The interesting--

Hitz: You sent them our way.

Warmenhoven: Don helped recruit. I had never met Nick Moore before. Nick was just stepping out of the role of CEO of PricewaterhouseCoopers, and Don said, hey, I know this guy. We need to have some financial expertise in here, and that's how Nick joined the board.

Valentine: The humorous thing to me is happily, I didn't qualifiy to be on the audit committee. So this guy, Nick Moore, joined, and he was the head of the audit committee. And he found it equally amusing that my enthusiasm of being on the audit committee was probably very close to being equivalent to a root canal. And I think we got two guys over a long period of time. Nick had been there 10 years.

Warmenhoven: Nick was there I think over 10 years, and so was Alan. I think Alan came in almost at the same time as Nick.

Valentine: He used to run a branch office in San Jose of one of the major firms.

Warmenhoven: In fact, Cisco was one of his clients. He was a senior partner on Cisco in their early days, and so he'd been a practicing CPA, and a lot of experience.

Hitz: Some of this comes back to your question about what the ecosystem consists of, how does it work? I'm not a good sales guy, but I will tell people the truth of what I believe. I got a phone call from Don at one point to call up someone that I'd worked with early on at NetApp. And Don said, two of us want to make an investment, and he thinks it's just about the money. Would you let them know your opinion of what the seasoned board members could be good for?

And as you've heard, I have very strong opinions, and money's a piece of it. And I called him up and shared that. And I think you ended up getting that investment. Now they compete with us, so anyway. But no, it's a funny world.

Hollar: Yeah, well that point that you just made about "and now they compete with us," that's part of the ecosystem as well. It just-- it happens.

Hitz: It makes us better too. It's complicated. The whole thing is complicated.

Warmenhoven: The interpersonal dynamics are part of what they would have difficulty replicating anywhere else. I'll tell you one more short story. I wanted a board member who had some experience in a technology space, hopefully a little more marketing orientation than what we had in the company.

And Don one day walked in and said, you should meet with Carol Bartz. I knew the name, but I had never met Carol. So Don made the introduction. Turns out he knew she was going to get off, and here's where the personal connections work. He knew she was going to get off the Cisco board, because her husband became the head of sales for a competitor. And so she was going to have a free spot on her dance card, and he thought she made a pretty damned good director, so I had never met Carol before. We're now great friends. The point is, how would anybody else have visibility of the fact that she will become free soon, right? And those kind of connections are-- or how does somebody know the Nick Moore is going to retire as the CEO of PWC soon? So you kind of get to the-- and those connections are invaluable. They just can't be replicated.

Hollar: Well you're helping us pioneer a new art form, I think, in history, which is the oral history of a company. And this has really been a great morning. So thank you for that. You guys have hung in there for a good long time, so please know how grateful we are.

Warmenhoven: Thank you John.

Hollar: Thanks.

Warmenhoven: Thanks, Marguerite.

Valentine: John.

