

Heidi Roizen

Derick: Connectivity, more than ever, drives how we live, work and play. Join us. As we engage the people who create, shape, and use the technology that connects us. I'm Derek and I've spent most of my life building and operating networks of every kind.

Brandon: I'm Brandon, and I've spent most of my life building software to empower network engineers like Derick. This is Seeking Truth in Networking.

Brandon: [00:00:51] So welcome to the podcast.

Heidi: [00:00:53] Thank you. Thanks for having me. I'm really psyched to be here.

Brandon: [00:00:57] Maybe we can start by you telling us a little bit more about how you started out and what you do. Yeah.

Heidi: [00:01:02] Sure. I actually started on the other side of the fence on the lighter side with venture being the dark side is what I hear all the time was an entrepreneur, but not typical. I'm probably the least technical person. Not only the least technical person you've had on the show, but perhaps even the least technical person, even among all the members of the audience.

So, you know, I was the non-techie partner, too. My computer science brother. We started a company together back in the eighties. It was one of the beginning in the beginning era of the personal computer and started with a spreadsheet early spreadsheet, products, word processor, database, kind of an integrated software package back when those were the

were the reused. I did that for 14 years sold the company became a VP of worldwide developer relations at Apple, which was fascinating. It was during an incredibly [00:01:51] tumultuous time at Apple and then left that and basically then did join the dark side and became a venture capitalist.

So I've been, dealing with technology my whole life. But I would tell you that my vantage point has been more the eyes and the voice of the user than the technologist.

Brandon: [00:02:11] And I remember when we first met, you mentioned something that stuck out to me that today a disconnected computer as a brick.

Heidi: [00:02:19] Yes. I mean, when we first started, there were only disconnected computers. Right? You, you went and you set it up. And you copied things onto floppy disks and you maybe printed letters and mailed them in the mail and all that old ancient technology, but they were not connected devices. It wasn't really until probably the mid nineties that that became the norm.

And really not until late nineties, Dawn of the internet for common usage that people started to really [00:02:51] have that connection.

Derick: [00:02:52] I remember floppy copy parties, way back in the day. We'd all get together and, and copy each other's games and, and little Apple, you know, utilities and stuff like that. Um, yeah, that for sure it was, you're absolutely right. That's how,

Heidi: [00:03:07] I will tell you, I have one funny story about that, which is when we first started the company, I was in business school at Stanford, and we only had CPM computers now at really dating myself and the IBM PC came out, but we couldn't afford to buy one. But there was one in the, in the Stanford business school library.

And so I used to go in at night and make inventory. I just would go in with a pile of floppies and I would copy them. And one time the librarian came and thought I was illegally duplicated and I was going to get thrown out of school or something. And luckily the copyright notice for the software that the label I was sticking on.

Had my brother's name on it, and we have the same last name. So [00:03:51] that is really dipping back in history. But thanks to the Stanford business school for my early duplication devices.

Brandon: [00:03:58] I don't have a story that dates back quite that far, but I do remember buying software. I remember buying a game in the early nineties that had 22 floppies and just insert one and then another, and then another. And I was so happy when the CD rom came around and I didn't have to put in those 22 floods.

Heidi: [00:04:13] That's the thing like the CD rom all of these things, they were real game changers, right. There were a number of, to go back towards history and you look at every time, something like that. I mean, you know, I'm trying to remember, I think a floppy was. Five 12 K or something like that. And a CD rom was 600 megs.

I mean, I'm going off, off just the top of my head. So I'm not sure if that was the ratio, but I'm pretty sure it was something like that. It was, it was pretty incredible. The amount of , data that you could suddenly put you mean it's still, we're shipping it in boxes, but at least you were shipping it on a much more efficient media.

Yeah.

Brandon: [00:04:46] So you're describing changes to storage. And when we last talked, it was, [00:04:51] it was initially about changes to networking and how they were affecting kind of the business and economics of computing. And we kind of realized that there was this no conductivity phase that went to local connectivity in the early eighties.

And. When we had Bob Metcalf on the show, you talked all about that. It was fabulous. Then in the late eighties, early nineties, there was the shift from local to global connectivity, maybe not all the time. And then we went from this kind of intermittent global connectivity to continuous desktop continuity.

And you, you mentioned how, when software didn't need a floppy or a CD rom the way it got distributed changed.

Heidi: [00:05:26] Well, it changed and it really enabled a whole new business model, the freemium business model. So, you know, again, if you go back to the stone ages, when I was shipping software, uh, first, I mean, first of all, you, you had to put it in a box and send it to a distributor who would then send it to the warehouse who would then send it to the store who would then, you know, and by the time the consumer got it.

It was probably months [00:05:51] old, which meant you weren't, there was no way you were doing bug fixes in any sort of regular, you know, if you did a bug fix, he did a new version. You would have to recall all those boxes. There was no way to update it online, like we all do now. And so you really had inventory issues that were very similar to, uh, you know, to physical product inventory.

You had challenges around those. Then when, you know, when we first started having the ability to download software, really, it was the advent of the internet. When we started to be able to distribute software digitally. What you did was, you know, we used to say that the first disc cost us a million dollars and the next, this cost us a dollar, right?

I mean, now the first instance of the software may have cost us a million dollars and the next one cost us zero. And that was a magical transformation because all of a sudden your incremental cost of a new user was zero. Now, admittedly, you had to worry about things like customer support and, [00:06:51] and, you know, areas where if people, people are getting something and they need help to use it, you're still on the hook because your reputation's on the line, but it really allowed this freemium model to come into.

Um, Coming into usage, which, which dramatically changed the landscape of the software industry.

Brandon: [00:07:10] And I remember going from paying for five hours of AOL in the early nineties to 10 hours to then it was 50 hours to then the number of hours that matched the number of hours most months. And then it became something that I, I could trust was always going to be there. I didn't have a reason not to use it.

And so I think for a lot of people around that late nineties, early two thousands network, conductivity went from something that you could reach out to, to something that was always there. And it changed.

Heidi: [00:07:36] Another dramatic. I, again, I remember the day I got broadband in the home. And I literally just stared at my computer and thought it's just there 24 seven waiting for me to ask it something where, when you [00:07:51] think about, you know, Jeff Bezos in the early days of Amazon, they asked him, you know, what was the most important invention of Amazon?

I think he said, one-click ordering, right? He said, if I can reduce friction to get people, to, to engage in a transaction with the least amount of interaction that is going to be the Holy grail of what I do. When you think about the early days of connectivity. We were doing things like transmitting files and buying, you know, Buying data online, you sorta could.

But when you think about the amount of friction involved in dialing up, and it didn't always work, you didn't always connect the, you know, we were at 9,600 bod or whatever the hell it was, you know, forever slow. You could barely do anything. There were so many impediments and it was removing those impediments.

Right. And so that impediment going from dial up, which meant any time I wanted to. Take my brick and make it and make it connected. I had to wait minutes to transact something. You know, we humans, we don't, we don't like to wait. [00:08:51] And so that would pretty much make most of those business models non-effective because we don't have the patience to do it.

And. That really, really, again, that changed the world. I think so much of e-commerce was enabled by the always on, I also think, I mean, again, if you go back and look in history, most people were doing online shopping during the working hours because they had better connectivity in the office than they had at home.

Brandon: [00:09:15] And, and it continued the, these epochs of change. I think the next one might be with 2007 that summer, when the iPhone really came out or around then, and you went from, it was, it was not just a big screen that you can run an interesting app on and download without having to connect to a computer.

Although that did come just a little bit later, it was also ubiquitous connectivity. Combined with a computer in your pocket. And that felt like a different era of computing where even if many applications were desktop oriented, there were still a lot of websites now that you could, [00:09:51] I'm trying to say it the right way, but it's almost as if the way we were we're using computing change because it was always there.

Even when we weren't at a desktop.

Heidi: [00:09:59] always there and always with you and again, you know, business models change. When you enable a platform to do something for you that it wasn't doing before. I mean, again, a company like Uber couldn't exist without. A mobile platform that was with you all the time. It would not, it would not function without that.

I think you also brought a lot of people on to the onto conductivity who either were not as computer literate or could not afford it. you know, the incremental cost of having your phone be a smartphone was less costly than the incremental cost of buying a personal computer and setting it up and getting connectivity and all of that.

And so you really brought a whole class of users on. And then I do think the mobile and I call it mobile first experience that experience of designing something for the small screen for mobility, for even ambient, if that's a [00:10:51] word, it used to be that the only way to interact with technology and the internet was to have it sitting in front of you.

And now we have these things that, you know, like when I go hiking, I use all trails. I turn on my recorder. And at the end, I don't look at my car. My don't look at my phone again, but it beeps. If I go off the trail and at the end of the trail, I have a perfect recording of everywhere

I went, how long it was, my altitude, everything is, is there for me to use in an ambient fashion, same thing as, you know, wearing a Fitbit, for example.

And so I do think, that, that ambient nature of computing technology is, is a more recent thing. Right? I think when, when we first got. I-phones, we were still looking at them, but eventually we stopped looking at them for certain applications. And I think that, you know, again, that's going to be another interesting component of the mobile first platform.

That's going to enable us to have applications of usage that we haven't even thought of. Yep.

Derick: [00:11:44] Yeah, we have, our phones are loaded with sensors now, all kinds of sensors. Right. and that's something that just in the [00:11:51] last was four, four or five years that has crept up where, there's thermometers and phones and there, you can take your blood pressure and check your, you know, they're commercial now.

Right. They can check your oxygen levels and stuff. And, uh, that's. That's crazy. Like we, we have the, uh, we're getting closer to the star track, um, that, you know, the device they always have, what is that called?

Heidi: [00:12:11] the

Derick: [00:12:12] to lose the tri-quarter. I'm going to lose nerdy credibility, but yeah,

Heidi: [00:12:16] points for that.

Derick: [00:12:17] you do, you do.

Yeah. That thing could do everything right. And now our smartphones that can do all those things or it's getting there anyway.

Brandon: [00:12:28] And so now we get to the year 2020 and done, done, done, right. The tone shifts. And this is the topic that I thought would be really interesting, a little bit controversial, which is, are we in a new era of computing? And I see arguments on both sides and how to use the phrase virtual first, that we may be in a new era of virtual first computing [00:12:51] dictated by our circumstances.

Tell us what you mean by that.

Heidi: [00:12:54] Well, I think again, and the conversation we've had up until now, I would say so far, what we've focused on is when a new technology enables a new class of applications, right. And, and so you had, whether it was the advent of the CD rom or broadband or quick time or, or color. Yes. I'm that old that the first PC is, did not have color.

and then the various connectivity, the speed of connectivity, all of those things, mobility, ubiquity, each of those things created a in essence of primordial soup from which amazing developers could create something that. Couldn't have existed without that thing, but that, isn't the only way we advance into new, into new realms.

Sometimes you have a cataclysmic change or a cultural change, or some other [00:13:51] change of how people are utilizing technology. And I think we have just, we have, we are

experiencing so far about the mother of all of those right now, where we suddenly had to rely on this technology to do things. That we need to do every day.

Right? Um, we, we need to, we need to get, and we need to talk to other people and we need to do our jobs and we need to communicate and we need to bank. We need to be entertained. We need to be educated. And right now the computing platforms today, not, we couldn't wait around for them. We had to use the one we had used the tool was we had to do all of those things in a, in a really cataclysmic transformation.

And I think some of that has been miserable. And I think some of that has been transformative in a very positive way. And I know I've seen recent data that when you ask people, and again, I'm talking about sort of the technology laggards who maybe had not used zoom [00:14:51] before 2020, or maybe had not even online banked or, you know, there are so many things that, that, you know, I think we technologists always think everybody does this stuff.

And a lot of times, not everybody does this stuff. Most of the people who have picked up these new skillsets and gotten online to transact business in the ways that some of the ways I mentioned, most of them are saying they will continue to utilize that even when we go back to living mostly out there in the real world again.

And so that is going to make a permanent change. I know that I've also seen some research that says something like over 80% of the people who are now working from home. Never want to go back to the office. Full-time and we're seeing so many companies, right. Um, you know, like at LaSeon for example, that has now said, we're never going back to the office again, Salesforce, again, box, there are a whole number of companies who CEO's have announced, Hey, this is working.

We're not going back to the [00:15:51] old way again. So I think we are we're in it, baby. Like we are, we're going, we're going through it, whether you like it or not.

Derick: [00:15:59] Yeah, I think it's funny that the catalyst for that wasn't technology, we already had 4k screens and super fast internet and stuff, you know, before the pandemic, but the, the catalyst wasn't about a technological change. It was about changing human behavior. It was about creating necessity, right. And changing human behavior as a result.

Heidi: [00:16:19] Absolutely. And these things never are perfect. I mean, I think there really is sort of this leapfrogging thing. Where you get a new, like, like I remember that when going back to the CD rom when the CD rom came, came out, we thought, what the hell are we going to do to fill that sucker up? Cause it was so big relative to what we did.

And within a few years we were maxing it out because what do you fill it up with? You fill it up with video and you know, you fill it up with heavy stuff. And because suddenly you can. And I think, you know, again, [00:16:51] with, with this, we are in an era where. All of a sudden, literally 75%, I think, of, of the American white collar or whatever office workforce had to go home and work from home.

Well, the tool in front of us was the tool we use. And we're starting to realize that, you know, there are a lot of, there are a lot of shortcomings of that tool, but thank God it was there and it happens to be the tool that we're all using. But of course, it's not a perfect metaphor, uh, or proxy for what we did out in the real world.

We have connectivity issues. We have usability issues. , you know, it, isn't the perfect tool. I liken this to, I know that when Excel first came out, people used Excel for spreadsheets, but then they used Excel for a lot of other things because they already had Excel. And that that was a big, the biggest reason to use Excel is you already had it and you already knew how to use it.

And so Excel became the tool for all sorts of things. It wasn't really the best tool for, and so innovation starts occurring. People [00:17:51] start saying, Hey, , this isn't very good. I'm going to make something better. And I think we're going to see that now. In things like, like what we're doing right now, like zoom communications, I think zoom is great and zoom is going to come out with evermore features.

But I think, you know, every day you open up the kind of stuff I read as a VC every day. And you see new financings for different forms of virtual connectivity that are solving different problems. They're solving education problems, they're solving presentation problems, they're solving entertainment problems, social.

I mean, I've probably seen 20 different platforms as a VC that are all trying to pick off an area. And, and that transformation has been rapid because frankly, everybody's sitting at home getting frustrated when they can't do these things that they want to do.

Brandon: [00:18:39] Are you finding increasingly people are looking to start companies to solve the problems that they're personally experiencing, where they're developers and feel like they can change the experience.

Heidi: [00:18:49] People have always, [00:18:51] you know, the main source of ingenuity for company formation is, is you yourself? Right? You know, it's the mother of invention. And, and I think the challenge with that, and it's the challenges of VC is. I am a very small demographic, right? And so if I only think about starting companies to solve my own problems, I'd much rather solve bigger, available market problems than my own.

But the interesting thing about, for example, this kind of connectivity, this used to be a problem for a very small subset of people and all of a sudden it's a problem. For your nine-year-old right. It's become this massive, massive thing super quickly. And so, yes, I mean, we are seeing that, but, but again, so much of the invention comes from, I am so sick and tired of hitting this problem every day.

I'm going to fix this problem.

Brandon: [00:19:44] So I think a year ago, the notion that a nine-year-old would be dependent on high-quality internet, connectivity was [00:19:51] crazy. Why in the world would a nine year old need that? And now how many nine-year-olds don't need that to, to be

Heidi: [00:19:56] no, it is. I mean, the amount of change that we've all gone through and the way we're all getting our entertainment. Right. I mean, when you think about, um, what was that movie? The tiger King was that the one that, you know, that everybody watched it at the same time, because we were all at home and it was the only form of entertainment.

And then I see, you know, see interesting things happening. Like I never would have watched a live music concert. Streaming. I don't know if I want to see live music. I go watch live music, but when you can't watch live music and you engage in watching concerts streaming, and when the platform actually has some advantages and has some interesting things you can do because you're on a streaming platform, like.

You know, mimicking a small venue and having people be able to put chat in and, and ask requests and things like that. And I think these will get better and better. We will start to find replacements that in [00:20:51] some ways will be better than the old experience. Now, do I think that means that the old experiences are going to go away completely?

No, but I do think that we're going to live in more of a hybrid world and I think for some things virtual first actually does make more sense. Like business meetings instead of business trips. I think, I think a lot of business trips aren't going to take place anymore because the amount of money and overhead to physically go somewhere is actually that we're testing that trade off left right.

And center right now. And a lot of us are finding that those trips are not necessary. And so I don't think that things like that come back full force.

Brandon: [00:21:32] And in those situations, I've found our interactions are changing. So if it's a CEO dropping into a zoom call, that's something they couldn't have done before, or it would have been weird, but now it's pretty normal. But when that CEO is in a zoom call and we're all peers, it kind of flattens the hierarchy.

So it's a simple example of changing the dynamics of interaction.

[00:21:51] **Heidi:** [00:21:51] It feels very different. And also even something like this, where. You know, or if we were in a larger group where every, whenever anyone talks, you see their name underneath, I, you know, I did this thing a few weeks ago where I was new to a group and while people were speaking, I was looking them up on LinkedIn.

And I was, I actually think I walked away from the zoom meeting, having more of a sense of who each person was than I would have had. Had had I been in a room with them?

Brandon: [00:22:15] And that would have been a huge etiquette footpath if you're on your phone and you're distracted and it's like, why aren't you looking at the speaker interacting? No, you're, you're getting information. You can now do that. No one can notice.

Heidi: [00:22:24] Yeah. Yeah, that's interesting. I mean, people get, and actually I've seen three startups. That are, the idea is to watch the people on a zoom call to make sure they're actually engaged and let you know who was engaged and who was not engaged a little creepy, actually it's for doing like, say like, if you're doing a sales webinar and you want to

figure out who actually watched and who didn't, or if you're teaching a class and you want to be able to get the [00:22:51] students who aren't paying attention to pay more attention.

So.

Brandon: [00:22:53] I saw something, a YouTube video the other day related to that, I think it was a CNN editor who did an experiment for a week where they recorded themselves as if they were. Behind the video camera on zoom, and then they could press the buttons to play the different responses. And otherwise had a loop that would repeat that looked like they were engaged and their coworkers didn't catch on until the end of the week.

And, uh, and the guy's words in gendered, some trust issues, uh, but was a very interesting experiment.

Heidi: [00:23:21] that's wild.

Derick: [00:23:22] I think this last year has been very interesting for a lot of people who live rurally. My parents live out in the country and they've been more dependent like you say, on, on networking in particular, and having connectivity and access and, In the last year, when well, they've been where they're at for four years and they've had three megabit DSL.

That's all they can get in their area where they live. There's no cell signal. And as a result of this year, Everyone in their [00:23:51] area has been screaming about better bandwidth. Cause they're all stuck at home. And now we see now they're building out more, more infrastructure up there so they can deliver a better bandwidth to more places.

Do you see this happening everywhere? Not just rural, but is access now being pushed out and so

Heidi: [00:24:09] So access access is, I mean, we could do, we could. Probably spend days on access because access is so critically important and access is so uneven and access is very, also a, an economic issue. And, and so again, we technologists think everyone has access, but everyone does not have access, but I think that is going to change.

I think certainly, You know, it's, it's fascinating to even see the physical, you know, demographic changes around where one lives and what, you know, if suddenly you don't have to go to the office anymore. That means you don't have to live in an urban area. You can go live in, in a rural area. I know a lot of people who are choosing the rural option because they feel it's a better lifestyle [00:24:51] choice for them.

It's less expensive. There may be health-related issues and those people are going to demand that connectivity. And if you get enough people in an area it's going to make business sense to have that connectivity. And of course we know we're looking at new forms of connectivity, like, like, space X and, and you know, different developments happening.

So I do think that these sorts of changes, you know, sometimes when the change happens, because it makes good business sense, it will, someone will solve the needs. Someone will fill the need. But sometimes as a society, we have to get together and say, we need to solve this. And, and that's, to me, the more challenging thing, you know, I, I do think that we're

going to see pockets of , you know, technology, people move other places and they will create the demand that will solve those problems.

But I really worry about. You know, school children in, in areas of need, who don't have the connectivity, they don't have the [00:25:51] computing technology. They don't have what we count on everyone , sitting in Silicon Valley to have, and that is creating inequality. That's going to be hard to catch up. So that one to me is a big, I mean, I don't have a solution.

I thankfully there are a lot of people thinking about that, but I see that as a, I see that as a major issue that we're facing now.

Brandon: [00:26:13] exactly equal access as an economic equalizer is something I'm really interested in. And we we've been talking actually Derek and I recently with other people who are building technology that potentially reduces that cost of extending access farther and bringing it up onboard. Uh, faster to more places.

And I would love to do a conversation as well about the whole notion of mega constellations, right? Starlink and others. Like Amazon's a project hyper and one web and all these other very different ways of enabling connectivity, no matter where you are equally. Well.

Heidi: [00:26:47] right now we have a long way to go. I mean, the [00:26:51] funny thing about technology, and again, because you know, you've had all the greats on, I mean, when you talk about things like Moore's law and you look at where we've. Where we've come relative to where we were is astounding. Right? When you think about the computing power in your, in your cell phone, and you think about the bandwidth that you have access to, and you think about the quantity of information, that's just a click away.

It is, it is truly it's, it's magical, but we still have a long way to go because the access isn't universal and there still are a number of technologies. Like the one we're using right now where you need a fairly. Decent amount of bandwidth and compute power to do it real time effectively. And that is not ubiquitous across the entire population of, of, of America let alone the world.

And so we're, we have a long way to go and it, and it will, the more central it becomes to how we live, the more this is going to become a social issue. And I would argue, uh, a right, a human right. Ultimately.

Brandon: [00:27:49] In fact, when I think [00:27:51] about one takeaway from kind of my experience with the pandemic, it's just how important connectivity is. If, if the power cuts out, that's okay, I've got a laptop, you know, and I've got LTE and I can still connect to the world and still get things done. And, you know, There are different utilities that date back to different times.

But I think now networking, uh, or data connectivity is, is increasingly really just as important for

Heidi: [00:28:17] I think if you were to ask most people, are you willing to go 12 hours with your water being shut off or 12 hours with all your connectivity being shut off? Most people would pick water to be shut off.

Brandon: [00:28:31] And I know if you ask some young people cell phone or car, which one do you want? And well, a cell phone can get you a car when you need it. So why do you need a car?

Derick: [00:28:37] I think that there's, I think you're right. There's a going to be, this is, this pandemic is actually creating a lot of pressure, a lot of impetus to do the access thing in terms of equity, because, when all the kids are [00:28:51] going to school online, um, it's just a matter of time before they start. Options start creeping up where they don't have to go to school locally online.

In fact, it's kind of strange that the first thing, if you think about it, we're in a hybrid situation where, , my kids they're, they're doing online schooling, but they're doing it from the local school and that that's an arbitrary restriction. It's at some point there's going to be better options. And, uh, so access is super important in terms of equity because. if we don't get that access pushed out, we're going to widen that gap because people who have access might end up with better educational options.

Heidi: [00:29:25] That's right. And actually though it's also changing the face of education because for so many years, if you were to ask anyone, what, what improves education? The standard answer was smaller class size. Well, it turned out that that was not actually the correct answer. The correct answer is better teachers.

and, and that is a controversial statement. I mean, that is something that, you know, again, I, I, I'm a, I'm an advocate and fan of the Gates foundation and [00:29:51] that's something you'll hear from, from bill and Melinda Gates. But it, what it does say is then if we can have better access to better teachers, regardless of where those teachers are, That we will actually create a better learning environment.

And so I do think that again, we are in an era and I think this is such an interesting era for entrepreneurs or people who, who want to be entrepreneurs because entrepreneurship happens most when there is a lot of change, because change is what creates the tumult and the opportunity and the disruption to do something different.

And right now, virtually everything is. Is is in that disruptive change, right? How we learn, how we entertain, how we work, where we can live, how much we travel, how we get our food. All of those things are for most people they've been disrupted at least minimally, if not, maximally. And so I just, you know, as a VC, I'm really excited about that [00:30:51] because it means that we are going to see a lot of people.

Plus people are sitting at home, it turns out for a lot of people you're more efficient at home, which means you have more free time on your nights and weekends to work on your startup. So I do see a lot of people who are doing their jobs. And, uh, and they are working on their startup. In fact, I heard this one funny, I don't know if this story is true or not, but I heard somebody was, they were at one of the big companies.

Let's say they were at Facebook and they decided they wanted to go to Google. So they got a job and they got a job at Google. The both jobs were remote and they decided to just see if they can do both at the same time. And they'd, so they didn't quit at one place and they just started working at the other place.

And I think they managed to hold these two jobs. This might just be an urban legend, but I read it in one of my newsletters. So it must be true, but you can imagine someone actually doing that, right. I mean, when you do not have to leave and you can be, I can be with you guys right now and a half an hour from now, I can [00:31:51] be teaching a class at Harvard, you know, Sure we, we can, we can do that.

We can do more. We can multitask in a way that we never could before. So I think we're in a super interesting time. I mean, I'm, I'm really excited about, about that. You know, again, particularly as a VC to see what comes out of this.

Brandon: [00:32:08] so I think we're kind of in a phase of unbounded hope and possibilities, but I'm starting to see a little bit of the other side amongst my coworkers.

Heidi: [00:32:17] I, I think sometimes we don't have a lot of hope right now, but this gives me hope is that we have a lot of, we have a lot of wonderful, bright minds. We have a lot of access to technology while it still isn't where it should be. It is again, looking at it in the more in the rear view mirror, it's astounding the amount of technology and compute power.

Most of us, particularly, I'm sure everyone who's listening to this, you know, tremendous amount of technology at your fingertips. And, and yes, I do think that we are at a time where some amazing things are gonna happen as a result.

Brandon: [00:32:50] the [00:32:51] other side, I'm seeing a little bit of our coworkers who have kids running around and then cats running around and then dogs running around. And then you hear the weed Wacker going on behind them. And it's like, we're in a world where the distractions are very different. They're no longer the coworkers.

They're everything. That's not a coworker. So although the first month of, wow, my commute is zero. This is great. It feels like as some somewhat been replaced by, hold on, let me interrupt this meeting. I need to go put my kid in front of a tablet, press a few buttons and have them do school and Oh, by the way, they're in kindergarten.

So I've got to do everything for them. They don't have those skills yet.

Heidi: [00:33:27] Yes. No, we're, we're in a difficult time, because again, you know, there are, there are a lot of negatives to being at home. Right. I have my door, my, I have two dogs and they are locked out of my room right now because they come in with squeaky toys at the most inopportune moments when I'm on calls. And so they have to go, but I'm a lucky person, you know, I have enough space that I can lock myself away.

There are, you know, there are certainly people who [00:33:51] don't have that space. I mean, I do think it's interesting that if this becomes a norm, that remote working becomes

more accepted or more normal. And I think it will because the productivity has been there. You will actually see living spaces change. You will see people.

Uh, desiring to move to larger places, not, you know, and again, when you move to a rural area, usually that comes with more square footage because it's lower cost of land. And so I think that there are going to be some demographic shifts that, that literally do change where you live, you will, you will start seeing those.

Changes. I think we're seeing the early indications of those as well, but in the meantime, we, you know, yeah. As one of my partners says, I can't give my kid a zoom schedule for nine hours and say, you know, I'll see you at five. You know, that I think I, my heart goes out to the, to the people with small children at home, you know, for two reasons, right.

One is because you do have to manage them. And the other thing is. There is an element of, [00:34:51] I think that we are more willing to say, okay, it's six months. I don't get to see my friends. I don't get to do anything, but I think that particularly younger, younger kids, but all kids, you know, they need the social contact, they need the physical activity there, you know, and, and yeah, I know some, some adults.

So we have children at home who are everything, and they're the meal provider. They're the cleaning service. They're the educator, they're the entertainer. And they have a full-time job. So these are, these are the downsides of the situation we're in that only so much technology and duct tape can solve that problem right now.

Right. We're going to, we're going to have to come up with some new ways, but I think longer term that can even impact. For example multi-generational or communal living and, and how we may look at that in the future.

Derick: [00:35:39] Oh, this has been very positive for my kids. and for me , I'm also been around for more than a decade or two. And I remember growing up in the eighties and you see these television shows where these families are eating breakfast every morning [00:35:51] on these television shows together.

Before they go to school and work. I'm like, nobody does that. Right. That's that's nonsense. And, but guess what, I get to do that now for real, it's, it's the most bizarre thing I can wake up and cook eggs and eat them with my kids. , that's been enormously positive. Um, and they like it a lot too, before they go to school.

Before, when I worked at the office, I was gone before, uh, they were both even awake and because , I've been working at home for a little while , I've learned that I need to have a space away from everyone else. I'm also fortunate. I built mine in my cold damp basement, and now I told my kids, look, you got to learn how to make your own Mac and cheese.

Right. And I teach them how to make pancakes and, and how to cook eggs. And so maybe this is a good thing. I think there could be a cultural shift where we tell kids, you know, you gotta start taking care of. Doing these basic things. They, we all, I learned how to do when I got older. And then for some reason there was a huge gap where the kids didn't have [00:36:51] to learn that stuff.

Heidi: [00:36:52] Well, I do think this way of living does necessitate different skills, right? For all of us, different skill sets and different ways of interacting spending. I don't have little children at home, but I have an adult daughter who lives with me. And, um, and what's been interesting for us is, uh, That because we're in the house together.

Sometimes I overhear her phone calls. Sometimes she overhear or her zoom meetings. Sometimes she overhears mine. Sometimes she'll actually say to me, Hey, would you listen in while I do this? Because I'd love your business advice about this. And so we've actually, and she's given me business advice too. And she, you know, and she'll say, mom, You really tunneled in on that last one or you really circled the drain on it.

You know, you're, it's been fascinating that we have been able to be mentors for each other in a work thing that we never would have done if we weren't both in the house 24 seven in, in relatively tight quarters. And, [00:37:51] and that's been actually, it's been a lot of fun and I think she would tell you, I certainly, for me, it's been useful.

I think for her, it's been quite useful as well. Which is an unintended consequence of this.

Brandon: [00:38:04] So I want to jump in with a question here. And when I think of what VCs do, part of it is evaluate technology and make decisions. Part of it is networking, but not the kind, not the computer networking we're talking about. So I wanted to pick your brain on this topic of you do a lot of networking, right? Probably more than the average person. You're probably kind of tip of the spear of ways to do networking or ways to make that efficient. I wanted to get some practical advice from you on how to be more efficient or what to do and what not to do in this situation where all the etic etiquette rules are basically thrown out the window.

Heidi: [00:38:38] A really hard thing, because I think in this era, you know, we are, and yes, I mean, Being a venture capitalist, you are only as good as your deal flow and your deal flow is other people wanting to talk to you about what they're doing. And, and so [00:38:51] it's very important for us and in the normal era. in the normal lifestyle, we're out at conferences, we're speaking at educational institutions, we're doing things like this in the flash, you know, where we'll come to a company and talk, uh, we're going to pitch days and two incubators or accelerators, whatever, whatever we can do to be in the flow with the entrepreneurs who are creating those companies.

And today for all of us, it's harder, right? It's harder to build a relationship with someone from scratch. It's harder to even get to meet someone. do think though again, that this, you know, we, one of the things I think is wonderful about networking and I've been a long time person have. Uh, human networking is what I'm talking about.

That I actually think technology has really enabled that it's much easier to keep in touch with people. Now it's my, I don't have to keep a Rolodex anymore because I can just look at my email logs. I can go on LinkedIn. I can know what people are up to. I can watch [00:39:51] people's Twitter feeds to understand them better.

In fact, I would say everyone should realize that, you know, somebody wants to figure something out about you right now. You are, you are shedding so much information. It isn't

just Facebook or Apple that can, or they Google. It can know a lot about you. I can, I can figure out a lot about you myself too. So be careful what you put out there, but

Brandon: [00:40:12] Right.

Heidi: [00:40:13] I think it's very interesting that again, you know, for example, I've done a lot of online conferences that I.

We'll sit on the line. And while I'm watching, as if I'm exposed to who else is on, I can look at people. I can see what kind of questions they can ask. I can go on LinkedIn and see where they are. I can reach out to them. I can private message them on zoom if I want to. So it is interesting that initiating conversation with people is in some ways easier when you're digital, when, when you don't know them, it's a little easier to reach out this way.

I definitely think that [00:40:51] people are more open to taking a flyer on a 10 or 15 minute meeting because I don't have to go anywhere or do anything, or, you know, I, it's pretty easy to be present at different places. And so being asked, I know for me, I've been more accessible because I have more, 15 minute spots that I can fill with a zoom meeting or a phone call.

And like this week, I have this case written about me that gets taught at a lot of schools this week. I. You know, Adam Grant emailed me on Sundays. Guiro give and take is a great book. If you haven't read it, he teaches at Wharton. He emailed me on Sunday and he said, Hey, can you pop into my class on Monday for a half an hour?

And I popped into his class and I just did, um, the university of Minnesota today that the professor emailed me and said, could you spend 15 minutes at our class today? And those are the kinds of things that I think in the past, it just doesn't feel like we were doing that sort of stuff. And so I would just encourage everyone to think about.

How can I [00:41:51] actually, we're all stuck on our little islands right now, physically. How can I reach out to people that seem interesting to me whether that is because I see them on zoom or that is because I've researched them on LinkedIn and we have a common connection or people I work with that I've never, you know, never really gotten to know.

And how can we do that? And yeah, I think, you know, by the end of the day, we're all kind of, our butts are sore from sitting on zoom so much, but you know, one of the things I do, especially with people I know is I schedule a walk with them, but I don't, we're not physically in the same place. And you know, I, I pop in my headphones and I get on the phone and I tell them, you have to be out in nature and I have to be out in nature.

And then we're just going to have a conversation Yeah, and I make my Fitbit happy. You know, I get, I get my, I get my steps in, but you know, that sort of thing, I think, you know, you do have to remember that this, you know, in a fight, we're not designed to do this nine or 10 hours a day. And so I also think you need to [00:42:51] get out of this.

and I, and I do think, you know, obviously I like right now, we're all looking at each other. I think that really helps the conversation. But, you know, if someone, you know, pretty well,

you don't have to be looking at them. I do also think, you know, we've been doing some social distance, you know, front yard.

I set out two glasses of wine, 12 feet apart and get my chair and somebody comes over and we have a conversation and we'll do things like that. Um, so I just think we have to be a little bit more creative and a little bit more, uh, accommodating.

Derick: [00:43:25] It sounds like personal brand is really important now. In the past, I just love hearing what you're saying. And I've seen people at the very beginning, they were, they show up on calls with their pajamas on, and now that now they don't. I'll ask you, what do you think people ought to do to improve their personal brand and in the new, uh, I don't want to say the new normal, I hate that phrase, but.

Heidi: [00:43:47] I love it. It's so funny. I was just in fact. The university of Minnesota thing, we were just talking [00:43:51] about personal brand personal brand needs to be one of those catchphrases from, I don't remember, like 10 years ago. I don't know if you guys saw the show *Entourage*, but there was this whole season on *Entourage* where they were talking about monetizing your personal brand.

And I think it's kind of in a way personal brands kind of odd, you know, kind of questionable, but I, but I'll, I'm going to read it. Pardon me?

Brandon: [00:44:13] So we're, we're all products. We have a brand.

Heidi: [00:44:15] We all products, but, but I I'm going to switch it around too. You know, when you think about what is a brand, a brand is a promise of consistency. Like if I say Starbucks, you know what the coffee's going to taste like, you know what the inside of the building's going to be.

Like, you kind of even know what the barista is going to be like, right. And whether you're in San Jose or Edinburgh, I'm going to walk into Starbucks and I'm going to have a lot of element of consistency. So I think of myself as I don't think of it as so much of my personal brand, as I think about consistency.

And I think about, you know, I am, I'm very [00:44:51] responsive. I try to be funny. People appreciate that. I'm kind of blunt. I'm, you know, I'm very direct and, and I'm the same, whether I'm in business or whether I'm at home or whether I'm teaching my students. And for example, I wear, well, you can't see it right now, but I wear sweat pants and flip flops.

Right. But I was doing that before we were at home. Uh, so, I have a collection that makes me me, and now because we have fewer touch points, right? Because we're not physically proximate to each other, how we manifest ourselves, whether that is zoom or flat or email or Twitter or Facebook or whatever.

I do think it's the same. And I actually think people get in trouble when they decide they're going to be one person on LinkedIn. Then it turns out they're a really different person on Facebook and those things don't match. Right. So I think there are things we can do. Like here, I'll put up my, uh, you know, you fly the flag, right?

So for those of you who can't [00:45:51] see this, now I just put my threshold background up. So, you know, I can, I can have that up. For some of my more difficult board meetings. For you, let's see if I can find this one

Derick: [00:46:02] for our listener. Um, Heidi is changing her, uh,

Heidi: [00:46:05] changing my background. Right. And so this was a popular one. When I go through difficult board meetings, I show up with this background, can Brandon or Derek, do you know what this is? You got the scream. So, uh, so this, this, so if I have to leave the board meeting, you know, they get to see munches the scream in the background when I'm, when I'm not sitting at my desk.

So I think you can have some fun, like we're so constrained with what we can do in this environment. And so I think the idea of having a little fun with it, again, being context sensitive, but little things you can do to bring some personality. to what you're to what you're doing [00:46:51] and, and, you know, I think we're all trying to get a little creative about it and it's, it is hard.

It's admittedly hard to do. There are. Oh, which one is that?

Brandon: [00:46:59] uh, this is the Fremont factory.

Heidi: [00:47:01] Oh, okay. Yeah. Okay.

Brandon: [00:47:04] Sometimes, I feel like I'm at a factory except producing software. Okay. So a, a threshold background on zoom is a perfect point to transition here. So there there's, there's one other topic I wanted to dive into and that's how do you evaluate technology? And the reason I think it would be an interesting answer to hear from someone like you, is that no matter what field you're in.

Pretty much, as soon as you rise up the ranks at some point and have more decisions to make that affect more people, you have to evaluate technology and the wrong choice has a cost. It has a personal cost for you because you stake your reputation on that thing that didn't work out. It costs too much. It didn't yield the benefit that your business wanted, or even personally, you invested your time and you didn't get a return on it.

The software didn't do what it said. It could do the product. Didn't do it. The food didn't taste good, [00:47:51] whatever that is. And. In this case, because you've got such a diverse set of companies that you have a window into a very deep window into, and you've been doing this for a while. I wanted to focus on two questions and one of them is insights on how to evaluate a technology and whether it's going to be worth your time and what its level of readiness is.

And the other thing is the, how has that answer changed recently?

Heidi: [00:48:13] Well in a way, I mean, I'll start by answering the second one. Just, I don't think it has changed. And I think that, I think that, so I've been a VC for 21 years now. And before that I was an entrepreneur for close to 20 years. And what I can tell you is most

people, especially technologists, think it's all about the technology that companies succeed or fail based on the quality of the technology.

And I'll tell you, it is almost never actually that. Sure. Sometimes it is. Sometimes it is all about the technology. But very often, it's not about the technology. It's about the [00:48:51] channel. It's about the ease of use. It's about platform standards. It's about, um, connectivity and which connectivity works better.

It's about legacy and supporting legacy. It's about all sorts of things that have nothing to do with the actual technology itself. And so. You know, it's interesting when you say, you know, evaluating technology. Yes. , I mean, part of what we do, if you think about even the companies I'm involved with, you know, planet or Zoucks or Memphis meats, each of those companies, their foundation is some incredible hard to do intellectual property of some sort.

Right. And. Because we're series a investors, we usually have to make an assessment on those without the technology even being completed. Right. We have to have some indication. So as a VC, you're really looking for, especially at the series a you're looking for a big total available market. And you're [00:49:51] looking for people who you believe will accomplish the job.

And some signal that the thing actually works. So if I go back to the example of Memphis meats, cell-based meat company that we invested in, I think it was three and a half years ago. We did some, we did ask some others for expert analysis. I know we just did around in January of this year. Um, it was SoftBank, uh, Norwest, and Tamasic all, co-led the round.

They hired some world experts to do the research because sometimes when you're in a field that nascent. there are no, you know, you, who are you going to go get? Like when we first invested in zoop six years ago, and we said, why don't we go find someone who's an expert on autonomous vehicles to help us understand this?

Where do you go find one of those? Well, they're all working at either zips or the competitors. So it is kind of difficult sometimes to assess technology. And, uh, and earlier it's an [00:50:51] interesting, one of the, one of the classes I taught earlier, somebody asked me about Theranose, you know, there is a case where nobody tested that technology for way too long.

Um, it's an, it's a big question. It's a big question to say, you know, how do you take, how do you test, how do you choose a technology, particularly when that technology is nascent? And it is a combination of utilizing experts. It's a combination of watching a company over time to see that milestones are met and that progress is being made and that staying close to the customer and understanding what those initial customers are saying about it.

I think it's one of the reasons why, you know, that's the old line about nobody ever got fired for buying IBM. It is one of the reasons why people tend to gravitate towards older technology. That is the incumbent because everything else about that is, is fleshed out the channel, the support infrastructure, the accessory products, the, the, the ecosystem that, that lives in, right.

A lot of [00:51:51] these. And I think there's another interesting about technology. There's almost no technology today. That stands alone. Right? Thanks to, thanks to networking. Thanks to platforms. Thanks for interoperability, you know, to, to, you know, there are reasons why today there is no technology that, that lives in an Island unto itself.

And therefore there are a lot of touch points where you can see if something is working or is not working.

Brandon: [00:52:18] And I would say in, in my experiences at forward, I've definitely seen examples of that where customers have done say a Slack bot integration, and you think it's not that hard. You produce an API call and then they can easily call it and get that data. But it's so important to meet people where they live and if they live in Slack and they ask questions on Slack and they like to expose functionality through Slack.

And that's the most important feature of the product, more important than scalability and feature support and all those other things that you might have invested heavily in to get [00:52:51] that technology to a level where it can even be deployed. And what's so interesting, is it, isn't it, isn't what you put the hard minds into, in the work into it's the thing that actually enables deployment enables them to consume it without friction.

Heidi: [00:53:02] Absolutely. Sometimes it's the littlest thing that makes the difference between the technology that gets adopted and the one that doesn't, and it isn't always the better technology. I mean, I remember way back in the day I was a competitor to Microsoft, right. Microsoft had a product called Microsoft word.

You're probably familiar with it. I had a product called right now for Macintosh. You're probably not familiar with it, but at one point it was 25% market share of the word processing market for the map. So, you know, okay. It adds a day. And we had to do export import of word docs, but word only did an import.

They didn't do an export, tried to get Microsoft to do an export. And they were like, why would we do that? We don't want our users to be going back to your product. And, and then they bundled word. I mean, this is, again, people don't remember this, but Microsoft had the market power. They bundled word Excel and [00:53:51] PowerPoint.

And we who had standalone products for each one of those applications. We were not competitive anymore, simply because most users were going to buy all three things and it was easier to buy things that, that used all the same keystrokes and, you know, again, stuff that today is commonplace, but at the time was not that.

Uh, it was, it was not that obvious that for example, disparate applications should use all the same keyboard shortcuts. And so it just is an interesting thing that it wasn't necessarily that the technology was better, but it was all the other things around how the user made a choice and learned a product and shared files with other people.

Those were the things that ended up determining which product was going to be successful.

Derick: [00:54:34] it must be very frustrating. The motor consumption ends up being more important when what the product is supposed to actually actually do in a way.

Heidi: [00:54:43] But it's also an opportunity and you know, I'll go back again to the, to the freemium model. A lot of great companies were built that realized first [00:54:51] that the freemium model is a pretty cool model, right? You give somebody something to use for a little while for free, and then if they want a better feature set or they want to retain all the work they did, or they want to.

Have more storage, they've got to pay you some money. And, and the entities that jumped on that quickly built some really interesting businesses around that. And again, it wasn't that they had the superior technology, but they just had the better comprehensive package that was, that was more amenable to the user.

And it is, I mean, it is something I see a lot with some of the most brilliant technologists. The problem is, is almost they're too brilliant because they expect the customer to go that last 5%. They're like this thing is so awesome. I expect you to go to the last 5% to be able to use it. Most people don't want to go that last 5%, right?

It goes back to Jeff Bezos and the one-click order. Most people do not want to have to sit here and configure their application and do you know, and do it for every different application. They want to click on it and have it work. [00:55:51] And if you're that, and you have sufficient functionality that you satisfy most of their needs.

People tend to gravitate towards the easiest UI, the easiest solution.

Brandon: [00:56:01] I really like that because it's actionable advice for people who are considering technology. It's identifying the last 5% and whether. I as a purchaser have to deal with that or whether the company has already thought of that 5% and makes it easy for me to deploy. I think this is especially true in networking technology and Derek.

I know you've got some strong thoughts on this, about networking companies and completing the experience.

Derick: [00:56:26] Oh yeah, absolutely. , there's a, there's an obvious, I think opportunity in, especially in the network tool space where there was this, I wish I could remember his name is professor from university of Toronto and his whole specialization is how do engineers think about what they do and how do they navigate their problem spaces?

And he found that they remarkably in very different engineering fields, their brain visualizes, and navigate [00:56:51] there. Um, if their field of expertise in very similar ways, and one of the comments he made in this paper, he wrote was that, and no software tools at all, are built around this way of thinking that engineers thinks so, and software tool for engineers tend to be not very good for the engineers that use them.

So there's this huge opportunity , to close that gap.

Brandon: [00:57:17] but the products don't get purchased because they're easy to use. They get purchased because they solve a need. And those two aren't always aligned.

Derick: [00:57:25] Yep. That's true. Yeah, that's

Brandon: [00:57:27] Network connectivity.

Heidi: [00:57:28] They don't solve a need if he can't use them. And so, I mean, I always think what's an interesting indicator of a market is when I call a customer and they say this product sucks, but I have to use it because there's nothing better. And then you find out why it sucks and it's almost always, you know, UI UX, conductivity.

It's, it's, it's not the, it's the [00:57:51] core of that. And then you say, well, this is an easy problem to solve. Let's just fix that stuff. Right. And, and that to me is this is when the consumer or the user uses it, even though they'll tell you they hate it, but they have to use it. I think that's a really, that's a ripe fertile ground for disruption.

Brandon: [00:58:08] Some companies are great at building platforms, but they're not necessarily the same people inside who are created exposing UIs and, and making the experience a wonderful and easy to use one.

Heidi: [00:58:17] Yeah, and I think that's why, you know, I, I'm a dyed in the wool. I've been a Mac user since. 1983. I'm one of the few people who can say that. Cause I had a Mac before they shipped. Um, but I think it is one of the interesting things about Apple. I think Apple has always been about the entire user experience.

And I think that that has been one of the things that not only kept Apple in business. Right. And, and has kept the Mac being the alternate desktop computer. But it has also, I think, because of that devotion to the out of the box experience. [00:58:51] that then they translated to the phone and to the, to the tablets, the iPad, when those first came out, allowed them to garnish much more market share because they understood that entire user experience and making it seamless and easy for the user.

Derick: [00:59:08] What would you tell? I mean, it's changing up a little bit. What would you tell a CTO or CIO, someone responsible for choosing the tools and the platforms that their company needs to deliver on their mission? Um, what would you tell them to be looking for or in, in the tech that they're evaluating for the next five to seven years?

Yeah.

Heidi: [00:59:29] I don't think I'm qualified to tell them anything. but I will, I will say something about. So in my other life, I serve on I've served on eight public boards. And so on the flip side of being a person who deals with tiny startups, I've also dealt with companies that, you know, for example, DMGT a company I'm currently on the board of that [00:59:51] company has been around since the late 18 hundreds, I believe.

I hope I get my number right there, but yeah, it's, it's well over a hundred year old company. And one of the things you see about a lot of these companies. You know, there is a lot of inertia about technology because it is really hard. And when technology first comes out, it's usually not fully populated with the platform or the ecosystem.

And you get a lot of inertia around technology and major corporations, and then you get technical debt and technical debt is a really interesting thing because the world keeps changing. We keep adding platforms. We keep adding, you know, for example, mobile and then mobile first and componentized software architectures and conductivity and API APIs and this, that, and the other thing, and, Oh, let's throw security in there while we're at it.

because we have most big companies have a whole lot of data that they don't want. [01:00:51] People that they don't want it out in the wild. And so you have all this stuff going on and you have your legacy platforms and you don't want to muck with them because they're running and you feel safe. And then something new comes along.

Like everybody goes, Oh, well we need mobile first. Or we need to have the customers want to use messaging or, you know, or, or whatever it is, whatever it is, the customer drives. The need for the innovation or new platform comes around, that enables something and then you have technical debt, and then you're going to get disrupted by, you know, some form of startup that doesn't have legacy.

Doesn't have all that technical debt can start fresh on a new platform. Doesn't have to pull along all those old systems. I mean, there's a little air better in the era of SAS, right? It used to be even worse when people were buying heavy iron and having it in their buildings. And you're kind of screwed at that point.

[01:01:51] And so I would say anybody who's CTO of a larger enterprise is you have to think about not only, you know, where the puck is, but where the puck is going. You have to think about what are they going to be the new enabling technologies that you're going to have to accommodate. And where are your customers going to drive you and try not to get yourself into one of these.

You know, Eddie's of technical debt.

Brandon: [01:02:15] And as a purchaser of technology, it sounds like the flip side of that is making sure when you evaluate a product that they're going to be on a trajectory to get those new features, because they're not burdened by technical debt that they're not held back by it.

Heidi: [01:02:29] I mean, legacy is an interesting thing. I'll tell you can, I'll do super old story. When I worked at Apple, you know, Apple bought next and then Steve jobs was back at Apple. And at the time Apple was, I think about 25 billion a year in revenue. I'm remembering that right. 10 billion a year. It was, it was not the company.

It is today. It was almost bankrupt. Oh, I know what it was. We had 25, we had an installed base [01:02:51] was 25 million max. That's where the number was. And Steve wanted to do this new operating system and do all this other stuff. And I was talking to him one day and I said, yeah, but Steve, we have to think about legacy.

Legacy is what, you know, we have an install base of 25 million max and legacy pays the bills around here. And he said legacy and hung up the phone on me, uh, because he didn't, he was like, I don't care about legacy. I care about the future. Well, obviously he was right and I

was wrong, but that's really hard to tell the install base at 25 million, you know, we, we bought an operating system that even didn't even run our install base and microprocessors.

Right. And so sometimes you got to walk away from legacy and that's really painful. And that creates a lot of disruption. But if you don't do it, you know, it's eat lunch or be lunch, right. You're, you're gonna. If somebody is going to eat your lunch, it better be used. So I just think it's, it's the, it's one of the, you know, it's the innovator's dilemma, right?

It's the thing that always traps a lot of companies.

[01:03:51] **Brandon:** [01:03:51] right. I think at some point we need to do, uh, an episode. That's nothing but clips of stories about Steve jobs, because they're always fabulous. Can you tell us the last thing that you changed your mind on?

Heidi: [01:04:00] Most of the things I've changed my mind on recently have to do with the current circumstance. So I've changed my mind on the idea that. No, actually you can make investments without ever having met a person face-to-face you can have a meaningful conversation with someone without being face-to-face. you know, those are the sorts of things that I've changed my mind on more recently are about that.

politics haven't changed my mind on very much.

Brandon: [01:04:26] can you recommend something you've come across lately, some piece of content, movie song book that you might recommend to others.

Heidi: [01:04:33] I am a, I'm a huge reader. I love reading. and I've recently been on a kick of reading Eric Larson books. Uh, the splendid in the vial has been one about, uh, Churchill, which is really interesting one, but the one I really liked the best so far is a book called dead wake, which is about [01:04:51] the sinking of the Lusitania.

And it just, it's just a really good book. So I really, really, really enjoyed that.

Brandon: [01:05:00] the question I was going to ask is, what question would you like to be asked or when people ask you a question, what question makes you happy to answer

Heidi: [01:05:09] Okay, I'm going to turn that around with a question. So I teach this class at Stanford and at the end of the class, we always make each student say, what is your most, what was the most important takeaway you just got from this conversation? I'm going to ask that you guys, what is the most important takeaway you just got from our conversation?

Brandon: [01:05:31] well, you're making it tough.

Derick: [01:05:33] you know, I, I think, if there's some of the things you said about like the way people are interacting online and a virtual first thing, it's, it's really got me thinking, I should put more effort into. And, and how I present myself, I, and being creative about it. [01:05:51] And I'm saying this now you can see my everything's going dark around me right

now. there's no, I just realized there's no lights in this room because they're moving out of this house. So they pulled all the lights out.

Heidi: [01:06:03] 20 bucks on Amazon. You heard it here first.

Derick: [01:06:07] Yeah.

Brandon: [01:06:08] That's something I feel as well that increasingly if it is a remote first world, then we have to optimize for moat first. And that means things like personal brand things like AB quality things like internet connectivity, and just getting comfortable with this notion of reaching out to people with cold calls and comfortable with the notion that they'll say yes.

And they'll ask me to do the same thing and to accept it for someone who isn't a hundred percent extroverted by birth, like many engineers are. But they make it work, especially ones that have to be outward facing, it's a skill you learn.

Heidi: [01:06:40] Good one for all of us.

Brandon: [01:06:41] the other, other takeaway, I think, is a reminder that we're still early in.

If, when, when technology came out in the past, people didn't really know what the effect was going to be until later. And we didn't [01:06:51] really know how people are going to use it. It's too early to say, but it'll be very interesting wherever it goes. It will be interesting. And it's clear that this represents a real change that even what's not a technology driven change.

It represents a real change and it will be seen as one of those epochs of computing where either a storage tech or a compute tech or a networking tech or battery tech or all these kinds of fundamental technologies that enable changes to how you use and interact with them change. We're going to look back on this time

Heidi: [01:07:18] Yep. I agree.

Brandon: [01:07:20] we'll look back on this hour and a half as a good one.

I want to thank you again, Heidi, for joining our podcast.

Heidi: [01:07:25] Absolutely. My pleasure. Thank you so much for having me.