

Marc Andreessen

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.

Intro

Brandon: Derick, I can't imagine a better early guest for a podcast about networking, than someone like Marc Andreessen. Marc helped make the web what it is today. He created the first web browser, Mosaic. He also helped kick off the dot-com frenzy with the Netscape IPO.

Derick: I remember using that browser to look up an error code from a Turbo C++ library, back in the day for my job, actually. And it was on the search engine called web crawler.

Brandon: Yeah. I remember using web crawler for homework assignments. Anyway, more recently, Mark has been disrupting the world of venture capital and shortly after co-founding a VC firm, Andreessen Horowitz, he spelled out his investment thesis. It was called Software is Eating the World, and it showed how software would affect every industry and it coined a phrase that we continue to hear almost 10 years later.

Derick: Yeah, that blog is a great read. Folks should definitely check out the link in the show notes. But, Mark also wrote another essay, earlier in the year, called Time to Build . He wrote it in April, right around when the coronavirus was really starting to affect everyone's lives, at large.

Brandon: Yeah. And that essay talked about what we should do as individuals, as a nation and as a society to come out of the pandemic better. And as you can imagine, it generated a lot of passionate discussion online.

Mark is an intense guy. He doesn't shy away from sharing his thoughts, whether the topic is book recommendations or network neutrality. So, buckle up because this is going to be an intense conversation.

Welcome to the podcast, Marc!

Chat With Marc [00:02:19]

Brandon: Welcome to the show. Marc.

Marc: Hey, it's great to be here.

Brandon: So let's get to know you a little bit better. Uh, we had a few questions in advance we shared, and I wanted to jump into a few of those. So can you start by telling us what was the last thing you changed your mind on?

Marc: These days I'm a venture capitalist and, you know, we're constantly evaluating tech companies and investing and trying to help them kind of grow and evolve. And so it's a humbling job. And so there's lots of things every day where kind of reality comes and smacks us in the face, both in good and bad ways. You know, the last big thing that I changed my mind on is earlier this year and I, I think I'm far from alone on this, but I'll, I'll certainly admit it, which is like, when, you know, we had a pretty good sense that COVID was coming, um, I would say pretty early. And we, we were one of the first, actually, uh, companies out in California to actually shut down the office and send people home. We do a lot of work in biotech and so we, we had a pretty good sense of the science of it.

But I assumed that, that was going to lead to, you know, just an absolute economic catastrophe, and so I was extremely worried that the whole economy was just going to get like, basically obliterated, like I lived through the 2000 crash. And so I just kind of assumed that it was going to be something kind of, of that magnitude that was just going to take down all these industries.

And in particular was going to take down a lot of tech. And to my enormous surprise, right? the sort of macro economic picture has turned out to be very, very different, and there's a huge kind of positive kind of aspect to that, which is basically, you know, the network worked as it turns out.

So, you know, it just turns out that like huge swaths of the economy have been able to, you know, transition online. Including by the way, right, many companies have been able to transition online and be able to keep running. It's like, the countereffects of COVID without the modern internet, and modern broadband, is I think a much, darker scenario and, and not just for companies, but in people's lives. You know, now the other side is like this is an incredibly wrenching economic environment for a lot of people. And in particular, you know, a lot of small businesses that are just kind of out of the public eye.

You know, we're going through real hell right now. We're going to lose, like, I think an entire generation of small- and medium-sized businesses. And so there, there is all kinds of wreckage, you know, happen in the economy, but, but even still, it's been just this much more dramatic transformation, than I would have expected, and honestly, like the longer, this whole thing continues, I would say my confidence is growing that a lot of the changes were happening in the economy for better, for worse are actually going to kind of set in. And a lot of them are actually going to be permanent.

Brandon: You could almost describe it as capitalism, finds a way, life finds a way.

Marc: Life, it finds a way. And so, and actually a friend of mine actually, who's in the economist sorta has this, Arnold Clang, has this kind of theory. He says, look, sort of capitalism is kinda misunderstood. He calls it - the term he uses is "patterns of sustainable specialization and trade." And so, you kind of work backwards from that. It's like

specialization, a trader, the two ways that kind of markets work specialization, is we, we each choose kind of the thing that we're best at doing and then trade, we trade with other people to increase wealth and value in the economy.

And that's kind of the basis of, a market economy. And then, there's the sustainable part, which is, okay, how do those things kind of last over time? And then there's the patterns part, which is, they're just constantly shifting. , and so I think this is a pretty fundamental reset to a lot of our old assumptions.

And like I said, , this is not like necessarily either an optimistic or pessimistic statement. it's basically just a statement of , this is probably the single biggest economic change, like permanent economic change that any of us will ever live through. , and we're just, I think still at the very beginning of imagining what the consequences of this are going to be

Brandon: Wow. That was a lot to unpack,

Marc: Yeah. Sorry, sorry. . And it's like the biggest topic of the world right now. Right? It's the biggest topic in the world. Not because economics is the most important thing it's because all of the implications of this all bear directly on, everybody's actual, day-to-day lives, right?

Last Cool Thing [00:05:32]

Brandon: We're all affected by this in inescapable ways. So continuing to get to know you, maybe let's, let's go to a lighter topic quickly. What was the last cool thing you came across that was worth sharing with our audience.

Marc: Yeah, so, you know, a couple of things. I would say I'm a partisan I've been involved in Facebook for a long time. So this is gonna, this runs the risk of sounding like a commercial, but I genuinely love the product so much. The new Oculus quest, which is called the Quest 2, which is the first big upgrade after the original release, for anybody who hasn't tried VR yet, yeah, , I think it's just like an absolute blow away product . The dream of VR has been kind of pervasive in this, you know, in the industry for like 30 years now. Older listeners like me will remember that there were actually a lot of people talking about VR back in the eighties and we just couldn't get the technology to work.

But this, I think it's just a knockout. It's just amazing how good it is and so I think that's really great. What else? I don't know the other cool thing. I, you know, you'll either love it or hate it. , Amazon just released this show called Utopia, , which is a remake of a British show.

That's one of my favorite TV shows of all time. You have to have the right sensibility for the show. It's a very spooky show and it's, it's actually set. I try not to spoil it, but it's a dark show and it's set in a world that's spookily, like, like the one we're living in right now and so if you have a sort of somewhat more darkly- inclined personality, or you like watching scary shows at midnight with the lights turned up, it's one I definitely, um, suggest otherwise, that might be one to skip.

Brandon: That sounds like good viewing when Halloween's coming up in a few days.

Marc: Yep. It's written by this woman, Gillian Flynn. Who's probably best known for *Gone Girl*, both the novel and the movie, and she's just, she's this amazing, amazing creative, force now in the industry. And part of what makes her just so great as she's just like, absolutely uncompromising, like she doesn't flinch on anything and, she loves, she loves writing dark, , including these very dark female, very dark and powerful female characters. So for people who like that kind of thing.

Derick: That sounds amazing. That's right up my alley. I got married on Halloween. So now, we're definitely going to be watching that show.

Brandon: Can't miss that anniversary. So one other question, Marc, in the, getting to know you section, what question do you like to be asked?

Marc: Yeah. I really like, you know, we, we spend all of our time trying to think about the future. Right. And so we're basically always in search of some, you know, surprise. The interesting things are always kind of surprises. Like basically new information is always a surprise.

So, you know, big question we always ask ourselves a lot is like, what are the unexpected things that are going really well? We also use a, you know, Peter Thiel has this concept in his book. He talks about the concept of the secret, which is basically like, what are the things that you either know or believe that either other people don't know, or even if other people know them, they're just like flat out don't believe them, and so what secret knowledge do you hold?

Uh, just nominate a final one, which was like, you know, who's the most interesting person, you know? Right. And like, what are they working on? And like, you know, you can be crazy or not crazy or whatever, but we're in a culture where it's like, we, we very much like prize, like normality and stability, like for a lot of good and valid reasons, and I'm always interested in the other side of that, I would say rank ordering by interestingness. Um, or, or even, you know, variants or even the sort of, uh, financial kind of concept of volatility, like, look to the edges, look to the fringes of where the really crazy stuff is happening and, you know, the really crazy stuff, it's crazy. It generally doesn't work, but it is where, all the other good ideas are as well. So that's the other one I liked.

Brandon: Yeah, it's where the opportunity might lie, but you don't know yet. And figuring out is pretty exciting.

Marc: Yep. That's right.

Time To Build [00:08:35]

Brandon: Great. Well, let's dive right into it. So April 18th, 2020, you released an essay called *Time to Build* - what is "Time to Build?"

Marc: Yeah. So it's, I would say there was a sort of a specific point-in-time thing, which is I had, I read a, *Wall Street Journal* story, I think, where the COVID had hit New York city and right, in retrospect, just like, it's not almost unbelievable how this played out, because like

literally the public health officials in, in, in New York city, like in March, we're telling everybody not to worry about COVID and like go out and have fun and like go to all these big outdoor events and all these parties and celebrations, and I forget what it was, but they're basically being like local boosters and like, don't worry about this Chinese virus . and then COVID hit New York city, it hit like, like a sledgehammer.

Right. You had lots of media coverage, but I had all these friends in New York were just like these horror stories, right. Or their friends and neighbors and people getting COVID and all this stuff. And so it was just like this, this massive kind of blow. And then I read this Wall Street Journal story where because they were behind the eight ball, they didn't use the time they had to prepare.

The local hospitals were running out of personal protective equipment, masks and gloves and gowns and surgical gowns for treating patients. And so they put out a public call. They asked people in New York city to donate their rain ponchos to local hospitals to be used basically as a substitute for surgical gowns to keep healthcare workers safe. And I just like, it's one of those moments where like, are you effing kidding me? Like seriously, the United States of America, 200 years into the industrial revolution in 2020 and like we're using rain ponchos in hospitals, like. Honestly, and that was just like a micro example of just this one broad based thing, which is, surgical masks, like all these other things. It's just like, what on Earth? Or even tilting up new, like a hospital, that was at the time where there was like this huge basically sudden like panic of where they're gonna be enough hospital beds, ICU beds, ventilators, like all these things.

And, you know, there were, there were other countries that have gotten in front of it. Right. These are all global markets. And so there were other countries that had kind of bought up a lot of supplies. And then there was this like mad race, by all 50 governors in the US to try to, like, they're basically competing with each other to buy up the remaining supplies, that kind of spiraling prices.

It's just kind of like what, what on Earth, what have we done?... that we've gotten into a state where we would have, where we literally could not dial up, gowns and masks, like on demand. You know, Elon Musk has this great metaphor he uses, he calls the Tesla factories. He calls them the alien dreadnoughts , which is basically these giant, you know, his vision of like these giant, totally automated, incredibly flexible factories that can build all kinds of stuff. And you know, this is an idea that goes back to Henry Ford. Ford Motor Company, one of the things that made Ford Motor Company great, in like the twenties and thirties, they have this factory called River Rouge , in Michigan where they literally have the factory where they can take in, rubber and steel, on one end of the factory.

And they could emit a model T car on the other end of the factory. And it was like this totally integrated end to end thing. The good news is we have this just like extraordinary global supply chain with all this incredible flexibility all around the world where things are getting built everywhere.

You know, the iPhone has parts from all over the world. The bad news is we can't literally make stuff if if like, we have to. It was sort of that level of frustration and it just, I try to kind

of, up-level it, just kind of say, look like , there's also something societally that's going on, which basically is , over the last, 40, 50, 60 years, the perception is that we've been in an area of kind of onrushing technological change. Right. But the economic statistics actually don't support that. And if you look at the economic statistics, the economists have a way of measuring the rate of technological transformation of the economy, kind of dynamism or disruption of the economy and its productivity growth is the concept. And productivity growth over the last 50 years has not been accelerating. It's actually been slowing. The rate of job creation and destruction hasn't been accelerating has been slowing the rate of actual company creation actually has not been accelerating. It's been slowing.

There's also the perception that the number of jobs that you'll have in your life keeps increasing right. There's level of individual job turnover keeps increasing and that's not true. It's actually slowing. The economy over the last 40 or 50 years broadly in the US has just kind of been winding down.

I mean, it's been growing, but it's been winding down in terms of dynamism. In the tech sectors, obviously there's lots of change, but the tech sectors are not the big sectors, right? The big sectors are healthcare, education, housing government, right? the law, national defense, civil service, some kind of civil services are, like most of the economy, , and whatever's happening in tech sectors is causing them to kind of leap forward and change a lot, the opposite is happening in all those, other sectors, and those are the really big sectors.

And so we we've somehow become comfortable with a, basically a macro environment in which we actually want to reduce the rate of change. Some people use the term, vetocracy for this, which basically is like, think about how many people have the right to veto something new.

Vetocracy and a Crisis Moment [00:12:38]

Think about how many people have the right to veto, for example, building new housing in a major city. And it turns out it's a very long list of people who have that veto power. That didn't used to be the case, but it's the case now. There has to be a better way to think about this. And that's what I tried to write down.

Brandon: And you brought up two industries there, housing and healthcare that were immediately, or within a few months, pretty massively changed by the global pandemic. So almost in a sense they had to change. And so they started to change, but you're saying they're not changing enough and they're not in a position to change enough.

Marc: Yeah. So there were some big opportunities. This is part of the, and again, I want to stress, like I, you know, I am a hundred percent aware , there's a huge amount of downside , y'know, as I said, , kind of business destruction and, a lot of people are having a very tough time through this . Both those fields, like, there's the opportunity here for both healthcare and housing to get much better in the US and I just, I want to put it in context, I'm going to make statements that are going to sound optimistic in kind of a very bad time, but I just want to qualify that it's in that context.

But look, there are big opportunities - one of the things you get, Rahm Emanuel used to be the mayor of Chicago has, a expression. He always uses it. He says , in politics, he says a crisis is a terrible thing to waste. If you have a system that basically can't change in normal times, then the crisis moment is precisely when you can start to actually rethink things , and you can maybe think about doing things better. So healthcare is like the big obvious one, the, the most traumatic things happened this year in healthcare, in terms of structural change, , is that the government, did an emergency authorization, and for the first time, the government healthcare programs like Medicare, now reimburse for telehealth. Right. And think about that for a second, right, we've had the internet since, like 1995 . We're like 25 years in, we've had broadband now for , coming on 20 years, we've had the iPhone for like 15 years.

And as of, March of this year, as of March of 2020, If you're on Medicare, you could get reimbursed for in-person doctor visit, but you still couldn't get reimbursed for a telehealth visit. Right - a remote video call from a doctor. That's a great example of "wouldn't you have thought that that would have made sense by now", but the vetocracy basically , kept that from happening.

Brandon: Wouldn't that be in everyone's interest sort of thing.

Marc: Yeah, exactly. It's exactly right. It's like, everybody's worried about like healthcare costs are like a sixth of the American economy and growing right. And left unchecked are gonna end up being a third of the American economy and a half of the American economy. Right. Nobody wants to pay for it.

And so it's all these like political tensions and issues. And so it's like, how about the microeconomic discussion of like, how about we make healthcare cheaper, better, right. Like how about that? Right. And for some reason that's not the normal conversation, but it all of a sudden became the conversation.

And then of course the pandemic made that like, Oh, well of course, like we don't want people to come to the hospital. We don't want to bring, you know, coming to the hospital and getting COVID in the hospital. So like, obviously we want them staying home. That's the kind of thing where it's like, okay, that was like a fairly simple act by the government that could have been done at any point in the past, but it wasn't, but did just happen. If that sticks, which I would, you know, I would assume it'll stick. I hope it'll stick well maybe most healthcare should be done that way. Maybe most of it should be tele-health and then you start to say, well, what about like all the data gathering, right?

You know, you go in for your checkup and they do the blood pressure and this and that , and it's like, maybe all these remote sensors, maybe everybody should have a fitness band. The phone has a super high resolution camera now, maybe that's good enough to do the eye exam. Right. And, you know, just like, hold the phone up and so let's rethink what it takes to actually put consumer medical grade, but consumer-price sensors in consumer's hands to be able to do all the stuff that have to do in the office.

I mean, even EKG's you can do at home or whatever. But like, anything short of something surgical, you ought to be able to get the sensors into people's hands. You know, the new, uh, was it the new Apple watch, does blood pressure optically. I think that's right, and then, you know, everybody in the country has now learned about pulse oximeters, you know, those are consumer grade, cause those are used in sports and so forth. Let's start thinking fresh . about this. Maybe we can provide a better level of service, a much cheaper price, much more convenient.

Building New Housing? [00:16:02]

And then the housing thing is a whole topic by itself, this whole shift to remote work, for blue collar work, this whole shift for remote work has not gone well and for like production work like factories, obviously this has not gone well. , But for, for restaurants this has not going well, but for white collar work, you know, anything where you're working through a screen, including by the way, blue collar jobs where you're working through a screen, or lower skilled jobs, where you're working through a screen . This remote work thing has worked on much, much, much better than I think we all feared, early on. And it really raises this question of like, okay, you know, for basically all of recorded time , for like young people to have access to the most vital and interesting parts of the economy in whatever era they've had to move to a big city . And of course, then those big cities end up basically not building new housing. And then you get to the housing, you know, kind of these housing crises and all these big cities. Maybe like we can now finally decouple economic opportunity from geographic location, and we can make independent decisions of where to live and where to work.

Maybe there's all these places that would actually be much nicer places to live, that would be happy to have lots of new people coming and building housing. Maybe that's actually the lever to go after housing.

Brandon: And Marc, connecting that to the discussion we just had about healthcare. Imagine the Internet democratizing access to healthcare where no matter where you live, you get access to the same quality - that to me is a pretty exciting notion.

Marc: Yeah, that's right. That's exactly right. Well, and by the way, on the supply side also, which is like, how about doctors? how about doctors and nurses can live wherever they want, right. And a psychologists and like everybody else and therapists and, on and on and on.

I've been involved for a long time at Stanford hospital out here, you know, a big issue with Stanford Hospital is, they hire nurses who move from, you know, like, let's say a normal place, they're moving from Kentucky or something. You know, and we've just moved to the Bay area and they have to, they get a raise and get paid more, but like, they take a massive step down in quality of living. And so like the more of the supply side you could move out, then you could make the providers lives better also. And of course this is not true of everything. Ultimately people are gonna need to get in person for certain classes of things,

but, a lot of this could be segmented out and virtually, and be provided over the network. Hopefully now it just seems like a no-brainer that this is the kind of thing we should do.

Education [00:17:50]

Derick: It seems like there's a direct parallel here to education. And I want to point out that, it seems like education might even be just one half-step or a step ahead of healthcare, because we have all these on-demand like Udemi, and, and all these on-demand, uh, Khan Academy, those kinds of things already. Can you talk a little bit about how we might transform or how it's time to build, for education?

Marc: Yeah. A hundred percent. With education, right? You want to separate K through 12 and college because they're very different dynamics, but there's going to be dramatic change for both. So K through 12, right? The challenge for K through 12, as a K through 12 in the US is a monopoly, right? It's like, it's literally government-run monopoly. They're called public schools, they're government schools. The bad news is that's the overall system, there's a small number of private schools, they're very expensive. There's a small number of charter schools there. People are constantly trying to shut them down. One just like amazing thing that's happening right now is, by the time your kids are school aged, you don't really have a sense as a parent of what your kids are doing at school, and you get these weird fragmentary reports. Now all of a sudden, all these schools are doing remote learning, even if you know, none of them wanted to, but now they're doing it because they have to, You know, a lot of parents are now seeing what their kids are actually being taught. And what's actually being said and what that curriculum actually is and how well the experience actually goes. There's a lot of parents that are like, Ooh, like this is not, this is not quite what I thought. I'm not sure what I think of this. It's this like really complex kind of multidimensional question of what happens. K through 12 also plays like this very important, like sort of daycare role where, a lot of kids need a place to go during the day because the parents have to work. And so it's not like everybody's just going to switch to kids staying home all day.

Like that's, that's not the right answer, but I think, there's a crack in the door to be able to kind of revisit some of the fundamental assumptions about what K through 12 education actually is and what it should be and what kinds of new choices should exist. Um, so, so that's one.

Rethinking College [00:19:29]

And then college is like super-interesting cause colleges, it's not a totally free market, but it's a more, more of a free market with certainly more choice and more competition.

it's like college is a bundle. And so you got to kind of think about it as a, bundle of like the admission process, the quote, unquote actual education, the graduation process, but then there's also housing, then also there's like the social scene. And then there's a bunch of other things. So there's, there's this kind of aggregation kind of thing. You start to deconstruct it at some point, but then there's this other thing, which is like colleges,

colleges in US are a cartel, like they're economically structured as a cartel and their structure as a cartel is a consequence of what's called accreditation, which basically provides access to federal student lending.

And so they're, they're all kind of on this drug, student loans, and then they've all like massively bloated their costs over the last 20 or 30 years, their administrative costs have skyrocketed, it's like the same education in most places, but like with this just huge new number of administrators are in all these kinds of programs, athletic programs So it's this massive cost bloat. Um, and, and the cost bloat's been fine cause they can use federal student lending money to basically make up for that, which is why kids end up at all this with all this debt. Is that really like the train that we want to be on? Like, is this system actually working? Is this money actually worth it? Does it make sense to try to think about un-bundling this?

Basically like the thing that actually keeps colleges in business, like a lot of colleges in business, is either international students or out-of-state students, uh, paying full freight, um, and you know, for a variety of reasons, the number of international students in the US is way down.

Some of that's COVID some of that's, you know, political, So people may or may not agree with it, but the number of immigrant students has like crashed really hard. And then, are people going to pay out of state to go to a campus? Cause they're only going to be on video.

And so like, how many of the, whatever 3000 colleges in the US are actually going to survive the next five years? I think is an open question. There will be a lot of pressure for the government to bail them out, but should the government bail them out or is the time to build - is it time to think new in terms of what kind of post-secondary education should actually be.

Um, which was, you know what I would suggest.

Brandon: And for these potentially remote- first industries, we just talked about healthcare, education whether primary, secondary, white collar work - do you feel like we have the connectivity infrastructure that we need to fully support that now and going forward?

"Reverse Field of Dreams" - and Net Neutrality [00:21:29]

Marc: Yeah, so, well, we don't, but we will. I've always been a believer and I actually acted on these beliefs. So I'll tell the story quickly. I'm a believer that basically, network infrastructure, it's reverse of field of dreams. You actually want people in some level of pain, it's basically as demand driven not supply driven. You basically want, want people to experience what it means to rely on this and to have it not be quite good enough because that immediately motivates people to put the money and effort and energy into fundamental upgrades. This by the way, this is why I've always been opposed to net neutrality, which is a separate topic we can talk about. But, um, so I'll just give you an example, played out, kind of in my career. We released the Mosaic browser in '92 and we

just got intense criticism at the time from networking professionals basically saying , this is the most under-optimizing, networking application we've ever seen. If you look at the networking code in like Mosaic or Netscape and nineties, you just look at like the, basically like the whole structure of HTTP, how the protocol works. You know, we were opening sockets and shutting them down on every object load. All of our protocols were text-based, they had all these round trips.

Brandon: Why are you congesting all of our pipes? And then video ...

Marc: Yeah, exactly, actually a funny kind of side story is, Sun Microsystems at the time was one of the leading providers of all the infrastructure that actually powered these networks.

You know, they created like, you know, NFS file systems and all this stuff. Um, actually outlawed the use of browsers, um, on the Sun network . In 1993, they told other employees you're no longer allowed to use , and it was literally because it was overwhelming their WAN.

And then there was like an engineering revolt, where they were like, are you out of your mind? This is like the app of the future, like we have to be on this thing . And then they tried implementing a surcharge. They tried doing an internal departmental-level charge of \$50 per user, per month , to support the network upgrade.

And then finally, everybody kind of realized they just going to have to plow a lot more money in their network. , Anyway, the point is like, it was, it was driven by the obvious need, it was driven by the demand side. Whenever people are complaining that their video call is like bulky or whatever, it's, Oh, good what an excellent reason, to like increase spend on network infrastructure. So I think this is one of those periods. Like We're going to get just like massive, massive investment across the board.

And then by the way, I would also say I'm one of the few people in tech who's been kind of anti net neutrality the whole time on the policy side .

My whole basis for being anti-net-neutrality is because I want to incent as much investment as possible in the networks. Um, and having a little bit more subtlety to the policies where those incentives line up better for more investment, I think it makes more sense.

I think that's actually working, uh, you know, the investment in networks and, and performance in networks is, has increased since, uh, since net neutrality was, was whatever revoked or whatever, not it's not repealed. that's actually playing out pretty well. We're in for, you know, we're in for a decade of I think dramatic investment in expansion of network and capabilities, kind of everywhere.

Brandon: So you're saying in the absence of policy changes, you think capitalism and the demand we've got right now for increased connectivity is going to take care of it, that it's going to happen.

Marc: It's complicated, right? It's I mean, these are complicated topics and you get into public right-of-way stuff. You know, there's always practical issues, but generally, yes . If

people didn't already understand how central these networks are to how people live, like they really do now, um, in a, in a very tangible way, and so I think a lot of people are going to, I could really understand that, really take heart.

A Consumer Shift [00:24:15] And then look, the other thing is like there was already a consumer shift, happening.

One of the things we think about a lot is like basically the pie chart of consumer spending. Right. Consumer budgets. Just like the simple fact is like every year, a higher and higher percentage of consumer spending goes into virtual services, of one kind or another.

It's sort of obvious, right? You used to buy CDs. Now you subscribe to Spotify, you used to buy DVDs, now you subscribe to Netflix, you know, kind of dot, dot, dot, dot. That makes sense that is the way the economy should go. It's better on the other side when things go digital and when things go to the network, and so this is going to be another, just, I think, dramatic expansion.

Consumers, I think will be paying something like three times as much for their internet service in 10 years and their bank today. I think they'll be getting, probably a hundred times the performance or something. And it'll be just like so much more central in their lives and that's all to the positive.

Brandon: Yeah. So we, we talked about challenges and opportunities they're creating in these times. One of the topics I want to switch to is what should we do next? Both societally as well as individually. It's an interesting time. We're headed right towards an election. It's going to have policy consequences just to put it mildly.

What can we, as individuals do, to build?

People Respond to 'Time to Build' [00:25:17]

Marc: Yeah. So the big thing I said in the essay, the big thing I'd underline is like, different people have very different views on what it means to have a society that's oriented towards building. Right-wing people kind of classically, right, have this view of it, unleash the market economy. Left wing view, have this view of basically like the government, should take charge and build things. A big thing I tried to do in the essay is kind of not take a political side. I mean, I've got my own personal political views, like everybody else, they just happened to be my views. And I'm in a society where people have lots of different views. And so I try to actually abstract away from any one of those positions and just say, look whatever your political views are - whatever side of this stuff, you're on - how about we just have the scorecard be output, like whatever the process is, whatever the policies are, how about we just score the results on like what gets built.

It's actually really funny. I got two really nice notes on the essay from diametrically opposed senior figures on both sides of the political spectrum in the US. Kevin McCarthy, who's the sort of leading house Republican Congressman, got all excited and had all of his other

Republican members of the house, read it and you know, then their, their view would be like, we need to make, you know, build more.

Um, I got also a nice note from the guy who funded AOC in her race for the House. Of course, he's like way on the kinda far left side of the politics and he was all excited. Cause it's like, the whole like agenda for like the sort of far left, basically should be like the government should like step up and do more and actually build more and like all these things. Regardless of how we get there, think of it in terms of like results as opposed to process .

And then look, I, I think the same thing applies in our lives. When should people feel like they're making like a fundamental contribution to kind of the advance of society, to kind of put it in aggressive terms?

There are two that I know for sure.

One is building things and then the other is taking care of people.

And then you just kind of wonder, like, at some point you want to ask the question, like if whatever you're doing in your life, career, job, you can't go home at the end of the day and say, Oh, I really helped. You know, I helped.

Building Things That Matter [00:26:59]

These are all functions, at a company, right? So it's like, it's not just engineers - all the functions of the company that contribute to the ability for a company to be able to actually like produce new things in the world, like for me, that all fits under building.

And so, yeah, it's like, am I proud of what my company is building? Am I proud of the output? Am I proud of the tangible result or what my company is doing and my role in that. And if not like, I don't want to pick on individual professions, but like, we all know professions where that's probably not the case. And some of those professions are like highly respected in our economy right now. And maybe they shouldn't , be quite as much. Maybe we should like rethink what we respect and what we really appreciate.

The other side is, you know, taking care of people, which is, the other kind of fundamental side of it.

You know, I, I resist hard career coaching anybody cause you always kind of wonder if you're going to give people bad advice and ruin their lives. But, you know, when I talk to kids these days, I always try to shine a spotlight kind of on those two fundamental ways to make a contribution. And I think a society that was more oriented towards those two things in particular would probably be a society we we'd all be happier in.

Derick: Yeah, it seems like building stuff together is something that, uh, it's built into our DNA. Right. That's something that we're oriented to doing, and that we get immense satisfaction from.

Brandon: So in that note, I wanted to bring up, a question about consumption versus production, how we get motivated to do it. So this is the age in the history of the world where consumption is easier than it has ever been, because any content we'd ever want, it's available instantly from anywhere it's so immediately gratifying. How do we encourage the higher-frustration, but much higher- satisfaction world of production and making.

The Protean Society [00:28:22]

Marc: Yeah, this is a really, obviously a key question in everybody's lives, including all of ours. So a friend of mine, um, Michael Malone is a great writer, has this, he has this concept. He came up with a while back. He calls me, he says we don't live in what he calls the Protean society. Basically what he means by that... it goes to your question. It basically means, if you just like, look at the history of the human race, you look through all of the evolutionary development of humanity, like - we basically live just in constant scarcity. Right. If you look at the historical record it's basically, most people for most of recorded history basically suffered from malnutrition.

We literally see it in like the, sort of the archeological record of like people's height and like other aspects of like, signs of malnutrition. So through most of recorded history, like there was this fundamental kind of issue, right. Are people going to have enough food to eat? Are they going to starve to death? Are their kids going to be stunted? Right. And then, even once we figured out agriculture, then it's like, you know, are we gonna be able to survive the winter? Are we going to be able to keep our kids alive? Is everybody gonna, you know, die from all these, all these diseases?

Brandon: Yeah, food production wasn't a choice.

Marc: Yeah. Yeah. Right. It's like, it was like the main thing and it's still fairly recent, right. Like generally speaking on a global basis, the good news is that overeating is now becoming a bigger problem for sure in the US but also actually globally and a lot of developing countries, uh, you know, there's still hunger in the world for sure. But there's not anywhere near the level of hunger there was 50 years ago. And a lot of places now actually have the opposite problem, too much food. Over time, we're solving the food problem, at least in theory solving the housing problem, at least in theory, solving the education problem.

Like a lot of the kind of basic requirements of life. Uh, you know, the market economy, does generate huge numbers of jobs. There's more jobs in the world today than ever before - the system kinda develops economic opportunity for people.

So like, a lot of our basic fundamental requirements have gone from scarce to plentiful, right? But our genes, like our DNA, we're still wired for scarcity. That's like the basis of like, for example, the obesity epidemic. Nothing in our DNA suggests that there's a problem with overeating, right? Like why would there ever be a problem with overeating? In fact, like you actually want people to overeat during the summer and get a little, little fat because you know, it's going to be helpful to survive the winter when food is harder to come by. But, our genes never like had the concept of evolutionary, like adaptation to the big Mac or to the, like the fact that I can have a big Mac, like every day, or multiple times

that I get a chocolate shake with it and have all these other incredibly like hyper optimized, incredibly-delicious kind of foods, factory calories, and fat and salt and sugar and all these things.

This was just kind of the civilizational challenge. Right, and anyway, I'm using the food metaphor as an example for the more general topics that you asked about, which was information entertainment stimulation. You know, most people through most of recorded history, I think have been kind of fundamentally bored, right? There wasn't that much to read. There wasn't that much music to be able to hear. There weren't that many movies to go to right there weren't that many TV shows to watch, that many plays to attend. We generally lived in like a deprived media environment as opposed to kind of a hyper-saturated one. And now all of a sudden we live in a hyper-saturated one.

It's actually funny, you could, in some sense, live a kind of interesting compelling life right now, if like, really all you had was like, basically a small apartment, a steady supply of big Macs or Soylent or whatever, Netflix, Spotify, Steam, an Oculus quest and like, you'd be pretty happy. Right. And you could like, literally listen to every great piece of music ever recorded. You can play every video game, you could watch every great movie.

On the one hand, like, is the purpose of life is not just production? We're not meant to just grind ourselves just to like produce all the time and never enjoy ourselves - that's bad too, but like, we're not meant to just be consumers.

It's like maybe the metaphor, the food metaphor, like being forced to have ice cream for every meal, right? Like at some point it goes from heaven to hell.

And so then it's like, okay, but, but it's, so my friend anyway - my friend calls it the Protean society, cause it's basically like, okay, it's no longer a question, at some point of what are our choices? Like basically, what are we missing? it's a problem with surplus, which means it's a problem of, okay, in a world of abundance, what do we actually want?

Happiness vs Satisfaction [00:31:49]

And then the idea that that actually has to be a fully conscious choice that the environment's not going to make us make that choice. We have to actually make that choice. I think it's a fundamental choice. The way I think about it. Um, I read a book that really changed my view on this a while back.

It's a book called Satisfaction by this really interesting guy, he's like a neurobiologist kind of psychiatrist kind of guy. And so it goes deep into the brain chemistry and all this stuff. He takes this position that I think you also see in like a lot of the great kind of world religions over time.

He kinda gives the scientific version of it, which is basically like, what's the difference between happiness and satisfaction and, you know, in the Declaration of Independence in the US it's like, for the pursuit of happiness. At least they said we have the right to the pursuit of happiness. They could have said we have the right to happiness, which I think

would have led to like madness, but like maybe they made a mistake on that and maybe it should be the right to pursue satisfaction.

This difference, it's like : happiness is , Ooh, I took a nice walk in the park and I had ice cream. Right. I'm really happy. I got to, spend time with somebody I love. And like, I'm really happy, and that's great, people should have that, but the contrast to satisfaction is like, I actually worked really hard all day long. I'm exhausted. Oh my God. that was a lot of effort right. But like, that was really hard work , but I come out the other side, I'm really satisfied with what I accomplished.

Anyway, the argument this book makes is basically like satisfaction is actually more important than happiness. Like we should build our lives around satisfaction as opposed to happiness. And then, yeah, this goes to the building question, right, do we get more satisfaction? Happiness-wise, we probably get more happiness out of consumption than production. Uh, but from a satisfaction standpoint, it seems pretty obvious that we get more, more satisfaction out of producing than consuming.

Brandon: Marc. I think we're approaching the end of our slot. how do we pursue satisfaction on this podcast?

Marc: Oh, that's a really good question. I don't know. Who do you guys have? Well, I guess since you probably don't want to do any spoilers in terms of who you guys have lined up.

Brandon: I think we've got some ideas.

Marc: Yeah, that's a really good question. , I dunno. I, you know, I was just speaking out. I would like to find more like really sharp psychologists on this topic, in my own life.

Oh, I'll give you, I'll give you a, maybe a one final kind of book, a book recommendation on this topic. There's this outstanding book that was written and published in Japan a few years back, and it's been translated in English , very much like on this topic o f book titles it's called the courage to be disliked .

Derick: I've heard about this. Yeah, I've heard about it. I haven't read it.

Marc: yeah, it's this blockbuster book. It's been this huge book, huge success. It sold millions of copies throughout Asia and the American English translation is really good. And it's written by this, this pair of Japanese authors who are experts. It's actually interesting they're experts in both Greek philosophy and also in psychology. it's kind of a melding of Greek stoicism, Epicureanism, a little bit sort of blended with a field of psychology, named after a guy named Alfred Adler, who was a contemporary of Freud. Who was sort of, I think actually had maybe the psychologically healthier kind of approach towards how to live a productive life than Freud did.

He was just the same as famous as Freud a hundred years ago. He's become less famous now, but, this book kind of resurrects him and his ideas, and charts a path to a life that's more along the lines of, you know, what, what we've been talking about. So for anybody interested in this stuff, I recommend that book.

Brandon: Sounds good - Marc. That was an intense but fun conversation that went in a lot of directions.

Marc: Yep.

Brandon: And as people in the networking, computer networking space, I can't think of anything more motivating than your reminders of why, what we're doing matters and why it's going to continue to matter.

So thank you

Marc: Awesome. Thank you guys.

Derick: Thank you!

Disclosure

A quick note here, in the interest of full and proud disclosure: Andreessen Horowitz is an investor in Forward Networks, where Derick and I work, which means they've helped to make this podcast possible, which I'm thankful for. So Derick, what are your thoughts?

Outro

Derick: Well, first of all, I'm also thankful, so I, I just want to put that out there. We're approaching Thanksgiving and I am super grateful to have the opportunity to make this podcast. But what I really liked about this episode was the call to action to build. Building is something that brings people together rather than divides them. And I think right now that's something we sort of need .

Brandon: In an election season in a pandemic, a reminder of why we can do things together is good timing .

Derick: Exactly it's not going to... Look, it's not going to get better unless we do it together.

Brandon: It's the times that I've built things with other people that have been the most satisfying for me.

Derick: Yeah, right? When you reach that sort of conclusion together, it's extremely satisfying.

Brandon: Any kind of open source interaction has that same sense of you're building something together. You're doing something worthwhile as small as your individual contribution may be.

Derick: Yeah, it's not just code either. It's , open source hardware designs. If you think about it, there's so much stuff out there that people are sharing, that they're improving on, and, building more of.

Brandon: And this is also an area where things are very early, right? We didn't have GitHub 10 years ago. now it's easier than ever to share meaningful code, meaningful content of pretty much any kind and collaborate around it.

That's a reminder to me of why what we're doing matters, because it's enabling these new applications no one really thought of, and enabling the applications we're increasingly depending on .

Derick: ... and It's super refreshing to hear this from a leader in our community, the tech community.

And, coming out of this conversation, this is something to think about: the Internet's only been a few decades for all practical purposes, you know - it was spawned upon the world. On a historical timescale, that's no time at all. That's like a millisecond of time. . And we have no idea what, honestly, the long-term consequences of the internet really are, right?

So let's start building let's find out where it goes. I really hope you enjoyed this episode because, this is what the show is all about. We're going to be talking to all these people and hearing all these stories, that center around this theme, how are networks enabling the next thing? How are they helping people all around the world? how is it advancing human civilization every single day?

Brandon: And what are the technologies that are really making it happen? I want to geek out a little bit too, so I can't think of both of those at once in a better single person than someone like Bob Metcalfe who created this thing, Ethernet, that led to a lot of what we're using today. And we've got plenty of guests lined up just like that. We're what 10 recordings in now?

Derick: just, just in these 10 episodes, we've heard some pretty incredible things, and I can't wait. this is going to be awesome. I'm speechless. I'm stumbling over my words, Brandon.