

Eric: [00:00:00] Hey, so I've been a big fan of Avichal Garg's thoughtfulness for some time. But this is actually not the first podcast he's ever done, or the first time he's spoken by any stretch. So, my goal on this was to push him toward a topic that he wouldn't uniquely focus on, and I was drawn to scarcity. Now, we could be looking at an extended bear market here, and we often talk about the macro factors impacting crypto, but at the core of those macro factors is scarcity.

And so I thought that scarcity and trying to apply it to the digital asset space maybe it's time to look back at the roots cuz let's face it, a lot of where digital assets has come from is grounded in the notion that central monetary authorities would print their way into abundance and thus a more stable monetary form grounded in scarcity needed to emerge. So last year, this conversation might have been more philosophical than this year, but as the world [00:01:00] competes with this very real notion of scarcity and its impact on economics, I thought this conversation was more important with regard to the future of digital asset.

On the flip side, of course, very aggressive regulators might be more impactful still, but that's for other podcasts. So, at any rate, I hope you enjoy this episode with Avichal Garg, and I think you'll get a lot out of it. So, if you enjoy it, like it shares it numbers keep going up here. Let's just keep moving it forward and people like it

so, I think if you share it, it'll be well received. So, thanks so much for your support.

Welcome to the encrypted economy, a weekly podcast featuring discussions exploring the business, laws, regulation, and technologies relating to digital assets and data. I am Eric Hess founder of Hess Legal Counsel. I have spent decades representing regulated exchanges, broker dealers, investment advisors, and all matter of FinTech companies for all things touching electronic trading with a focus on new and developing technologies.
[00:02:00]

Okay. So, we're kicking this off with Avichal Garg founder of Electric Capital. This is this podcast has been a long time in the making. Very excited to have you on Avichal. Welcome to The Encrypted Economy.

Avichal: Thanks for having me.

Eric: I actually don't know that you need much in the way of introduction.

There people know who you are they know your background. There are some really excellent podcasts that you've done that sort of go through a very interesting story. Maybe briefly summarize, but we'll, we're just looking to get right into it with you.

Avichal: Yeah,

totally. Yeah. Quick deal TLDR,

spent most of my career as an entrepreneur. I was fortunate enough to start and sell two companies. Second one to Facebook was at Google for a brief time and has spent the last several years full time in crypto. My co-founder Curtis and I left Facebook at the end of 2016. I left at the end of 2016.

He left in 2017 and we jumped into [00:03:00] crypto and we were initially thinking that we would start a company and we ended up, in, in some form starting company, which became Electric Capital and we can talk about backstory if it's interesting, but yeah, these days we're one of the larger crypto VC firms.

We just closed a billion dollar fundraise a few months ago. We invest in tokens. We invest in equity primarily do seed in series a but every now and then we'll flex up to do something larger. And we're fortunate to be involved with a number of the successful companies in the space.

So, things like Bitwise, which is the number one index provider in this in crypto, do

I D X, which provided the introduction, had Matt Hogan on the

podcast. That's right. Yeah. That's right. To, a bunch of layer ones we were investing in back in 2018 and in the series seeds of those things to NFT things like magic Eden, where we were investors in the series and just led the series B. [00:04:00]

Yeah, that's a little bit about what we do, and I think excellent. Maybe touching on and we could talk about this too. I think potentially in the context. This conversation, but I really do think like crypto's eating money and crypto's eating capital markets. And so, the way we're trying to build electric is very much through the lens of crypto's gonna eat venture capital as well.

And so, most of our team is software engineers. We have two designers on staff. We don't have associates or principles the way that we operate as an if I showed you the org chart of electric, you'd say you, you wouldn't guess, if I said, if I showed you the org chart, you said what does this business do?

You would not guess venture capital. You would actually say, oh, this looks like a software, startup. And that's very much by design.

Eric: Yeah. I've gone through the electric capital site. It's really interesting. And we're tracking where the developers go and that's how you look at the space and it's, it does come across, like it is a VC firm.

Yeah. Yeah, that's what we're going for,

Avichal: but yeah. [00:05:00]

Eric: I don't, achieved.

Avichal: Yeah. So much of this of the business that we have is you have to. It's I don't know where I read it, so I can't take credit for, but I thought it was brilliant. It's like venture is the only asset class where the asset picks the buyer, right?

Like founders have to be convinced to take your money. And there's a lot of money sloshing around. And so, for founders, having somebody who doesn't look and talk and feel like a VC as the person giving you money is actually like that you need to like to resonate and that's usually it works really well on the founder side for us actually.

And in that we don't come across as VCs when we're working with founders and teams and companies it actually, I think it worked against us in the, on the fundraising side, in the early days, it was like to, to people who give VC firms capital, we didn't look like VCs. And so, I think there was, it took us a while to get the flywheel going though.

We've been very fortunate and successful on that front too, but double edge sword.

Eric: Yeah. I work a lot with early stage [00:06:00] companies in the space and sometimes, it works better when you have a product that's gonna get traction, but I always say there's money.

And then there's money plus, choose the partners that bring more than just money to the table. Cause money gets spent and it's not free, but something that's a multiplier your unique experience and, your connections to this space can really, be the exponential effect on the capital.

So

Avichal: yeah, and values alignment, right? Do you ultimately want the same things, and do you value the same things and so on? Yeah, there's a whole podcast you could do on how to pick the right person to take money from, which is so much more important in a bear market than, in a bull market, you can be just like the tailwinds will carry you and you'll just raise your next round.

And there's just the momentum works in your favor and in a down market. Having picked the right people is to work with is that much more important? I think,

Eric: yeah, a hundred percent agree. So, we you've done a lot of podcasts, which were, which are, which have been excellent.

You're a thought leader in the [00:07:00] space. So, every time you listen to one of your it's like you, you really get like a different, you take the stone globe, and you twist it in a

different way. And it's just it's not the same riff, but we are we did decide to mix it up a bit today to explore this concept of scarcity in the context of digital assets.

So, we'll just start out, what is it that makes a digital asset scarce? That's a good question. When the context of proof of work moving over, like for Ethereum moving over to proof of stake also resource scarcity and a lot of the debate around Bitcoin and whether or not they're gonna ever be truly another Bitcoin, just because of yeah.

All the debate around the resources consumed and then thinking in terms of digital asset, not just uniqueness or even arguably utility. But scarcity that may also relate to utility. So, it's not just like a digital goal concept, but yeah. What drives, what drives the [00:08:00] notion of digital scarcity?

Yeah. That's a really interesting question. There's this notion of things is valuable if they're scarce. And so, in some sense, as an investor or as a founder, you're trying to create things that have some degree of scarcity to them, and that can come in a lot of different forms, that doesn't necessarily mean limited supply or limited access. Trust is scarce, right? The idea and I think Vitalik has written about similar concepts around like they're just limited resources in the world and like credible neutrality is one of them.

And so, they're like a lot of various forms of this. And I think one of the things that's really interesting about what's happening in the digital universe right now with crypto is we're exploring what are the true drivers of value? Like how do collections of humans? How do [00:09:00] groups of humans all the world actually, I view value into things.

And so, it's, I think it's to me, when we're talking about scarcity, it's like a proxy for value creation and value capture because it's hard for things that are not scarce in some dimension to accrue value. Now that's not to say that again, it's not necessarily about limiting access.

I like, apple is the most valuable company in the world. And they produce devices, and everybody can have an iPhone and a Mac. And, like they, they have tremendous reach in terms of like availability of those things. But they've just developed such brand value and that's a scarce resource, right?

Like the trust that goes into it, the sort of association the sense of this is a high-quality product. If it breaks, they'll fix it if you're seen with it, there's like social status that's accrues to the brand, and it's your you're signaling to other humans like that.

Those are [00:10:00] all like very difficult and valuable things to accrue around a brand. And that brand value is extremely scarce. Like you just, you're not gonna have that kind of brand affiliation with a lot of people. So anyway, it's a sort of like a roundabout answer and in some sense, the answer to what makes digital assets scarce.

The answer is we're trying to figure it out. And I think. Whether it's NFTs or cryptocurrencies, we're playing with a lot of those levers. And I think the only real answer that we have right now is probably things that are fixed supply seem to be able to, be perceived as scarcer.

But I think there are other candidates in the mix right now, like for example, block space is a limited resource and perhaps as a result is scarce and therefore potentially valuable TBD. Like with things like Celestia and module blockchain architectures, like maybe you go from data availability, as a scarce resource to an [00:11:00] abundant resource.

And does that change value capture, I think is an open question and we'll figure that out or trust is a very scarce resource. Like whom do you actually trust and how does that trust get developed and strengthened over time? And you see these other non-Bitcoin, non-Ethereum, L one S emerging and probably one of their most scarce resources there is trust like will the community, will the ecosystem do the right thing?

Will the chain stay up? Will there, what happens if it's a, if it's a proof of work chain, can I get 51% attacked? If it's a proof, a state chain will there be malicious hard forks? That those are just open questions and until you hit those points of actually having to answer those questions you don't actually have trust, like you have the potential for trust, but only after you've done those things and had those hard decisions and hard conversations, do you actually build trust?

So, trust, I think is extremely scarce right now. There are like, not that many ecosystems that I think are truly trustworthy. In the NT [00:12:00] ecosystem, I think there's a whole different set of explorations happening around what it means to be scarce. Does that happen, for example, through who holds your thing?

This is like very common in the art world. Like a lot of what you end up having to do as an artist is make sure your art is. By the right people and in, in return for it being held by the right people, there's an element of brand accrual and scarcity that develops. Cuz there are only so many people who can have that kind of affiliation.

And but I think what's interesting. It's by analogy, I think like one of the really interesting things about what's happening with L one S and defi is we can run ex like economic experiments at scale and game theory, incentivized experiments with real dollars at scale and run a thousand of those experiments in parallel.

Whereas 20 years ago, you might have you, you might have an economist in a mathematician, sit down and write some paper about theoretically, how a thing work might. And then you do some like multi-agent simulation in software. And now you can do it real humans and real dollars. And so, the [00:13:00] search space for what's possible, all

of a sudden just explodes because people can try a bunch of experiments and then, we'll see what happens in the real world.

And so, in some sense, I think for things like brand and trust and scarcity and value accrual, and like, how do humans decide what's valuable? We're running a thousand experiments in parallel, and we'll see after, five years, which of these things actually capture value and why, which I think is just fascinating.

Cause that doesn't happen that often, it's like you have to invent in the entirely new form of value capture for that to

Avichal: be possible.

Eric: I agree with that. That's a, it's a unique time. So, when we think about scarcity, like I, I guess the OG on scarcity and digital assets would be Bitcoin, would you?

Avichal: Yeah. Yeah, absolutely.

Eric: And do you think it's ever possible to have another bitcoin with the same scarcity cuz it seems like it, it would be hard for another system to ever reach that same level. First of all, proof of work is being shifted away from, but what are your [00:14:00] thoughts on, on, what Bitcoin accomplishment, proof of work, what are the candidates could potentially ever accomplish the same, tied to scarcity, cuz certainly viewed as digital goal now just yeah.

Avichal: Yeah. There's I think there's two dimensions to that. So, one is the notion of proof of work driven scarcity, which I think is pretty interesting. And I think there's a whole debate you could have about the proof of work versus proof of stake, fairness like attack vectors, like which one's actually truly scarcer, which one's actually truly more democratic and accessible.

And those are interesting discussions to have in some sense, I think as long as both are. Sufficiently good at fairness and distribution and, security and so on. Like they, they both have a shot in sense in like a pragmatic sense, like not non theoretical, non-Maxim sense. And I think in that dimension, actually, there could be variations of scarcity and fairness and exploration that are interesting.

So [00:15:00] for example, like I think proof of space time, we're using hard disc space instead of CPU to drive proof of work is potentially very interesting. And allowing people to participate using their hard drives and making that system much, much more distributed and accessible.

You might, that might be the closest to the initial Bitcoin launch in terms of like sense of fairness. Like anybody can participate. And it is open in that way. And so, you might be

able to get close to recreating something like the Bitcoin origin story on that dimension. Now of course, the dimension on which it's near impossible is it was the first thing that actually worked.

And so, Satoshi, like proving that this might actually be possible and putting out in the wild and so on, and then being anonymous and then disappearing and yeah. That's not gonna get recreated. That origin story is unique and special. But it's not clear to me that necessarily needs to, I think there's a lot right with it.

It's religious [00:16:00] in a lot of ways, right? Like the, like by like actually not making it about himself or herself or themselves, like stepping away, there's a lot of, like religiousness to it. It's not clear to me that you necessarily need that, like there, if you look at Ethereum's origin stories, this is one of the criticisms of Ethereum in the early days is just like, why will people ever trust this thing?

If it feels so centralized or like they're actual founders, you know who they are, if the founder said something, when Vitalik says something, doesn't, it just sways the community dramatically. It doesn't have undue influence over this thing. And therefore, like how can it ever be decentralized and so on.

And yet here we are like, I think actually Vitalik, and the foundation done an excellent job of essentially removing themselves from the center of that. And having far less influence and say for actually what's happening these days. And in terms of just looking at who's writing the code for Eth two and how's that, getting decided, and it's really messy and slow, but it's pretty remarkable that it's working.

And it's not clear to me that you actually necessarily [00:17:00] need a Satoshi like Messiah, like figure to make the thing work. And so back to this idea of maybe there are actually 10 or 15 or 20 different kinds of origin stories for projects. And now that we have opened up the search space digitally for people to create in a new way where anybody in the world can participate, it could be, pseudo or anonymous.

Anybody can just write ship code. Maybe the like number and types of origin stories for founding projects that people will want to use is actually more varied than we'd ever expected. And now we have the canvas to actually try that out. Whereas it just wasn't possible to do that 10 years ago in, in 2012 ish, let's say you could either do what Satoshi did and you like write some code and put it out there.

And it like open-source style or you could come to Silicon Valley and try to raise around. And that was it, those were like your two options. And now it just has, so many more options about how you could actually build and ship a thing. Which I think crypto has [00:18:00] pioneered and enabled.

And so that makes me think that there's probably a dozen different types of origin stories that then might be able to bootstrap into some new form of scarcity that we just haven't even tried yet.

Eric: Yeah. And you talked about storage space before or hard drive in, in, is that kind of cutting back to block space or are you thinking even more expansively than block space?

Avichal: Yeah, even more expansively. So, in the specific case I'm thinking about is I was talking to the guys over at space mesh and where electric is an investor and chia has also done this Brian Cohen bra was one of the creators that he created the BitTorrent protocol, like 15 plus years ago.

So, like one of the OGs of true peer-to-peer distributed systems thinking, and the idea there is, if you think about what really is like CPU based proof of work, in some sense, you're just running a lottery. And what you're saying is I, there's this hash and you have to solve the puzzle and, but the solution is effectively [00:19:00] random.

And so, what you just need to do is start guessing. And so, it's just a, it's a lottery system, basically, you have a. One over end chance of winning the lottery in any given, 10-minute cycle in proportion to the amount of the network that you own. And so, the thought with something like proof of space time is rather than using a CPU, can you use your hard drive?

Can you essentially commit a gigabyte to the network or a terabyte or petabyte or whatever, and you that's your lottery tickets, right? And so, your probability of winning the lottery and being selected to be the next block producer is proportional to the amount of hard drive space that you've committed relative to the overall size of the network.

So, it's not block space, or it's not like IPFS with file coin where it's a useful form of storage. It's effect it's effectively useless file storage but the file storage is being used essentially to conduct this lottery. And the lottery then is how you pick a block producer but the sort of side effect of doing it this way is of course hard drives are far [00:20:00] more energy efficient than running CPUs.

And in theory, at least and they're constrained in other ways, like you have to have bandwidth and internet connectivity and so on, but in practice in theory and potentially in practice, we'll see. But in theory, at least this should make it much more accessible for the average person.

Like you don't have. You can just you, in theory could run it off your hard drive on your laptop, which is a pretty, probably a lot of people watching this are listening to this are sitting on pretty powerful SDS. Inside their computers. And a lot, they're probably sitting on several tens of gigabytes maybe that are totally unused, and it does create, wear and tear on your hard drive.

It does, have additional electricity costs. It does have bandwidth costs like there it's not free. But the argument is it's far more cost effective. It's far more green energy efficient and far more accessible than CPU based proof of work. And so maybe that's fairer and in some sense, that fairness, because it feels fairer to people [00:21:00] that develops trust and trust is a very scarce resource, right?

So that, that's back to this idea of bootstrapping value, like through, through accessibility and through fairness, you might be able to build trust. And if you build trust, you've acquired something that's very scarce. And because you've acquired something that's very scarce, you've actually created something of.

Eric: that's really interesting. Have to look more into that. And do you think we're moving? It's the coolest thing, by the way

literally it is the coolest thing. I'm like, God, I gotta, as soon as I get all, I'll be like diving into

Avichal: this. Yeah, it's super cool because if you think about there's actually, there are a couple folks, like I think bra has done some cutting edge research in this.

There's a guy named Iddo Bentov and Tal Moran Iddo and Tal are they're professors of computer science in in Israel. And so, there's a lot of cryptography that goes behind, like how. How do you prove that somebody stored a gigabyte of space on their hard drive for 10 minutes? And so, like cryptographically being able to prove that [00:22:00] was actually the case.

So, it's not like right before the lottery runs, I allocate 10 gigabytes of space. I get my lottery tickets and then I reallocate them and I take that space back and use it for my own hard drive. Like there, there're actually some like very hard computer science problems here in cryptography problems in terms of how you do this.

So I, the reason I get a kick out of it, a that's amazing like technology and cryptography, but the other thing I think is so funny about it is what that means is literally, Iddo and Tal are like the creators of space time cuz they invented the proof of space time and I wish, I think is like the coolest, that's like the funniest thing, right?

There are two guys that created space time. Which is all the technology that imps sorry I cut you off. But I just think that's no that they

Eric: did that. And it's funny because I'm listening to it and like the first thing that goes off and on my mind is that this sounds crazy.

Yeah. And then the next thing that goes off on my mind is Wouldn't I have thought that Bitcoin was crazy the first time I heard of it. And then all of a sudden, you're like, actually it doesn't sound crazy at all. Yeah. Cause mining is very [00:23:00] resource intensive.

Like the biggest Bitcoin miners have to and hard drive would be resource intensive, but it wouldn't be as energy intensive. And that's a correct. Yeah.

Avichal: So, one, and back to this idea of bootstrapping ultimately, creating something of value and many things that are scarce are valuable because they're scarce and trust is a scarce resource.

And fairness as I think, as a driver to trust, these are very abstract concepts, but there's like a chain of connectivity there. One of the things that's really interesting about hard drive space, too. Are the supply chains for it and the distribution of ownership is far more distributed than, like an S 19, right?

Like these Asics from a relatively small number of producers and a relatively small number of fabs and like how many companies actually create the Asics for this. And the thing is like in the hard drive market the Val Seagate or Western digital or Samsung, there are these mega companies that make all these solid-state hard drives, and they ship them for phones and computers and servers [00:24:00] and all over the world.

And so those supply chains are actually very robust. They're very distributed. There are lots of suppliers but as importantly if you could create an ASIC equivalent here, quote, unquote ASIC for the hard drive. You would wanna put that in every phone in the world?

Like you wouldn't just want to use it for this. So, like the incentive structure there, isn't an incentive structure. I think quite in the same way that there was for Bitcoin mining with CPU based proof of work, which is like just a natural progression of it leads it to becoming an ASIC here, if the market forces push you in that direction that's just gonna get put into every phone or that's gonna get put into every laptop, right?

Like when you make the storage more efficient and more, denser, and faster recall, like all of those things, you should just put that in every computer in the world. It's not there. Like you don't, you would imagine that this space has a much harder time becoming as ified, so to speak.

Because everybody, every hard drive should just be able

Eric: to part. Interesting. Proof of time space cuz one of the [00:25:00] questions is when we talk about scarcity, what are some of the other proof concepts that leverage that concept of scarcity? Certainly, you can argue that proof of stake has some element of it

certainly not to the same extent that proof of work does. So, while we're on it, what other proof of concepts are out there that, that endeavor to leverage that the concept of scarcity?

Avichal: Yeah, another one, it is a sort of a loose category of things, but I think there's been a lot of interesting experimentation around now is essentially some sort of proof of reputation.

Like you've done a thing and there's no substitute for having done the thing. And that might be like a co-op where you went to an event and it's just you were physically there. Or it might be that you've lent a certain amount of money into a defi protocol.

Or it might be that you've held onto a certain token, so you're essentially diamond handing it and people are playing around with variations of this, a lot of the gauge voting and escrow lockups get into this universe. It's you willing to [00:26:00] commit to an extra two-year lockup on your token?

And you're committing, you're not gonna sell your token and that expression of I'm committed right now, the reward function is essentially you get more governance power, which is quite valuable, obviously. But you could imagine that like the history of that, and the record of that is your reputation essentially on chain, right?

Are you a good actor? Are you long term actor? Are you long term minded? And so, there's like a proof of reputation that you can build over time through your actions, which I think is I it's, as a VC, we kind of traffic and reputation. That's effectively our business.

That's our scarce resource, right? Like over, over an extended period of time, if we do all the right things. We establish our reputations and of course, ultimately, hopefully that leads to successful outcomes, but how you did, it matters as much as what you did. And so that, that's one I'm particularly sensitive to, I think we're gonna, we're gonna bootstrap entirely new forms of reputation here.

And I think when you start intersecting these ideas of reputation with [00:27:00] with the novelties of this space, I think gets really wild can software have a reputation, right? It's like an interesting thought and it's, a lot of these I think when crypto and AI start to intersect when you have intelligent agents or semi-intelligent agents with some objective function, and they have a history of having performed a certain set of actions.

And if they're, of a certain orientation, like they're generally long term minded and trying to, have a certain objective function like that thing has a reputation, but that's a, that's like a funny sentence, right? To say that. A computer program has a reputation or, can collections of people have reputations or, when you start intersecting these ideas, I think with anonymity and pseudonymous accounts, you can actually have multiple accounts.

You can actually have multiple reputations, right? In one context you could have a reputation is essentially a long term minded, diamond handed VC. And on the other one, you're a total de DJ, right? And so, you can [00:28:00] actually, as a human, even, you can imagine like you, you could have multiple reputations, which is not something you could really realistically do today.

Cause everything is fundamentally tied to the one identity that you have. So, I, I think the surface area, even for reputation, all of a sudden, when you take it fully digital explodes into like entities that previously did not have a reputation, all of a sudden may have a reputation and entities that did have a reputation might now have multiple reputations.

So, like the surface area for what does it even mean to have a reputation you just blew up here in a really interesting way.

Eric: And does that actually make the communities themselves? An individual either, if I have a bad reputation or I have no reputation, I have to acquire a reputation.

So that's just something I have to build. And if I build it, it's unique to me, but if I'm trying to acquire in the sense of a community, how do I become part of a community that has that reputation? And presumably that community has to be somewhat gated. I wouldn't say exclusive like a country club, but it has to be like crypto gated, right?

Yeah. So that you [00:29:00] have good actors in there. Do those communities that have that unique reputation now become a scarce resource, like for example, Board Ape Yacht Club there's an OG element to that. There's, if you're part of that club, it's more than just even holding the OG crypto punks, because the crypto punk doesn't have a community or some people would say, no, maybe it is, but it didn't have a community.

It had the OG status, but it didn't have a community the same way that Board Apes Yacht Club did. So, does that reputation of the board club become the scarce resource that drives the value of want people wanting to own it? Not just because it's a crypto punk and it gives them cred, but because it gives them it gives 'em cred, you know it, how should I say it?

It shows off wealth, right? Like I have a, yeah, totally. So, I but absolutely, but that doesn't necessarily translate into reputation or trust, but it does potentially translate into [00:30:00] credibility in terms of your longevity in the space and your dedication to the space is

Avichal: yeah. Yeah. A couple things come back there, right?

Yeah. Yeah. There are a couple things in interesting dimensions that's done back there. So, one, I think what that's getting at is reputation at a collection level or community level in some senses. And like reputation and brand I think are somewhat interchangeable. And that, that is absolutely a phenomenon.

I think different communities will effectively intentionally or unintentionally develop their brands. And then you get like a Darwinian thing, which is like different communities that are uniquely good fits for certain types of people and certain types of distribution channels and certain environments, and like how they make money and all these kinds of things.

I think you'll just get a natural explosion of it. And back to this idea. I think one of the really fun and interesting things about crypto is because everything is digital. The rate of evolution is much, much faster. So if you take like a Darwinian take on, it's just in, in the offline world, think about how long it takes to build a brand and how long it takes to reach, [00:31:00] millions of users and get them to just be aware of who you are and then reestablish communication with them and really build your brand.

And you can do that very quickly in a purely digital context. And so, what I would actually imagine is you not only will you get. Sort of explosion of purely digital brands. But you'll get a new set of varieties of brands and sub segmentations of communities that we just never seen before, because now all of a sudden, it's possible to find just Reddit did with subreddits, there are all these random sub reddits you stumble into.

And you're like, wow, I can't believe there's a million people over here. That's crazy. This is a whole thing I never even knew existed. And there's just a million people sitting in a corner of the internet. And now that you can put like NFTs or money or Dows, and the ability to coordinate resources, around those things, around those communities it just, it feels natural to me that like these brands will emerge around these communities because they'll have monetary power, and they'll have like resources that they can coordinate through crypto.

And so just the number of brands and the variation of brands, I think will like [00:32:00] dramatically increase. And then there's another thing that you said there that I think, it does touch on this idea of there with a lot of these brands, like there's gonna be some value in reputation and being a curator of culture.

And so, if you're somebody that finds these things early, there's, that's a new form, that's a type of reputation and all of a sudden that's like a, another type of reputation that people can accrue. And then there's what you definitely see in the offline world. And something you said there, I just wanna pull on that thread, I think is interesting.

Is there are always gonna be people that see these brands and then draft on the brands. And so, Rolex or Patek, this is the example that I use with watches. I don't know if we've talked about this before, but. You take something like a Patek, and it's why are you buying the Patek?

Like for most people, I would say maybe half of the people it's they actually genuinely appreciate the art. And they're like, wow this is a masterful tool. And I can't believe humans

can do these things that robots can't do. And like the precision of the machinery and [00:33:00] so on. And half of it is, hey, I can spend \$250,000 or \$500,000 on a watch.

I can put on my wrist. And then I can demonstrate to all these other people in accrue social capital. And so, if you're a banker or if you're a C a financial services CEO, like you might wanna put one of those on and really what you're signaling to your potential clients or your customers or your social circles is I'm successful.

And that's a, that's just a social fitness function thing, right? Like humans are, we're just primates that need to signal to each other socially in this way to say, I'm success. And I think you're seeing that behavior on steroids with NFTs. But I actually think it's on a dollar basis is a pretty rational behavior.

And so, the example I always use is, with a Patek, you might spend \$250,000. You put it on your wrist. And at the end of the day, like how many people are gonna see it right in your life, maybe 10,000 people are gonna see it and recognize it. And what did you pay? You paid like \$2, 50 cents for an impression, somewhere between a thousand and 10,000 [00:34:00] people.

But if you buy a \$250,000 board ape and you put it up in your Twitter profile, millions of people might see it. And that's like pennies per impression, basically it's two and a half cents per impression instead of two and a half dollars. So, it's literally a hundred X better from a social signaling perspective.

If you're, if the purpose of what you're trying to do is signal. That you're extremely successful and you have \$200,000 to blow on some asset purely to, to socially signal. It's so actually I think like a lot of these behaviors, there is a, there is like an analog equivalent, like humans already do this.

And then the digital version of it is just now all of a sudden 2 billion people will do it. And actually, in many cases, the digital version, it seems crazy at first glance. But if you look at it through the lens of humans already do these sorts of crazy things in the offline world. And it's actually a hundred X more efficient on the digital version of it.

That makes me think that actually all of this activity that's happening in the offline world will just happen a hundred X more in the online world.

Eric: Interesting.

And I guess maybe another way of taking the snow globe on this one and [00:35:00] switching it around a little bit is, and I think about this, honestly the NFTs have this social signaling component of it.

And some people like myself on some levels really don't care. It's, whether I own a, and anybody can take a rifle and shoot me for this. Actually, I wouldn't welcome it, but I don't see it. Doesn't like spending that kind of money on a Board Ape. If I can turn money, if I can make money on its long term, phenomenal.

If, if somebody says, wow, you're the greatest guy ever, cuz you own a board ape, not so meaningful. It doesn't like that additional social status doesn't do for me cuz I like you IHA we're men of the mind. So, like having, just saying, hey, you got social credit. Be like, yeah.

Whatever. That's great. I don't want social credit. I want I want my intellectual capacity to be sure, that is more credible because that allows me to interact with other people who have, I enjoy that. I get off on that [00:36:00] intellectual stimulation having said that, so I'm actually going to a direction on this, for example, like I'm DCI.

If you get involved in a science project, right? Yeah. Let's just say that you fund a project, your part of a working group. You're somehow, you're affiliated with some sort of invention, some sort of phenomenon that's scientific that involves a lot of like-minded people that, that are trying to solve problems.

That's a cred in and of itself. It's also a CRI that potentially helps you in future things because now you're seen as a contributor. And that's part of, one of the things that you're talking about, moving away, like how do we move away? And I don't mean moving away, like leaving it behind, but how do we move away in terms of breaking, breaking down the different components of that reputation and narrowing it.

Cuz right now it's very focused on more of leveraging media, leveraging likes, leveraging like status symbols at social status. [00:37:00] How does it move toward more toward professional status or even. I'll just say intellectual status. Is that do you see that as something happening or you think it's just too difficult, to try to connect the dots on that?

Avichal: No, I don't think it's too difficult. I think most people just don't care and it's just look at popular media consumption. It's if you talk to nobody really watches TV anymore, but it's 20 years ago, if you talk to a bunch of people and you're like, Hey, do you do you watch PBS probably 60 or 70% of people said, yeah, of course I watch PBS that's where I get my news.

And then if you look at what they actually watch, they're actually watching, like the Kardashians. And so, the reality is this sort of like the highbrow intellectualism is like it appeals to, let's say 10, 20, 30% of the population. [00:38:00] And in some sense, all of the other stuff.

Appeals to a hundred percent of the population, right? It's like even the people who highbrow want the other stuff too. And so, from a Tam perspective, what you get are, all the other stuff is just a much bigger Tam. So that's that, I think like the Desi stuff is super

interesting and we've invested in some stuff like roughly in that direction, because I do think as like a form of capital formation, being able to give money to people that are doing certain kinds of things or empowering individuals to be able to participate in the health and science industries and those are massive industries, right?

Healthcare and scientific discovery and pharmaceuticals. And there, there are billions and billions of dollars that are being created there and people should be able to participate in that value creation. But I suspect at the end of the day it's just it's not where most people's heads are.

It's like where 10% of the population's heads are about utility in some sense like, and like these intellectual pursuits or these [00:39:00] headier things I think are clearly very valuable. And they appeal to a certain second of the population, but I think like fun and games and entertainment are also a form of utility and that appeals to all humans.

And so almost by definition that Tam there is much, much larger. And so, things like, video games or even the idea of collecting things or speculating, speculation is just a game. Like people are just playing a real money game. And that's fun in that entertainment value.

There's utility in the entertainment value, I think. And yeah, I tend to think it's just it like the Desi stuff will definitely happen. And I think it'll be transformative as it does happen over the next decade. And just like cutting out all the intermediaries in terms of, how research happens, science funding happens and how drugs are discovered and all these things that'll be great.

But I suspect it'll be a much smaller percentage of the market in perpetuity versus sort of social signal.

Eric: So, shifting gears, maybe a little bit to games. In game [00:40:00] environments and, I'll go there and use a term, use metaverse, although what that exactly is in different context is still to a large extent being defined, right?

Yeah. But a lot of the games that are being created today are based on this concept of scarcity that, the gamification, you try to get something it's hard to get by definition. If it's hard to get, you want to get it more. And there's ways to tease you to create the kind of behaviors where you come back.

Do you see like that kind of scarcity being a major value driver and incentive in the future, or I've also heard different, different I think what nor is one of 'em where they say let's, listen, we, we're not trying to create metaverses where.

It's all based on this notion of scarcity and gamification, but people just do it because it's fun, it's not just play to earn it's played to enjoy. Yeah. As [00:41:00] well as if you're serious

earn, like, how do you think that evolves? Have you given a thought to the value of manufactured scarcity in, in those types of environments in, in and how they might evolve?

Avichal: Yeah,

I haven't I've thought about it too deeply, but I go back to this idea of a couple of like higher level observations and stuff that we're seeing. So, I do think games are gonna be really interesting here in crypto land. It's one of the few things like, as the bear market has happened, it's one of the few things where the volume of pitches that we get has not changed.

Like the games sub-sector inside web three is very much alive. And the caliber people going into it is phenomenal. It's everybody from independent game developers to. 22-year-olds in Eastern Europe who are like, hey, this might be like the new app store to people coming out of Tencent and epic games.

Triple a, these games take [00:42:00] 50, a hundred million to make those teams are spinning out to create blockchain based games. So, I, back this sort of recurring theme, I think the degree of exploration that we're seeing and the surface area for exploration here is so broad that almost certainly really surprising and interesting things are gonna happen because just the caliber of developers that we see exploring is just so high.

And the surface area to be explored is so large that I think people are gonna stumble into some really interesting. And then when you think about it from the dimension of scarcity, I think it's gonna, it's gonna, my sense is it'll pull in two directions, which are polar opposite. One is the idea of true scarcity.

Now you have sort of program, programmatic scarcity. Like you can actually prove cryptographically that there are only X of a certain item. And I don't know if we know what the implications of that are. Because if that's said in stone, it does create some interesting, one, one of the interesting things with games is you can tweak the game economics [00:43:00] and you can tweak the game, play if the card is too powerful, you can undo it.

What does it mean if you can't undo it? What does that, what does that mean? And I think the second order of effects of that'll be really interesting, if you have certain in-game items and their NFTs, can you import them into other games and do game developers start getting really smart about you.

Like it reminds me of quadratic voting. If you know that term where it's if they like the person coming into game is too powerful, you don't want them to just come in and dominate your game and not have to play your game. But you do wanna encourage them to come in. And so maybe there's some sort of, quadratic decay where the most powerful items don't translate to the most powerful items, but there is an incentive for a bunch of people to come over into your game.

So, this idea of like in game items with true scarcity plus interoperability across games, I think is gonna be like a whole set of exploration. And then I wonder if the extreme other dimension gets really interesting is like part of what is interesting about the digital world is that it's not scarce.

[00:44:00] And so it's actually extremely abundant. And so, what does that mean? What does it mean if anybody can create a game and it all is interoperable and you end up with a million different games. And I just don't know what that means. And I don't know like how we behave in that world, because historically for example, with the game platforms and consoles whether you're talking iPhone or console games or social games there was an element of scarcity, right? Like it was, there were a lot of games, but the game the platforms for discovery and playing those games were, and discovering those games was actually quite limited.

And when you have, anybody can publish a game here and anybody can interrupt with another game and you get like an explosion of APIs and interoperability there, I don't know what happens there. It's like the opposite of scarcity. And so, I think you get like extreme abundance.

And I don't know what that does to like psychology I don't know how sort of game players and how money [00:45:00] moves in those worlds. And I think it's, there's gonna be a whole sort of second order effect around just the abundance that comes from the sheer number of games and game play.

And in game items in interoperability, I think creates a whole different level of complexity.

Eric: It's interesting. If you think about, I think TV might actually have some analogies there because yeah. When I was growing up, you would turn the channel and it would click every time.

I, my house couldn't even afford the cable. I had 13 channels or what have you. Yeah. If that and, and we probably watched more TV and then today, and then we went through a period, like everybody was just like, 300 channels of garbage, or 500 channels of garbage.

There was so much, you just, you didn't even care. Yeah. But then I think something interesting happened is like you have Netflix and prime and Hulu or what have you. And all of a sudden, like everything, the standards for all of it [00:46:00] just increased so dramatically. If like people who enjoy old movies these days, they enjoy it because it has some element of nostalgia.

They could be well made movies, all that good stuff. But the quality of the series done like on, yeah. On shows today's so much higher. There's just so much more that goes into, it's so much more thoughtful. They get a lot more real time. It's a science and they have a lot more chances to experiment.

So as a result, things that may have previously gone in play, like your sitcom with the can laughter nobody's maybe that's come out up again for nostalgia, but people aren't like watching like old sitcoms with laughter generally, except for a sense of nostalgia. So maybe it's the same thing with games is that over time there's so much, but it'll, the cream of the crop will rise, and it'll create new standards and, future games will stand on the shoulders of giant.

Avichal: Yeah, totally. Yeah. There's definitely a market observation here. There's like the expansion and contraction of markets. It's [00:47:00] that old what is it, Jim bar sale quote, there's only two ways to make money bundling and unbundling and its consequence I think of markets.

And so, as you get the explosion in games, you'll need some form of bundling and then unbundling. And I think that's absolutely true. And then I think, yeah, that there's this other element of extreme abundance, which is what the internet has shown is like over time because of the power law nature of these things.

YouTube is another good example. The production value of YouTube videos has just gone. So high in the last five years compared to the first 10 years of YouTube. And it's very apparent, right? Like these things that are, used to. One person, filming themselves on some iPhone four or something.

It's just the production value. Some of these things to really break out. It's just so high it's like an it's these are professionals. They're not, it's not amateurs anymore. And so yeah, you see that sort of natural and in a zone of abundance, extreme abundance, like [00:48:00] the bar that you have to cross to really get notice keeps going up and up.

And yeah, probably something very similar happens here. Part of it is like in any individual game, there might be scarcity, but like at the market level, there's extreme abundance. And how those two interplays with each other, I think is a

big TBD. '

Eric: obviously, the last few months, a lot more focus on inflation and that's real-world inflation

that's resourced. That's energy. That's food. Yeah. How, beyond just the fact that, okay, maybe Bitcoin, maybe not Bitcoin is a, is an inflationary hedge, and that has to stay at play out. So, I'm not looking for a prediction there. How do, like, how does real world inflation, particularly around scarce physical resources drive the narrative of what's scarce in the digital asset space or change it.

What are the implications for

that?

Avichal: That's a good question. I don't know. I haven't thought about that too much. The way I've been thinking [00:49:00] about it, which is a little bit indirect is there's this great writer David Foster Wallace, and he's great. He gave a great commencement speech in the early two thousand at Kenyon college and he tells it's, I'm gonna butcher the parallel.

I don't remember the specifics. It was, it's a great speech. It's about, challenging authority and assumption and so on. But the rough parallel is something like an old fish is swimming by two young fish. And the old fish, older fish nods to the two young fish and says, Hey boys, how's the water today?

And the two young fish that are swimming by nod, nod back to the older fish and say they just nod. And then they keep swimming downstream. And after a while, one young fish turns to, to the other young fish and says, Hey, what's water. And I think it's a great story cuz you know seeing the water is what it means to have experience and wisdom and insight.

And I think one of the interesting things about inflation is I think for Americans, it's starting to expose the notion of scarcity. Like we've lived in a world where everything [00:50:00] was denominated in us dollars. And so, in a sense, we were insulated for the last 20, 30, 40 years. Really, since the seventies, America has been insulated from this concept of scarcity because we've lived in a world of abundance.

Like the economy worked, everything was growing, like things got better and better. 2001 was not great. 2008. Wasn't great. But even if you look at just like the last 15 years post global financial crisis, because of the subtle dynamic of inflation. Plus, the fact that everything in the world is denominated in us dollars, Americans by and large were not really exposed to this idea of scarcity.

We just lived in a world of abundance, and everything is denominated in dollars. And so as far as Americans were concerned, everything's hunky Dory. Meanwhile, in the rest of the world, everything is doubly denominated. It's like your local currency and dollars. Cuz international trade is denominated that way like oil is denominated that way like debt is denominated, in dollars.

And so, a lot of the world actually has to understand scarcity because their currency is shifting relative to the dollar. And so, the price of goods and services and things is actually [00:51:00] changing in a way that they, that the rest of the world is internalized. Like you go talk to somebody. Brazil or India or Argentina or Turkey, and they like, they really understand this stuff cuz they have to.

And so I think, one of the second order effects of inflation here, I think is gonna be that in a lot of these Western democracies, basically the Euro zone, the United States you might

put Japan in there because the yen has been, relatively stable and good for 20 years despite stagflation and all that stuff.

But I think a lot of these markets are now waking up to the idea of scarcity because all of a sudden goods and services are becoming in, in, in a way that's very tangible, far more expensive. And they're starting to realize that oil is actually scarce or, commodities are actually scarce, or I can't get timber because the supply chain is busted.

So, I can't, I actually can't build my house. Like I have some uncertainty there or I can't do that renovation, or I can't, all of a sudden like the supply chain stuff is hitting too. So, I don't know what the consequences are as like society [00:52:00] internalizes that in, in north America, in Europe and Australia and Japan, like places where historically for the last, let's say 15 to 20 years you haven't really had to think about scarcity.

And now we have to because by and large, if you look at the demographics, that's a lot of people, right? That's, there's a lot of people who let's say if you're 40 and under that basically means like your entire adult life, you didn't have to think about this notion of scarcity in some sense, from a like a, an economic perspective you obviously did in other forms, right? Like people have personal scarcities and they have, budgets and you have, so and so on. But I think this is just like a new form of tension at a society level. Where're all of a sudden, we're realizing like, oh, okay there just might, there just may not be enough copper to go around.

What does that mean? There just may not be enough timber to go around. What does that mean? And how do we think about this? And I think we're just starting to get our heads around what that is. My sense is if it's anything like what has happened in other markets, Lebanon, Turkey, Brazil, [00:53:00] Argentina what happens is in the collective psyche, as soon as you realize that you place a premium on things that are scarce and that you can acquire that can't be inflated away, which was, which is why I think if you look at the history of things like Bitcoin, so many of the early Bitcoiners were people who came from these worlds and from these markets where, who had experience in these markets, like you look at when Cisco Sarahs, the founder Zapo and why did he get it?

It's, you look at his personal history, you look at Mickey Malka who started rib. Even if you look at, I think Brian Armstrong who started Coinbase, part of the reason he did Coinbase was he was, I believe in Argentina, like he was doing like a study abroad in college or something, and he spent some time in Argentina.

And so, then he got it right. He was like, oh, this is actually a thing. And so, exposure to scarcity in the real world, like I think, sets your brain up to understand the value of scarce assets that can't be inflated away and so on. And but it's a little bit subtle. So, what I think it'll be interesting to see is as society, as societies around the world that have historically not had to deal with scarcity, start to have to deal with scarcity. [00:54:00]

That would not be surprised if they then start to place a premium on things that they can control that are scarce, that are therefore valuable, that can't be inflated away.

Eric: Yeah.

I, when I think about it, I think there's like sort of two areas, like one that stands out is just this whole debate around Bitcoin and the use of renewable resources, like solar or water or off grid, all these things, all of a sudden you hear a narrative saying hold it.

Sure. You're creating, better utilization of renewable resources, but hey, couldn't that be used some for something else. And it's yeah, but it's the economics that drive the use of that to begin with. But suddenly I, it is a perverse narrative. But the fact that it's even being raised is indicative of the type of, inflationary arguments Hey, energy's scarce, what uses a lot of energy that we can pick on oh, Bitcoin, right?

Yeah. [00:55:00] That that's one. The other thing is, in, in the context of a, of, the digital asset space where scarcity isn't necessarily influenced as much by a supply constraint except for block space inflation has doesn't really have the same meaning I inflation is driven by a perception by, you could say, trust is scarce.

Yeah. But it doesn't have the same exogenous factors that are driving that scarcity. Yeah.

Avichal: Yeah. It's an interesting observation. Yeah. What happens in a world here? It's something we think about from a value capture perspective is. As the world on the L one S is data availability happens and therefore, block space becomes far less scarce.

And as zero knowledge proofs happen both for, roll up purposes, but [00:56:00] potentially like snaring up the chain itself. All of a sudden, the computational bears like the cost to running transactions on a per transaction basis also collapses. And like throughput and block space and computational power, no longer being the constraints, you start to wonder if those are not constraints and therefore not, those things are not scarce.

How does the L one actually capture value? Because if there's an element of scarcity and there's only abundance in every, the data layers abundant, you can do a million transactions a second. Everything's a ZK roll up and, roll up, settle out to roll up, which settle out to the L one.

Like you just get tremendous. Abundance. And so, does that mean actually that there's very little value capture? It's a little bit an open question. And one of the things we come back to is this element of trust. And so there may actually I wouldn't be surprised if we look back in 10 years and we realize that yes, these things as computational networks and payment networks and so on, have tremendous throughput.

And so looking at it through the [00:57:00] lens of computational network, it's not that valuable, but the real values and the trust and people place such a tremendous premium on the reliability and the resilience, and the fact that these things have been around for 15 or 20 years, that they're willing to pay very significant premium above the cost of the computational cost of running the network in order to have access to the network.

And that trust premium essentially is like where the valley capture really is. And so it would be, potentially impossible in 10 years for somebody to recreate something like an Ethereum or a near or Alana, because the mechanism by which you needed to bootstrap the trust, which wasn't, you started with a bunch of scarcity, which eventually ended up not being a constraint anymore in becoming abundant, but that period of scarcity is where you created the trust.

And then the window has closed. But yeah, it's an interesting question of as some of these things move from being scarce to being extremely abundant, like what does that mean for, from a value capture and creation perspective?

So, I'm gonna circle back to, to, to some of the things that you started off the podcast with, which is we were [00:58:00] talking about the different proof of, and how do they translate into scarcity sort of looking forward your crystal ball so to speak, we talked about proof of time space.

What, where do you see the scarcity. Really taking root. I guess beyond trust, cuz trust is obviously a critical component, so we'll put that one. We got that one, but outside of something like more trust and reputation based and potentially block space based what I'm just gonna probe a little bit to see if there's other areas that you think about when you think of like how scarcity, because nobody could have predicted proof of work and the scarcity that it would've driven, yeah. 20 years ago. So, I guess five years I'll give you, so yeah, it's a good question. I can't, 75% easier yeah. Yeah. That's funny. Short [00:59:00] answers, I don't know. Longer answer is it's a really interesting prompt to think about and maybe a good follow up for me that you've prompted outta this conversation is maybe it's a really good question because I think understanding like the dimensions of scarcity beyond trust.

Really do start to hint at where there will be tremendous value capture. I think attention is one, attention is always a scarce resource. Yes. And so, like the ability to have user attention and monetize that I think, share of wallet in some sense the amount of money that people have in budget that they have is a zero-sum scarce resource.

There are only so many dollars there. And so, you're like fighting for wallet, share, in some sense, just thinking out loud here, it seems almost like if you can, like one way you might

be able to generate all the sources of trust is to look at what the business models of the world are.

And then work from that to say if there's, if there are sustainable [01:00:00] businesses they're actually capturing some value. And the reason they're capturing some value is they're offering some scarce good or service and you could categorize those. And reputation is certainly one attention is certainly one, and those are the, two of the biggest businesses on the internet basically.

So, like monetizing trust and monetizing attention. But it's a really good question. I have to think about it. I, there, there's probably some really good forward thinking, like VC blog, post fodder in there.

Eric: Yeah. And probably simplicity is pretty scarce yeah. Yeah. So, any at any rate I've I would love to follow up cuz

you, yeah.

Avichal: I'll think about it. I think it's an interesting prompt. I'll think about it. Cause last question is a really interesting one. Yeah. Cuz both forwards and backwards, right? It's what are the business models in the world and what do they imply about what is ultimately scarce? And then from a technology perspective, what are the things that are [01:01:00] scarce and therefore imply that there might actually be some sort of business model.

And if you wanna go in both directions. And if you can do both, you might actually discover effectively a new business model, right? Like the realization at some point in the last couple years, that block space as a scarce resource produces a new form of business model is like a great insight or ultimately, that trust at the L one and people are willing to pay a trust premium, which, in like monetary terms, people sometimes call like a monetary premium, which I just think of from a technology perspective, I think of that as a trust premium above the core utility of an asset yield some really good sort of value capture insights.

So, it's a really good prompt. Definitely worth thinking about.

Eric: I also think simplicity, it is a proxy for something more simplicity and reputation. So, there's a lot of data. There's a ton of data. Yeah. What there's scarcity of is the [01:02:00] ability to assimilate it in a way that's unique to a user.

That's scarce. That's very difficult to find, you might find little pieces of it, but you certainly don't find something that's really uniquely built around you. Now there's certain AI tools that prompt and, feed you things. But that killer app, that thing that just draws people to it, hasn't really emerged.

It's still very experimental. AI might be something that facilitates it. Something, an AI framework that actually makes the ability to navigate digital asset space, navigate all the data on a user basis on an enterprise basis. In a way that's, there's certainly large institutions that are leveraging this technology today for their own specific purposes.

What scarce is how to really empower, smaller users.

Avichal: Yeah. Yeah. There's lots of good fodder there. Lots of good food for thought. I'm gonna chew on some of that.

Eric: [01:03:00] Excellent. Thanks so much for coming on the podcast.

Avichal: Eric's great to see you.

Eric: I'm glad that I only got you. It only took

Avichal: Yeah. I'm glad we were able to do it years. Yeah. Yeah. It took a year. I'm glad we were able to do it.

Eric: Excellent. So glad we did it. All right. You take care

Avichal: Alright man. Great to see you. Thank you for the time.