TFTC 420

**Marty:** [00:00:00] And we're live on a new platform.

**Lyle:** Sweet. Do we

**Marty:** have to check it? Let me just make sure we're all good to go. It's exciting. It's

**Lyle:** been in the works for a while now. Yeah, it has too long. I've had a few delays here and there and I don't know. Things have come up. We've had a few reason. Good reasons to delay, I suppose.

**Marty:** Checking the Vita page. We're live. It's working. It's pretty fascinating. Yeah. So any of you freaks who are watching this live stream, whether it be on Twitter or YouTube? If you're on Twitter, I put a link to the vita page in the tweet. Why don't you guys go watch it there? Because you can experiment and you can tip us with sets as you, as you watch.

And we have somebody in the room already. We have somebody in the vita room already. Let's go.

**Lyle:** Sweet. Yeah,

**Marty:** so, so what's going on in the

**Lyle:** [00:01:00] background? In the background, in the background of Vita? Yeah. Well, um, lots of stuff, you know, this is, uh, vita.live, the, uh, platform that we're streaming to today. It's a, it's a new platform.

We've kind of soft launched, uh, a few weeks ago. And basically it's the easiest way to monitor is a livestream on the internet. So, you know, you can, uh, set a rate in SATs and Bitcoin for someone to watch a stream. Uh, you can set a rate for people to chat in the chat in the room. You can set a rate for people to join the stage with you, like if you're doing a paid ama, you know, or something like that.

And we also have these really cool things we call room sponsorships, which can be turned on on a room so that anybody watching something in the room is earning Bitcoin as they watch. And then the hosts can also earn Bitcoin based on the number of viewers that come into the room. So it's kind of a new way for a brand to [00:02:00] sponsor a creator, the creator's in total control over, you know, which sponsors they enable on their room.

And it's a easy way to sort of give SATs to pretty much anyone, you know, any community. Yeah.

**Marty:** If you're on YouTube watching this, you wanna go check it out? Go to vita.live. Look up Marty, Ben. That's where we're streaming. Yeah. On Vita. This is pretty powerful. I'm very excited.

**Lyle:** Yeah, it's a cool tool. Um, it's sort of, you know, another step in our vision to make earning Bitcoin online easy to make, uh, monetizing any type of audience or interaction easy.

You know, it's useful for podcasters like yourself. It's also useful, like if you're just a consultant charging money for your time, you know, it's easy for somebody to book a paid room with you. Um, so yeah, it's a, it's a, it's a super useful tool. We do a lot of other things, like we do HD local recording like you would get from, uh, something like Riverside.

We do it totally for free. Uh, we also do stream forwarding, uh, which is built in, [00:03:00] that's totally free. Um, something you would normally pay for with a service like, uh, like YouTube, I mean, like a Restream. Yeah. So, uh, yeah, it's a, it's a powerful tool. Um, it's all about monetization. It's all about, you know, giving your, your audience Bitcoin and earning Bitcoin from your audience.

And, uh, you know, it's sort of the, the next step in, uh, much larger, larger vision of, you know, empowering people to earn Bitcoin online. Yeah.

**Marty:** And I'm really excited about it. And particularly cuz you're building this, cause I think your experience professionally, uh, in the telecoms industry and being around Bitcoin, I feel like I've been following you on Bitcoin, Twitter for like almost a decade now.

**Lyle:** It's been a long time. Yeah, it, it has. It's gotta been. It's getting close. Yeah, it's getting close. Same thing to you. I mean, I've been following you for so long. I feel like I know you probably much better than I actually do, just because I've been following you for so long. You know, I was just talking to Andy from Crowd Health, you know, right outside the [00:04:00] studio and, and we, you know, see each other on Twitter and interact on Twitter.

Then, you know, you walk into the Commons and you see these people. So it's great. You know, if, if you're out there and you haven't been to the, the Bitcoin Commons Here're in Austin, you should come. Yeah.

**Marty:** And so let's talk about the story of like founding Vita. What were you doing before? And why did you feel like Vita was the company that you have dedicated your life to work on?

**Lyle:** Yeah. Um, well, so I guess it was back in 2018, I was working for the, uh, telecom company that had acquired my previous company. I had done a startup, it was kind of one of the first, um, you know, online only business phone systems. And we built a lot of infrastructure. Uh, you know, we, we made a white label version of that product.

Eventually we ended up, uh, cloning Twilio's, like entire API stack on open source software and sort of, um, that's what powered our platform and that caught the attention of this telecom company. At the time, they were a, uh, public company on the NASDAQ called Intelli, and they wanted to compete [00:05:00] with, uh, Twilio in, you know, in, in the market.

And, uh, so they acquired my company. I joined and like led a API team, uh, Sort of, you know, keep that short. Basically, Twilio ended up becoming their biggest customer, so they didn't actually ended up, uh, competing, you know, with Twilio. But, um, in 2018, I was leading a, a team. We were hiring a bunch of machine learning engineers to basically spot fraud in, uh, the telecom, in the, in the network faster because, um, if you know anything about telecom fraud and spam is like a huge issue.

And somebody that is running like a fraud campaign through your, through your network to like a high cost destination, think like Native American reservation or like an international, you know, phone number or like one of those, you know, uh, numbers in Utah that, you know, you get spam calls from. Those actually cost a lot of money per minute to call.

And so people do these traffic pumping campaigns to drive [00:06:00] phone calls into these areas, and then they have like a brown bag deal with, uh, you know, somebody that's getting paid and, you know, they're, so essentially they're making money to drive spam, you know, to these destinations. So, um, we were trying to spot the, these things faster.

And about that same time, it was 2018, the Lightning Network, you know, had become real, like the first version of, uh, l and d, you know, hit the, hit the hit the wild. And, um, it just sort of fascinated me because it, you know, set off this light bulb that, wow, we can transfer value over the internet instantly now, you know?

And, um, what would the telecom industry look like? Um, you know, now that we can, now that we can transfer value instantly over the internet, what does that change? You know, what does that enable? And one thing was like, okay, well if our customers had to pay us. In real time as they push traffic to our network, we wouldn't have these problems because the spammers wouldn't be able to [00:07:00] afford to actually, you know, spam our network and spam your phone.

Um, and so I kind of started playing and fiddling around with a, uh, a sip a VoIP proxy that basically only worked if you fed it Bitcoin in real time. And, um, similar to H CTP 4 0 2, which you guys are probably familiar with, um, sip the, the dominant VOIT protocol in the world has SIP 4 0 2, which does the same thing.

And it's a similar story, you know, um, they sort of put it in the protocol thinking, yeah, surely one day we're gonna be able to, you know, uh, dig, you know, send digital payments, you know, but it wasn't possible until lightning, right? And so I started implementing SIP 4 0 2, um, and you know, eventually I. Sort of realized that this was a huge opportunity in a $1.4 trillion telecom market, and lightning was going to inevitably change that market.

And I wanted to be building a company that was, you know, creating tools and infrastructure and APIs to [00:08:00] facilitate that transition. Uh, so yeah, that's kind of the, I don't know the story of what

**Marty:** got me here. Yeah. And when you first told me that it was mind blowing, you never think of the underlying architecture of what happens when you make a phone call.

Mm-hmm. Or do a FaceTime or do a live stream. Yeah. Yeah. And when you explain to me like SIP a similar to HTTP and it has this 4 0 2 hour, that's like mind-blowing. Mm-hmm. I've always thought like payments on the internet, payments, uh, POS system, but never thought like telecommunications, like making a phone call.

Yeah. There's architecture Yeah. That B Bitcoin can fit

**Lyle:** into. Absolutely. I mean, you know, um, SIP is by far and away the dominant, you know, voice video protocol used in telecom networks, you know, all over the world. Um, you know, most of the voice video traffic all over the world is flowing over the SIP protocol in some form or fashion.

Um, and you know, it, it's not just for, you know, [00:09:00] telecom like phones, you know, PST and phone systems. Like when you spin up a vita room, uh, you know, and join the room, there's a sip session being initiated over web rtc like from your browser. So, you know, the same protocol that we can use to enable a carrier to, uh, bill for the traffic flowing through their network in real time lets us do the same thing in a web session, you know, two year Vita Rim.

So it's, it's the same technology, um, but it's, it's compatible with all of the existing telecom networks that, you know, that are out there. Um, and that's, that's a real important part of our vision. Because all of the Vita services, whether it's, you know, sending a paid message or like, you know, paying to watch a live stream or paying to join, uh, you know, a Vita room conference room, that's the same technology that would be used by a international carrier that is, you know, sending a voice call to Latin America and they're eliminating their settlement risk cuz they're getting paid in real time as that call progresses.

Yeah,

**Marty:** and [00:10:00] you're quantified, the telecommunications industry is a 1.4 trillion industry, but when it comes to like settlement risk and spamming, like how big of a problem is that from monetary

**Lyle:** perspective? It's a 20 to 40 billion annual, you know, problem. So essentially telecom companies lose that much money every year to these, uh, spam and fraud campaigns.

Um, you know, lately there's been like a huge regulatory push in the United States, especially around, um, you know, SMS spam, you know, we're all tired of getting the SMS spam and, um, Spam hitting your phones. You know, our phone's just constantly, you know, ringing all the time. Uh, why? Because it's free. It's literally free for a spammer to make your phone ring.

Right? That's the underlying problem. And you know, the government's trying to like, create all these rules. There's these new things called stir shaken, which is kind of like, uh, they make anyone originating a call into the pstn, use a special certificate so that they can trace the spam back to the source.

[00:11:00] But it's kind of a losing battle. Um, you know, but if we just could address the real issue, which is it's free to make your phone ring, you know, if we could put a price on making that happen, even if it was just a few sat, you know, it would completely eliminate all of that. Uh, so, you know, it's gonna take us a while to, you know, change this 20 to 40 billion a year problem, you know, with Bitcoin.

But my view is that over time all the telecom networks are gonna wake up to the fact that this is now possible. And, uh, you know, part of them waking up is gonna be us sort of telling that story. Yeah.

**Marty:** And. So functionally, how does it, how does it work? How would it work in your grand vision in the future when the infrastructure's all built out Lightning's fully enabled for an end user?

What does that look like when they're making a call, they have to send some stats. Is there like a staking thing where they get 'em back? Or is it a di minimus amount where Yeah, I think,

**Lyle:** um, I think it's a de minimus amount, but, um, you know, I think whatever app or, you know, [00:12:00] phone you're using to make that call is essentially going to have, you know, a wallet associated with it.

And then the destination's going to have a wallet associated with it. And then, you know, if you want to make somebody's phone buzz, you gotta, you know, you have to pay whatever the destination rate is. Um, you know, sometimes maybe those rates will be set by, you know, the carrier providing the service.

Maybe they're set by the end user, you know, directly. That's my hope is that end users have control over, you know, the prices, um, you know, of, uh, the, the price for distracting them, right. With some notification. Uh, but. It could turn out, it could turn out lots of different ways. You know, I can't predict the future.

All I know is that real-time settlement's definitely gonna be used in this, you know, in this industry. And it's gonna need some specific building blocks in order to make, you know, any of these use cases happen. So we're sort of starting at the bottom and, you know, in building up.

**Marty:** Yeah. And so what, what's the settlement time dilation like right now is

**Lyle:** when?

Yeah. Um, I mean, it can take, you know, 30, 60, [00:13:00] 90 days for a carrier, you know, to get paid for traffic that they handle on behalf of another carrier. Like, um, you know, another good example is like international roaming. So let's say you take your phone to France and like your phone is connected to like an orange telecom, you know, tower in France, and you're using data that they're providing, you know, through their tower.

And um, you know, you go home and then like 90 days later, orange gets paid, you know, by at and t or something like that, right? So this isn't about just like legacy phone call. You know, VoIP calls or like, you know, legacy SMSs, it's about international data roaming, but also it's about enabling, uh, spam prevention on new protocols.

Like, like Naster. You know, we've already seen the power of, you know, zaps as a signal, you know, on, uh, a Twitter like, you know, post in, in Noster. But the same thing could be done with a dm, right? Why don't we have Noster clients that let you set a DM threshold such it's that the [00:14:00] client only shows dms in your inbox if they've been zapped, you know, based on whatever your minimum, you know, amount is that you set, you know, to capture your attention.

My view is that that's going to be the inevitable path that Nostra clients take. Because they're gonna face the same spam problems that, you know, all other open protocols, uh, face. So, you know, something we've been doing in Vita is, is integrating as much as possible with an Oster. You can, you know, log in, you can, uh, if you land in a vita room right now where this live stream is going, you're gonna get a little popup.

If you have a Noster extension in installed that says, Hey, you know, log in with Nasta right now. You log in, we import your lightning address. So if you get paid, it goes straight to your lightning address. You know, we use non-custodial web to, uh, you know, zap the room. Uh, you know, just like you would in any other Noster client.

Later, we wanna merge our, uh, messaging interface with Oster encrypted dms behind the scenes so that it's cross compatible. You know, um, we we're not trying [00:15:00] to build a walled garden. We're trying to sort of set an example of what. Uh, you know, realtime payments, how realtime payments can enhance and enable, you know, communications in different ways.

Yeah, it's

**Marty:** been really cool to see you really lean in to noster. Yeah. And then what we were discussing last week too, like leaning into the AI stuff mm-hmm. And yeah. How this new open communication protocol with noster and this new productivity tool in AI can sort of supercharge what you're able to build.

**Lyle:** Yeah. Um, you know, we have, uh, hmm. I hesitate to say this, but we, we've rolled out an experiment like, uh, actually last night where, uh, anyone with a VITA account can actually go in and turn on an AI agent on their Vita account. And it's pretty simple. Like you configure this welcome message that this AI agent will, you know, send anybody that lands on the, uh, The [00:16:00] landing page for the AI agent.

It's like vita.cash/whatever your, uh, username is, and then you can tell the agent, Hey, um, I want you to ask questions about this video that you just, you know, provided to the user and make sure they understood X, y, or Z about the video. Right? So imagine you're a marketer and you are, you know, promoting a product, right?

And you've got like the 62nd ad or like promotional video about, you know, some product you're releasing. So the bot says, Hey, you know, I'm here to give out Bitcoin rewards, uh, if you talk to me about this video. And so the user watches the video. They say, okay, I'm ready. The chat bot response, you know, what did you think about like, the color of the, you know, uh, Cadillac, you know, in, in this video, right?

User responses, you know, what's your favorite thing you know about this new Cadillac? Like, what do you like most about it? User responds, and then after a couple of questions, the bot responds, Hey, you know, here's 200 stats, you know, for, for telling me about this. And it's the same VTA messaging interface that, you [00:17:00] know, you can use to charge for receiving messages.

It's just the opposite. It's one that does the opposite. It's one that pays out Bitcoin for interacting with it. And so, um, you know, our hope with this tool is that it's sort of a backdoor way to get, uh, you know, brands and products and, and people spending money to promote their products. To essentially buy Bitcoin and give it out to millions of people.

So we'll see. Um, it's, it's an experiment, but yeah, check it out. You know, go to go to vita.live or vita.page, click on automations and set one up and, you know, see what happens. Yeah. And

**Marty:** part for like the end user flow too, I think what you're doing by leaning in the noster, if somebody has a Noster profile set up with an L address in it, it's making it very seamless to get paid Yeah.

As an end user across the internet. I mean, Veta is just one example, but I think what you just described, if you use the Noster signin flow, it's like seamless

**Lyle:** monetization for the end user. Yeah, [00:18:00] yeah. Go straight to you. We don't touch your money. Um, you know, it's a, that's a big part of, you know, we've been, it takes a lot of time actually to, you know, make your product work non-custodial.

You know, there's still, there's still a lot of, uh, you know, pain points in. You know, in doing that. Uh, but you know, every year or every month they get, you know, the, the community sort of solves a few more of them, makes it easier. Um, now things are, uh, easy enough such that, you know, you can have a lightning address, which was a huge, a huge win.

Um, you know, Andre from, uh, ebdi, you know, sort of inventing that, uh, was a, was a huge thing cuz it's easy, it's just like a, you know, it's an e an email address that you can use to receive Bitcoin. So, you know, getting Veta to work with lightning addresses so you can bring any lightning address to the platform and anytime you get paid on the platform, it goes straight to your lightning address.

Um, that was a big thing. And then recently, over the past couple of weeks, rolling out web and support [00:19:00] so that, um, you know, you can make payments, uh, to other V2 users, whether you're chatting with them, whether you're on a one-on-one call with them, whether you're in a, a room with them and, you know, we don't touch your money.

It goes straight from your, you know, your web and enabled wallet. And, um, you know, if the user on the other side has a lightning address, it goes straight to their lightning address and we're not in the middle. Um, but, you know, the number of people that sort of can use these non-custodial tools is still very small.

So, you know, we do support, you know, just signing up and, uh, you know, customing your funds, you know, for now to make it easy. But, uh, we're hoping to, you know, eventually be able to sort of, uh, you know, lead users into using it. Non-custodial Lee.

**Marty:** Yeah. So what are, what are your thoughts on the current state of lightning?

Obviously you're building on it. There's a lot of naysayers out there.

**Lyle:** Yeah. You mean like, uh, in the recent hye environment? Yes. Yeah. There's been so much, uh, anti lightning fud, you know, [00:20:00] in this high fee environment. Um, a lot of it seems to originate from people that, you know, were maybe running a lightning node and, and you know, perhaps they had like this forced chan channel close or something while fees were high.

And yeah, that sucks. You know, we definitely need our lightning nodes to, you know, better handle situations like that. But I mean, the fact still remains that if you have a lightning wallet and that wallet has some connectivity to a channel with capacity, you know, you can send Bitcoin instantly without, you know, hitting the min pull and without paying fees.

Like, that's still the reality. Um, I think that, you know, in the future, things like PS and, um, you know, things like that are gonna make onboarding users much easier. I, uh, so I don't know. I mean, I think it's, you know, people are, people are just mad and, you know Yeah. Yelling on Twitter. Yeah. [00:21:00]

**Marty:** And so, not being rude, I'm opening my phone.

We have 11 people in the Vita Live chat. It's audio only. Can you turn on the video in Vita? Uh, if you go to the Vita page,

**Lyle:** It should, should be picking up the video. I was considering restarting just Vita's end of it to see if that'll fix it.

Yeah. I wonder if it's a, I wonder if it's like a weird Restream issue. It might be

**Marty:** Restream stream's.

**Lyle:** Stream's been weird about that sometimes. About

**Marty:** certain platforms. No, but it's been cool. I mean, you freaks can't see it. Maybe we can pull it up on the screen though, Logan, for anybody watching, just to give them, uh, a view of what it's like in the chat.

We've been zapped four times. We've got people chatting and so like for our rhr specifically, which is a live show every week, this is something that we're [00:22:00] gonna integrate and hopefully move our live chat over to Vita. Yeah. And we'll be able to overlay this on the screen, correct? Yeah. Yeah.

**Lyle:** Yeah. Cool.

Yeah.

**Marty:** It's, uh, no, it's fascinating how, how good it works too. It just works.

**Lyle:** Yeah, well it's taken a lot of time to get that, you know, to uh, to, you know, get the UX right and, um, you know, doing real-time video is not simple. Um, you know, but fortunately we've, we've had experience building things like this before.

Um, not simple as the video is not even showing on the lot more. Hopefully we'll figure that out. But yeah, I mean, um, you know, I don't know doing, we wanna build tools that are useful, right? We wanna build tools that are useful to people in a variety of contexts that make it easy to earn Bitcoin online.[00:23:00]

And, uh, we wanna make it easy for brands to be able to, you know, Cut people into their promotional campaigns so that you know they're earning, when they're giving up their attention to a brand. Like fundamentally, that's a big problem on the internet, right? We consume these ads on all these platforms all the time.

They're monetizing our attention, you know, they're monetizing our time, sort of without our consent and without us getting anything for it, you know? And if we can build, if we can tweak tools and build platforms that let brands, uh, you know, cut an audience into, you know, their promotion, then it better aligns the incentives of the, you know, the, the brand user relationship.

And we distribute, sat to people using marketing dollars that are already getting spent, you know, out in the wild. And, um, you know, that's a, that's a hugely powerful thing. I mean, you know, If we can create a product [00:24:00] that, you know, apple wants to use, you know, to promote something in the future, you know, that's a ton of money flowing into Bitcoin.

You know, that people, you know, like you and me, plebs are, are getting in, they're in their pockets. Yeah. And

**Marty:** with the AI chatbot specifically, like the brands love this cuz you're like forced Yep. To interact and actually pay attention. And then you get, and we talked about this last week, you get rewarded and SATs for that.

Like what does that sat reward do psychologically for the consumer are, they're like, oh, I got sat from this brand, maybe I should go buy their product.

**Lyle:** Yeah, yeah. Maybe. Or, and you know, maybe the brand can even, you know, boost it if you do go buy, you know, buy the product, give you stats back, you know, if you come back and say, yeah, hey, I followed up on this and I actually bought this thing, you know.

Um, but yeah, I mean, It's, uh, it's still early in, in our vision, but, um, you know, we're moving quickly. Uh, there's only three of us, you know, full-time so far. [00:25:00] Um, me and my co-founders, Brandon and Noah, uh, and, uh, yeah, it's been great. You know, the, those guys, they're super talented. I couldn't have done all this by myself.

Um, and I'm, I'm fortunate to have those guys, you know, to sort of, uh, you know, well, I don't know. Help, help make this vision a reality. Well, for you, for,

**Marty:** I mean, I've gotten to know you very well and Brandon, Noah, not as well, but well enough to know that I think you guys, as a team building in Bitcoin is something that anybody listening to this who's a hardcore Bitcoin should be extremely excited about because you guys are competent, killer builders who have all successfully launched and sold companies in the past Yeah.

Who have now dedicated yourselves to building out a product that leverages Bitcoin to the very. Unique and

**Lyle:** powerful way. Yeah. Yeah. I mean, you know, um, honestly, I think it's inevitable that like more teams like ours, you know, move into to [00:26:00] building on Bitcoin. I mean, I guess, uh, let's, you know, um, the light spark, you know, David Marcus, like, he's another example of, you know, somebody who's been successful in some other context, who's now, you know, understood the truth about Bitcoin and the Lightning network and is now, you know, building in this space.

And over time, you know, that's inevitable. More people are gonna wake up because, you know, lightning is the best protocol for instantly sending value over the internet. I mean, it's just, it's not a, you know, it's not like a, uh, debatable thing when you understand, you know, the limitations of, of blockchains, you know, and digital currencies and how things work.

Like lightning is the best and it's gonna pull in teams like ours, you know? Um, and it's gonna snowball, you know, it's just sort of still the beginning. Yeah.

**Marty:** Let's give the freaks a little history of, of your team, cuz you guys have worked together. Yeah. Not broken up, but like gone, done your own thing and then eventually gotten back together.

Yeah, yeah.

**Lyle:** Uh, so, uh, Noah and I actually were college [00:27:00] roommates. Um, back in college. We used to run this website, uh, called VG pro video game pro.com. And, uh, it started out as like a, you know, a file site, like a video game file site. So like, if you wanted to download a patch, you know, for a game, you would come to our, you know, to our website to do that.

Or like, if you were a mod publisher and you wanted to like upload your mod for the community to, you know, download it, you could do that on VG Pro. You could like put your own ads, uh, so that your ads were shown on your mod pages so you could sort of monetize your mods. Um, so like Noah and I were working on internet monetization, you know, like 15 years ago, you know, or actually longer than that, I'm kind of, you know, aging myself.

But, um, Yeah, I mean we've been, we've been working on this for a long time. VG Pro aren't. We had like a million and a half uniques a month, you know, on the website. So it was pretty, you know, pretty significant, uh, traffic profile. But we also remember like getting totally screwed by ad networks, you know, uh, back then, you [00:28:00] know, we would make like cents per CPM while they would be, you know, charging brands and stuff, you know, 30 bucks, you know, CPM or something like that.

And so we always sort of wanted to create better monetization tools that, you know, rewarded the content producers, you know, in a more equitable way. And then also rewarded the people consuming those advertisements. Um, you know, as well. And, you know, here many years later, you know, we, we've come back together and, you know, started working on that.

Um, You know, Noah's a really super talented guy. He's one of those rare guys that can, uh, you know, actually code and build and design, you know, and make things look incredible, uh, you know, has a, has a real mind for user experience and, you know, making things work well. Um, you know, he was previously at Entrepreneur and Residence at Gradient Ventures, which is Google's AI venture arm.

Uh, before that, you know, he founded a, a company called Radius. Uh, you know, they raised like $130 million and [00:29:00] sold. Um, and then Brandon I met at Intel. Uh, he sort of joined through a different acquisition from mine. But, you know, we're sort of, you know, similar contexts, uh, you know, similar stages in life, similar interests.

Uh, you know, we worked together for five years while, while we were there, and when I left to do Vita. It was just sort of like a no-brainer, you know, for him to come along too. He's also super talented engineer, uh, builder, you know, business guy. He's led 150 person engineering teams, you know, so knows about building organizations, uh, at scale and building networks and systems that, you know, have to function at scale.

So, you know, I mean, I'm super blessed to, you know, to have these two guys, you know, uh, building this with me.

**Marty:** Yeah, no, it chosen the product thing. It's beautiful. It works. And uh, again, I'm extremely excited to have builders like you three in this space. Not to inaugurate anybody who's been [00:30:00] building in the space today, but again, it's, we've had this thesis that eventually, it's similar in the nineties where people didn't realize it, but everybody was gonna be a quote unquote internet company.

Mm-hmm. And we're in that similar period with Bitcoin where yeah, everybody's gonna. Not be a Bitcoin company, but they're gonna have Bitcoin integrated into their stack, and it takes competent builders that can actually build and then scale a product. Yeah. To bring that, that thesis and that vision to fruition.

**Lyle:** Yeah. And you know, it's, um, like no, you know, no builder, you know, can predict the future, but you can sort of have an idea about, you know, what the future's gonna look like. You know, you can have an idea about how a piece of technology is going to influence, you know, the way, uh, an industry moves, you know, like, like telecom or like advertising or marketing and, um, you know, it's, um, it's, [00:31:00] it's fortunate to be working with guys that understand that you, you know, you can't nail.

You know, the perfect sort of idea of how the future's gonna manifest, like on the first try. Like it takes constant iteration, constant building willingness to get your hands dirty. Willingness to try something, throw it away if it doesn't work. You know, willingness to try something if it does seem like it's working to, you know, reinvest heavily, quickly, you know, to flesh it out.

Um, and that's what we've been doing, you know, for the past, for the past year, uh, actually not quite a year. And, um, you know, looking forward to kind of continuing that momentum, continuing to build that momentum. Um, you know, we just, I guess we can talk about this, haven't really talked about it publicly anywhere else, but, you know, we just closed some, some fundraising, some funding.

Uh, thank you 10 31 for participating in that. I'm very excited. Yeah. Um, you know, we, we've already brought on, uh, one, uh, person in sort of a part-time role that we're, we're hoping to bring on full-time, you know, uh, [00:32:00] soon. So we're already sort of beginning to expand the team and, uh, you know, more resources to push this vision along and, uh, push the rock up the

**Marty:** hill.

Yeah. I, I, what we're trying to do now by showcasing this on Vita, cause you mentioned Restream earlier, like ideally at some point in the next couple months, we just completely replace Restream with Vita. We do all of our, uh, rt mp, what is it? Yeah. Rtmp, RTMP forwarding from Vita instead of going to Restream.

Yep. And I pay a lot for Restream per month just to do all that, just to do the forwarding and the aggregation of the different social platforms we send it to. Um, so it's a highly valuable product, but, um, It also excites me incredibly, cause it creates this vision of people talk about crossing the chasm into the mainstream for Bitcoin.

Like once it gets caught up in the minds of influencers, or I shouldn't say content creators [00:33:00] that, uh, that aren't really privy to Bitcoin or aware of Bitcoin, and they find that they can get a restream like experience with Vita. And not only that, they get to added benefit of embedded monetization. Yeah.

That could be massive for, for adoption. Yeah. I

**Lyle:** mean, you know, that's a, that sort of bigger point in general of, you know, if we want to expand, you know, the footprint of Bitcoiners, you know, we wanna bring people in to, you know, using Bitcoin. Like we need to build products that normal people that don't necessarily care about Bitcoin can get value from.

Right, regardless. And, you know, by getting value in some, you know, way unrelated to Bitcoin, but by placing sort of Bitcoin as a part of the bigger experience that they can also benefit from, we show them the benefits. You know, we're not telling them, we're showing them the benefits of turning on this feature, you know, enabling payments on their chat, you know, um, enabling, you know, [00:34:00] payments on their join to participate.

Um, but at the same time, you know, we're still providing this high quality product that, you know, functions as well as Restream does the things that Restream does, functions as well as Riverside, you know, does HD local recordings. Uh, shout out to Kevin Rook, uh, who has been helping us test our HD local recording a lot over the past, uh, over the past few weeks.

Um, but yeah, you know, he's a, he's a good example. He used to, you know, record all this podcasts on Riverside cuz they do the HD local recording where, you know, it doesn't matter how bad the internet connection is of the person joining, you know, you're still gonna get that high quality local stream from your participant.

And, uh, you know, you can do that for free in Vita in a vita room, you know, so, um, there's no reason, you know, to go use a product like, uh, like Riverside. And that's tangible value that anyone can, you know, get benefit from. And, uh, you know, over time we hope that by offering that, you know, those points of tangible value, we get more creators using, you know, our platform, using our product, [00:35:00] um, you know, creating and recording their podcasts and turning them into live shows, you know, on the platform.

Um, and then in turn exposing them to the rest of our tools. Yeah,

**Marty:** and, and again, getting very excited here because we talked about the bigger picture of like telecom, the settlement risk, the potential there, and the opportunity to, to fix that problem. That's why we're very excited at 10 31, uh, to be partnering with Vita and supporting you guys is because the, like, it, it goes well beyond telecom.

Yeah. Like content creators into the mix. Like there's Yeah. A wide. Spectrum of places that you guys can fit into?

**Lyle:** Yeah, absolutely. Um, I mean, you know, fundamentally communications, right? Telecommunications, I mean, it's, it's fundamentally about, you know, connecting, you know, people to one another. And like telecommunication, the telecommunications industry manifests like in tons of things.

Like Zoom, right? Is a part of the telecommunications industry. You know, Google Meet, right? [00:36:00] That's like a telecommunications product. Um, you know, YouTube, a YouTube stream, right? You know, is a, is another good example. So like, it touches everything. Communication tools, touch everything, you know, all kinds of business interactions, you know, all kinds of, uh, you know, products, you know, use APIs, communication APIs under the hood.

And, um, you know, we're just trying to build, you know, useful things in that industry and that leverages Bitcoin, you know, to settle the value of that communication. And, uh, you know, eventually we're gonna find all sorts of use cases that you know, that, that are valuable. Um, even like things like just conferences, like helping conferences monetize, you know, their, their paid live streams.

Uh, a couple of weeks ago, BTC plus plus use Vita, you know, to, uh, monetize their live stream. You know, uh, it's literally just sending an rtmp stream to the platform and you have a paid, you know, a live stream. Like, there's no, there's not an [00:37:00] easier way to do it. Uh, you know, and, uh, so yeah, if you're listening to this and you put on a conference, you know, use Vita.

**Marty:** Yeah. You put that, that's like the lightning pay wall to get in, like similar we have with the newsletter when we do the paywall post, but it's for, for live streaming. It's, it's, uh, again, very exciting that, uh, yeah, that we're at this point, like, did you think, and going back to like Bitcoin more broadly, and did you think Bitcoin.

Would be at this stage where you can build these types of tools because you've been in it for a

**Lyle:** while. Yeah. Um, I mean, I remember reading the, you know, the Lightning Network paper in 2017, I guess is when it was, yeah, 2017. Maybe it was 2016 when the paper came. It maybe in 2016. I can't remember. Um, but, you know, I remember being a little bit skeptical because, you know, it seemed complex.

Right? Um, and that was a lot of the early, you know, sort of hate, you know, against big, oh, this is too complex, it'll never work. Right. Well, [00:38:00] you know, um, building things that scale is hard, right? There's reason why it's com complex. Like you can't, you know, the world, the world's communication cannot run on a base layer.

Whether your blocks are, you know, 10 terabytes big or whether you're, you know, um, Whether you can handle, I don't know, 17,000 transactions a second, like, like, uh, Solana or something like that. It doesn't matter. Like that's still a micro tiny portion of what the world needs and to, you know, have a protocol like lightning that scales.

Yeah, it has some additional complexity, but that's why it works. And, um, you know, in, in 2018, we like when, when I was working on that project and, and l and d came out and it was working, it's like, you know, it's like, okay, well, you know, this is actually, um, this is actually a reasonable path. And you know, this, it's only been a year and it's already doing this, you know, what are, what are the Bitcoiners gonna build, you know, in [00:39:00] another year from now and another year from now?

And now, holy crap, it's 2023, you know, today. And we can do stuff like this. You know, and we have people like David Marcus also building in the space and, you know, and we have so much more momentum, you know, and it's only been a, it's only been a few years, you know, and we have like, Decades ahead, you know?

Yeah,

**Marty:** no, I feel fortunate, not just for myself, but for my children, for humanity more broadly, that we do have the ability to build this stuff right now, cuz yeah, you look out at the world,

**Lyle:** it's getting very necessary. Yes. It's desperately needed. Yeah, for sure. For sure. It's, um, the world's, world's getting crazy, you know?

Um, part of me, you know, hopes it slows down a little bit, you know, because we've got a lot of stuff to build, uh, you know, the past week, you know, with, uh, the fee, the fee spike, you know, I think it's sort of open everyone's eyes to Wow, you know, this could, this could happen at any moment, [00:40:00] right? Yeah.

There's nothing in the protocol preventing fees from increasing by an order of magnitude tomorrow if some event happens, right? Maybe that event is like some shit corners, putting shit on the chain, you know? Or maybe that event is like, You know, a major nation, you know, adopting or like, you know, something leaking that, you know, somebody's mining, you know, or something like that.

Which has been happening. Which has been happening, right. So, I mean, at any day, my point is that the base chain, you know, can become a lot more expensive and we as Bitcoiners have a lot of work to do to make sure that, you know, we have the, the necessary tools, um, you know, available for, for users to keep growing and, you know, builders to keep building.

**Marty:** Um, so what, uh, what would you define as your like low-hanging fruit of stuff that needs to get done that's actionable, like in the short term to Yeah.

**Lyle:** Um, well, you know, I think personally I'm like [00:41:00] super bullish on, on Fedi mins and, you know, the stuff that the guys at Fedie are doing, uh, Justin Moon, I mean, he's right, right behind us.

Yeah. Justin, I mean, you're doing great work, but, um, I mean it's, uh, it's. S you know, something like that is gonna be necessary, um, because it's the easiest onboarding tool, uh, you know, for a, for sort of a unaware, um, you know, non-technical person to, you know, to use. Uh, the other thing is that for services like Vita, you know, applications that are trying to be able to provide a service, you know, to users in a way that we don't have to hold their money, right.

If every lightning product out there, like Vita has to be partially custodial, that's not gonna work long term. Yeah. Right. I mean, eventually the government's gonna make it too hard or, you know, something, you know, it's just, it's just not gonna work. Right. But if [00:42:00] you could log into Vita with, you know, uh, a Fedi account Yeah.

And sort of bring your money into the service Right. Um, it would make things a lot easier. So, you know, I think we need more things like that, uh, as fast as possible. Same. Um, you know, even things like Ellen Bitz, you know, behind the scenes, like if we had, um, a whole bunch of people running, you know, uncle Jim Ellen BITZ nodes, you know, that would be helpful too.

But, uh, you know, we need the, we need the privacy layer of, you know, amphetamines and, and ch and e cash to sort of, uh, close the loop on, you know, on that, on that UX equation. I think.

**Marty:** Yeah, I, I agree. It's gotta get a lot easier for the masses. That's why I actually dropped an episode with Obie this morning talking about where they're at and they're getting close to launch.

And again, that UX of just,

**Lyle:** man, what they've done, like how they've sort of, uh, you know, shifted their, their [00:43:00] vision and turned it into like this mobile app that lets any community sort of onboard. Into like this, essentially like, it's like this, I don't know, community bank, home, you know? Yeah. In an app. Um, you know, it's really, it's really amazing.

Uh, I was talking to a guy about this, I guess it was earlier this week, over beers, and he's like really interested in building, you know, um, sort of self sustainable agricultural communities, you know, and co-ops and stuff. Mm-hmm. And, uh, we got to talking about like how, you know, big, big industry, big farming has like destroyed a lot of, part of Amer a lot of sort of the, you know, I don't know how to say this.

The, um, it's destroyed a bit of the, you know, the legacy in, you know, the legacy of the small family farm that used to be self-sufficient and self-sustaining, you know, and well, one of the big, you know, mi misaligned incentives that has destroyed that. You know, it was fiat money, you know, and we got [00:44:00] into all that.

But now, you know, you can create this sort of community bank, um, you know, that where the incentives, incentives of the bank are completely aligned with the community's purpose, whatever that is. Um, and that's a, I think that's gonna be a powerful, super powerful thing I do as well.

**Marty:** Sorry. We, um, I've got, uh, my son's got a sickness that my wife's texted me about.

I just had to get that. That's, that's important for sure. Yeah. The, um, but it's, it's feels like it's needed now more than ever, like just getting it to that point where it's easy for people to onboard. Again, crossing the chasm with a product like Vi Vita where you sort of Trojan horse it into the, just the me like massive content creators out there.

And then you think about how viral can get there, where you have like, there's this show, whatever, where this guy in California brings on. All these girls to talk Oh yeah. About like the, uh, the [00:45:00] dating, the, the, the dating scene in the world right now. And they monetize via super chats. And I think about this with my YouTube page too, cuz we turned on monetization recently and like it's net 30.

Mm-hmm. And we don't even, uh,

**Lyle:** and they're taking 50%. And they're taking

**Marty:** 50% and like all is gonna take is from the vita perspective is one, um, big content creator be like, holy crap. Yeah. Um, making, keeping more money than I ever had, settling instantly. That's letting me reinvest in what I'm doing quicker.

Uh, I'm partnering with advertisers who are willing to spend more cuz they know it, they can get better attention with this AI chat bot that, um, can, uh, that can demand sort of attention from the end user. Mm-hmm. And so that's like on the content creator side, something like fedi. You have this user experience where it's just easy to onboard and people are [00:46:00] using it, then you have the viral nature of that where it's, Hey, it took me five, five minutes to get on this app and I received money instantly from another part of the world.

Similarly, we've seen this with strike in their sing globally. Yeah. Like people in Vietnam who use it for the first time, they're like, holy crap, I got money in two minutes and I didn't pay 10% in fees. Mm-hmm. Yeah.

**Lyle:** Yeah. I mean there's, there's so many flywheels that are beginning to turn, you know, it's like, uh, you know, two or three years ago, right?

We, we had a couple of flywheels and they were just barely budging. Right. And, you know, we were all having to sort of push 'em to get 'em to turn. Right now they're beginning to get some momentum. You know, there's a whole lot more, you know, there's a whole lot more things that are sort of driving people into the ecosystem and um, you know, those things are only gonna grow.

Uh, but. You know, we do have to stay focused on like, providing real tangible value that people want and need to use, right? Like, we can't, there's no way that vita's, like [00:47:00] a content destination is gonna replace YouTube like anytime soon, right? But we can provide a great experience that makes producing content, uh, you know, really easy and makes monetizing that content really easy.

Where you can still push the content to YouTube where your audience is. And then over time as that audience moves, you know, DaVita, well then, you know, that's great. That helps us. But,

**Marty:** well, I think that's another product feature to highlight is like, it's not just for live streaming. Like the video will live on the platform after.

Yeah. It's been recorded.

**Lyle:** Yeah. Yeah. Um, you know, people can come and, you know, watch the replay, uh, you know, on Vita. Um, you know, if you're, if you're sort of originating a stream from Vita, you can push it out to other destinations, you know, like YouTube or Twitter or wherever your audience is. We've got a lot of plans for like overlaying monetization, um, into those video feeds that go out to those other destinations, you know?

Um, so, you know, it's, uh, again, it's still, it's still the beginning, but it's such a big, it's such a big [00:48:00] space, you know, the building blocks that we're building are so useful, you know, in such a broad variety of contexts that, you know, it's sort of inevitable that we find, you know, people don't want to use them.

I mean, you know, it's, uh, it's, uh, it's communication tools with monetization. Yeah. You know, it's, uh, it's, uh, it's a useful thing.

**Marty:** It's very useful and. Again, with Noster too, like the, the blending, it feels like you could see like the, the slow merge towards Yeah.

**Lyle:** That protocol. Yeah. I'm a huge, um, a huge Noster fan.

Um, are we allowed to talk about

**Marty:** what you guys are thinking from the, the relay

**Lyle:** perspective? Yeah, yeah, for sure. Um, so like we, you know, we have this media server that, you know, powers, things like our video calls and our video rooms, right? Um, it's built on open source tech. In fact, the media server itself is actually open source today.

I think if you go on my GitHub, you can, [00:49:00] you can find it. But, um, you know, the vision is that we wanna let anybody deploy one of these media servers. Um, and they're designed to be run alongside an Noster relay. Um, you know, we have, we haven't released the stuff that sort of, the noster hooks that hook into the media server, that, that, uh, make it easy for anyone with an noster pub key to sort of host one of these.

That's what we're. We're trying to finish up. But, um, the vision is that you can run one of these media servers alongside an Nostra relay, and it essentially becomes like a voice video relay server, Nostra relay server that you know, you can interact with, with your, with your Nostra Pub keys. Um, you know, another example is like the chat and Vita Rooms.

We're working on mirroring to Nip 28 public chat rooms and Noster. So, you know, at the chat and a Vita room, you can open up in a Noster chat client, you know, and interact with the chat. Like, you don't have to use our clients. Again, we're not, you know, we we're not trying to build a walled garden, you know.[00:50:00]

Um, app, you know, we're trying to, we're trying to build new tools that the community, you know, can use. Um, and that includes like, you know, you'll be, if you're hosting one of these media servers, you can, like, all of your streams can originate from your media server. And if you go live and broadcast that stream, all the other relay servers will, will know where to access the, the broadcast and be able to relay the actual, you know, broadcast so that we're not dependent on, you know, centralized, you know, broadcast, uh, platforms like YouTube.

Um, you know, so that's, uh, you know, it's, uh, still in the works, you know, but I think Nostra is very powerful because it's simple, you know, it's a, it's a relatively, um, simple protocol and that makes it easy to build on. It makes it easy for, you know, people like us who, you know, we're not like noster experts, but we know how web sockets work, you know, and we know how like pushing events works, you know, and it lets us sort of build this into the ecosystem.

In a [00:51:00] way that is useful to, you know, others in the, in the community.

**Marty:** Yeah. I mean, it's been mind blowing to see the innovation that's been happening on Noster. I mean, start with DOIs and Snort Social and similar Twitter like clients, but seeing it expand into different types of presentations for the events that are streamed over after, or pushed to Noster.

Yeah,

**Lyle:** I mean, you know, like if you, Elon just yesterday, you know, was talking about how he's, you know, trying to bring voice and video, encrypted voice and video calls, you know, to Twitter and, you know, supposedly they have like encrypted dms, which are, you know, don't suspect. Yeah. I wouldn't, I wouldn't trust your, uh, you know, your personal information.

I didn't put that yet. So, but, you know, that's what he's trying to do, right? It's Twitter already have spaces. Right. Um, you know, not the Noster community. Noster clients need tooling to be able to also offer experiences like that. You know, um, with our v [00:52:00] vita, uh, media relay server, you can host, you know, audio rooms like spaces, but you can also do full video rooms, you know, with full broadcasts.

Um, you know, you can do one-on-one encrypted video calls, end-to-end encrypted audio calls, uh, with Z rtp. You know, so like we hope to be able to, you know, provide these, this sort of piece of infrastructure that others can, you know, continue building on such that eventually, you know, if you're on Vita hosting a live stream, you know, maybe someone else is watching that, you know, and consuming that and some other Nostra client participating in the chat and some other Nostra client zapping your rim with some other Nostra client.

Uh, there's no reason why that can't happen.

**Marty:** No. And another thing too that you've been leveraging as well, that we talked about last week is like AI as. A way to help you actually build and think through problems. And if you're comfortable sharing, I mean, the story you told me last week of how much time you saved.

[00:53:00] Yeah.

**Lyle:** Um, I mean, there's a ton of hype, right, with Chad, G B t and g b t four, but there's also a ton of value. I mean, it is a useful tool. Um, you know, if you, if you are a developer, right? And you've ever tried to, um, you know, like you're, you're trying to build something or engineer something that you haven't ever, you know, done before or approach before, right?

Typically, you know, you'd go to Google, right? And start, start Googling, right? Start reading Stack overflow, start. You know, start reading forum posts about how somebody has approached this problem before and how you can sort of fit that into your context, right? I mean, I am an expert Googler, you know, like, I mean, like, I'm a self-taught, you know, and you know, programmer, you know, Google taught me you know how to code, right?

Uh, I mean, it's been a long time, but, but, but you know, Google taught me, but now, you know, if you have a, a problem, you know, a, a coding challenge or something you're [00:54:00] trying to figure out, you know how to do, you can literally ask this thing and it gives you examples, you know, of code. And then, you know, if the example comes back and it doesn't quite fit your context, you can just give it your context and it rewrites it, you know, specifically for you.

And I don't know how much time I've saved, you know, over the past couple of months, like, you know, feeding problems into this thing and it giving, you know, valuable solutions. Now, you know, it doesn't mean that it's like, you know, spitting you out, like perfect bug free thing that you can just like paste into your platform, but it's a lot more.

And a lot more faster, you know, useful, uh, um, you know, output than sort of, you know, spending a few hours researching a problem, collecting, you know, solutions and, you know, and, and going about it like that. And just over the past few months, sort of interacting, uh, with G P T in these ways, um, you know, sort of made it clear that, you know, there was an opportunity for us to leverage, um, things like [00:55:00] that in, in Vita, uh, you know, to provide, again, useful communication tools, uh, for individuals or for brands, you know, who are trying to promote products, um, you know, useful tools that help us sort of distribute SATs to more people faster, you know, uh, which is sort of a, you know, a big goal of mine with Vita.

Um,

**Marty:** yeah. Yeah, no, I mean, I was playing around with one of the AI agent softwares and browser softwares yesterday, uh, and just fed it like a simple. Um, prompt, like, Hey, check out my website, tftc.io and help me figure out like a SEO strategy to get better, um, discovery. Mm-hmm. On the search engines. Yeah.

Yeah. It ran it, like, looked at the website, figured out, didn't tell anything about the website. It was like, all right, you talk about Bitcoin a lot, let's search Bitcoin for like the top keywords. Mm-hmm. And then it was like, all right, I'm gonna download this open source scraper and like scrape the web to figure out Yeah.

[00:56:00] It's, and it did that. Like, and I'm thinking, and I spent a dollar to do, for it, to do all of that and like spit me out like a strategy with like the words and how best to improve seo that would've cost me like thousands of dollars. Yeah.

**Lyle:** Yeah. It's, um, I mean, there's no denying it. It is a, you know, it's a disruptive thing.

Um, my hope is that, well, actually last week there was this sort of leaked, uh, internal report from Google where they were talking about, Uh, where Google is talking about open AI doesn't have a mote. Google doesn't have a mote. People using these open source, uh, LLMs are already outperforming, you know, what we can do.

Um, you know, this, the cat's out of the bag, right? And we as sort of a developer community that loves freedom. I mean, that's what sort of what Bitcoiners are, right? Like we need to make sure that, um, the open source community keeps pace, right? Because there's definitely some [00:57:00] dystopian things that could, you know, that could come about if like there's one big LLM provider and like it's, you need to use World Great Access.

Or, or dude, you know, um, Sam Orb, dude, uh, yes, it's, uh, it's, uh, like that, that could be bad, right? Uh, But, um, you know, I'm, I'm confident that, uh, you know, we'll, we'll figure out cool things and we'll, you know, we'll be able to actually push forward with, uh, open source tool sets and open source lms, you know, weights that we can feed in to, to other projects and not sort of be dependent upon these monolithic providers.

I mean, even Google is, you know, afraid, you know, of the open source community, you know, and what they're doing, uh, already. Um, could you explain like

**Marty:** the difference between like an open source ai, L L M and the waiting system and what open AI or Google or Microsoft's

**Lyle:** doing? Yeah, I mean, I could give it a shot.

So, um, you know, an [00:58:00] LM is trained on, you know, tons of input, tons of data, right? And it's just a, it's just a pattern matcher, right? It's a, it's something that you give it a prompt and it's literally generating a. You know, word by word really less than that, you know, letter character by character, you know, and trying to sort of fit a, a pattern that, that matches the input.

That it, you know, that, that it was fed. Right? Well, uh, a while back, Facebook open sourced a, um, an L l m I can't remember. I, I can't remember how many, um, Inputs, you know, theirs has versus open ai. But, uh, there's been a lot of innovation to essentially do more, uh, with less. And so this open source thing that Facebook released is now powering tons of open source projects, uh, you know, for totally free.

Like, people have this L L L M running in the browser, like using Blossom, uh, running on mobile, you know, and, you know, maybe it's not like exactly as [00:59:00] good as G PT four, you know, in certain contexts, but it's literally been like two months, you know? So it's like, you know, it's, um, it's, uh, the thing, the thing about these, these LMS is like, if you have the weights, you have everything you need.

Um, what are the weights? It's, it's hard, it's hard to explain. It's, um, think of it like, think of like your brain, right? You have all these neurons in your brains, right, in your brain, and there are these connections right between each neuron in your brain. And some of those connections are like stronger.

You know, than others. And so like, when your eyes receive input, like, and it's feeding through neurons in your brain, right? You're, you're, you're used to looking at things in a specific way, and so your neurons in your brain are like weighted right? To consume that information, filter it, filter it in a certain way, right?

L o m weights are kind of the same thing, right? It's thousands, you know, millions of parameters of weights [01:00:00] where you put in information and it's filtering through this, you know, graph of neurons, you know, to sort of come up with a, with an output, right? And those weights are like, you can sort of, if once they leak, like they're out, right?

Like, you don't have to retrain the whole lm like the weights are like, sort of, it's like a, it's like taking a brain, you know, and sort of plugging it into something else. And if you think about it, it's kind of scary because like, what if, um, you know, what if, you know, some company does create. You know, a much more powerful, um, evil weight, you know, system and those weights get leaked to like North Korea, you know, or something like that.

Right. Um, I, I wonder how much, you know, these companies are investing in security, you know, for these, for these things. Uh, I guess we'll find out, you know, over the next few months.

**Marty:** Yeah. In the context of like open source, what's the closed source he has to imagined the open source is gonna win out just cuz people are gonna want to use it for free and then they'll get so much more data.

**Lyle:** [01:01:00] Yeah. Um, you know, like the, the argument, there's been an argument, you know, for the past, I don't know, few years a while, that you know, open source can't win the AI race because all the data that you train, you know, these, these LMS on is like pre proprietary. It's like a good example is like Tesla, right?

Tesla cars are much better at self-driving than like anything else. And the reason for that, as they've been collecting real driving data, You know, for over a decade now, real driving data in like all sorts of scenarios, right? And that data that is being fed into their machine learning, you know, self-driving algorithms is, you know, is valuable, right?

Like, um, if gm, you know, when they bought crews, if they would've had the same data, they'd probably be a lot further, you know, now with their, with their efforts. But it's like the, the counter-argument is that like, data is everywhere. You know? It's like, you know, the [01:02:00] internet is full of it, right? It's like, unless you, unless you're training something for a very, very specific, um, you know, use case that needs like very, very specific, you know, hard to collect data.

Um, you know, like you can get data everywhere though. The entire internet, you know, is, is just data. And that's what these LLMs have been, you know, fed on. And, and now we already have an open source one that's being leveraged and improved in like tons of ways. And so, I don't know, I'm, I guess I'm. You know, maybe not confident, but I'm hopeful that like, you know, the open source community can build enough of a bastion to, you know, to compete against these, uh, you know, um, these orb scanners.

**Marty:** Sam Orb Guy Orb, dude. No, that's funny too that Facebook released the open source one. Is Zuck having like a come to Jesus moment? He's doing muoi. He's, yeah, that's a good question. He's getting

**Lyle:** jacked surfing, you know, e foiling, you know, maybe he is, you know, maybe, uh, [01:03:00] maybe he's actually, you know, becoming a Bitcoin too, watching his buddy David Marcus, you know, do stuff over there.

I dunno.

**Marty:** We'll see. That would be, talk about crossing the chasm movement. Yeah, it would, obviously it did Libra and all that. Tried to got shot down pretty quickly. Yeah. I'm not gonna hold my breath for a Zuck

**Lyle:** though. Me neither. But thanks for the, uh, the l lm

**Marty:** Do you think this stuff can be applied to like, Bitcoin, you make lightning better?

Or could it, um, I mean it's helping you build

**Lyle:** your products, I guess. Yeah. I mean, you know, I think it's, I think, I think what these things do is they help people do more with less. You know, we're gonna see, like teams, we're gonna see very small teams do, you know, build incredible companies, produce incredible content.

I mean, like, Hollywood's probably gonna die. I mean, like, you know, like, you're gonna be able to produce a movie, um, you know, like three dudes in a garage are gonna be able to just produce this incredible, [01:04:00] you know, stuff, uh, using these tools. But, you know, like if we can do it like anybody else can do it too, right?

So it's lowering the barriers, uh, you know, to, to creating incredible things. So, you know, I think that it's going to. You know, it's gonna, it's gonna change the world for sure. Cuz it's gonna empower capable people to do even more, um, you know, is it gonna disrupt a ton of stuff? Absolutely. I mean, arguably already has, right?

Yeah. I mean, the government is gonna print so much money trying to keep the world the same, you know, like, I mean, ba it's, it's, it's gonna be nuts, you know? The world is gonna change and the government's not gonna like that because it's gonna change so much. It's gonna, you know, destroy all sorts of things, you know?

But, uh, I don't know. Buckle up,

**Marty:** I guess. Nah, it's really, I mean, it's a Chinese proverb or curse. May you live in interesting times and at any point in history, the person living in the P could say this is the most interesting time, but it does seem like this is the most [01:05:00] interesting time when you factor in.

Yeah. The unraveling of the banking financial, centralized government system that seems to be losing control and. There's a collapse in confidence, and then you have the rise of Bitcoin and this, which is a, a, a deflationary currency with massive deflationary pressures on the tech side with stuff like ai.

Mm-hmm. It's just like how, like, it feels like we're in the middle of like a washing machine and Yeah. All this stuff is going on at once.

**Lyle:** Yeah. It's, um, I mean, you know, I've heard these arguments that like, you know, AI is communism, you know, uh, and, and like bitcoin is, you know, democracy or libertarianism or whatever, but like, if you think about it in the context of smaller groups of people are gonna be able to do more with less, that fundamentally is a hugely decentralizing force.

Right. What would have previously taken, you [01:06:00] know, sort of a combined organization, Of thousands of people, you know, to accomplish, which is like a, you know, a centralizing force, right? It requires all of these, you know, this organization, you know, supporting all of these thousands of people to sort of accomplish something.

And then you're gonna say, okay, well now with these tools, a small group of people can accomplish the same thing that's decentralizing in society. You know, that's not centralizing. So maybe the, you know, the, the, you know, the training or whatever is centralized, but if we have these open source systems, it's very empowering, you know, for a more decentralized world.

I think. And I wouldn't have told you that a year ago, you know, really? Um, cuz you know, I was still, you know, worried that these things would only be, you know, created and accessible in these walled gardens, you know?

**Marty:** Yeah, no, I'm, I'm very optimistic. I, I'm not, uh, well versed or frankly smart enough too, to [01:07:00] dissect the.

The AI sphere well enough to know whether or not it's gonna kill us in the future. But my gut says this is gonna be a positive for, for humanity. I think there's a lot of modern day Luddites out there where Yeah. Sounding the alarm bells.

**Lyle:** Yeah. I mean, you know, there's gonna be pluses and minuses, you know, it's like spam on the internet is gonna get way worse.

Right? Yeah. Like, you know, you're not gonna be able to tell, you know, if you're interacting with one of these things, you know, in your chat on your YouTube, you know, show or whatever, right? Like spam in general is going to get much, much worse now that you can, you know, create these artificial agents that are so much more convincing, you know, than what you could previously do.

Um, which is. Perhaps another long term, you know, force that pushes people toward paid [01:08:00] communication protocols and building in, you know, payments into communications. Not to like, earn tons of money just to filter out the noise. Yeah. You know, um, a, you know, spam bot, you know, program to sort of reach as many people as possible is gonna quickly run outta money, you know, if it takes five 10 sat Right.

To sort of initiate communications with human being. Yeah.

**Marty:** And so these spambots are trying to do it with millions of people at once. Yeah.

**Lyle:** Yeah. I mean that and, you know, um, that gets expensive, you know, so, uh, I think that, you know, Sam Orb dude is gonna, you know, he has another vision, right? Like there's, it's not a coincidence that the same guy, you know, that started open AI has created this, you know, utterly, you know, creepy privacy, uh, poaching shitcoin.

That scans your eyeballs to verify who you are, cuz he knows that, you know, these, these [01:09:00] AI powered bots are going to be everywhere. And, you know, his, his, you know, bet is that, you know, tech and general builders, you know, companies are gonna need ways to digitally verify real people. Right? Um, unfortunately the way he's going about it is, uh, very dystopian, you know, very creepy.

Um, and, and, and creepy. So, um, you know, I hope, I hope, I hope he doesn't, you know, build up much momentum. But, you know, it is easy to, it is easy to envision a future where, Things like that are, are used, you know, to verify human I identity. Um, so I don't know, you know, we, we better build

**Marty:** quick. Yeah. Do Bitcoin or Nostra private public key pairs fix this in any way?

Yeah,

**Lyle:** I mean, um, you know, keys for sure. You know, the, the, the, the only problem with, you know, using keys to like verify your identity is like the only [01:10:00] thing you can verify is that you hold the key, right? Yeah. Not what is behind the key. So, for example, you know, I could create, you know, AI powered bots that spin up Noster keys, you know, and, and fill out noster, you know, a picture and profile information and you know, at a glance, like they look real, right?

So we need. We need something else to essentially add context, you know, to these keys, you know, something like a, you know, a social graph. Like, okay, this looks like a legitimate person because like Marty and, and this, and Lyle and like, uh, you know, all these other people follow them and interact with them, you know, so there are things we can build, but it doesn't solve exactly the same problem as what Sam Orb dude's trying to, you know, solve with, with the world coin, which is this is a human being.

Yes. Um, and in fact a specific human being in that part, a specific human being is the, you know, where all the privacy concerns come from.

**Marty:** Yeah. No, I was trying to explain this problem to my wife in the car [01:11:00] the other day. Um, and uh, I imagine there's gonna be a, to like, similar to how smartphones have been normalized in our lives.

Everybody has one in their pocket walk around with it. Most people, um, something like a tap signer. Inner pocket. They're like, when you send a tweet or a note on noster, you like tap side, execute, sign with that private key. Mm-hmm. But then it's like, all right, going on. The problem that you just described, like, how do you know, it wasn't like bots spinning up to that.

And then I was like, maybe you need, maybe you do need some, like meat space verification. Mm-hmm. Like, yeah. A couple people verifying like, Hey, I saw Marty signed this key in person. Like it is his.

**Lyle:** Yeah. It's a, um, I mean, you know, it's an unsolved problem. It's a difficult problem. Um, you know, but I, you know, hope that it doesn't come down that like essentially existing on the internet requires people to, you know, [01:12:00] give up their, give up their privacy, you know?

Um, that would be, that would be really, really bad. Yeah. You know, for like freedom in general, you know, if that's sort of what happens, um, you know, worse, worse than any C B D C, you know, Yeah. Um, so yeah, hopefully, uh, hopefully we can build alternatives that, you know, that that accomplish at least a similar, you know, a similar goal.

**Marty:** Well, it's all happening so fast too. Yeah,

**Lyle:** yeah. It is. Which is

**Marty:** people need to be aware of this. Um, if you're capable, start thinking about this problem

**Lyle:** and Yeah. Yeah. Um, yeah, I don't know. Uh, you know, I'm sure we're gonna, I mean, you know, Vita Vita continues to grow. We're gonna counter this problem, right?

Like, we're gonna need to, we're gonna need to verify in some way that we're dealing with, you know, not a bot. Right. [01:13:00] And, um, so, you know, uh, who knows? Maybe we can, you know, help, you know, add, uh, to the, the tooling, you know, in, in that regard. Yeah.

**Marty:** Now my mind's racing like, You can make the argument that there could be good bots out there providing value.

Could they have Bitcoin wallets attached to them? Yeah. Yeah. And like they're getting paid for providing value. Yeah, for sure.

**Lyle:** Able to interact. So, I mean, you know, um, it seems reasonable to me that like if there, you know, if there are ever these, uh, you know, sort of AI agents that are sort of moving around the internet, you know, sort of, uh, autonomously, right?

And you know, if they are, you know, as smart as we fear they will be, right? I mean, to me it's like, it's obvious they're gonna be bit bitcoiners, you know, because there, you know, there's no better way to send value over the internet. You know, there's no better way to have the assurances that your value's gonna [01:14:00] get where it needs to go.

Like there's no better currency to be acquiring if you were such, you know, an AI agent. So, I mean, that seems, you know, I don't know, maybe sci-fi and crazy, but, um, Like, you know, the, the reality of Bitcoin to us will be just as real to, you know, any of these theoretical, um, you know, autonomous ais, you know, that are sort of living in, in the interwebs.

Yeah. The, the hyper

**Marty:** bitcoin ization dark horse as AI is, I, oh crap. Like this is better. Like, I'm trying to acquire as many sets as

**Lyle:** possible. Yeah. I mean, we better acquire our own before the, before we have to compete to acquire them with the ais. Yeah. Well,

**Marty:** that's another interesting thing. I wonder if, uh, I think I've seen rumblings of this beginning to bubble up.

Do they get painted with the same brush as the Bitcoin mining industry? Because it's gotta take insane amount of energy to do all this as

**Lyle:** well. Yeah, yeah. It's, um, it's a good question. You know, um, it's, uh, I mean, they [01:15:00] probably won't get painted with the same brush because, you know, because you know Senator Warren, uh, you know, doesn't, you know, It doesn't hate, you know, ai, but she, for whatever reason, you know, they're threatened by Bitcoin.

Right. Um, but I don't know, maybe it will. Um, I mean, you know, for a long time, like gamers, you know, hated Bitcoin and crypto in general because it made their GPU prices go up, you know? But yeah. Now are they gonna, you know, they're gonna hate, you know, you know, using these AI uh, tools, you know, for the same reason.

Um, I don't know. Uh, but they do, you know, they, they are using a lot of power and consuming a lot of resources and, you know, they're still very scarce. So it is in a way, a similar story to, you know, ASIC and, and Bitcoin mining, I suppose. Yeah. Yeah.

**Marty:** It's gonna take a lot of energy. I mean, I just know from the bitcoin mining industry, there's a lot of hosting providers in the mining space that are beginning to integrate GPU strategies cause they see the opportunity.[01:16:00]

**Lyle:** Makes sense. Makes sense. Well, you know, hopefully, um, You know, maybe, maybe this will be more incentive for the, you know, silicon fabrication industry to decentralize more. Yeah. Um, you know, we can, we can hope. Um, and

**Marty:** that's actually, uh, people worry about this happening too fast. I think that will be the limiting factor.

Cuz, cuz we know this very, um, very well in the Bitcoin space. Like Rackspace to get an ASIC plugged in is very in the supply of Rackspace is mm-hmm. Very short right now. Yeah. And like, we're working as hard as we can to build out infrastructure and plug in asic Yeah. You have to imagine the GPUs are, are facing the same

**Lyle:** problem.

Yeah. I mean, you know, I think what some people don't quite understand is it does take, you know, tons of GPUs to actually train, you know, your model. Um, but a model operating at scale, the inferences, um, cost just as much like, you know, at [01:17:00] scale. So if anybody doesn't know what I'm talking about, so when you're training.

You know, uh, an ML model of some kind. You know, you call that training when you're trying, when you have a trained model, you know, weights, when you have weights you can use, you know, to feed information into, that's called in the inference process. So you're feeding in the model is inferring, you know, an output.

And, you know, they use GPUs for inference as well. Um, you know, Google has like their own that they build, uh, tensor process, tensor flow processing units, I think is what they're called. And that's an inference. Um, you know, um, a piece of hardware specifically for inference. Um, but, you know, takes a lot of energy, you know, takes a lot of those GPUs to, to operate, you know, something, something at scale.

Um, And I don't know, you know, maybe, maybe they come up with some tech to make inference easier, you know, I'm sure they will. Um, it's kind of hard to, hard to predict what that will look like. But the world's, the world's a changing. It is. Are you

**Marty:** optimistic? [01:18:00]

**Lyle:** Yeah, always. I mean, we have Bitcoin, you know, um, we're gonna, we're gonna eventually go back to sound money, you know, that's gonna create all sorts of, you know, positive, uh, you know, that's gonna fix so many misaligned incentives, you know, in the world.

Um, you know, I mean, yeah. I'm, I'm

**Marty:** super hopeful. Yeah. You've been in it for a minute. Excuse the rhyme. Um, like what, what got you into it originally? Um, was it sound

**Lyle:** money? Was it the tax? Yeah. Yeah. Sound money. Um, you know, like my grandfather was like a. You know, kind of a gold bug and like, you know, owned a ton of farmland and, you know, that he acquired, like after, you know, we went off the gold standard and, you know, and I have a, I have an undergrad degree in economics.

Um, you know, so I've always sort of been interested in, you know, in, in money and in economics and stuff. And, you know, I guess in 2014 after Empty GOs basically didn't kill [01:19:00] Bitcoin, it was sort of a wake up call to me. I'm like, okay, well if it didn't die, you know, with like the 80% of the exchange, you know, the sort of the eco, the Bitcoin economy, you know, going under with this thing, then it's probably not gonna die.

You know? Um, and then, you know, sort of started falling down the rabbit hole, you know, like everyone else. Um, but yeah, I mean, sound money, I mean, you know, fix the money, fix the world, you know, as you, you always say, um, it's a, it's, it's a very real. Thing to me. Uh, I don't know. Not a lot of people know this, but I was also one of the authors of, uh, thank God for Bitcoin.

Yep. With Jimmy Song and Relo and it's up here somewhere. Somewhere. Yeah. Um, you know, and that was, uh, we wrote that during the, the, the sort of the peak of the pandemic, you know, where the world was like turning into chaos, you know? Um, and I think, you know, for, for all of us in, in a way, like it was a, it was kind of a way to deal with that, [01:20:00] you know, to sort of reframe the world and sort of reframe the vision for the future with sound money and, you know, lower time preference and you know, how things can change.

You know, if we just stick with, you know, stick with the basics, you know, bring people into Bitcoin as we can, you know, build, uh, in the ecosystem. You know, do our little, our little pieces and eventually, you know, we, we get to a world that's different. Yeah. Thank God

**Marty:** for Bitcoin. Yeah. Thank God for Bitcoin.

We should mention, thank God for Bitcoin. Will be Miami next week too. 16th and 17th. Yeah.

**Lyle:** Yeah. Jor props to, to Jordan, uh, who has been like, you know, running ragged, putting that on. He's got a, you know, an awesome set of speakers. I, I can't even, I haven't been able to keep up with, with all the good guys that are gonna be, uh, be speaking there, but definitely, uh, you know, uh, go by.

Thank God for Bitcoin conference, which, uh, I think is on Tuesday. Tuesday and Wednesday, I think. Yeah, Tuesday and Wednesday before definitely hit that up. Or Wednesday.

**Marty:** Wednesday and Thursday. I think it runs Wednesday and Thursday, 16th and 17th, I believe. [01:21:00] I could

**Lyle:** be wrong. That's Tuesday, Wednesday, okay.

17th is Wednesday. All right. Yeah. That's on me. Yeah. So, um, yeah. Thank God for Bitcoin. Yeah, really.

**Marty:** No, it does, it does feel, I mean, our case and popularized this, but it's almost like Messianic where it feels like this intervention, God just came down during the bank in crisis. Like, here you go. Yeah.

**Lyle:** Um, yeah, I mean, You know, uh, it's, uh, there's all sorts of, you know, sort of good things that happen in the world that, you know, um, I don't know, can we attribute it to God or you know, someone else or whatever, but I, I don't know, but I'm sure I'm happy it happened, you know, I'm happy it happened and I'm happy that, you know, we have this other option, uh, for, you know, people to sort of free themselves from the, from the, the, the shackles of fiat.

I mean, you know, I know it sounds sort of ridiculous, you know, if you're, if you're listening to this and [01:22:00] maybe you're, you know, you're a skeptic or whatever, but, um, you know,

**Marty:** well, I think the most important part of that phrase you just said is free yourself. Like, you don't, you don't have to vote harder.

You don't have to like, wait handout. Mm-hmm. Looking to the government, like, please do this. Like you just. Free yourself. You go build, build companies. You can build Yeah. Education platforms. You can write books and try to get the idea out there so that more people realize like, Hey, there's something here.

You don't need to wait. You can take action.

**Lyle:** Yeah, absolutely. I mean, if, there's one thing that makes me most hopeful, you know, and confident about Bitcoin, it's, it's the knowledge. It's the fact that every day there's people all over the world, just like me and you doing their little piece of the, you know, of their part to push Bitcoin a little further, you know, every day it's a, you know, it's a, it's a global thing.

Like people just don't [01:23:00] realize it's, it's global, you know, there are people everywhere, every day, you know, trying to push Bitcoin forward and you know, over time, work matters, proof of work, you know, we change the world with our efforts. And, um, nothing's gonna stop that, you know, no one, nothing's going to stop me and you and everyone else from waking up tomorrow and still, you know, wanting to push this, you know, ball down the field.

Um, so, you know, um, I think that, you know, those work changes the world, you know, energy, uh, changes things and we're all sort of pouring our life energy into, you know, into, into, into manifesting, creating this reality that, you know, where this other option exists at scale. And, you know, we're gonna win.

**Marty:** We are gonna win, thanks to people like you, people building out there.

And the group of people building globally is only getting bigger by the day. Yeah. Um, [01:24:00] which is massive to see. Thank you for doing what you do.

**Lyle:** Yeah, you too. Thanks for inviting me on the show. It's been great. And

**Marty:** I really wanna apologize. It was very rude of me to be texting. Um, and I lied a little bit. My son doesn't have an illness.

He got a rock stuck in his ear and he's gotta get it removed on Monday. Well, family first. Yeah. And uh, so I had to answer a question, uh, from the doctor then my wife didn't know. Um, it was a little urgent, so usually don't do that. I'm very sorry. No,

**Lyle:** no, no. It's, it's good. It's good. I've, I've enjoyed how casual this has been.

It's been good.

**Marty:** We like to keep it, it's comfortable here, isn't it? It is. It's, it's

**Lyle:** very comfy. It's very comfy place. What should we lead the

**Marty:** freaks with? What? I mean, that was very inspirational. The last part. And we just discussed people waking up and working. But as it pertains, Vita, what you're doing, how can people help

**Lyle:** Tryer products give us feedback, you know, earn some stats.

You know, if you produce content, you know, tryer products, you know, we're trying to create useful things. Um, I wanna, I will pay for your product.

**Marty:** Yeah. I want you, I want you to know that like, [01:25:00] If I can cut out Restream support a Bitcoin company, restream charges a lot. Like it's,

**Lyle:** yeah. Yeah. Um, uh, I like, uh, what, um, you know, the saying build, build things Bitcoiners want, you know, um, you know, you can always win.

You can always at least win that game, you know, building things that other Bitcoiners are gonna use. But hopefully we can, you know, do a lot more than that too. Yeah. I mean, if you're a

**Marty:** content producer, like you said, like we said, restream Riverside, I mean, in some regards, like YouTube with everything being up there, like it's all Yep.

Possible on Vito. And you get paid in Bitcoin. Yeah, yeah, yeah. Let me

**Lyle:** see,

**Marty:** let's see how many sets we've, uh, we've stacked, uh, during this live stream, you get into the room. Wow. 7,000 SATs.

**Lyle:** Let's go. There we go. I'll take it. You guys need to zap some more next time. And we've got a, [01:26:00] now we need to put a sponsorship on your, uh, on your profile so that anybody watching your show going forward can earn stats.

That's what we need to do. Yeah, I meant to set that up for today, and then I kind of dropped the ball. Well,

**Marty:** this is the value of Vita Jordan who's running the, uh, thank god for Bitcoin, uh, conference next week. He's zapped. So now as a host, I feel compelled to read his message, which is go to tg fb.com/conference.

Use the promo code SWAN for 20% off. Pish Foss Gladstein BTC sessions, Hersman, Paul, Miller Mills, Justin Moon, Skylar, Mark Moss, Bri Love, beauty on a bunch more. Hell yeah, we'll be there. And uh, Jordan also said, let us pay you, Lyle.

**Lyle:** No, um, you know, yeah, it's gonna be a good conference. Y'all definitely hit that up, uh, when you're in Miami.

Yeah, I'll see you down there. Yeah, for sure. See you there. All right. Go

**Marty:** force some build freaks. We're gonna win. Peace of love.