

EPISODE 565

[INTRODUCTION]

[0:00:00.3] JM: Let's Talk Bitcoin is one of the most popular podcasts about cryptocurrencies. Adam B. Levine started it after three other podcasts he started. Did not get the traction he had hoped for. Adam parlayed the success of Let's Talk Bitcoin into a network of podcasts, the Let's Talk Bitcoin Network, which also includes one of my favorite shows; Epicenter. I'll actually be having the host of Epicenter Bitcoin; Brian Fabian Crane on the show in the near future. I'm really looking forward to that.

In today's episode, Adam from Let's Talk Bitcoin joins me on a discussion of so many topics. We talked about the culture around cryptocurrencies, the art of podcasting, blockchain scalability, ICOs. The conversation around ICOs was particularly exciting. If you've been listening to recent episodes, you have heard interviews with companies who have done ICOs. You have heard my varying degrees of skepticism of those different ICO's. Some ICO companies are now facing legal ramifications for their token sales and Adam and I have some disagreement over whether these ICO companies deserve much sympathy. It was a debate that I enjoyed and I hope to have Adam back on the show in the future for more debates.

Before we get to the episode, I want to briefly mention softwaredaily.com. Software Daily is a place where people can post software projects, get feedback and find collaborators. We'd love to see what your building. If you have an open source application or a side project that you've been tinkering with or an academic computer science paper that you want to get feedback on, come the Software Daily. Post your project, and if it's especially interesting, we'll send you a Software Engineering Daily hoodie, or a t-shirt, or mug, or we might even have you on the podcast to discuss what you're building. So check out softwaredaily.com. With that, let's get to this episode with Adam B. Levine.

[SPONSOR MESSAGE]

[0:02:05.4] JM: Azure Container Service simplifies the deployment, management and operations of Kubernetes. Eliminate the complicated planning and deployment of fully

orchestrated containerized applications with Kubernetes. You can quickly provision clusters to be up and running in no time while simplifying your monitoring and cluster management through auto upgrades and a built-in operations console. Avoid being locked into any one vendor or resource. You can continue to work with the tools that you already know, such as Helm and move applications to any Kubernetes deployment.

Integrate with your choice of container registry, including Azure container registry. Also, quickly and efficiently scale to maximize your resource utilization without having to take your applications off-line. Isolate your application from infrastructure failures and transparently scale the underlying infrastructure to meet growing demands, all while increasing the security, reliability and availability of critical business workloads with Azure.

To learn more about Azure Container Service and other Azure services, as well as receive a free ebook by Brendan Burns, go to aka.ms/sedaily. Brendan Burns is the creator of Kubernetes and his ebook is about some of the distributed systems design lessons that he has learned building Kubernetes. That ebook is available at aka.ms/sedaily.

[INTERVIEW]

[0:03:40.5] JM: Adam B. Levine is the host of Let's Talk Bitcoin and the CEO at Tokenly. Adam, welcome to Software Engineering Daily.

[0:03:47.7] AL: Thank you. It's very good to be here.

[0:03:49.9] JM: I've been a fan of Let's Talk Bitcoin for several years from the earliest days that I started discussing this topic on my own podcast. So it has served as something of an inspiration for some of the formats and the paths that I've traveled with Software Engineering Daily. How did you start podcasting about Bitcoin and why did you start podcasting about Bitcoin?

[0:04:11.9] AL: It's a fun question. Let's Start Bitcoin was actually the fourth Bitcoin podcast that I started. I tell this story every once in a while, but I haven't told it too often. So I don't think there'll be too much repetition here. I think it was 2011 or 2012 I started my first Bitcoin podcast

and it wasn't specifically about Bitcoin, it was more about disruptive technology and that one really didn't take off and I did I think three or four episodes of that.

Then in the summer of 20 — Maybe it was the spring of 2012, I started another show called Bit Talk that I did under a pseudonym, and that one got a little bit more traction, but it's still ultimately imploded when I then wound up moving about six months later and my partner who I'd been doing it with also got really busy. He was actually the original founder of the Bitcoin Subreddit, who then would later going to give it over [inaudible 0:04:55.7]. He was very young, very passionate, ideological, libertarian, as a lot of kind of the early adopters were. So that project exploded too.

Then I did my third Bitcoin podcast in the spring of 2013 right before I started Let's Talk Bitcoin and I did a show under my own name called the Daily Bitcoin Show, and the idea was to pump out an episode every day because there were so much stuff that was happening. It was one of the kind of first bubbles that we had seen in Bitcoin. Certainly, I was very excited about along with other people. It was also kind of the first time that we really started to see people who are non-technical in nature starting to get really excited and interested about it, because especially early on, but even so as we see it today, the price is kind of always acted like a beacon that attracts people who may have heard of the technology, but didn't really care enough to buy into it. So the price pushes up and people started to think, "Oh! I'm stupid for having missed this opportunity," and then they educate themselves a little more and become involved. In more recent years, mostly they just buy a bunch, it seems like. In the early days, that was kind of the thought.

So I did that show, the daily Bitcoin Show with two hosts for five days and we recorded every day and I edited all of the shows as comprehensively as I possibly could and I kind of viewed that whole experience as my feats of strength to sort of demonstrate to people the level of quality that we could put out with basically no resources and no professional sort of backgrounds in any of the cryptocurrency stuff, but to put out a professional polished quality product that would be really useful and most importantly really information dense.

In the early days, content was not dense. It was either too dense, like on forums and stuff like that and that's where I was getting all my information in the early days, or it was some place like

there was another show that was on at the time I think of called The Bitcoin Show from a guy named Bruce Wagner out of New York and he was super non-technical and really just cared about kind of the investment use case and sort of that sort of thing, and his podcast wound up blowing up in, I believe it was the January of 2013 right before I started my third show, and that implosion — What actually happened is he had been highly recommending a Bitcoin wallet and this was back in the days when the easiest way to use cryptocurrency was to have a custodial web wallet. So I don't remember what the exact one is called, but the long and short of it is that he and many of the people who kind of were his fans wound up putting a bunch of money into this web wallet. The web wallet either was hacked or there was an exit scam depending on who you ask, and that sort of was the end for him. Then some other stuff came out about him that kind of further cemented that he would not be coming back.

I was looking at this market and I see that there's this gigantic hole in it for actual, like information that's accessible to normal people who are interested conceptually in these topics but might not have the technical depth to really want to dig into the forums. Also, this was the time when the forums were about as hostile as they could possibly be. It was after some attention had started to come and really it was difficult to have conversations. There's lot of newbie filtering stuff like that.

So my fourth Bitcoin podcast; Let's Talk Bitcoin, I started because The Daily Bitcoin show was actually so successful, and we immediately jumped into such a kind of meaningful audience. It had kind of so much positive feedback that I started getting investment offers, and in the process of attempting to accept one of those investment offers to try and make the show into something that would be larger and sustainable, I offered equity to my partners and I offered to my cohosts, and I was doing all the work. They were showing up and doing the thing and I was actually running the show. It would've been my idea I had recruited them, yadi-yada.

I offered them each 20% equity and that basically led to the complete explosion of that project where they both wound up quitting because they felt like I was treating them unfairly. So then I started Let's Talk Bitcoin. Let's Talk Bitcoin came about in terms of the hosts, because I had previously worked with Stephanie Murphy, one of the other hosts of Let's Talk Bitcoin. She'd actually done our intro for The Daily Bitcoin Show. She was a voiceover artist and I listen to her show; Pork Therapy, which was sort of like a libertarian talk show for a while and liked what she

was doing and I got her to do an intro for us. Then after the kind of show exploded, I was like, “Well, who do I actually want to pull in?” and I thought it would be really great to have her around, because she’s super intelligent. Has a great and slightly different perspective. She's also a really hard-core ideological libertarian. While I am libertarian leaning myself certainly in almost every way one can imagine, I kind of play closer towards the middle of the field and I don't take such ideological positions because I find them to be counterproductive for most things I'm trying to do.

Andrea Antonopoulos got involved because he and I had talked about him actually being a host on The Daily Bitcoin Show, but it wound up that he was traveling too much and we didn't really have time to get it going. So I wound up having him on as a guest on the final episode of The Daily Bitcoin Show where he talked about kind of the disaster rat's nest that was the Mt. Gox kind of security protocol and how badly it looked like that was going to end, and we would then go on to find out years later that it did end badly and it was about as bad as it seemed.

That's how I wound up getting into Let's talk Bitcoin. It was an overnight success after three prior failed attempts that all filled for various reasons, but that time I got the timing right, I got the crew right and just ran as fast as I could and I never stopped.

[0:10:22.0] JM: That mirrors my experience with podcasting. I've been involved with three podcasts before Software Engineering Daily, two of which I started, and none of which were particularly successful for me personally. The idea of starting a daily podcast as a way of creating a Sisyphean slope to just climb every single day to work out your podcasting muscles is something that is a great idea. For anybody who is looking to start a podcast, I heartily endorse that strategy, because it's very easy to make a daily podcast if — I mean, in terms of once you get on that treadmill and you figure out how the treadmill operates and you get the muscle memory, it's really not that hard and it gives you license to talk to a lot of interesting people and it lets you, again, workout those interview muscles and build some routine. So I'm sure that that was a muscle building experience for you.

In my experience podcasting about cryptocurrencies, podcasting, it's great for capturing the broad narratives of cryptocurrencies and it can be less good for articulating the deeply technical subjects. Like I've done a few how does Bitcoin work at a deep technical level episodes. It can

be hit or miss. Mostly — I mean, it's hard to do. I mean, I think it's as a companion to reading something like mastering Bitcoin, you can do a highly technical episode about cryptocurrencies. But in general, it's probably better to stick to the broad narratives of cryptocurrencies for the podcasting format. That's fine, because the broad narratives are so tremendously interesting and the personalities are so interesting, but how do you feel that? When it comes to cryptocurrencies, what are the limitations of the podcasting format?

[0:12:29.3] AL: I really don't think there are any limitations of the podcasting format. There are certainly some conversations that are more difficult to have in this format than perhaps in others the might have a visual component, but it really just depends on who you're talking to, and that's always been a challenge in podcasting, because the early mission for Let's Start Bitcoin was to create in a platform where people who are non-technical in nature could understand these kind of more deeper and philosophical things, and I think that in many ways we've accomplish that, but we accomplished it by educating our listenership to the point where they're no longer new users and that's a problem that you face both with your audience, because the content that they need changes, the content for the older listeners actually get value from is different than the content that newer listeners could value from, and it's also hard to create even static episodes a lot of times that reflects like this is what Bitcoin is, because that kind of is a moving metric.

We have an episode of Let's Start Bitcoin, I think it was 61, that's still pinned to the top of my SoundCloud page that is like this is what Bitcoin is, and at the time it was totally accurate, but now I think it probably has some meaningful inaccuracies in it because the thinking has changed. So it's a moving target with all of this stuff, but I don't think there's anything inherently unapproachable about technical topics. It just requires you to have people on the conversation who can both provide the technical expertise, and then on the other hand you have people who can act as listener surrogates and ask those kind of obvious questions that actually help to illustrate it a lot, and they even help the more advanced listeners to, because they reinforce effectively the understanding by analogizing it in a different way.

This stuff is challenging, but for technical audiences especially like yours, I think that what you say about in your about page is pretty apt, which is that you should expect to understand programming like 1% better or developing 1% better after each episode, and that's kind of how I feel about Let's Start Bitcoin too, is it's like it's not like there are any episodes that are so

important that they constitute most of the understanding. It really is just a gradual conversation, and really it's been a way for people to learn along with me and as my opinions continued to develop, and other hosts too of course. It's all perspective, right? Nobody knows kind of what the elephant actually looks like. We're all just feeling around with our own perspective and then sharing those results. That's why I kind of look at everything as an experiment too, is because lacking best practices, all we have are first practices, and first practices are quite often wrong, but they will still work better than first practices that don't work at all.

[0:14:59.2] JM: Now I doubt that people are tuning in to hear about building a podcast network, but I personally am curious, because Software Engineering Daily for me was not just my first serious foray into podcasting, but I was thinking of it as here's a way to learn a little bit about business first hand, like "How do I build a little podcast business? Let's see where this takes me," and there was a fork in the road the reach as a podcaster and there are many podcasts out there that reach this fork in the road where you get to a point where it's the question is; how do I scale this? Because you end up being a personality business or you end up being a business that is limited in scope to a single podcast and the question arises, "Do I start a podcast network?"

There are advantages to starting a podcast network. It looks from the outside like, "Oh! Maybe this is a way to build a conglomerate and you get economies of scale across that conglomerate," but when I've delved into it, it looks like those economies of scale are oftentimes illusory and building a podcast network can be a dubious proposition, because one of the podcasts ends up having the preponderance of the profit shares being a result of, and the other podcast into being laggards. But I know that's not always the case, because I can see Gimlet, for example, has been very successful podcast network. I think NPR you could think of is a very successful podcast network. So I don't know. I'm fascinated by the economics of the podcast network. What has been your observation of the podcast network business model?

[0:16:45.5] AL: I mean, the short version is that it's very difficult to accomplish anything commercial when you don't go into it with a reasonable amount of funding. That's probably the biggest problem that I see with networks. It certainly was the biggest problem that we had with LTBN while I was operating it, and it's a problem that companies that come from Radio First like NPR or even Gimlet to a certain extent since their personalities that came from Radio First.

That's a major advantage, and if you look at the popular podcasts that are out there, perhaps you're an exception, but most of the ones that are really commercially viable are ones that start on Radio First and then also transition into podcasting. So it's not really a fair comparison.

[0:17:22.6] JM: Maybe I need to go into radio.

[0:17:24.1] AL: Well, I mean radio, again, like the game with all of these stuff is that the very, very top cream of the crop wind up making the vast majority of the actual revenue that comes in. So it makes it difficult to be small in the space. I can tell you — I don't know if it's a good example or a bad example, but the reason why I started the network wasn't to make money. It was because I wanted more Bitcoin podcasts out there, and what I saw very early on was that it was unsustainable for new podcasts to start, because Let's Start Bitcoin had basically already eaten the market, and it wasn't that we were huge. We only had 10,000, 12,000 listeners, something like that, but relative to the available market, everybody else was in the 200, 500 listeners range or something like that.

When we did the network, really the point was to take the existing podcast feed, the subscriber feed that we had and to allow that to then be kind of a springboard for new podcasts that would come in that we felt like could really add value to the space, but we didn't think would survive starting with that 0 to 1 kind of problem, right? We felt like we could solve that initial listener base.

From that perspective, we did. We were a great launch pad for many shows including shows that would go on to be actually commercially viable, but the problem with — This may be more specific to cryptocurrency than it is to other places, but it's not unique, is that the people who want to give you money in a business sense a lot of times aren't companies you would want to accept money from.

You have the advantage of being able to kind of talk to companies that want to hire and things like that. Whereas we were always approached by people who are doing alt coins or tokens are all these other basically exploitative things where the whole reason that they're going to give you as a podcast or a podcast network money is because they're then going to take more money back from your audience for something that probably is pretty dubious.

Early on, before there were ICOs, this was essentially gambling, right? All the places that wanted to advertise were casinos, because casinos make tons of money, because they essentially turn suckers into money. So that was always the issue that we had and I just today turned down an interview from a project that I am a huge fan of that I won't mention here for, again, conflict reasons that I'm an advisor on. I can even do an interview with them on Let's start Bitcoin, much less accept them as a sponsor, because at a policy level we've decided that it's unsafe for us to do any sort of content generation with companies that have ICO'd and potentially have a legal financing issues in their future.

That's the problem, is that there is a mismatch between kind of the people who you wants to give you money or you would accept money from and actually want to advertise their products, versus the people who [inaudible 0:20:00.2] cryptocurrency, and that means that the places that get big tend to be places that have very little in the way of kind of ethical responsibility about this stuff and the places that don't do that, don't have a lot of money.

That I was kind of how LTB and LTBN operated for a long time, was we built a platform. We didn't even have contracts with any of the people. We just said, "If you can make it through our editorial process, then that means that you deserve to be on the platform." For a longtime we were in a rewards program also that actually paid cryptographic token called LTB coin to people who created content and then also to smaller amounts to people who consumed content as a way to kind of incentivize the whole ecosystem. That worked pretty well. We did it so early. We started in 2014, that it was too early and the ecosystem was not at all ready for what we were doing. That's actually why I started my company; Tokenly, is because we needed to build essentially all of the infrastructure in order to power that sort of token use case, which then let us down a whole series of other rabbit holes that I wouldn't even go into.

[SPONSOR MESSAGE]

[0:21:05.8] JM: We are running an experiment to find out if software engineering daily listeners are above average engineers. At triplebyte.com/sedaily, you can take a quiz to help us gather data. I took the quiz and it covered a wide range of topics; general programming ability, a little security, a little system design. It was a nice short test to measure how my practical engineering

skills have changed since I started this podcast. I will admit, although I've gotten better at talking about software engineering, I have definitely gotten worse at actually writing code and doing software engineering myself.

But if you want to check out that quiz yourself and help us gather data, you can take that quiz at triplebyte.com/sedaily and in a few weeks we're going to take a look at the results and we're to find out if SE Daily listeners are above average. And if you're looking for a job, Triplebyte is a great place to start your search, fast tracking you at hundreds of top tech companies. Triplebyte takes engineers seriously and does not waste their time. I recommend checking it out at triplebyte.com/sedaily. That's triplebyte.com/sedaily.

Thank you, Triplebyte, for being a sponsor.

[INTERVIEW CONTINUED]

[0:23:04.6] JM: I want to get to those rabbit holes, actually, but I want to talk a little bit more about podcasting out of my own self-interest if for no other reason. You take something like Epicenter, the Epicenter podcast, which is part of the LTB network. Epicenter is an amazing show, and the hosts are so intelligent and so well-researched. I'm having Brian on the show in the near future and I can't wait to talk to him, because I've listened to him talk for hours on end and he's just such a great host as well, because he's very much restrained in his — He doesn't try to make himself sound smart. He's totally fine asking naïve questions and really focusing on educating the listener, and he does a great job. But it's just funny, because you hear these podcasts like Epicenter or Let's Talk Bitcoin and I know, because I am deeply involved in the podcast advertising space that it's kind of an inefficient market, because you have this media format that people are intimately engaged with and their high net worth individuals.

Like I talked to my friend, Glenn Rubinstein, who's an expert in podcast advertising, and I talked to him about this a lot and it's just funny, because it's almost perverse how undervalued podcast advertising is because of that intimacy, and you can get these situations where you have 12,000 to 25,000 high net worth individuals who are listening to a podcast. It doesn't even matter that the podcast is about Bitcoin or the podcast is about cryptocurrencies or what the podcast is about, but if you can target that vertical, that inventory should be worth money, but it's hard to

sell podcast ads and it's weird to sell podcast ads and it's such an ill-defined market. I don't know how much longer that's going to last, how much longer it's going to be ill-defined or why there are such bottlenecks to that market developing. I don't know. It's always struck me as perverse and it seems like something that's going to grow eventually. I mean, that's personally why got involved in this business, is because it seems like an underdeveloped market. I mean, what are your thoughts on that? Why is the podcast advertising market so weird and underdeveloped?

[0:25:21.3] AL: . So the reason in my opinion why a lot of these problems are here is because this is all sort of based off of the radio model actually. We did an experiment putting most of the LTB network on to the radio down in Southern California. We actually paid for air time on a network that allowed us to do that to kind of see how it went.

[0:25:39.2] JM: No way!

[0:25:40.1] AL: Yeah, we were on for three months. We actually pushed the whole network career on just about every day and I think it was 7 or 8 o'clock at night, like I said, in Southern California. Anyways, what I learned about that was that the way that they track stats in radio is they tell you, "Here's how big or broadcast radius is. Here's how many people live in that broadcast radius, and some percentage of those people might be listening to your thing at any given time," and that is literally the way that they tell. So that's why nobody real advertises on the radio anymore, is because it's impossible to quantify those ads. So most of the time when you listen to something, you're hearing essentially government-sponsored ads, because nobody else has the metrics.

It's the same thing to kind of a lesser extent in the podcast world. Numbers tend to be smaller, but they can be quantified. We actually, as part of our rewards program, did a project called Magic Words, which, unsurprisingly, a podcaster would say a magic word during the episode, people who listened to it would go to letsstartbitcoin.com and type in the magic word and then they would earn LTB coin rewards in the next distribution relative to how everybody else did during the same time.

That was the way that we were able to start to actually validate that not only were people downloading, but they were listening. We kind of started going down those paths, but just the reality of it is, is that it's an awkward space. You're totally right. My big solution to all of this in theory, I actually created a product last year — Yeah. I guess we started working on it in 2016 called Token FM, and it is essentially the answer to that problem in my opinion. It does allow the sponsored model, but it also allows effectively a patreon type model as well, but it actually also delivers the audio content, right? You can essentially have people get early access to your content if they subscribe to you on a monthly basis or pay you on a per episode basis or whatever.

The shtick is that a user signs up with their credit card, pays \$7 a month. They get \$7 worth of credit and then effectively 80% of that passes through to anyone whose content they consume, and the content creators price their own contents and there's lots of complexity built into it. But it's that connection of taking the super fan of the thing and allowing them to give you a dollar, or \$2, or \$3 dollars a month and like that, with numbers of just 10,000 listeners, suddenly it's actually really viable to do something like this, and there are other kinds of advantages you can build in as well.

We've kind of went on this whole rabbit hole with this thing called Token Controlled Access, which is the idea that if a user proves to a service that they own a particular cryptocurrency address, that service can then look at the blockchain and say, "What is this user actually have in that account?" and based on whatever the contents are, they can give them access within a system to it.

So if we're just thinking about cryptocurrency as money, then that doesn't make a lot of sense. In my world, we're creating tokens and helping build things that like create a token, an artist creates a token that represents a season pass to the next 12 months of their podcast, right? That token, because it's actually on a blockchain, isn't something that's tied to me specifically. If I wanted to sell it to someone or give it to someone else or lend it to someone off-chain temporarily, I could do that and it wouldn't have to involve necessarily the platform or the artist that issued to me in the first place.

So the problem, in my opinion, just to kind of summarize, is that the advertising model itself does not work very well. It's all about figuring out how to monetize your customer base or your listener base, and that's not really a good use of the listener base. A good use of the listener base is to say, "Hey, if you want to not become the product of this show, then help us out and pay a dollar or two a month or whatever," and I think that as time goes on we'll see networks that develop that effectively let users pay \$5 a month or whatever and that money just gets split out based on how they consume content. Advertising itself, I just don't see how you fix that outside of — I mean, changing human nature.

[0:29:39.0] JM: Okay, I could keep going down that track for a while, but I guess we should talk some about cryptocurrencies. You started this company; Tokenly, and this is to allow people to create tokens more easily. I think you started this before the ERC20 token. So this was a separate way for people to make their own tokens. Explain what Tokenly is.

[0:30:03.6] AL: Yeah. So to be clear, it's slightly complex. So there are layer one protocols, right? So something like Bitcoin, and then there are layer two protocols that embed inside of Bitcoin. So it's a separate protocol that allows special messages to be put inside of normal Bitcoin transactions that can then be essentially read by another daemon and can form a secondary ledger on top of that. We call these meta coins.

The first one, the first of these layers to come out was called Mastercoin, now called Omni, back in 2013, and the second one to come out, which was an offshoot of Mastercoin, because there were all sorts of problems with the development of that, and this was a slightly less icky projects called Counterparty. Then about the same time Counterparty came out — So this was a way to build tokens on top of Bitcoin, but at the same time Counterparty came out, we were reading the whitepaper from Vitalik on the Ethereum project. That was in December or November or 2013. So yeah, Ethereum itself wouldn't come out in any sort of working form for some time after that.

So getting back to what Tokenly does and what Tokenly. So once we had Counterparty and Mastercoin to a lesser extent, it became actually quite easy to create tokens. Creating tokens was not the hard part any longer and that was why we are able to create LTB coin without building hardly any of these stuff. What we found was that even things like wallets simply didn't exist in usable formats for users of these tokens. So you had kind of this nascent Bitcoin

infrastructure starting up and there was maybe 40% of the components that you needed, and then you looked at tokens built on top of Bitcoin or anywhere else for that matter, and it was maybe 1% of the infrastructure that was actually needed for it to be useful.

The first thing that we built with Tokenly was actually a mass distribution engine we called it, called Bitsplit, that made it so that when we had 6,000 people who needed to receive weekly amounts of LTB coin, part of the rewards program, we could calculate that, have the website automatically set it up based on the rewards program information and automatically send out and monitor those transactions to make sure that they all made into the blocks and that they all actually got out there without someone having to sit there and manually send one token, tokens to one person at a time, which was basically the only other option.

We would then go on to create an entirely on-chain auctioning system that allowed people to bid with LTB coin on-chain, which was our rewards token, and to buy other tokens like a sponsor tokens, which were redeemable for one sponsorship on an episode. Then we went on to build a vending machine system called Swapbot that was — Jeffrey, are you familiar with the old Satoshi Dice approach?

[0:32:44.7] JM: I believe that is like you make a transaction and it's like a very stupid smart contract that you're engaging with through that transaction, and you randomly are gambling for some money. Is that right? It's kind of a smart contract on the Bitcoin blockchain that lets you gamble.

[0:33:06.0] AL: Server-based smart contract is pretty much the way to think about it. So the idea here was — It was a really cool idea at the time they did it.

[0:33:12.6] JM: Was it actually an on-chain gambling facility or was it — It was centralized in some place?

[0:33:19.1] AL: .Well, so it's centralized in that the logic behind the actions lives on a server. So that's actually important in a lot of ways, because it means you can interface with things that don't exist on a blockchain, whereas blockchain centric solutions require every piece of

information to be on the blockchain, and that can be difficult. So in the early days, we didn't think that.

[0:33:38.7] JM: So you color a coin to be associated with a Satoshi Dice transaction, and then the Satoshi Dice server picks up that transaction and interfaces with it.

[0:33:48.7] AL: No. You're over complicating it. Let me backup and re-explain this a little bit.

[0:33:51.0] JM: Okay. All right. Sorry to interrupt you.

[0:33:52.0] AL: No. No worries at all. Like I said, this is a slightly nuancy. So the deal with Satoshi Dice, Satoshi Dice was created by Eric Voorhees who would go on to found Shapeshift and a bunch of other companies. The basic mode of operation was that it was a gambling project where users would send Bitcoin to particular addresses, each address was a static address that had a set amount of odds associated with it, right? So you'd send one, and it would give — I'd would have a one in 20 odds. You send to another, it'd have one in 10 odds, etc.

So the only way that you actually needed to — The only thing you needed to do in order to gamble with Satoshi Dice was to literally send Bitcoin to the appropriate address, and then it would do the provable gambling by getting a hash from the next block that would come up, and then it would return. If you won, it would return the money to the same address that you actually had sent the initial money from.

So I looked at that and I said, "Wow! This is such a great idea to actually solve advertising," was the original idea behind it, was we could take this same concept where you just have an address that if it receives something and it fits within this existing logic structure, then it can perform an action on-chain as a result.

So the idea here originally actually was for this thing we called window shop back in 2013 to make it so that advertisements on websites, visual advertisements, instead of being billboards that directs you to a merchant store or something like that, would effectively become a window into someone else's website where you could perform the transaction right there.

So we built a Swapbot to support this, and Swapbot was the same concept of Satoshi Dice applied to basically a vending machine e-commerce type system, and users would — Early users like Spells of Genesis, which was one of the kind of early collectible blockchain card games would load up these addresses that were Swapbots with Bitcoin for fuel and with the tokens that actually represents the cards that they're selling in-game. They would set prices either in dollars or in cryptocurrency and the cryptocurrency — It'll be converted into Bitcoin or other token prices, and then anytime somebody sends a transaction to that bot and it fit within the parameters and the pricing and stuff like that, then it would either vend them the token that they purchased or if there was an inventory available or something else like that it would automatically refund the user.

So we took kind of early concepts like that back in the days when everything would be on the blockchain and did that right. So it has a frontend, right? It has like this visual essentially calculator that walks you through and it and looks like it's actually like a web app, but in the background what's actually happening is that there's no connection between the frontend that the user is using in order to interact and the actual backend. It's just like the frontend is guessing what the backend — Whether the backend is connected to the particular user that's upfront. So all sorts of weird stuff like that, but that's my point, is that like all of the things that were used to having, whether it'd be exchanges to just like e-commerce systems and everything else, none of that existed when it came to tokens and it's just now starting to exist for Ethereum, but even there, the stuff that we created on Counterparty and are now adopting to Ethereum just — Like there's so much work to do on the infrastructure side once you have the token. The token becomes the easy part and everything else is hard.

[0:36:59.2] JM: So what's been the experience of building the Tokenly business? Have you gotten some early adopters, some users of the Tokenly service and how does it compare to the ICO boom that has happened with these other token projects?

[0:37:16.7] AL: We've always been very interested in experimenting kind of to the maximum [inaudible 0:37:20.1] possible, but have also been very conservative in terms of our risk-taking on the legal side of things. So early on we actually did help some of the early ICOs even to 2017, in January, we helped Vinny Lingham's project; the Augmentors, augmented reality game. Raised about a \$1 million with our e-commerce tools.

So it's interesting. So I started Tokenly almost 4 years ago at this point and we initially self-funded, and then in 2016 we did a seed round on Bank to the Future and raised a total \$500,000 split between VC and community support that came from listeners of LTB mostly. So that was how much we've raised.

Because of the way cryptocurrency worked, during the initial part where we had self-funded, the amount of money that we actually had to work with went down, because the price of Bitcoin went down and we had been dumb enough to keep it all on Bitcoin. But this time we were super conservative managing our funds. We still kept some of it in Bitcoin and cryptocurrencies, and that managed to actually just about doubled the amount of runway that we have. So even now, like it's funny, in terms of significant revenues, there really haven't been that many, but we've managed our finances well enough and ridden the waves well enough that we really haven't ever felt like we're under substantial financial pressure even though we didn't have a lot going on. I think in total we've generated about \$150,000 worth of revenue in the last 18 months or something.

But for the most part, we've been in just R&D mode, just building and trying to solve as many of the problems as we could, working with early customers and early types of users. We've found the business development cycle to be pretty complex though, and a lot of times what we would run into is that we were so early that the people who we were working with and trying to help wanted to do everything themselves even if it was substantially to the detriment of their project.

We tried to create too complete a situation too early on with too little resources and it would've been much better in hindsight to have just focus on one or two products and gone from that. So that's about a year ago. That's what we've been doing. We first focused on the Token FM product and brought that to launch on October of last year, and then the final legal overview with our lawyers, discovered that we had two kind of show stopping issues, one on the token creation side, because the big issues we've seen really have nothing to do with technology. They have everything to do with user behavior and then also to a limited degree to do with kind of the current legal uncertainty that's in the air.

As far as user behavior goes, the real thing that makes most applications out there that are actually attempted to get users now a complete nonstarter is that they can't support users who don't have cryptocurrency, and that seems like a no-brainer. It's like, "Well, to use a cryptocurrency application you have to have some cryptocurrency," but it's a gigantic problem, because it's still actually really hard for people who don't trade on Forex markets and things like that to actually not just get it, but to even want to get it. There's several leaps that have to happen before you get there.

So in our solution, we made it so that even though the system was entirely token-backed in terms of the ownership model and things like that, it was still possible for someone who never set up a wallet to actually engage with the product, and not just engage with the product, but even engage with tokens. They just can't take possession of them. They remained seated in a multi-sig escrow account, basically.

But because we had created so complete a solution that actually helped people who didn't have cryptocurrency to do this, we found ourselves in an awkward situation where we couldn't actually launch the product, because we were in too many places at once and we had liability in the event that somebody creating a token was charged with fraud. Then there were other issues that came up as well. Again, like it was not at all clear in the early days that all ICOs were going to be illegal, and increasingly since August of last year, it has become apparent that all ICOs that don't followed the rules of securities law are going to be considered illegal, at least in the United States.

So I've spent a lot of time working on both first day legal ICO in support of our products, and then — Sorry. First, a traditional ICO in support of our products, and then the last five months on a legal ICO using the [inaudible 0:41:14.2] exemption, and I can tell you that the whole thing is a trap. The whole will ICO thing is such a trap. It's not at all obvious from the outside looking in, but there's so many unknowns. Again, it's one of those situations where there are no best practices. There are just first practices, but because those first practices in some cases have worked, like they're perceived as best practices, and so people follow them.

So on the one hand, I'm really glad that we haven't gone down the rabbit hole of actually launching an ICO ourselves because of all those risks and the continued nonsense. It looks like

is going to be the case even on the legal side. I mean, you want to talk about a tragedy. I think that's a tragedy right there, is the number of people who have expose themselves to a huge amount of risk that they did not understand, in which the US government did not do a good job of explaining at all and still doesn't. Still, they're not actually saying the truth. They're just saying, "Well, these things are probably in every circumstance."

[0:42:06.7] JM: But to be clear. So you're saying that these people who are wiping their tears with the hundreds of millions of dollars they've raised in their ICO, like we should have sympathy for them? Because, I mean —

[0:42:18.5] AL: I'm saying that I have sympathy for them as an entrepreneur who looked for the most efficient ways to fundraise for my company and was not fooled by that only because I dropped a ridiculous amount of money on lawyers and diligence. That's the reality, is that if you're a company going into an ICO and you have less than \$250,000 to actually spend on it, you are going in dramatically underprepared and maybe it's different now, but six months ago when we were looking at it, that risk was not apparent.

So I understand it's easy to say, "Oh, well, these people raised all these money. Boohoo for them," but at the same time they raised that money because it look like it was a fair way to raise it, right? It looked like that was what the market opportunity was. Again, like as an entrepreneur, I just have a really hard time faulting people for following the incentives in these situations. I am way more risk-adverse than most and it almost got me.

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[INTERVIEW CONTINUED]

[0:44:16.8] JM: But if we trace the incentives, what we have with many of these ICO products is something that you could build for nearly \$0. Raising \$25 million before they have anything built. If you were capable of raising \$25 million when a corresponding product in the web 2.0 market would not be able to raise a penny even in the money saturated markets of Silicon Valley. If you wouldn't be able to raise a hundred thousand dollar pre-seed round in Silicon Valley and yet you can raise \$25 million with a token sale, I think that kind of — If you're going to succeed as an entrepreneur, you need to have some bearing on reality as it maps to situations that are ostensibly unclear today. In this case, the ostensibly unclear variable was how was the government going to perceive these ICOs? And if you're getting ready to raise 25 million, I'm sorry, but the onus is on you to be responsible.

I'm sympathetic too, honestly, because I've talked to some of these companies I feel kind of bad for them because they have stumbled into this situation, but I do also think that there was a sense of short-term greed with the way that they've structured, for example, their vesting schedule, "Oh! We've got a two year vesting schedule for our tokens." Really? You're going to build a successful product that creates a token economy that is justified for you to be exiting this project in two years. Really? It's perfectly fine for you to do that because the investors who shall add cash for this are going to understand those vesting schedules. I mean, I have sympathy, but it is limited.

[0:46:15.8] AL: I can totally understand that. It's funny, the reason why — I was one of the first people to get circulated the Ethereum whitepaper and I was a kind of squeaky wheel in the early Skype channels and I actually wound up getting kicked out of the chat because I disagreed so vehemently with the idea that there would be founder allocations. I was actually potentially up for a founder allocation. Like I said, I was quite interested in the project and had been involved, but I was maintaining my neutrality on it broadly, and that was a huge point of contention back

then, because at the time we called them pre-minds. At the time they are perceived to be a very negative part of the kind of overall ecosystem and part of perversion of the market forces that were normally at work with these things., but Ethereum worked. So I was wrong. Not necessarily I was wrong about like the morals of the thing, but I was wrong in terms of the market's willingness to accept it, and I think that it, again, is an indication that the early community that we saw around this stuff had a different set of ideals and a different set of important principles compared to the people who would later come after the fact. Everything we're seeing now in terms of these ICOs, they are all based off the "best practice" that was the Ethereum sale, right?

So now it's just a questions, it's not a question of whether or not there's a pre-mind, it's a question how much is the pre-mind, right? Is it even possible to get any of the token if you're not spending money or a founder, right? Those are questions that were never a thing at all until we saw Ethereum not just do this, but then go on to succeed at appreciating so much.

Again, if the rules are clear, then I agree with you, but I can tell you, having spent a stupid amount of money on legal in the last year, that the rules are not clear, and many of the people who went down that path paid lawyers, and those lawyers told them that this will be fine if you say these things. There were multiple approaches for this. Some of the best projects that actually were out there has spent millions of dollars on legal and then created their own new entire frameworks for why this was okay. At the end of the day, none of it was okay. At the end of the day, if you raise money for a project using a token, then it is a security in the eyes of the law.

So, again, that would've been super easy to say for the SEC. that's all they had to say. That's all anybody had to say. They just had to say that, but nobody said it. Instead it's like been all these kind of like intuition about it and like let's read the tea leaves based on this particular interpretation relative to this court case and blah-blah-blah.

Again, I think we can move on, but I actually have a surprising amount of sympathy as someone who has watched — Of course, the other problem about all of these is that valuations in this space are higher if there is no product, right? In venture capital, a lot of times, the worst thing that you can have as a company seeking it is revenue, because if you have revenue, that's quantifiable, and if you have revenue, we can chart that and we can look at your projections and

we can look at your growth through history and stuff like that, but if you have none of that, then it's all just based on projections and it's based on kind of these hand-wavy figures, and so that in a nutshell is the ICO boom. It's projects that are very poorly explained, because it is to the benefit of the project's fundraising capabilities to do so. Really, it's just about trying to kind of start that virtuous cycle of excitement leading to interest, leading to more excitement, leading to more interest, and then bam, you've raised \$250 million, right? We've seen this happen over and over again.

[0:49:38.9] JM: No. I mean, yes you can raise money for products that way, but the classic way of raising money is you say, "Here is a product. We have some traction. We have some monetization or indication that we can achieve monetization. We would like to raise some money to accelerate that process and to bring on resources, employees that will help us with that pathway."

[0:50:09.1] AL: The difference is you're talking about the real world and I'm talking about ICOs.

[0:50:13.8] JM: Exactly.

[0:50:14.5] AL: No. I mean, seriously, they're just different worlds, but think about it. Why are they different? There's one simple reason, and it's important.

[0:50:22.2] JM: Token liquidity.

[0:50:22.8] AL: There are rules — No. It doesn't have to do with liquidity. It has to do with the fact that there are rules around fundraising that make it so you can't offer fundraising opportunities to investors that don't have certain means and levels of sophistication called accredited investors. In some ways, those are bad, because they limit access for people who don't have that accredited status to access things that could be lucrative investments. The reason why those laws exist, at least in theory, is because those are people who can afford to lose the money if everything goes pear-shaped, whereas people who don't have that much in terms resources don't have the ability to assess in the same way. They're not really making kind of a fair thing.

So if you look at ICO's, what's the difference? It's that there are no restrictions in terms of who actually gets in. Recently, we've seen restrictions on US citizens because there is legitimate concern about this, but the fact of the matter remains that these projects are so easy to raise money not because they presented in any particular way, but because they can invite money from everybody and they don't need — I literally can't even show you the ICO that we prepared that is legal, because I would need to have you go through — I think it's a nine-page pre-accreditation format that has you — It's like the same thing is getting audited, basically, right? That you need to prove to me before I can even tell you what I want you to give me money for.

So that friction is not about cryptocurrency. It's not about ICOs. It's about the way that fundraising happens everywhere except for that unregulated space. So because of that, the fact that it has none of those restrictions makes it seem really, really appealing, but in reality the legal requirement for it remains there regardless of what the format for the structure is, right?

You could sell a security that is based on bananas and that would still be a security, right? You go back to Howie and the orange groves and it's the same thing. It's like the big case that they use to determine whether something is a security is based on these land investment deals where people were ostensibly investing in oranges, or in orange groves, but really it was just an investment in the money that would be made from the orange grove. So it's the same thing here, is like — Anyways, I could go on. You can tell this is a pet peeve. I'm, on the one hand, frustrated, because I very much have seen projects that have spent so much less work, taken one little concept of an idea that we've taken all the way to completion and raise exponentially more money than we know it would need to be successful, but at the same time, the fact that, again, this is not at all clear on the onset and even with paying lawyers it still takes a ridiculous amount of time. It just makes me very frankly sympathetic for the nonsense that is to come, because there is nonsense to come.

[0:52:55.5] JM: All right. Here's my take, and I know we're going down the rabbit hole here, but the debate is basically who are we allocating sympathy towards. I actually allocate sympathy towards the SEC, and I am sympathetic specifically to the length of time they have taken to provide clarity to this situation. My reason for that is twofold. One, the downside of letting people do these ICOs and have it be laissez-faire, creator token, there's no penalty, grandma buys it, Todd, the 13-year-old with some spare bar mitzvah money can buy it. Allowing that kind of

situation, the downside of that is what happened in the 1920s when mom-and-pop were buying worthless stocks because it was trendy to do that, or I believe there was the Wolf of Wall Street era, which I think was like late 80s where this kind of miscreant behavior happened once against. We have cases in the past where this kind of stuff has happened. It had real problems.

The positive side of that is that people should be aware of the risks of things that they wager on. I played poker at a very young age and I developed some scar tissue from that. I made a whole lot of financial mistakes early on and I'm glad that I was exposed to a world where I could make financial mistakes. That's one thing that makes me — Actually, I'm a bit of a crazed libertarian when it comes to gambling ages. I think kids should be allowed to and encouraged to gamble, because I think it allows you to build skills around risk tolerance and some psychological scar tissue. But you have to admit, there's also kids that develop gambling addictions and it's one of these things that's kind of like — It's like internet privacy. It's not this area where we can just say one extreme or the other is the correct choice. We need some prudence. We need debate. We need time to establish rules around these things if we're going to establish rules.

I think that's what the SEC was doing. They just took their time and — I don't know. I mean, I guess we're beating a dead horse at this point, but I wanted to present that framework for listeners who are less familiar with this.

[0:55:17.6] AL: This is a difficult situation for everyone. There's no question about that. This is a difficult situation, but I would be more sympathetic to that viewpoint if the SEC was making new rules. Like if they were creating rules that were specifically dealing with this area, then that would be one thing, but they're not. They're just saying the rules that have been on the books since 1933, and I believe there's another batch in the 70s that just apply to securities, they just apply. That might not seem like it matters, but I'm selfishly interested in clarity in this that is closer to real clarity, rather than hand wavy, "Here's some guidance," and that's because by making it unclear how tokens are going to be treated, we have effectively forbidden any tokens that are not secured.

[0:55:59.4] JM: What has the SEC said? By the way, I probably shouldn't even be talking on this, because I don't even know what the SEC has clarified. I'm sure you'd be a better source of information on this.

[0:56:09.5] AL: They've clarified — I mean, it depends on when you talk about it. If you look at the most recent set of guidance that they — Or not guidance, but the recent set of testimony, basically they've said that everything that looks like an ICO looks like a security. Again, if they had said that a year ago, six months ago, if they had said that in the Dell report where they said, "Tokens can sometimes be considered securities," and then they also had this intentional vagueness in it because they didn't associate the same sort of thing with Ethereum theory even though Ethereum had exactly the same sort of funding Genesis, it just didn't blow up.

So there is some inconsistency in the way that they've been presenting it as well. I mean, again like everybody has an opinion and everybody's talking their own book and that's the whole problem, is that this is undecided. During the kind of point in time that we are now where it's undecided, but it's obviously risky, it makes it basically impossible to do things that use tokens but aren't securities, and that again brings me back to the Token FM product we created, which essentially allows artists to create coins, tokens that represent albums worth of music. So they are effectively the token equivalent of a CD and they have the same characteristics.

I can give you the CD, I can give you the token and then you can listen to the music, and I can't listen to the music that's on it during that time, and so on. So stuff like that does not have a speculative use case. Stuff like that has utility, and because of kind of the work that's been going on in Wyoming with regards utility tokens, maybe that gets clarified. But again, then you have states fighting the feds. So we just need this to be cleared up and all they need to say, and when I say them, I mean the SEC or whoever else, they just need to say things that are securities are securities. Things that aren't securities aren't securities. It doesn't matter if you use a token or you use a banana peel or you use a piece of paper or you use a digital signature and a brokerage. It's that the nature of the thing, rather than it's the vehicle that delivers the thing.

[0:57:59.8] JM: All right. I got one more question. We got to wrap up. But this has been a great conversation. Tell me something about cryptocurrencies that you believe most people in technology misunderstand.

[0:58:11.5] AL: I think that one of probably the most commonly — And there are different opinions on this too, so I'm not saying mine is the opinion, but it is an opinion, the decentralization question. When we're looking at cryptocurrencies, there all sorts of different metrics by which you can measure decentralization, and depending on kind of what your ideological viewpoint is in how cryptocurrency should develop, how this should be used, you have sort of a different set of things that you prefer versus other things that other people prefer. It's not that any of them are right or wrong. It's just that, again, we look for different things and decentralization is a really, really broad metric that applies to lots of things.

I read an article a couple of months ago, I guess, I forget who by, that talked about how the way we should be thinking about decentralization is in terms of centralized points of failure. So a decentralized system is one that's robust to multiple failures within the network. It can also be distributed, but decentralized really has to do with if you take out one node, what happens to the rest of the network? Does any of the functionality drop away? Are there any problems that emerge because that one guy left?

So when you start thinking about it like that, it becomes obvious that this is an ecosystem play, right? This is a thing where you don't want anything for anything. You want to have in every single area, whether you're talking about businesses or miners or developers or whatever. You want to have as many people as possible and as many different groups as possible with as many oppositional viewpoints as possible, because it means that any of them can go away and the fight remains, and it's that fight itself that actually maintains consensus, because it's attacks against consensus that actually make us care about it.

So the reactionary kind of position in blockchain is the correct one, because we see what's coming, we react to it and then the vast majority of people almost always are against whatever the changes unless it's actively a good change, and then it actually gets pushed in. So decentralization is a really important point. You could talk about lots of different ways, but for me it's about centralized points of failure or the lack thereof.

[1:00:09.7] JM: Adam B. Levine, thanks for coming on the show. This has been great.

[1:00:12.1] AL: Thanks, Jeffrey.

[END OF INTERVIEW]

[1:00:16.2] JM: GoCD is a continuous delivery tool created by ThoughtWorks. It's open source and free to use, and GoCD has all the features you need for continuous delivery. Model your deployment pipelines without installing any plug-ins. Use the value stream map to visualize your end-to-end workflow, and if you use Kubernetes, GoCD is a natural fit to add continuous delivery to your project.

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