EPISODE 553

[INTRODUCTION]

[0:00:00.0] JM: Most technology companies rely on open source software but open source software projects are often maintained by a group of people that is not affiliated with any particular company. When an open source project develops too much technical debt, it can become a tragedy of the commons. Who is responsible for maintaining this open source projects?

This is the motivation for open source bounties companies and individuals who rely on open source create bounties which are financial incentives for developers to solve problems within the open source project.

Kevin Owocki is the creator of Gitcoin, a platform for open source of bounties that is mediated by an Ethereum smart contract. Kevin joins the show to discuss his experience building Gitcoin as well as some of the problems with the block chain space such as rampant ICOs. Gitcoin itself is not a cryptocurrency or a token.

It is a platform for open source software to be built more efficiently and Kevin was an awesome guest, you will really enjoy this conversation. Gitcoin is a nice example of a real world Ethereum use case because it uses Ethereum for Escrow if I post a $25 bounty for someone to fix a bug in my open source project, I can lock up Ether in that smart contract. When the but is fixed, the programmer who fixed it will submit a poll request on GitHub and I'll release the Ether from the smart contract to pay them.

It's pretty useful to have a programming abstraction of an escrow contract and I think this is at least the kinds of things that we will see Ethereum be practical useful for. We would love it if you filled out a listener's survey at softwareengineeringdaily.com/survey, this helps us decide what other content to focus on and please send me an email, jeff@softwaredaily.com, let me know what you're thinking about the show, if you like it or not. We also have an active Slack community which you can find at softwareengineeringdaily.com/slack.

You can message me there, there's a bunch of other people hanging out and talking about software engineering. If you are interested in finding all of our old episodes, you can download the Software Engineering daily apps for iOS and android. These have all of our old episodes and they have a greatest hits feed as well. Which is a curated set of the most popular shows, people have really liked this feature of the greatest hits because it's kind of hard to find which shows you want to listen to.

The apps will soon have offline downloads and bookmarking which are features that people basically need out of a podcast player. Hopefully the podcast player becomes more useable from those.

[SPONSOR MESSAGE]

[0:18:54.9] 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. 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 going to find out if SE Daily listeners are above average.

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. Thank you Triple B-Y-T-E for being a sponsor.

[INTERVIEW]

[0:04:19.7] JM: Kevin Owocki is the founder of Gitcoin. Kevin, welcome to Software Engineering Daily.

[0:04:24.1] KO: Jeff, thank you very much for having me. You worked at some startups before you got into this Ethereum and blockchain space, how would you contrast the traditional world of startups with this emerging world of bloc chain developers?

[0:04:40.9] JM: Yeah, that's a really good question. As you noted, I have a degree in computer science and about 12 years experience in the startup ecosystem in Boulder, Colorado. I actually spent two years at a school working in corporate America just because I didn't know that startups existed, this is like 2006, this is before Facebook really took off and created the 'Web Two Revolution' and I just hated corporate America and I found an opportunity to go through tech stars which is an accelerator out of Boulder, Colorado.

I was like, "Holy smokes, this is my golden ticket," and I've pretty much been doing CTO lead engineering stuff ever since. I'd like to say that as a 23 year old CTO of a startup, three person startup, I didn't really know what I was doing but it sort of grown along with the 'Web Two Revolution' ecosystem has matured and I think I've matured as an engineering leader alongside that.

I mean, I think the traditional startups are always kind of focused on finding funding and how can we build relationships with investors and VCs and the things of that nature and that's never really been my forte, I've always just kind of been a product guy and into the programming.

Always felt like on the management teams of startups in the 'Web Two Revolution' that I did, I was on three different startups that they're always kind of split between their users and their investors in terms of the management team's focus. And one of the things that I got to say that's really neat about blockchain which you know, I think there's a lot of neat things about blockchain that we can get into is that your users can be your investors in your network.

That creates a focus on the management team on the users and sometimes I can make the difference between a failure and success, it's really exciting.

[0:06:25.6] JM: The mechanism for aligning the users and the developers in some cases, in modern times has been the ICO. What do you think of that model?

[0:06:37.4] KO: Boy, we're going to really get into the rat's nest now.

[0:06:40.2] JM: Why not?

[0:06:40.4] KO: Okay, yeah, I mean, I will preface this by saying that I do not have a financial background, I am in no way qualified to give a financial advice. In no way am I here to even really talk about – to talk in that capacity. I kind of come as someone who is interested in creating a movement in software to change the way open source software is funded. So that's the perspective that I bring to this whole kind of harass that is the initial coin offering space.

I think that we saw a crowd funding revolution when Kickstarter came out, I want to say like 2011, 2012 around then. That's a long term fixture. Yeah, without going and hitting sand hill road for investment and I think that that was, crowd funding, that was an early kind of like an early canary in the coal mine for what we're seeing wit he ICO boom.

I mean, everyone was really excited about crowd funding for six or 12 month sand then all of a sudden, there is these, all these projects that had raised a ton of money and we're able to create a ton of hype and didn't deliver and crowd funding on Kickstarter has sort of matured that ecosystem has matured.

I should also mention that Indiegogo is out there, there's a bunch of different crowd funding platforms and we've seen those all maturing kind of ebb and flow between hype and delivery and I'll expect that the ICO boom, which has just kind of taken off in 2017 on the back of the Ethereum network, is going to probably go through a similar maturation cycle as all these projects that raised tens of millions of dollars either change the world or completely fall flat. And some of them are probably going to be really great at managing their capital and ride out the bust and there's probably going to be some of them that flare out in a spectacular fashion as is common in every tech boom.

[0:08:26.6] JM: Ultimately, the ICO will be proven to be a useful mechanism for raising capital just as Kickstarter has and you hear people talk about how there is just a necessity when there's a new type of technology or a new fund raising mechanism that is fundamentally useful, there is necessarily a time where the pendulum swings too far in the direction of too much money, too much hype and that is necessary because that's the market testing what are the limits of this mechanism.

You know, it's unfortunate that we have just seen probably a number of projects that have raised way too much money off of way too little technology and it's going to leave a bit of a black eye on the space for a while but in the long run, it's going to be extremely useful to have this ICO mechanism.

[0:09:21.1] KO: This is where I will kind of weave and Gitcoin a little bit because it sort of tells you a little bit about how I view the space, the fact that Gitcoin is not a token, we have not ever done an ICO and we do not plan to do an ICO, we're just focused on building products that helps developers sustain their work in open source software and solves the incentivization problems with open source software. I view, it's going to take four or five years for Gitcoin to realize its mission. I am lucky to be funded by a project called Consensus, that is a block chain venture studio out of New York that happens to be founded by Joe Luban who is also a founder of the Ethereum project and just kind of has a long view on all of this space. And the disruption that it's going to create.

So I think that my view is sort of informed by ignoring all the hype with the ICO's and just focused on building up products that users love which I think it's been a recipe for success as far as I can remember in my career in technology.

[0:10:24.3] JM: Yeah, I think it sounds like a great pairing. The consensus and Gitcoin pairing. By the way, I should mention, consensus is a sponsor of the show but you know, I wanted to do this interview anyway. Partially because I'm a Gitcoin user. That's one of the reasons I want to have you on is because it's interesting that you did not did an ICO even though Gitcoin resembles the kind of project where an ICO might actually make some sense but it's clear you made an autonomous decision to kind of do a more conventional route.

I guess it's not necessarily conventional because you're going under the osmosis of a venture studio. Why did you decide not to do an ICO? I guess to make it a little bit more concrete for people who are trying to understand the ICO space.

[0:11:08.5] KO: Yeah, sure. I'm glad you asked that question because I don't think I've even, I've been on a few podcasts and I don't think that I've been asked that question directly. First off, there's like an ethical thing there where is it ethical for a project to raise tens of millions of dollars before there's product market fit.

I'll leave the listener to decide in their own minds how they splice and dice that in my mind. You know, maybe if the founders have a track record, maybe if they're playing in a space with there's a ton of upside. Maybe if there's momentum that is associated with customer contracts but no products -

[0:11:39.7] JM: Let's see, what are the historical examples? We've got Color, Therenos, what else is there?

[0:11:47.8] KO: Yeah, I mean, I think that there's kind of like a bias in the media that we're the most emotionally impactful ones, they're the ones that get reported.

[0:11:55.6] JM: That's true.

[0:11:57.3] KO: Yes, I mean, I actually don't even know the answer to the question but like when I'm trying to make a decision within incomplete information in the startup, in Gitcoin, I think a lot about how Ethereum, my view of bloc chain is that it's the TCPIP of money. TCPIP is just a simple protocol that allows computers to send information form one computer to another without an intermediary and it completely changed our lives with respect to the internet and how it changed our media and what Napster did to record companies.

I think blockchain can do to banks and insurance companies because block chain is the TCPIP of money. It's a fundamental protocol that allows this ending of value or money from one computer to another without a centralized intermediary. Take all the stuff that's happened to the world because of the internet in the last 20 years and project that forward, if the financial system

which is arguably in order of magnitude, more in fringe in our politics and our society, was completely revolutionized by open sourced money.

In that view, if you have that large of a view. I think taking the first business model that's on the table for a project with as much potential as Gitcoin would be pretty silly because you know, there's all these projects who have created this white paper and they have this vision of the world and how it's going to exist in four years and have this token economics and they're all tied to that vision after they do an ICO.

They have to deliver it because they put it in their white paper. And I just think that the world is evolving fast and rapidly that there's going to be more killer applications on the Ethereum blockchain and that I'm going to want to have more informed opinion and the opinion of the community before deciding if and when to build a business model into Gitcoin.

[0:13:39.2] JM: That's a very strategic approach you are maintaining optionality in a time of intense market volatility. It's the right way to do it, in my book. It's funny because I'm watching the space as a journalist basically or reporter a podcast or whatever you want to – whatever this job is, I completely agree with you at this point. After doing enough interviews and by the way, there are people in the audience who are so sick of these blockchain episodes. I've done like 20 or 25 in a row or something like that at this point.

The reason is, because of what you said, we're about to see the financial system like totally just, get the table turned on it and it's going to be really entertaining and I'm trying to lay a foundation for that and at the same time, I'm seeing that and I'm like, "I'm in the podcasting business." I kind of want to get back and, get back into engineering because there's a lot of opportunity here.

I guess you are kind of in that mindset too because around, I think 2015, Ethereum came out, as far as I know, you are not a blockchain aficionado until around that time and probably, you started seeing Ethereum and like "Wow, this is cool, this is the real deal," and then you meandered around for a bit and looked for something to work on, is that right?

[0:14:54.1] KO: Yeah, that's more or less correct and I just wanted to share a funny anecdote before I answer your question. So I popped in the SE Daily Slack yesterday just to say hi to you and like the first message I saw on the general channel was like, it's been two weeks talking about cryptocurrency, when's it going to stop? There's like a few emojis that are thumbs upping it.

Well, I guess it's good that Gitcoin's not a cryptocurrency, it's a blockchain project but I'm not sure that the audience is going to even listen if the project's called Gitcoin. Fatigue is hitting people and you know, you got to filter out the noise and hopefully funding open source is a mission that is, your audience cares enough about that all the mumbo jumbo about block chain is kind of a means to that end.

Anyway, sorry, your question was, How I meandered around in the space before founding Gitcoin?

[0:15:40.6] JM: Yes, you know, when you were meandering around, did you feel this sense of, I got to find something to work on, I know that there is excitement in the space but I don't know exactly how to capitalize on it.

[0:15:51.7] KO: Yeah, I mean, I think – I don't' know if capitalizes the right word. I think that –

[0:15:57.5] JM: Not capitalize, we're all developers, we're all looking for that sense of internal traction where you find that project where it's like yes, this is it, I can iterate, I can iterate on this and that is in contrast to the, you know, maybe you had a job you don't necessarily like and you're trying to find something to work on. We all know that feeling where you don't have that internal sense of traction.

[0:16:21.1] KO: Yeah, for sure. I think that you hit the nail on the head. I started this project in 2015. I remember buying, I bought 10,000 Ethereum in 2015 off of [inaudible] and I like to say that I was smart enough to buy but not smart enough to hold because when it went up, like 30%, I was like, sweet, I just made a couple of thousand bucks, I am going to buy a mountain bike with this money.

It's just so funny, in hindsight, when you look, after you found that internal traction and you look backwards on the decisions that you made when you didn't have the benefit of hindsight, it's funny how it works.

Yeah, that was my, more sort of like financial experimentation in the space, the technical experimentation was, I built a machine learning, crypto currency trading robot called Pie Trader and I open sourced it and quickly got like 1.3k stars on GitHub, built a community there and quickly got burnt out and gave up on that project. I built a –

[0:17:19.1] JM: This is a trading bot for crypto currencies?

[0:17:21.5] KO: Yeah, just basically took a bunch of classifiers in the python SK learn libraries and tried to classify market data and to buy, sell, hold decisions. I think how it performed was, I had one Ethereum - no, I had one bit coin and I was able to make three bitcoin in profit but I forgot to account for fees so I actually lost point one bitcoin and you know, this is like rookie mistake kind of stuff when you know.

I also realized that I don't really care about financial engineering when I was doing that project. I moved on to another project called ad block to bitcoin, this is all nights and weekends by the way, still employed full time in the tech scene in Colorado at my friend's company and built this project called Adblock to bitcoin which basically took ad blocked ad space and help publishers recover lost revenue from the adblocked ad space by putting a bitcoin QR code with a donation solicitation in that Adspace.

That was a neat project and wired wrote about it which was kind of like a jolt to the ego which was pretty cool but no one ever used it so that project fizzled and since then, all that I've done in this space has been in the Ethereum space. I'm a community organizer in Boulder, Colorado, I run the Ethereum boulder meetup and also the boulder blockchain meetup which has been a great way of getting to know people in the space but is by all means kind of a less technical approach to getting into the space and then the last project that I built before I started Gitcoin was called, "You've got Eth."

It was kind of a – kind of think of it like it was a play of you've got mail from the 90's and the idea was to make it as easy to send Ethereum to someone as it is to send an email. Built that at a hackathon out in LA called the Dapathon and won the community prize which was a pretty big honor and kind of have just found traction in the Ethereum space ever since. But I'd like to think that Gitcoin is informed by all those, like grave yard of projects that I had before Gitcoin was started.

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[0:19:25.4] JM: Users have come to expect real time, they crave alerts that their payment is received, they crave little cars zooming around on the map, they crave locking their doors at home when they're not at home. There's no need to reinvent the wheel when it comes to making your app real time.

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[INTERVIEW CONTINUED]

[0:21:09.1] JM: What you said about the financial engineering experiment like trying out. Hey baby, I'm a trader person. I had a similar foray, my first job at a college was at a trading place in Chicago and on the one hand, it's really exciting and accelerating to just see those numbers go up and down and kind of like, you're just correcting over time, it's like you're playing a game.

You're programming a computer to play a game, a little more intelligently over time and that part of it is cool. What's less cool is you realize you're not really building a product, it's like, you're building a character in a fighting game or something like that. It's not as exciting as the, you know, all the opportunities that you could have and you know, in computer science. But I think, there are a lot of people that are drawn to the trading and the speculation side of it. You know, nothing wrong with that but I think, for those people, okay, there's kind of an obvious route to doing financial engineering type of stuff in this space. You've got money and volatility and you just, okay, get involved and start figuring out and you'll make some money.

The people who are building stuff, it feels early still. I think that's what makes your approach to Gitcoin intelligent and I think we should get into that. Basically, what Gitcoin is, you have issues on your GitHub repo, you've got your open source project and you've got you know, issues that you've created and you want to create bounties for those issues and if you want to make a bounty for it, you decide on how much money you want to pay somebody if they're going to be kind of a mercenary and solve the problem in your open source project or maybe there's somebody that's already involved in the open source community and they just decide to pick it up to make a few extra bucks.

The bounty is enforced, it's codified within an Ethereum smart contract. When the person finishes the bounty and they finish that work, they are awarded the money that is locked up in the Ethereum smart contract. Did I get it right? Is that an articulation?

[0:23:13.1] KO: Yeah, that's exactly what it does.

[0:23:15.2] JM: Okay, my first question, why is Ethereum useful for this? Why couldn't you just use Stripe for example and setup an Escrow account through Stripe?

[0:23:25.0]KO: That's a great question and I think it's one of the – I mean, right now, we're sort of in a space where we're selling to Ethereum developers and I will note there were kind of, everything's based off of the Ethereum toolset and we're not really ready to venture out into the rest of the wild world of open source yet.

Basically, Ethereum is a worldwide near instant blockchain based payment network and what that means is that A, can send money worldwide almost instantly for very cheap. You know, if you were to put up an issue, you not only have a pool of developers in the United States that you can work with but for a while which I think for globalized world that's pretty important. I think that not having to have the overhead of being an intermediary is important for Gitcoin.

If you look at Upwork, it's like term to service it, terms of service, then they basically have an LLC called Upwork Escrow which basically holds the money in between the freelancer and the person who has hired them until it's paid out and because, on Gitcoin, the money is locked on the block chain, I never have access to that money so no one ever has to worry about you know, about my intentions or my stewardship of that money because it's all just on the blockchain.

The third answer is that we're really interested in tokenization and using that as a means of allowing people to align incentives between people in their open sourced communities. You know, we talked a little bit about ICOs earlier in the podcast but basically, tokenization is just basically taking shares of your software licenses or of your project or whatever has value to your project and putting it in a token standard called ERC20.

ERC20 is just the standard for distributing tokens on Ethereum and because there's that standard, Gitcoin can be inoperable with any token that adheres to that standard. What that means is that if in six months you decide that there should be an SE Daily token that has whatever use case you decide, then you can stake those tokens for contributors to contribute to SE Daily. You're kind of taking a step towards this distributed organization in which you pay out shares of your software licenses as currency for your project.

That wouldn't be possible at all with any legacy financial product and those three reasons in combination are why we chose to base the project on Ethereum and on the blockchain and I

think that the fact that Ethereum has 30x, the active devs of the next most active smart contract platform in block chain meant that it was just a no brainer to build it on Ethereum once we had decided to build it in blockchain.

[0:26:09.9] JM: Those are some super smart reasons. The first one you mentioned is international payments, Stripe may not be available in Vietnam, I don't know if it is but I mean, there's probably some area of the world where it's not accessible where as Ethereum is a global payment system. The second issue you mentioned is, probably not good for, if you just think of it from the point of view of building a company, you don't want to have to setup a separate Escrow service in order to have your company work.

This is one of the things that's amazing about Ethereum, that the naysayers may still not understand, this is a way that you can have programming, financial programming constructs for your application. Okay, you want an Escrow account? Create it in JavaScript, you don't have to setup an escrow, a company to handle that.

You mentioned that you know, this is a programmable Escrow and you know, an Escrow is kind of a complex financial product, it's simple in what it does but if you think about the kind of work that you would have had to do to implement at an Escrow service, I don't know, just two or three years ago, it's a lot more work, probably a lot more overhead.

[0:27:21.0] KO: Yeah, I don't know if I would implement it in JavaScript but –

[0:27:24.6] JM: Web 3, whatever. Maybe there's you know, I'm just envisioning somebody has a smart contract that provides you with escrow services and you access it through Web 3 or something like that.

[0:27:34.1] KO: I was mostly starting to make a joke because anywhere in the Gitcoin community knows that I love programming in Python and as soon as I start to end up and call back hell. It's just because I'm not a good JavaScript programmer but there is an interesting sub point here which is that, when you make the jump from web development to solidity and Web 3 programming, you're working in an immutable smart contract.

Once it's employed to the blockchain, your code cannot be changed, it's not like, you know, continuous improvement, deployment where you can make changes after you've deployed it. Once you've deployed it, it's out there because the blockchain is an immutable data structure.

The second, more larger point is that when I'm working with web development, I – there's always a back out path for me if I create a bug. Whereas these smart contracts in the Ethereum space can be holding tens or hundreds of thousands of dollars, sometimes even millions of dollars. Bugs can be super costly in the blockchain space. You know, you can create a JavaScript or a solidity script for your Escrow service but please have it security audited and make sure that there is no attack surface in your code because if not, you're going to have a bad time.

[0:28:42.1] JM: Okay. We've kind of careened into the discussion of this project. When did you start thinking about these ideas? The idea of attaching bounties to get issues, by the way, okay, I didn't explain a third issue you gave. The third reason you gave which is very important which is the fact that eventually people can use Gitcoin to facilitate payment of tokens for issues and what I think is great about this that the show is actually airing today is about Status. Which is a company that raised a $100 million for an Ethereum mobile client and they have a two year vesting schedule for their tokens and I was like, "That is a little dangerous," because you are giving yourself an out to exit the company in two years.

But he said to me is, "First of all, you know I am married to this project, I am really excited about it," and okay, that's great but show me on paper that that's the case that you are married to the project. Maybe you can't do that but what he did say is in the long run he wants to have the community maintain the project and he is going to do that through incentivizing the token holders with status tokens but here is a way where you could actually just fund mercenaries as well. You can fund the token holders as well as funding the mercenaries out there who may want the status token to be paid for status.

So hopefully that make sense to people since now we've both explained the thrust of Gitcoin and the long term vision of it. But yeah, when did you start thinking about this? When did you start thinking about the importance of attaching bounties to Git issues and why is that fundamental to your vision of the future of software development?

[0:30:27.2] KO: Yeah, so I mean we talked about that graveyard of projects, side projects that I started and let die in 2015 and 2016 and how financial, discovered that financial engineering did not motivate me at all and so what's the opposite of a competitive race to the bottom kind of like financial engineering project. Well it is a project that is mission driven. So one thing that I have discovered about myself is that starting with why, starting with a mission, something that I would like to see in the world that I think is good is a good place to start.

And one of the things that I think has been most influential in my career and the entire generation of software engineers that I've come up with is open source software. Open source software is like manna from the heavens because it's powered all of our careers. I mean Postgres, Apache, WordPress, these are just – I can rant off a hundred, we could fill up the rest of the podcast with open source projects, that have just been really, really good for the world.

And I think that A, we shouldn't take that for granted like I think if I was in my parent's generation, I would have come up building things on the Microsoft stack and everything would have been closed source and I would have to email my buddy at Microsoft instead of looking on Stack Overflow or on GitHub when I had a problem with the software. So open sources hopefully have established that it has been a good thing in the world.

But this is weird problem with incentivization mechanics in open source where it's creating billions, tens of billions of dollars in economic value but the expected value is free and somewhere in between those two numbers, software developers make between $20 and $250 an hour depending on your niche and your geographic location and your seniority and all of that kind of stuff. So the problem that we set out to solve with Gitcoin is that there aren't a lot of great sustainability options for open source software contributions.

I mean it is basically corporate sponsorship if you really get down to it and doing it professionally I think. But the problem with corporate sponsorship is that it requires a lot of scale and administrative overhead and so I was thinking about this problem and realized that well, if the future of the world's financial system, if you accept the premise of the future of the world's financial system is based off of blockchain and that a blockchain allows you to unbundle the business models of legacy infrastructure, well what's the combination of the two ideas?

And the hope is that blockchain is the spark that allows us to unbundle the corporate sponsorship of open source, down to small and medium sized repos so that guys like me and you can make money for our software development, for the work that we're doing that's good for the world in open source and bounties is just the first tool in our toolbox that we're launching that's aligned with that mission but I think that there is no higher calling that I can think of in my life at this time other than family and community, that I can contribute to the world besides growing open source software and pushing open source software forward. So that is the why behind the project.

[0:33:37.9] JM: And there are bounties in software development but as you said, it takes place through corporate sponsorship and it is not an open market for bounties and so you think of an example like, what was it? SSL, was it SSL, the open source SSL library where there were like two people maintaining it and then was it Heartbleed? The heart bleed issue happened based because there's two people maintaining this horrendous code base for years and years and years.

That the entire internet depends on and then the Heartbleed bug is discovered and it's a hair on fire moment and if you would have had Gitcoin there, perhaps on an earlier basis the two people that were working on it open an SSL, could have gone to Google and said, "Hey can you guys give us $5 million that we can just allocate to Gitcoin issues and we can do it as we please?" If you could just imagine this loss in market friction that could result from the creation of Gitcoin.

[0:34:36.7] KO: Yeah that's true and I think that one of the things that's really been powerful for us has been security bounties. When we launched we just basically said, "You know we are staking for Ethereum. If you can find any bugs then if they are high in the OWASP model then we'll pay you out a lot and if they are low in OWASP severity then we'll pay out a little," and so you could imagine the situation in which Google and Yahoo and all of these other players, that spent probably hundreds of thousands of dollars patching their system because of these bugs on the hair on fire moment had just instead funded some security bounties on Gitcoin for the SSL project, then we could have made the internet more secure and avoided this whole kerfuffle with the Heartbleed. So I think that there is an opportunity there if people have enough foresight to help grow up and source.

[0:35:23.6] JM: People have talked about gig economy, applications on the blockchain. You know the Uber, the Airbnb of blockchain applications. Gitcoin seems to be the first one to gain actual traction.

Do you think there is going to be more of these? How do see the gig economy on the blockchain evolving?

[0:35:47.2] KO: I think the world is, at large right now is, trying to figure out what a 21st century jobs program looks like and you know the gig economy is a loaded term because I think that in some places it's been a really powerful way for people to earn their living but it's also in other places seen as predatory and you know, I have been thankful enough to be a software engineer – or I am thankful enough to be a software engineer who has never been short on cash.

And I have been in a position where I need to sign up for Uber. So I think that I am not in a place where I really experienced it and sort of know all the trends. But I think that we are interested in for now providing tools that allow developers to augment their income and you know once we get enough confidence in the economy around Gitcoin that sufficient that people are making enough money to start supporting themselves off of Gitcoin, then I think that would be a major milestone that we've reached.

I think that a future in which software developers, it's easy for software developers to find work as it for an Uber driver today. That is a potentially powerful vision of the future but it is not without downside as I mentioned from the legacy financial obstructers gig economy and I would like to make sure that we create an environment in which software developers have leverage over their life circumstances and are well connected in their community that's going to support them.

And that is my vision for the future of knowledge work on the blockchain but I would be remiss to say that I know what other blockchain based jobs, projects are thinking. I think that we are a niche in blockchain right now and 99.9% of the hot air in the media is covered by price swings and volatility and technical analysis and all of that crap and hopefully, people start to see the larger picture that it's about people and their lifestyles and their circumstances.

More so than trading and speculation in Wall Street style stuff and hopefully we as a community will rally around the positive vision of the future of the gig economy but I haven't seen it yet. I think there's more to come.

[SPONSOR BREAK]

[0:38:09.7] 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 could quickly provision clusters to be up and running in no time while simplifying. You are monitoring in cluster management through auto upgrades and a built in operations console. Avoid being locked into any one vendor or resource.

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[INTERVIEW CONTINUED]

[0:39:44.9] JM: I guess a salient difference between the fevered dreams of decentralization lovers about the decentralized Uber or the decentralized name your gig economy application, between that and Gitcoin is, the decentralization fever dream is to have the entire database and the reputation system and everything be decentralized whereas the Gitcoin model is more like,

well you know for the most part, the gig economy system remains in a centralized database, running in a Jango application or whatever and you are using Ethereum for a small fraction of your application.

How far are we from people having the ability to have that decentralized reputation system and all of that? Because that's what really excites people like my – the first, Carl Flourish, who maybe you know that in Ethereum guy, with the first conversation I had with him was really about this decentralized Uber. He was so excited about it, and you know we are far from that vision though.

[0:40:53.9] KO: So first off, I just want to take a step back and appreciate the new vocabulary phrase that I am going to steal from you which is decentralization fever dream. Because I think we've all been in a room where multiple people are in the same fever dream. So I think one day difference between the name, your gig economy on Ethereum or on blockchain projects in Gitcoin is the Gitcoin has actually launched. I mean that purposeful decision not to boil the ocean and to build all of these things –

[0:41:24.1] JM: Which by the way is even a step above many of these ICOs. These ICOs that have raised 25, $100 million they even haven't launched yet. It's insane.

[0:41:35.5] KO: Yeah, I mean I think that –

[0:41:36.8] JM: No judgment. #nojudgment.

[0:41:40.0] KO: Yeah, I'm judging heard over here. But I think that we've seen all these projects funded and hopefully in the next two or three years we're going to see some of them launch and actually gain real market traction and I think what's really exciting for me is about a decentralized gig economy system is that in Uber for example or an Uber like product, if you are a manager at Uber you're always making decisions about do I optimize for what's good for my investors and for my market share? Or do I optimize for what's good for my users? Meaning the riders and the car drivers.

And what's really exciting about this decentralized fever dream about a decentralized Uber is that the users of the network in decentralized application can actually be the investors in the system if you design your token in that way. And I think that is really, really powerful to have all of members of an application to have their incentives aligned and not to belabour this point too much, but we are recording this podcast in the middle of March 2018 and there's just been a ton of stuff in the news about Facebook leaking the data of their users to all sorts of different places.

I think the most recent one is this Cambridge Analytica thing where 50 million people's information was used in order to do something which sounds like it might have been nefarious or not with the election. And I just think that the interesting example about Facebook is that they have a choke hold over everyone's social graphs. So basically if you are not happy with Facebook then you can either quit and throw away that sunken cost of the social graph that you've built up there or you can stay which is a pretty binary choice but in this Web 3 world, we're going to have this open data layer where you have sovereignty over your data and over your reputation and if you don't like the way the social network that you are dealing with, if you don't like their font color or you don't like anything about them then you can just move to a competitor and you can bring your data with you.

And I think that that creates a fundamentally different relationship between the consumer and the investors in the network than one that we have seen before and I am very excited to see some of these projects launch and hopefully have the user's best interest at heart.

[0:43:54.9] JM: Indeed. When I get into conversations with people about this who are anti-Facebook, I make the classic programmer technical optimist defense which is you get these awesome free services and you pay for them in advertising, that has served you.

And would you really want to give up those free services just so that you don't have ad targeting? And I always present that but the truth is that that's a false dichotomy because there's a wider range of options that we can explore for delivering social network like facilities, Google like facilities to people.

Where it's not necessarily you either pay for it or you opt out or you have to opt in to surveillance. There is a wider range of interesting options that we could explore. Maybe the

richest people in the network pay for everybody else or something like that. You could totally imagine Ethereum billionaires being charitable in that regard, you know?

[0:44:57.9] KO: Yeah I mean I –

[0:44:58.8] JM: Like bootstrapping a social network by paying for the people who can't afford it.

[0:45:02.5] KO: Yeah, I think that there is all these excitement when Facebook launched and I was in my early 20s and I think I was excited at that time that I could just look up anyone and if I had a crush on a girl, I could check her out and see what she's into which at the time they won't admitted that they were doing. But I think a lot of people were doing but 10 years in, it seems like holy smokes we gave up all of our personal data to this system and now all we're getting is picture of our Facebook. Like our high school friend's Facebook pictures of their babies. And I just think that like in hindsight it's like, "Well wait, we gave up some really powerful information about ourselves in exchange to this utility,"

And to your point, the decision to quit or not quit is very binary and hopefully we can do better as a technology sector and provide a more gradient array of options to users.

[0:45:50.9] JM: Okay, so we are careening close to the end of our time now. We haven't talked about Gitcoin as much as I would like. I am very curious about the market dynamics of Gitcoin. So when somebody posts an issue like I want for example, I want my font color to be changed to a nicer shade of blue. Or implement continuous integration on my project. You know those are both issues that you could see that somebody could post on GitHub and they could create Gitcoin issues.

Associated with that, they would have to decide how much money to pay, how much money they are going to lock up in the smart contract that's going to be associated with that although those two issues have a wide gulf in terms of their complexity. So you're talking about changing the color on a webpage, that's a very discreet and well defined tasks that somebody could do. So maybe it's easier to figure out a price for that one but then you have these tasks.

Like implement continuous integration like that's a bit of a more complex task, there is more subjectivity to it and yet you still have to attach a price to it. So I just use that as an example of the pricing dynamics seemed very difficult to figure out. So what kinds of things are you seeing on the platform in terms of how people are pricing and what people are willing to actually do the work for those bounties on?

[0:47:14.3] KO: Yeah, good question. We have seen a few hundred bounties successfully go through the platform now and so I think we have a nice little data set to analyze with respect to pricing dynamics and several other market dynamics. I guess the question for you when you're posting a bounty, I think you took us through your thought process like is this a good thing for a bounty. If it is more on the discreet side then it's a good thing for a bounty.

If it's hard to specify then maybe it's not so good for some random internet stranger to do and it's more something that you should iterate through. It doesn't require privileged knowledge to your systems. Like that example that you gave setting up CI would require at the very least SSH access to some sort of system or API keys and things like that nature. So we have seen a lot more successful bounties for easy to specify tasks that don't require privileged knowledge.

And you basically have to do a gut check for how much you want to pay for something to get done and I think a lot of things factor into that decision. We are looking to build a pricing engine to automate some of this but basically how fast do you want it done? Are you looking for someone who is like a senior level person? Are you looking to possibly hire someone and this is a tribe before you buy kind of situation? Or you are just looking for someone who's very junior who is looking to learn new skills and build a reputation? And so you are willing to pay on the lower side of the market value for a software engineer's time.

So I think that there's entire books that have been written on complexity estimates in software engineering and I think with five minutes left in our podcast, it will be impossible to traverse that entire terrain but I think suffice to say that we are looking at a feature now to figure out the pricing mechanics when posting to Gitcoin sometime in the next quarter.

[0:49:05.4] JM: What are the other things that you are focused on? What are you working on in the Gitcoin project? What is the sub-projects that are underway?

[0:49:12.3] KO: Yeah, you know as I sort of eluded to earlier in the podcast, Gitcoin's mission is to grow up in source software and I am under no illusions that bounties is the only tool that should be in our toolbox. I think there's that quote that we all learn in computer science 201 that if the only tool you have is the hammer then every problem looks like a nail and I think that you will see a toolbox coming out of Gitcoin that allows you to play with incentivization mechanics in a lot of different ways with open source software and blockchains.

So if you go to Gitcoin.co/tools, you can see some of those but just to traverse that a little bit, so we've got bounties, we've got tips which is just a way of saying, "Hey here's point one Ethereum, thanks. You've done a great job." We've got dev grants which we are launching soon and are pretty excited about. We are building a feature that will facilitate a mentorship economy. So either out of the good of your heart or in exchange for some Ethereum, you can mentor a junior developer in whatever you're good at.

And we will also soon be hosting a repository of off chain bounties. So with the use case of bounties that we have talked about so far, it's all been ones that have Ethereum state in a smart contract but with the reality of the ecosystem in the Ethereum space right now is that things are kind of fractured and we can't expect that everyone who is providing great work to a community in open source software is going to use our bounty standard and we hope that that will change in the future.

But in the meantime, we have a repository of bounties from across the web whether they are Ethereum based or Bitcoin based or even plain old USD based and we're just basically hosting that as a service for our users so that Bitcoin can be a one stop shop for them to figure out where they can make money and meet people in open source software. So I think I probably told you about four or five of the tools that are going to be in our toolbox but we've got about 30 on our roadmap.

And we are just going to iterate through them and we are going to double down on the ones that work and we're going to kill the ones that don't and hopefully by this time next year, we will have a functioning set of at least a dozen or half a dozen tools that software developers will be able to use to grow their skills and hopefully make a living.

[0:51:39.8] JM: Yeah, that's awesome. I can't even envision teams eventually coming up on Gitcoin and building a reputation and then maybe you can contract an entire team to build you a product MVP or something but that's getting probably into the future and that's getting into the fuzzy product development that is less good for Gitcoin today. But I mean I'm sure I could see that being a product.

[0:52:02.4] KO: I mean we are very focused on providing the building blocks so that we could create a bottoms up set of tools that can realize that vision. Whereas I think a lot of these ICO projects like future of work things are like starting with what the future is going to look like and trying to build it all from a more top down standpoint. So we will see which process is successful and the end results for the community.

[0:52:23.7] JM: Okay, so I am interviewing all of these people about Ethereum and what not and I am trying to figure out is there a tipping point to where Ethereum becomes something that the average developer is using or that the average person in the world is using? I don't know if it's adoption of the currency or if it's a question of scalability of the blockchain. That doesn't seem to be it, it doesn't seem to be scalability. I mean is it the fact that private keys are still really hard to maintain and juggle.

And so you have a lot of people who hear about Ethereum or bitcoin but they still don't really get involved because they are afraid of the public key infrastructure but then even those people could be using coin based but then there's not really anything to do with that crypto currency other than to speculate on it. Maybe there's no silver bullet answer here and this is just like a slow process of adoption and periodic spurts and gradual progress.

But do you have any thoughts on that like what are the things that I should be watching out for that are going to indicate that something has triggered and this stuff is becoming mainstream and not just mainstream in a speculative sense but mainstream in an, "Okay I can build apps on this and I can build businesses and real Web 3 stuff on this"?

[0:53:32.6] KO: Yeah, that's a great question and I am glad that you framed it in a, "Let's put all the speculation stuff aside," because I think that we are reaching saturation of the get rich quick

with blockchain kind of stuff and I hope that people will focus on building and that side of the space as oppose to the more Wall Streety side of the space.

I think that for me, it comes down to drivers and barriers. So right now, people are getting into this space and they're confronted with all of these questions and problems as you noted about key management. And how do I back up my keys and how do I keep my wallet safe and so the barriers are quite high but the drivers are quite high too because people are thinking they read this news articles about how they can become millionaires overnight with the blockchain and they're like, "Oh well maybe it's worth overcoming these barriers".

So what I would really like to see so that we can move out of this speculative nature of blockchain is that the barriers come down. And that means that every day consumers who don't have that high drive to speculate and basically just want to live their lives can use Ethereum and I think that that will be the tipping point in which Ethereum everywhere. So I think it's basically two scenarios in which Ethereum takes over the world and the first is that Ethereum becomes a Web 3 web browser. So basically everyone manages their own wallets, they have their own private keys and they can sign transactions within their web browser. And wherever else they want associated with whatever used case associated with value transfer in this new blockchain ecosystem and the users control their keys. So I think that that's scenario one with blockchain.

And the second scenario which I think is more of a failure path from the first scenario for the space is that Ethereum becomes Linux. So what I mean by that is that everyone in the world uses Linux whether or not they know it or not. Whenever you hit a website, well it depends on what website but you are probably hitting some flavor or Red Hat or Ubuntu or whatever and you just don't know it because it's all abstracted away from you and I think that the analog there with Ethereum is that you won't manage your own wallet and you won't even know that it's blockchain in the back. But you know that there is all this new benefits and everything all of a sudden is cheaper and the incentives are more aligned for you. Also there's data portability but you just never have to learn about key management or anything like that.

So I think that those are basically the two scenarios in which Ethereum is everywhere and they are slightly different in terms of how aware the consumer is of them but I think that the base

case is that you – the bottom line is that they are still powered by Ethereum. So it is still powering the internet of money in both of these cases.

[0:56:19.3] JM: All right, well I really like that explanation. Thanks for coming on the show Kevin. It's been great talking.

[0:56:23.6] KO: Jeff it's been a pleasure to be on the show and if your listeners wouldn't mind checking out gitcoin.co and hoping to our Slack community with any feedback or thoughts on the product, we'd be happy to hear from them. Thank you very much for having me on the show Jeff.

[0:56:35.8] JM: Wonderful. It's been great. Okay, thanks Kevin.

[END OF INTERVIEW]

[0:56:41.7] JM: You're a successful developer and you couldn't have gotten to where you are without help in your education and career. Maybe you are thinking about ways to give back in the community where you live. The TEALS Program is looking for engineers from across the country to volunteer to teach computer science in high schools. Work with a computer science teacher in the classroom to bring development concepts to life through teamwork and determination.

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