EPISODE 778

[INTRODUCTION]

[00:00:00] JM: Podcast listeners usually find out about a new podcast in one of two ways, either a friend recommends that podcast to them or the Apple Podcast Charts rank that new podcast highly. The Apple Podcast Charts are created using an algorithm that is not known to the public. Many people believe that the chart ranking of a podcast is based on the number of podcast subscribers, or the number of podcast downloads, or the reviews that are written about the podcast on iTunes.

Jack Rhysider is the host of Darknet Diaries, a podcast about the dark and strange elements of the internet. Darknet Diaries is told in high-quality narrative audio format. Jack is a security engineer with a deep understanding of technology and he's been blogging for a long time. So he's the perfect person to put together a podcast like the Darknet Diaries, which is phenomenal, and I cannot encourage enough for listeners of this show to check it out.

As Jack has built a following with his podcast, he has spent more time looking at the iTunes podcast charts. He has seeing the rank of Darknet Diaries increase, but he's seen the rank of other podcasts increase much faster. Some of these podcasts have low-quality content. The audio quality is poor. The host is unprepared. These are the kinds of podcasts that you would listen to once, but you would never subscribe to, and yet numerous podcasts with low-quality were somehow able to gain the rankings and make it to the top of the charts.

In episode 27 of Darknet Diaries, Jack investigated the phenomenon of fraudulent podcast chart manipulation. This was one of my favorite podcast episodes ever and this is coming from someone who has listened to a lot of podcasts. The investigation went to several unexpected places, but Jack did eventually solve the riddle of how low-quality podcasts climbed the iTunes charts.

Jack joins Software Engineering Daily to talk about the fraudulent world of podcast ratings and the broader implications of the fake internet. Today's episode is a simple example of how easily internet platforms can be gamed. For a deeper, wider dive into the fake internet, listen to our

past episodes on advertising fraud, or tomorrow's episode with ad fraud investigative journalist, Craig Silverman, an episode that I am very excited about.

[SPONSOR MESSAGE]

[00:02:44] JM: DigitalOcean is a reliable, easy to use cloud provider. I've used DigitalOcean for years whenever I want to get an application off the ground quickly, and I've always loved the focus on user experience, the great documentation and the simple user interface. More and more people are finding out about DigitalOcean and realizing that DigitalOcean is perfect for their application workloads.

This year, DigitalOcean is making that even easier with new node types. A $15 flexible droplet that can mix and match different configurations of CPU and RAM to get the perfect amount of resources for your application. There are also CPU optimized droplets, perfect for highly active frontend servers or CICD workloads, and running on the cloud can get expensive, which is why DigitalOcean makes it easy to choose the right size instance. The prices on standard instances have gone down too. You can check out all their new deals by going to do.co/sedaily, and as a bonus to our listeners, you will get $100 in credit to use over 60 days. That's a lot of money to experiment with. You can make a hundred dollars go pretty far on DigitalOcean. You can use the credit for hosting, or infrastructure, and that includes load balancers, object storage. DigitalOcean Spaces is a great new product that provides object storage, of course, computation.

Get your free $100 credit at do.co/sedaily, and thanks to DigitalOcean for being a sponsor. The cofounder of DigitalOcean, Moisey Uretsky, was one of the first people I interviewed, and his interview was really inspirational for me. So I've always thought of DigitalOcean as a pretty inspirational company. So thank you, DigitalOcean.

[INTERVIEW]

[00:04:51] JM: Jack Rhysider, you are the host of Darknet Diaries. Welcome to Software Engineering Daily.

[00:04:56] JR: Hi. Thanks for having me. Great to be here.

[00:04:58] JM: You did an episode about the iTunes podcast charts, and we'll talk more generally about your podcast and the other things that you cover, but I want to focus at first on the content that you covered in episode 27 of Darknet Diaries, which is your fantastic podcast. I really just can't complement you enough on this product that you've built. But let's get into podcast charts. Explain what podcast charts are.

[00:05:29] JR: So the big player in podcasting space is iTunes or otherwise known as Apple Podcasts. They were the first big distributor publish host, not so much host, but like place to get your podcast. So when you're one of the first to the market, you're going to get a big profit share of that. So something like 60% of all podcasts are downloaded off of Apple Podcasts.

So this is where people go, and when they go, Apple tries to give them something to checkout. So they give them the top charts. This is the top 200 most downloaded podcasts in the last day, two days, week, and a lot of people are discovering new shows from here. So they go there to see what's new, what's hot and a they find new shows here. So being on this chart not only means that you've made it as like a podcaster, but it also means you're going to get a lot of organic discoverability.

[00:06:20] JM: Just to assume the least amount of knowledge about the iTunes podcast charts, I'd like to present some contrasting charts. So how would you contrast podcast charts, at least the iTunes podcast charts, with something like the New York Times bestseller list?

[00:06:38] JR: Well, so the New York Times bestseller list is going to be what a lot of bookstores will stock for their books, because bookstores want to sell books. So the books that are selling the best, they're going to be the ones that are going to move the most. That's the one bookstores want to stock. So sometimes you see bookstores actually have like a whole bestseller rack, because these are the ones that are on the bestseller list, and of course when you get on the bestseller list, now all of a sudden there's a lot of bookstores buying those books to sell them. So you're just going to get a lot more people buying that book. I mean, it has this natural explosion of growth once you get there and a lot more people discover your book as well.

So there is some similarities, and some other similarities might be like when you go on to Yelp and you see like a highly rated restaurant and you say, "Okay. Let's look at all restaurants with five stars," or when you shopping for a hotel and you look for all the hotels that have five stars. These are all similar lists. Maybe Amazon when you're buying something from there, there's a whole bunch of top charts on Amazon. Top rated in the cooking section, or in the book section, or in the electronics or videogame section. There's always that. Then also in software, you've got top charts on Steam, the videogame platform, and you got top charts in like the Android store and the iTunes store for apps. So everywhere you look, we're were influenced by some of these top charts, and I think what we're getting at here is that some of these just aren't – They aren't what they cracked up to be.

[00:08:01] JM: There are these versions of charts that are unified for all users. New York Times bestseller list is going to be the same whether I'm looking at it or you're looking at it. The podcast charts are the same. Hacker News is the same. Everybody sees the same results for Hacker News with the New York Times bestseller list or podcast charts. This is in contrast to your Facebook newsfeed, or your twitter newsfeed, or your Netflix recommendation. How would you contrast the newsfeed recommendation like system with a chart-based system?

[00:08:38] JR: I haven't really got into that too much. As far as algorithms go within social media, it changes by the day, but it's often by the people you follow and you kind of pick and choose the stuff that you want to see in some of these feeds. As far as news stories go, I don't want to get too far in the conspiracy rabbit holes, but some news is manipulated to let you see things in more positive light for this particular campaign or something or more negative for whatever they're trying to push here.

So it's hard to get a fair and balanced pipeline of information into our world to begin with, and I think there isn't kind of an underlying problem there. I mean, that's a little bit bigger than what I try to tackle in this episode though.

[00:09:24] JM: All right. Well, we'll get down the conspiracy rabbit holes later on in the show if time permits. Let's talk just about podcasts. What role do podcast charts play in the podcasting

ecosystem? You have a podcast business. I have a podcast business. How do these charts actually affect you and I?

[00:09:41] JR: Yeah. So being on trending charts or top charts is really what a lot of podcasters hope to get on, because as you get there you're going to have a lot more people finding your show and downloading your show, and anyone who makes anything as an independent creator or anywhere, you're going to want to get that to spread. So if you write a blog post, you want that to spread. If you make a podcast, you want that to spread. If you make videos, you want that to spread probably. Not everyone wants to be popular, but a lot of podcasters do.

So marketing is a whole new skill. It's a whole new challenge. It's a whole new game, and a lot of people haven't put lots of time and then figure out how to market whatever it is they made, and that is a struggle for a lot of people. So I think some people try to find shortcuts, and some of those shortcuts start getting a little dangerous.

[00:10:31] JM: What data does Apple take into account when they're calculating their podcast chart rankings?

[00:10:39] JR: So Apple is very much like a black box company. We don't know. No, they never share that with us, because if they tell us what the algorithm is, and it's the same thing with the New York Times bestseller list. If we know exactly what the algorithm is to get under those charts, then we're going to have people manipulating that algorithm to get on the charts in kind of a shortcut way. They're going to cheat their way past the way you're supposed to do it and just do it the – I'll call it the black hat way and just cheat your way on to the charts.

So we've seen what – There's people who have seen what's been going on in the Apple charts for years. They've been watching how shows get on there and such. So the going theory from a lot of the top lines that I've talked to have been number of new subscribers per day, and it may be weighted per week. That is probably the best way that the charts are shown to the users.

A lot of people have this misconception that ratings and reviews are what gets you on the charts, but there's been a lot of research that's come out from various people that have showed that this doesn't matter. Like for instance there's some podcasts that are out there on the top

charts that have absolutely zero ratings and reviews, none, and they're still in the top 200. So you don't necessarily need to have that at all to get up there. Then there's some that have a lot of ratings and reviews and aren't even on the top 400 or 800. They're nowhere to be found. So the ratings and reviews doesn't seem to have any effect at all. Downloads, I don't think have any effect. I think it simply comes down to subscribers. I think we'll get in to some of the reasons why that is in a minute here.

[00:12:16] JM: Yes. Now, the notion of a subscription, this is getting into some podcast subtlety, but depending on what podcast player you are using, whether that's Apple Podcasts, or Overcast, or Google Podcasts, or Stitcher, or the multitude of other clients you can use to consume podcasts, which are essentially RSS feeds. It's just this primitive internet format. You can think of it as primitive as HTML. It's one of these very old-school protocols for consuming content. Basically, each of these podcast players is an RSS reader together with an MP3 player, and Apple's is in most ways no different than that. So are we talking about subscribers from the Apple podcast's scope, or are we also talking about subscriptions from other podcast players?

[00:13:18] JR: Yeah, good question. The RSS is a feed. So it's basic XML file. It's how podcasts get distributed. It's basically just a map of where the MP3 files are, and then that tells the podcast player where to listen, where to download the music file from or the sound file from and then you can play it. But these are specific per podcast app. So some of the big apps are Apple podcasts, Spotify, Castbox, Overcast, Pocket Casts, Podcast Addict. Each one of these has the ability to count their subscribers independently and differently. From a podcaster perspective like you or I, we really have no clue how many subscribers we have, because there's no way for us to actually count that, and each one of the different podcast players don't share that information with us.

So all we're left with is looking at number of downloads per episode and such like that to kind of get a guess as to how many subscribers we have. Technology just isn't there to know when someone has subscribed to an RSS feed or not. There's just no indicator when that happens, but the players themselves do know that because they actually click that button that says subscribe on the player itself. So when I am talking about subscribers, I'm specifically talking about it in that podcast happen, and in this case it's the Apple podcasts player.

[00:14:42] JM: Now for people who are the having their hands hover over their podcast player right now because they're ready to press stop, because they're like I don't care about this. This is not meaningful, these podcast charts. Why are they talking about this? I believe that what you investigated is representative of a broader trend on the internet and I want to discuss that eventually and I hope the people who are listening were less interested in podcast charts. We'll see this as a microcosmic piece of work to get through to understand some broader facets of our internet. But when did you start to feel like something was wrong with the iTunes podcast charts?

[00:15:20] JR: Yeah. There were shows coming up that as a podcast I was like a fiend of watching the charts to see what's coming up, what's going down. How do I get on it? All these things, because that was kind of the golden ring I was reaching for, the brass ring, whatever.

So I was seeing shows get up on there that in my opinion didn't deserve it. They were terrible shows, poorly made, had very little – There wasn't a celebrity host. It was very obvious that this isn't a top player, right? There just wasn't anything about it that made me say, "Oh, yeah. This is a top 200 podcast." It was just absolutely rubbish, and that's when I started thinking like, "Somebody might be gaming these charts. Somebody might be – They might be hacking it or something to get their show on to these charts in a way that is cheating."

Like you said, for some of these other listeners don't really care about podcasts or not, this is kind of like a black hat marketing story, where some of the other lists and charts that we use to buy things from or consume stuff from or putting our own content on, I think most of them at this point are being gamed or cheated at somehow, and I think it does kind of affect us all in the way we consume things or try to market our own software.

[00:16:36] JM: Yes, and there was a certain point you reached in your investigation of the podcast charts where you start to see the world in a different light, because you realize, "Wow! If something is inconsequential as podcast charts are being sophisticatedly gamed, what does that say about things that drive much more financial spend throughout the world?" So we'll get there, but let's first talk about your strategy. What was your strategy for investigating this opaque world of podcast charts?

[00:17:12] JR: Yeah. So I started getting some messages on LinkedIn from "podcast promoters" and they're like, "Oh, I can get you on the top 200 list." I was like, "Well, how? Because I do know a lot about marketing. So how are you doing this? What is it that you –" and they were specifically are like, "Oh, I'll get you on this specific category and on this specific country," and I'm like, "What?"

So all the signs pointed to me that they were doing something to hack their way on there. So once I started getting these promoters messaging me and telling me that they can sell me their services, that's when I thought that I might be able to go down this rabbit hole and figure out who are these people? What are their tactics? Maybe I'll learn something about the iTunes charts on the way, and how much is it?" and all these kind of stuff, and that's what led me down this entire investigation, which took about three months of just talking to a dozen podcast promoters and a dozen podcasters that I thought were also gaming the system and doing as much research as I could on the whole matter.

[00:18:17] JM: What does a podcast promoter actually do?

[00:18:21] JR: So this was not an easy question to answer. I had to call a bunch on the phone and get them to tell me. I asked over and over and over and nobody really wanted to tell me, but I eventually got to the bottom of it that what they were doing is they would have like a list of a thousand Apple IDs, which are the usernames and passwords for users for Apple iTunes. So they'd log into Apple podcasts with this username and subscribe to your show. Possibly, optionally, download all the episodes they could, wait a few minutes, logout, and then log in with the new Apple ID and do it all again. So they were doing this 50, 70 times a day with each podcast that they were "promoting".

Now, specifically in Apple podcasts, there are charts for different countries. So whatever they were doing it in the country that they selected, that's the country that it would rank up in. So you start seeing this anomaly on certain podcasts that they are ranked really high in one country and completely nonexistent in pretty much all other countries on Apple podcasts, which kind is a clue again as to somebody might be doing something suspicious here.

[00:19:29] JM: How do these podcast promoters, these people who are goosing the podcast charts, how are they finding customers?

[00:19:38] JR: So there are a few different methods. Number one, they're looking on LinkedIn for anyone who calls themselves a podcaster, or on Facebook who calls themselves a podcaster, or even Twitter podcasters. They'll be instant messaging everyone they can, and they also make accounts on things like Fiverr, where this is a place you can buy outsourced people to help you with things.

So they'll make an account on Fiverr that says, "I'll help you promote your podcast," and this is where it starts getting – I don't know, tricky or something, because you assume that when you buy a service on Fiverr, it's going to be a legit service. It's aboveboard. It's legal, and basically when they had their accounts on Fiverr, this was a black hat marketing strategy. This is something that goes against the Apple terms of use. If you caught with doing this, you may have your show kicked out of Apple podcasts. This is there available for anyone to just go look at in Fiverr.

So Fiverr started noticing some of this stuff and has been trying to crack down and get it out of there. These podcast promoters should not be advertising black hat services right there in Fiverr. We would expect Fiverr to be aboveboard on this kind of stuff. So that's how they're getting clients.

[SPONSOR MESSAGE]

[00:20:58] JM: Triplebyte fast-tracks your path to a great new career. Take the Triplebyte quiz and interview and then skip straight to final interview opportunities with over 450 top tech companies, such as Dropbox, Asana and Reddit. After you're in the Triplebyte system, you stay there, saving you tons of time and energy.

We ran an experiment earlier this year and Software Engineering Daily listeners who have taken the test are three times more likely to be in their top bracket of quiz scores. So take the quiz yourself anytime even just for fun at triplebyte.com/sedaily. It's free for engineers, and as you

make it through the process, Triplebyte will even cover the cost of your flights and hotels for final interviews at the hiring companies. That's pretty sweet.

Triplebyte helps engineers identify high-growth opportunities, get a foot in the door and negotiate multiple offers. I recommend checking out triplebyte.com/sedaily, because going through the hiring process is really painful and really time-consuming. So Triplebyte saves you a lot of time. I'm a big fan of what they're doing over there and they're also doing a lot of research. You can check out the Triplebyte blog. You can check out some of the episodes we've done with Triplebyte founders. It's just a fascinating company and I think they're doing something that's really useful to engineers. So check out Triplebyte. That's T-R-I-P-L-E-B-Y-T-E.com/sedaily. Triplebyte. Byte as in 8 bits.

Thanks to Triplebyte, and check it out.

[INTERVIEW CONTINUED]

[00:22:48] JM: So who's manipulating the charts? During the show, you reach out some of these podcasts. Some of them are smaller unknown podcasts. Some of them are actually major podcasts that you and I would have heard of. I know you didn't talk about the specific ones that you identified, the major ones who have sort of made it. I guess they faked it till they made it. Who was doing this?

[00:23:11] JR: So I mean there's a lot of people who have never marketed anything in their life, right? So they're like, "What do I do? Do I put Facebook ads out? Do I do Twitter ads? What do I do?" and then they come upon this person that says – So here's what they say. They say, "For five bucks, I can get to show to the top of the iTunes charts. Give me a try," and you're like, "Well, for five bucks, I'll surely give that a try. I mean, that's a lot cheaper than all the other options I was looking at for advertising here." So they throw in five bucks and they see their show shoot up to the top.

So now you got somebody who's just getting into podcasting, and when you make a podcast or pretty much make anything and you look back and you're like, "Okay, I am excited that I have

made this. I'm proud of that. I wanted to get out there now. Go! Go make it. Go find some audience or something," and you really want it to spread.

So people have this excitement to make it happen, like, "Let's put the fire on now and let's have this burn," and they kind of capture that feeling within you and they're like, "Oh yeah, we can make it exciting together. I'll help you make it exciting, get popularity." For five bucks is what it starts at, but then it ends up being like more like five dollars a day. So after one day for five dollars, that was great. You want to keep going. Let's go at a monthly plan, and give me five bucks a day, which starts adding up.

So you got this podcasters really want to do it, but like you said, there are a couple of big shows. The ones that are nobodies, it's real easy to spot them, because they just stand out, because they don't have any reviews. They don't have any ratings. They only rank up in one country in the world and all these things. But some of those bigger ones that just want kind of a slight boost, like maybe they're ranked 250 in Apple podcasts, but they want to get in that top 200. So they only need like an extra 30 more subscribers a day to get them there, or 20 more subscribers a day, and those ones are really hard to spot, because they're just barely tweaking the system to get up in there.

I think I did – So I found three bigger podcasters that I thought were tweaking the system like this and I called up two of them and I spoke to two and they both agreed to me, yes, they did that. One of them publicly admitted to it. The other one only admitted to me privately. He said, "Do not tell anyone, but this is the story," and I said, "Okay. I just wanted to confirm that I was on the right hunch." The third one didn't get back to me. They're really hard to contact. I just didn't have a good contact method for them, and I think they did this fake it till you make it. They got it going, got it going. They stayed on the chart so long that they got enough new people to find them and discover them and now they probably don't need to do that. So they can pull back on this promotion strategy that they were doing, and in fact they even wrote a book recently, and I don't even know. Maybe they're gaming the book list as well, because their book did really well.

[00:25:59] JM: It is remarkable, and if you think about it, it's hard to make on the internet as a media person. You think about like what does it require for somebody to check out your thing. I mean, you make the thing, you make the podcast, you make your first three episodes, you

make your first five episodes, you release them. If you don't know anybody, if you don't have too many friends, if you don't have a massive social network, you can't get your content out there. Nobody wants to pay attention to it. You tweet about it. You post it on LinkedIn. You post it on Facebook. Maybe you make an Instagram account and you get nowhere and you just say to yourself, "This is frustrating. I've got something to say. I want people to hear it."

So you pay money and you're just like, "Well, I don't know what this promoter is going to do. Maybe they'll do something magical," and then they do something magical, and you don't think about it beneath the surface like, "What could they actually be doing to get –" Like, "I made this thing. I can't get people to listen to it." You don't dig deeper, but you have to imagine like some of these people who do use the podcast [inaudible 00:27:07], they have to know that there is something malfeasant going on.

You didn't really go into this on the show, but is there some like cognitive dissonance that allows people to do this or do they just have like some sense of morality that lets them justify? What's the psychology for somebody that buys "podcast promotion"?

[00:27:29] JR: Yeah, I bet there's a bunch of different things that go on in their head. Number one, if you see it on Fiverr, it's probably legit. So let's give it a shot. Even though it probably doesn't sound right in your head, like, "I don't know how this person is doing this," but it's like – Like I said it's, you'd buy aboveboard services on Fiverr. So if it got there, it's probably people are doing it. So that's one thing, is just like it just seems normal.

The other thing is it's curiosity, "Could this possibly be true? I'll throw in five bucks and see if this actually works," and then when it does you're like, "Okay, ssh. Keep this between us. Let's keep this going. Okay, I won't ask questions. You won't ask questions. Let's just keep this going," right?

So there's some of that, which it's one of those slippery slopes that once you try a little and it's like really nice you're like, "Okay, that wasn't so bad. I'll try a little more and a little bit more." Another person told me that they hired someone to help them promote, and they were doing a good job. They were running the Twitter and they were doing all these ads on Facebook and all these aboveboard stuff, and they also got into this. So this was something that the podcast host

didn't know that the person they hired to promote them actually was doing this and they were completely oblivious to this tactic. So that was another thing.

Then, yeah, maybe there are some people just with poor morals altogether that know that this is possibly get you banned from Apple podcasts but still go for it anyways, and that's the tricky part about black hat marketing, is that kind of by definition, it's against the terms of service of whatever you're trying to get popular in. So you risk the chance of completely getting banned in that very same place you're trying to be popular in, and I think that's the biggest risk right there, is possibly losing everything.

[00:29:15] JM: There you alluded to something that makes this really hard to – If I'm running a company and I'm trying to be the next like at some huge podcast production company, like let's just pick on Gimlet, since they got acquired today. Let's say I run Gimlet and my organization has 100 people, or 200 people, and one of them is responsible for growth. You and I have both worked in technology. You get assigned a KPI, your key performance indicator. What's your key performance indicator? Well, how do we measure growth? It's the increase in number of subscribers, or the number of weeks where we are near the top of the podcast charts, and that's your KPI. Let's say you're having trouble meeting that KPI. Well, you might be tempted to go after a disreputable or unpredictable mechanism for boosting your status on the podcast charts. So the bigger an organization gets, the bigger a podcasts footprint gets. It's almost like the more likely it is to be biased towards doing this kind of thing.

[00:30:24] JR: Yeah. I mean, supposed that's possible, but I only found one network that was actually doing – That was on my radar that's actually doing that. Yeah, I suppose some of the bigger players could do that. This was a smaller network and it just felt like they were doing it to all their shows as like, "Come join our network and we'll get you on the top charts, because we can – I don't know, they'll lie and say, "We'll cross-promote against our other podcast or something," but really none of them are popular. They're just all being gamed to be on the top charts.

I think it's a lot of the smaller shows that are doing this. You've got 600,000 podcasts out there now and everyone is trying to figure how to get a bigger audience and there's something like 150,000 just started last year. So all these new shows are like, "How do I get an audience

here?" I think this is where the majority of the people are at, is the ones that are just really frustrated with not getting more people listening.

[00:31:22] JM: Do the advertising agencies that are buying podcast ads have an awareness of this ability to game the podcast charts?

[00:31:32] JR: Yeah, that's something I didn't go into on my episode, but that's something that you can really foul up, right? You can you can pay someone. All of the podcast manipulators that I found were all in Bangladesh, and this is just a place that is exploding in freelance workers. So you got a lot of Bangladesh people working at Fiverr and Upwork and this kind of thing. It's just like the third most popular country now. So it just seems to be an explosion there. For some reason they're all there.

But what I've found was they were all given me an option while I was talking to them to download the episodes as well. Now, if you have an extra group of people downloading a thousand or more episodes a day, or a thousand times a day, now that's worth more to the sponsors, because what the sponsors in podcast world will pay is number of downloads. So now you're falsely inflating that, sponsors are going to – You're going to get more money from sponsors. But it doesn't work out that way, because you're cheating it. So sponsors I don't think are aware of it as much as they should be. I mean, it's possible to be lying to them. Most sponsors are just taking your word for it that, "Oh, I have this many downloads." Okay, well this is how much I charge for that."

[00:32:45] JM: In your experience, is that actually what the podcast advertisers care about? Because in my experience it's like they want to see conversions. They don't care about impressions.

[00:32:56] JR: I've talked to a bunch of other podcasters, and we've been selling ads based on number of downloads, and it's cost per thousand. So something around $20 per 1,000 downloads is what we're doing. In podcasting world, it's a little different for sponsoring, because you don't get that conversion. It's not easy, because people are driving or people are doing something and then they get home, or three days later they hear about it again from a friend and now they're like, "Oh, yeah. I should check out that product, because now that I've got two

people telling me it, there it is." So you don't get that conversion right away. You kind of get that influence, if you will.

This is somebody, a podcaster that I really like. Now they're telling me about this product. I'm not interested, but that bee stays in the back of your head and so now when the topic comes around again or when you're in the market of shopping for that thing you're going to think, "Oh, yeah. There is this option too, and it's probably going to be first in your head of like, "Oh, we can buy this mattress or buy this security system or something." So I think it's more of a return of influence than less of a turn on value.

[00:33:58] JM: Right. So you're saying if this is more of like – Like the way that this is going in reality is more like an influencer marketing channel rather than a cost per conversion marketing channel.

[00:34:09] JR: That's what I've seen, yeah.

[00:34:11] JM: I would agree with you, and what makes me – I mean, I don't get frustrated about this, but just like I guess perplexed. You'll sometimes be talking to –I don't know how much sales, podcast ad sales you do, but your podcast is monetized. I'm sure you had conversations with companies and you talk to them and you're like, "Here's my audience," and they're like, "Well, that's too small for us and we're not interested, or we're not going to pay them much," and then a month later you see them going with some other podcast and you look at that podcast and you're like, "This podcast is garbage. Nobody listens to this," and you know that there was some deceit there. Does that happen to you at all? Has that happened to you or maybe you're not as deep in the sales world as I am?

[00:34:54] JR: I've been monetizing for the last two months and I've talked a bunch of advertisers and I haven't had that happen to me yet. It's kind of like a marketplace right now where as an advertiser you get like to look at a bunch of shows and see which ones are monetizing and which ones you want to put your ads in, and you can kind of pick and say, "Hey, would you be interested in having us as a sponsor?" and you can start dealing with that.

So they kind of come to me already interested, and that's what I've experienced is like, "Okay. Well, these are the prices. Are you still interested? Here's my audience," and then usually it goes on, "Yes. Yes, let's do it."

[00:35:26] JM: That's great, because your show is one of the few shows where I actually hear through word-of-mouth, "The show is awesome. You need to listen to it," and so it's like – I don't know. There's such a disparity between what these podcast ad agencies or advertisers are going to see when they look at the podcast charts and what people are actually listening to, which is the thrust of your episode.

[00:35:51] JR: Yeah, and if I could say something about that, to me that is the number one marketing strategy that I shoot for is that word-of-mouth. To do it, I try to make something remarkable, something people are going to talk about. They're going to go in the office and say, "Hey, do you know about this thing? You got to try this thing," and that's what I want. That's exactly what I want.

To track that, every now and then I'll do a survey to get the net promoter score, and this is one question, "Scale from 0 to 10, how likely are you to tell someone that you would listen to – Suggest to listen to this podcast?" I'm hoping the number is high. You can research how to do net promoter scores, but this gives me an indicator on how well the show is spreading on its own, because the higher the score, the more likely it is to spread on its own and the last marketing I really need to do or matches I need to light to try to get things on fire.

So I really focus on that, and if it's not as high, then I'll do something maybe more extraordinary, or a lot of things I really like to do on my podcast is to get into a big niche and just get really nerdy. Don't be afraid to exclude people who just don't get it or don't understand it, but instead just get fine, like other people who really share that passion with you about a specific subject or get really interested in that specific thing. Here's a perfect example, I get crazy about black hat marketing on podcasts, and here you and I are. You're bringing me on your show, which is going to help me market even more, because now more people are hearing about that show for the first time.

So is what happens when you get crazy nerdy on a specific subject is other people start saying, "Whoa! That speaks to me at my core. I love that," and now they feel like they're connected with you on more ways, because you kind of open up to them and say, "This is what's really fascinating to me right now," and other people have already been fascinated with that and now you're connecting with them. That's a roundabout way of saying word-of-mouth I think this is how everything is going to – It's my favorite way of marketing.

[00:37:57] JM: Yeah, and I think over time the internet will become more resilient to some of these spammy techniques, or at least I hope. One area of this that we haven't talked about is the analytics providers. So when you press play on a podcast episode, that episode is being played from a hosting provider. It's not being played from iTunes. It's being played from Libsyn or from some WordPress server somewhere, or some other way of serving an MP3.

You talked with Rob Walch from Libsyn. Libsyn is a major podcast analytics provider. Probably the second-biggest, and it's a hosting company as well. So they could theoretically filter some listens that they could detect as spammy or bot related. Did he tell you about any of the techniques that the hosting providers can use to detect like data center listens or other kinds of gamesmanship?

[00:38:59] JR: Yeah, this is actually a big topic that I've gone down a lot as well. I won't get too nerdy into it, but there's a whole kind of standards on how to measure podcast downloads, and it's the IAB podcast download standard. Libsyn is actually on the board to develop this standard as well as well as a bunch of other big podcast hosting providers to all agree on this is how we should measure things.

One of the tenants of that is to get rid of any bots or spamming or automatic downloads of some kind and filter that out and that should not count as a download. So that's already in the standards for analytics on how to count that. I mean, that standard is open for anyone to read and it's fascinating to see what should be filtered out. It's really hard to measure downloads of podcast, because as the MP3 is streaming across, it might hit your server like 15 times during that stream and say, "Oh, yeah. We've downloaded the first part. Let's download the next part, and let's download the next part," and if you're not savvy to this, you might count that as 15 downloads, because you just – But they're downloading in sections. So now you've got to really

dig in to the logs. What section are you requesting, and it just gets really hard. So that's what the standard aims to do, and it's not perfect, but it gives you a good idea of how many downloads you're getting.

[00:40:24] JM: Kind of. I mean, there was one time where I put a redirect on one of my Libsyn links so that it would hit Blueberry as well as Libsyn, and the numbers were completely different.

[00:40:33] JR: Interesting, yeah. The redirect isn't going to be as robust as the actual downloads, because the actual download we're seeing servers, but the redirector, you're only seeing a portion of what you can actually see. So it's not as accurate to redirects.

[00:40:46] JM: Fair enough. Yes. By the way, I mean the IAB standard, if you're a savvy botnet operator, you know what the standard is. So you can just game the standard, right?

[00:40:59] JR: Yeah, I suppose that's true. I haven't seen a situation where there's botnets out there downloading podcasts. I mean, some people have reported to me that they've seen a strange spike all from a certain country, a certain location that they don't have any listeners in, and that is odd. What happened there? But usually they're not that big, maybe 50 or 20.

[00:41:20] JM: Yeah. Actually, now that I'm remembering your show, this was one thing that surprised me was that there was no mention of botnets and I was like, "Well, I mean, if you've got these people in Bangladesh clicking on stuff, why wouldn't you just have a script clicking on stuff?"

[00:41:34] JR: Yeah. I think that will probably be the next version of this, unless Apple has figured out a way to catch this and made everyone start back from square one. I think the next thing will be automation here. It's surprising to me to see that you only need about 60 new subscribers a day to actually get on the charts, and that's not that many. So automating something just to be 60 times a day, and you could automate it so that it pops around on different VPNs and reconnects with the VPN every time, and all the different stuff that potentially could outsmart Apple on detecting this stuff as well.

[00:42:11] JM: All right. Now we get to go down the rabbit hole. Have you covered advertising fraud at all on your show?

[00:42:15] JR: Not yet.

[00:42:17] JM: Are you planning to? Are you curious about it at all?

[00:42:19] JR: I am curious about it and I – So my show is mostly about hacking and cybercrimes and that kind of thing, and when something comes on to my radar that's hacking related to advertising fraud, then that's where I think I'll be most interested.

[00:42:33] JM: Okay, because this is something I've covered a lot, and talk about like the charts, investigating the charts, making you want to put on a tinfoil hat. Man, if you look down the rabbit hole that of advertising fraud and what you can do with botnets. The conclusion you eventually come to, if you're anything like me, is that in order to solve advertising fraud, you need to solve the Turing test, and we can't solve the Turing test. We do not have a programmatic way of detecting is a human behind the keyboard or is it a script.

This is what where we're getting with the podcast discussion here is I know that all of the people that you talk to were supposedly in Bangladesh or they were telling you that, "Yeah, I'm working with this guy, my brother in Bangladesh, and we've got all these other users," but you would know if at the end of the pipeline maybe there's somebody who's just clicking a script and automating everything.

[00:43:28] JR: I believe after talking a dozen of them, I mean, I had them sending me screenshots and taking me step-by-step through their entire process, that I believe it's all manually done over there just from my research.

[00:43:40] JM: Okay, fair enough. Well, I am looking forward to your advertising fraud coverage. How else has this analysis of the fakeness of the charts changed your view of the internet?

[00:43:51] JR: Yeah, and I'm glad you asked that, because I was going to point out another story that I read that's to me really fascinating. This is where a journalist and Vice was able to

create a restaurant that does not exist and put it on Trip Advisor and then went on to Trip Advisor and gave a bunch of fake reviews of the restaurant and kept doing it and doing it and doing it until it became the number one rated restaurant on Trip Advisor for I think all of London or something. Just that alone, like the restaurant didn't exist, just that alone had his phone ringing off the hook for people wanting to make reservations. So it became such a phenomenon of people. Everyone wanted to try eating there because it was like, "Well, this is the best restaurant rated. Let's go there tonight," and they kind of get in because it just wasn't listed as like location or you had to like reserve only, and it was so funny to see all the different calls he was getting.

I mean, that's just another example of like how even places that you would think like Trip Advisor are going to be safe things that maybe look at the ratings there. No, it's gamable, and that's the kind of the bigger picture here, is that other things are gamable as well. Like I was giving a bunch of those other lists. I did find that the New York Times bestseller list is gamable and the way – The New York Times bestseller list will look at certain bookstores to see what they're selling the most of, and then that's what they use as criteria to go on the list. They'll compile maybe 1,000 or 2,000 bookstores to see which ones are selling the most.

What they'll do, what some of these – To game the New York Times bestseller list is you can call a ton of bookstores, and there's actually published stories that this is how this has happened. You could call a bunch of bookstores as, "Hey, do you report to the New York Times bestseller list your sales? Then if so, okay, I want to order a bunch of these specific books," and then you order like 29 of them, because if you order 30, now that's considered bulk sales and that gets reported differently to the New York Times. So you got to be very specific about exactly how many order as well.

So now when you order 29 books from 500 different stores, yeah, you might've spent $200,000 to get your book on to the New York Times bestseller list, buying your own book, but now that it's there, if it stays there for a while, you could make $1 million off this. The thing that fascinates me is that this isn't illegal. This is just unethical, scammy if you will, cheating, but it's not illegal. So you've got a lot of people trying to find loopholes in the system or get rich quick schemes, and this is I think one of those systems where it's like, "You know what? There is very little to lose here except for my reputation, but there's a lot to possibly gain from this," and that's why

people are going after some of these things, because they know they just get a little slap on the wrist and then life goes on and it's not that big of a deal.

So this kind opens up your head even more of like, "Well, what other things can be gained?" and that's why I think it's hard to trust what to do out there, what to believe in when it comes to top lists.

[00:47:00] JM: Tell me more about the thesis of Darknet Diaries. What kinds of stories do you cover and what's your modus operandi for the podcast?

[00:47:12] JR: The podcast was kind of inspired by This American Life, or Radio Lab, which I thought were beautifully made podcasts that have like a lot of great storytelling and music involved and the characters they would bring on. You just don't believe it. Like, "Wow! That's such a crazy story. How's that even real?" I thought, "Okay, that's great, but I love hacker stories. I've been in computer security for the last decade, and so I'm just constantly glued to the hacking news." So I'm like, "Hey, this is high drama, high stakes, crazy action. Too crazy to even believe it's true. Let's make that into a show where it's like This American Life, but just that."

So I will find hackers who have actually done criminal activity and interview them to tell me their story about why did you hit that enter button and what was it like after you saw the news and all these things? Because I think those are such exciting stories. Then I also like hearing from the other side about the people who have been hacked and lost hundred thousand credit cards right under their nose, because there were hackers stealing it and other big news stories that are nobody is able to talk to about it, but they're still exciting new stories as well, like Stuxnet or some government hacking stories. I just think these stories are so fascinating, and that's what I've been diving into and trying to cover those stories on my show and people really love it and they're eating it up like crazy.

[00:48:35] JM: There is a massive hunger for this kind of content and part of it is because the Venn diagram of people with an engineering background and people who can create media is so limited relative to the number of stories that are this unbelievable.

[00:48:58] JR: Yeah. I think you've got something there. One of the things that kind of gave me a leg up here is that for about eight years before making the podcast, I was a blogger and I was trying to blog not just about my thoughts and stuff, but like some of the technical problems I would hit at work. This is the hack we're experiencing. Here's how we defend it against, this kind of stuff. So I was putting really complex thoughts into a symbol of terms as possible, because that's what I like. I like simplicity. I don't want you to give me a really complicated scenario and then tell me here's one little part of this that we need to look at to explore. Just give me the one little part to begin with instead of the complicated scenario.

So I was spending years and years writing really complex stuff simply, and I think there is money there. I think there's a lot of money in being able to describe really complex stuff in simple terms, because this opens up a whole new audience to be able to enjoy your content. There's no shortage of security podcasts. There're probably 50 of them, but they're all covering subject – You've got to be in the space to really understand it. They're using terminology and they're telling you about things – They're commenting on things that you assume you already know about, and I'm like – And also they are covering the latest news.

So unless you like me or like want to stay up on the latest news or just want to hear about people talking about security, it's just not that exciting for the average person. So I kind of took that and kind of translated it so that even non-technical people can understand it, and that opened it up to a whole new audience, right ?So now you've got a bunch of people who didn't or don't really understand tech to be able to hear these stories, relate to them, understand them and still enjoy it just as much and even learn something on the way. A lot of people say it's kind of like edutainment as well, because it's a true story, but at the same time I have to break down what is an ISP or what is a certificate authority or some of these more complex things, and people really get a lot out of that part too. They know little bit more at the end.

[00:51:05] JM: HPE OneView is a foundation for building a software-defined data center. HPE OneView integrates compute, storage and networking resources across your data center and leverages a unified API to enable IT to manage infrastructure as code. Deploy infrastructure faster. Simplify lifecycle maintenance for your servers. Give IT the ability to deliver infrastructure to developers as a service, like the public cloud.

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[INTERVIEW CONTINUED]

[00:52:29] JM: I want to capture your sentiment here, because I am still not exactly sure where you're coming from, because I've put out the bait a couple of times in this podcast for you to put on the tinfoil hat like I do sometimes, and you seem more grounded, at least than I am, because I look at something like Fiverr and I see how Fiverr has been abused here for just podcast goosing. I know about scripting, and I know about Amazon mechanical Turk, and my imagination just runs wild and sort of assumes the worst. It seems like you might have a different perspective, maybe you're assuming the innocent until proven guilty. How do you calibrate your level of paranoia?

[00:53:16] JR: Yeah. For one, I think that news is the first draft of history, and whenever I see like something as hitting the news today I say, "You know what? I'm going to reserve my decision on whether I think this is good or bad until I have more information," and I sometimes have to wait years before I can look back and see, "You know what? That was a good idea, or that was a bad idea, or that was terrible or whatever."

So that's kind of another thing I like to dig in on this show, is to really do a lot of research and get as much of this side of the story as I do that side of the story and then try to look at it after we have all of the facts on the table, because now it's over – It's been years. We can actually look at all the pieces here. Maybe the hacker was caught and did prison time or whatever, and we know who did it and how they did it and all these things, and now we can look and we know what their motivation was to do it or something.

So I do – I mean, the first thing is I reserve my decision until I have all the information. But at some point I just feel like the world is moving and it's out of my control as well. Things are becoming more and more invulnerable, and I can't really get so worked up or worried about it, and maybe it's just one of those like I've seen it so many – I'm just jaded by it too, because I've been seeing so many breaches and so many – Just fatigued by all the security problems that I just don't get too excited about it anymore when I see it. It's hard to not get crazy as well and just be like –

Here's another thing, is I think I had a boss once that I said, "Hey, we need to secure network, because I think if we get hacked it would be a big deal," and he said to me, "No. It wouldn't be a big deal. I don't think we would have that big of a problem if we were hacked," and I thought to myself, "I need to explain myself better. I need to somehow explain it better," and that was one of the reasons why wanted to make this show, is to be able to explain the problems of being hacked in such a way that even our bosses could understand if they're that thick to be able to say, "Oh my gosh! We would be in that same situation if we got hacked," and this is all the problems that happen to them. We definitely need to take this seriously as well. I think just one of my goals is to really try to educate people on the dangers of security out there and what could happen if something happened to you.

[00:55:36] JM: Yeah. I mean, I think the perfect example of this in your history, the first draft of history thing, I'm looking at this Huawei stuff and it's just like a perfect example of something I have no idea how to perceive. It's like am I being fed nationalistic perspectives on a technology company based out of China, or is Huawei the nefarious all seeing eye that is trying to –

[00:56:03] JR: It's hard to know, because we here in the U.S. at least don't see Huawei at all. We can't even buy their phones. We can't buy their technology. So it is basically really big in Asia. We don't really have a connection to it. So we see something like this in the news, we don't really have that perspective on any history of dealing with the company or anything like that. So we're just fed this, and yeah, do we believe it? Where does this fit in to our perspective on the world? It's hard to know, because this is probably the first time we even heard about this company. So it's hard to put it into perspective, I agree, but I will say about that company is me kind of keeping my nose on the news for the last 10 years about security. They've been

notoriously copying and stealing software from other companies, such as Cisco, and putting it in their routers and is calling it their own. I mean, including the bugs and everything.

So it's like a one-for-one copy of the whole operating system and calling it their own and renaming it and rebranding it and everything to their own operating system, and it's just been shady all around. To me it's like, yeah, these people – I saw this come in. Why didn't this happen years ago?

[00:57:14] JM: Yeah, it's like – I mean, you can either laugh or you can cry. Basically, those are your two options, and generally better to laugh. Just to close off, I mean, your podcast is so good. It's so well- produced, and it's been a time of many different kinds of technology media. Like, personally, I had to stop watching Black Mirror, because it was too dystopian for me and it was just like I have entered this state of mind where your imagination really can run wild and how negative you can perceive the world in regard to tech. I feel like people like you and I, our responsibility partly is to craft the narrative, because the narrative is going to guide what people will believe. To some degree, that's a self-fulfilling prophecy. Therefore, we should kind of be utopian, rather than dystopian.

What do you think of that perspective? That we should err on the side of utopianism, because people are going to become what they are consuming.

[00:58:19] JR: Yeah, it's really fascinating. To me it's kind of like the first generation. We're still kind of in the first generation of consuming this new online world of internet, and I feel like the first generation of some things abuse it. Like you think about alcohol being introduced in the U.S. Well, it got abused so badly that there turned out to be prohibition, and that lasted for a while. Then it came back to be reintroduced.

So now we have multiple generations later, we know how to handle our alcohol a lot better than when we did when we first got it. It was just crazy. Let's just do this. We don't know all the dangers and this kind of thing. So it took a while to kind of get to a place where we can be responsible with it. I think that might be the case with the internet here. It's exploding in such a way that it's more and more irresponsible, more and more crazy. It's something that's going to – In my opinion, there's a conspiracy theory here. Something big is going to happen where I think

some of the big things that politicians like to get behind is like pornography, child abuse, drugs. These kind of thing should be banned off our internet and we need to protect our children from this kind of stuff.

So something might rally behind there to the point where now all of a sudden the politicians are blocking the country from being able to get outside the country, because we don't want to get to Russian porn sites or something like that. So there might – Of course, then there's gambling too and buying illegal weapons or whatever.

So they're going to use those flags to really pull it back, the internet back and we'll lose like a lot of features and possibilities that we currently have and kind of take for granted, and then we'll learn how to properly have those on our internet and we'll probably come back to opening it up again and being more free and knowing what's like inappropriate or appropriate. I think it's going to take a few generations for us to get to a more settled place on the internet, but it's so fascinating to me that it's happening right in front of our eyes.

[01:00:14] JM: Jack, thanks for coming on the show. It's been really fun talking to you.

[01:00:16] JR: Yeah! This was a lot of fun. Thanks for having me.

[END OF INTERVIEW]

[01:00:22] 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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