POD OF JAKE
#96 - AMIR HALEEM
AI-GENERATED TRANSCRIPT

Jake 02:18
thank you, Amir for coming on the show and taking the time to join me today really excited for the conversation. You are the founder and CEO of helium, the People's network as they're calling it. And you guys are building a decentralized wireless network using hotspots. And over the last year in particular, you guys have been around for a while. But over the last year in particular things have just gone totally vertical. You've got like half a million of these things out there now in terms of the hotspots and the cryptocurrency that's sort of helping facilitate the network has, you know, billions of dollars in market cap. Everything's just been going crazy. So excited to talk about all of that. But first, for those who don't know you and they don't know, helium would be great to get your story from Israel, Israel, and to start to where you are today and some of the decisions you've made along the way.

Amir Haleem 03:08
Yeah, thanks. Thanks for having me. Jake's awesome to be on here. Yeah, I mean, where to where to even begin. Thank you for the intro. Helium has been on a crazy path for the last the last year or two. But yeah, we've been around for for a little while. I started the company with with Shawn Fanning from Napster in 2013. But before that, you know, I had spent most of my life in the video game world which is actually where I met Sean. I worked at a company called dice we built battlefield 1942, which was, which became like a really big video game franchise. I dabbled as a pro eSports gamer before eSports was really a thing. And you know, I spent a lot of time in the in the video game world and in that in that universe. I started in computers when I was really really early. My dad was the executive at Commodore. So I had a Commodore PET and then I had a Commodore 64 And then I had an Amiga. And you know, I've just always been in around computers started playing Doom. As early as I could remember, there being such a thing as as a dial up modem. I started playing quake zoom, which I think was the first internet games I've always been sort of connected to the Internet and computers and didn't in some form. I spend most of my college days playing quake and getting really really good at that. So yeah, I met Sean through my video game adventures. And you know, we had just been chatting about this idea of building really like a wireless network for sensors for Internet of Things devices or IoT

devices. And you know, we we had talked about it for years and finally started the company in 2013 and took a lot of different twists and turns to try and figure out how to actually accomplish Gold before we, you know, ended up ended up where we are today. Great. Well, I

Jake 05:06
appreciate that overview. And I think before we dive into helium and some of the things you're working on today, I like to hear a little bit about this eSports experience sort of early before that was really like a big thing. I understand you're actually a world champion. Can you tell us a little bit about that?

Amir Haleem 05:20
Yeah. So I went to college, I grew up in England, I went to college at the University of Manchester. And I think quake was the first TCPIP game. So the first like internet multiplayer game. And in England, at least at the time, like the only way you had a really good Internet connection was if you were in college, it was a there was a network called Janet. And it was, you know, this ultra fast 10 megabit connection thing at the time. And so it's pretty much all I did all day was I just played quake against other students that were at other colleges basically right in in the UK, and just got really, really good. absurdly good. Quick, because that's, you know, pretty much all I did all day was just was just play. And so back then, you know, there wasn't really a thing called the sports you know, there was just a bunch of people playing, playing quake. And there was a, there was a league at the time called the cyber athlete, professional league, which was the CPL. And that was like the first of the of the major leagues that I can remember, there was also one called PGL. Before it and yeah, so I just, you know, I played a ton of Quake, I got to travel the world that way, like we had sponsors like Logitech Razer, and, you know, people would ask me to sign mouse pads, and it was, you know, just wild thing thinking about it. In hindsight, this is late 90s. So this is like, 9097 9899 Yeah, and so, you know, won a decent amount of money playing video games at competitions, like competitions now are huge, and millions of people watch and stuff like that. But but back then it was like, a few 100 people in a, in a conference room in a hotel in Dallas or something, right. But it was still, it was still kind of cool. And you could sense that it was, you know, the

start of something interesting. And yeah, I'd really sort of launched my career in the video game world, like, I just met some new people that way that worked at different video game companies, or that were involved in the industry, somehow very different kind of crowd than it is today. But yeah, I, you know, I think it was the first sort of group of people in the Western world, like, pro gaming was popular in Korea already, but it wasn't really popular in the in the rest of the world. And so there was, you know, like a handful of us that were sort of doing this for a living at a time. And now it's evolved into like, this massive, massive, massive industry, but yeah, good times.

Jake 07:45
Yeah, it's pretty funny. Like, the early days, you know, you said a couple 100 people in a conference room or whatever, you're going around signing mousepads. But at the same time, like you're traveling the world, you're able to make a living playing video games. Sounds like a pretty good way to get started. I understand it also launched your early career in the gaming industry, on like, a personal level, how do you? I'm curious, like, you know, not as much experience but by any means, but certainly played by fish or video games growing up? And I don't think it's, you know, really, I think it's pretty widely accepted that, like, they're fairly addictive, maybe not in like a literal sense. I don't really know. But people who play with them, you know, tend to play a lot of video games, how did you eventually sort of, like, move on and be like, I don't want to spend all day every day playing video games anymore? Or do you still play video games, and you just managed to, somehow does this huge, huge project, you know, in parallel.

Amir Haleem 08:39
I haven't played a single video game in probably 15 years or something at this point. So I, I just, like, completely stopped. And I think for me, it was always about the competition. Like I was always been ultra competitive. Like, I was a track and field guy. And then I was a soccer player. And, you know, I like playing video games for me was not about playing video games, it was about competing with other people. And once I had sort of done that at the highest level at the time, like I had won all the tournaments and I was like the best the best in the world at it. It that was kind of it for me, like I got I

didn't know what else to do with it. Like it was like just supposed to keep playing you know, Quake or Quake three and and getting better and better at it. And some people did do that. And some people still actually play Quake three today. But for me, that was that was kind of it. Like I I had that sort of objective in mind when I started playing seriously. And then I got to it and that was you know, that was kind of the end of that journey for me, which I'm thankful for in a way because if I you know, I don't know how do you would balance all those things because it's just like massive time sink to get that good as it as it is with everything, right?

Jake 09:48
Yeah, totally. That's what I was saying. I can't imagine like the time required to get that good. You have to sort of at some point decide like, Is this the one thing I want to do or what's the other one thing I want to do? You don't really have time for a second thing with that, you know, an activity that's at that level of competition, whether it's video games or business or whatever it might be sort of have to be single minded about, I think some people maybe can do like two things, but certainly a huge time commitment. But this, this sort of sparked, it sounded like your early career, which was actually focused in the gaming industry. That's how you met your co founder. Were there any notable experiences? I mean, I think he spent about a decade working for various companies in the video games space, any big takeaways and just like paint a picture of how you, you know, you're talking about this, this concept of how do we build this, you know, ubiquitous, low power wireless network? With your eventual co founder for a few years? How did this concept even like, come onto your radar when you were focused in sort of a pretty different space for a pretty long time?

Amir Haleem 10:55
Yeah, we too, was sort of, I don't know, we had a lot of, I have a lot of friends who were entrepreneurs. Like, that seems to just be a thing, like, people who are like minded seem to like attract each other. And so we all we have this sort of like Network of Entrepreneurs, basically. And at that time, everyone seemed to be gravitating towards building things that involve hardware, usually, and even still today, right? Like most, most, like tech endeavors, at

least in Silicon Valley, or software, right. And so it was, it was kind of an unusual moment where we had like three or four different friends that were looking to start businesses or had started businesses that involved hardware. And, you know, like, one guy was building a connected like a baby monitor, kind of like a Fitbit for babies, and another guy was building this sort of people counting device to try and do sort of web like analytics, and in the real world, and, you know, so just, it was, that was sort of the impetus really was like, everyone had these aspirations of building connected products. And there wasn't really a good way of connecting any of that stuff to the internet at the time, like you had to use the cell modems that were, you know, like 200 bucks. And it was like $35 a month, and kind of expensive for the kinds of data that people are looking to collect, and also impossible to do at a small size. Or, like, if you wanted to build a bracelet for a baby, at that time, certainly, like impossible to like shoehorn that into into something that size, and you can get the battery life to work. And it's still a problem today. And, you know, so just like a whole range of problems that people had that were either cost or size or battery or something like that. And so that was kind of the driver, it was like, you know, what if we could figure out a way to, like, facilitate these applications, which are, you know, really for our friends at the time. And like, you know, how would we go about doing that, there was also a couple of other things going on, that we didn't end up pursuing. But there was there various other ideas that we thought were like, important at the time. So TV stations had just hold on to digital, and left all of this like analog frequency behind. So this FCC had required all these TV stations to look digitally. And so all of a sudden, there was all this like, radio spectrum available that you could use. And we thought that was important that they call this whitespace. We thought that was an important moment in time turned out to not be important, but it was one of the one of the things that helped us get started, it was like this is okay, this is kind of an interesting moment in time, you've got access to all this radio spectrum that you couldn't have used before. We got all these friends sort of like looking for these for a solution to problems that they have, like legitimate real problems, like maybe we should, you know, take a shot at figuring this out. And, and IoT or Internet of Things was kind of an up and coming idea, at least in the venture capital world. Which made it sort of easier to

get started, right, like people thought this sort of the next trillion dollar opportunity. And so all the timing seemed to be kind of correct. And the problem was real. And needed a solution. And that was that was kind of how we got started. And in hindsight, like I said, some of the stuff just didn't really matter, like whitespace is just not a thing that made any difference to us at all. But it was definitely a part of our decision making process.

Jake 14:08
It's interesting, because, you know, a lot of people I can venture, it's common to say, like, you know, being too early, is basically I don't know what the phrase is actually, it's like skipping online. But basically, being too early doesn't work, you know, if you have a great idea, and it's just like five or 10 years too early. It's, you know, just as good as being like a wrong idea. And you guys were, you know, maybe several years too early, maybe not even in the sense that the world wasn't ready for it, although I'm sure the passing of time without any other significant player coming in is sort of helpful as these IoT devices become more prevalent and things like that. But the crypto element that has really helped you guys, you know, in 2013 I don't even know exactly what was around at that point, but it was basically just bitcoin does like pre Aetherium and everything like that. And so it was probably Pretty hard to, you know, even conceive of the sort of thing that you guys are doing today. But after a few years, and maybe a couple of restarts, you guys sort of identified crypto as being this, this, I don't know, concept that you could implement in order to incentivize people to build this network where it otherwise was very challenging to do. So. Before we get to like that particular sort of, you know, idea that that really launched this successful period over the last year and a half or so, maybe two years or two years plus something around there. Can we talk about like, how many restarts Did you guys have to go through, starting, you know, almost a decade ago now and just sort of churning for a few years, you raise money successfully, you had the right problem identified, but just a huge number of challenges? How many like restarts were there and there and like, what were the various ideas? And how did you guys like keep the, you know, just the drive to keep pushing on this idea?

Amir Haleem 16:01

Yeah, I mean, we've tried to think at least three or four different attempts at like, you know, a way to do this, or a way to build an IoT business, basically. And, you know, the original idea was that, you know, there would be enough incentive, or there'd be enough demand for building IoT applications that the coverage would sort of get built out by the people that sort of demanded it, right. So you got some combination of businesses and enthusiasts and whatever. And you know, the range of these, these IoT devices is pretty substantial compared to something like Wi Fi. And so we thought it was feasible that you might be able to get like 100 or 200 people in a city to, you know, be be incentivized to do this and build enough of a coverage network that way. Turned out that wasn't true. Like, there's just no way to incentivize people organically or at least we didn't find the right way. And it doesn't doesn't look like anyone else has really done done a great job, although there's something you know, something like the things network is a decent example of how you could do that. Well. You know, and then we started focusing on like, Okay, what if you could build, what if the right way to do this was not to start horizontally? But to start verticals? Like, what if there were solutions for restaurants or hospitals or like specific industries that would sort of bootstrap the creation of this network, and, you know, that looks more like a business like SAMSA or something, right, where you're building actual products that are designed for a specific problem in a specific vertical that's very, like tailored to that, you know, and I think there was some traction there, but it just, you know, it was never a thing that at least for me, I was very, very interested in, you know, that was a thing that you did just to get to the end, rather than, rather than the thing that you wanted to do. And so, I personally always had a very hard time being motivated by that, by that path, even though arguably, it was probably the most correct one from a business point of view. And again, someone like Sam SAR, executed it perfectly, went public and has built a massive business on that concept. You know, and then just thinking back on, it's kind of hilarious, because in the early days, back in 2013, like we joked about putting Bitcoin mining ASICs inside the equivalent of hotspots at that time, this back in 2013, you know, one of our employees was, you know, buying eath in the ICO, I think it was 35 cents at the time, and I just was clueless about crypto, I completely ignored it, it didn't make any sense to me. I didn't spend the time to like, learn

about Bitcoin, or Aetherium, or any of those things. And so we, for me, at least, I just sort of the whole, that whole period of time just sort of blew by me without, you know, without me really paying attention to it. But we had the idea there of like, what if you could incentivize people, you know, through some mechanism like Bitcoin, we just had no clue how to actually execute it until much, much later in the in the story.

Jake 18:48
Yeah, so going back to one point you made there, I thought was interesting on like, taking the vertical approach, you mentioned, like that might have been the most correct of the alternatives that you had, but at the same time, like, you just had a hard time, sort of motivating yourself to pursue that path. Because it was, you know, just it was sort of just a means to an end, and you just want to like sort of get after the end? Did you guys actually end up like pursuing that path for a little while? Or did you sort of recognize like, this might be this might work, but like, if I'm not given this 110%, you know, it could be the best strategy in the world and nothing's gonna work. How did you handle like, I think that's just like a pretty interesting recognition of like, this might be the most correct plan. But this isn't one that I'm, like, excited about executing. So maybe we don't want to go in that direction. How did you like handle that trade off?

Amir Haleem 19:41
That's a great question. We went pretty far down that path. I mean, we had, you know, a whole suite of sensors. And, you know, if you were to search back through, like some of the old helium press, you know, around like 2014 and 2015. You know, it's really, really in that direction, right. And there was like a mobile app and a web application. like sort of designed around temperature monitoring. And that was supposed to be the sort of first of the verticals that we would, we would tackle. And I didn't I mean, I think the DNA of the company was just kind of wrong for it, you know, like, we, we started the company, and we sort of built this group of people that we're excited about the idea of building this sort of, like global scale solution, right. And, and I think when you you start that way, the kinds of people that you hire are very specific to that kind of

objective and are motivated that way and including myself, right. And, and so we were, I think, we, at least for me, like we had a hard time, having the right group of people to, like, execute against that strategy, even though it was probably the right close to the right product close to the right space, close to the right problem. You know, we weren't religious about trying to find the most painful problem that customers had, and like, figuring out how to solve it. And, you know, we just, we didn't have the, the, the right group of people who are just experts at that, and I've seen other entrepreneurs and other teams like execute against that. So I kind of know what it looks like now. And we were just miles away from from that, like, we just wanted to build the sort of protocol level stuff and like, do the interesting parts, at least for us? And so, I didn't I mean, we went quite far. I mean, we raised our series B, you know, kind of, on that idea, right? And, and it was a very weird moment in time when when I decided like, okay, that isn't gonna work like that we're not, we're not the right group of people. And I'm actually not that interested in that. And we already raised the series B. And like, we, you know, we were ready fairly far down this path when we we decided to switch. And so I mean, again, a huge lesson for me there was having the right investors and the right board, who sort of had the tolerance for that kind of kind of failure, right? Because I know in other companies and other boards, and AmEx and other investors, like that would have been an impossible, like, pivot to execute. But I think, you know, there was enough sort of belief that it, it was the right thing to do. And maybe I was convincing enough that it was the right thing to do, that we were able to, like actually make that very sharp turn, even after like, you know, doing a fairly decent funding funding round based on a different idea.

Jake 22:21
Yeah, I mean, that strikes me as a pretty bold call, and obviously a difficult one to make. And you never know with like the butterfly effect, and everything, had you not made that decision at that point in time. You may never have anything that looks anything like what helium looks like today. So it's just pretty interesting. Pivot at that point. You mentioned being sort of careful about building your board to sort of be one that is good, you know, good people, they sort of like permit you having sort of executive decision abilities and

being able to take a pivot when you feel it's right, and just betting on you and your decision making abilities and judgment and things like that. How did you actually go about building your guy's board and thinking about investors, both prior to that point, and since I know, there's a lot of, sort of brand names involved, you got coastline, I think from from the early days, USV. And, and multicoin. More recently, how do you think about like building a board and getting the right people involved for a successful project overall?

Amir Haleem 23:20
I think a lot of it was, you know, a lot of it took time, you know, if I think back to like, the most significant people involved. Yeah, and there's different schools of thought on this, right. Like some, some entrepreneurs, or some VCs will tell you to just, you know, they're talking to VCs, or like building relationships, outside of a fundraising process is a waste of time, like you should, you know, just only sort of go that direction, when you're, when you're raising a raise with purpose, I think I've been told before, and others will say, you know, building those relationships over long periods of time is, is by far the best way to get to know people. And it's not a waste of time. And even though it is a is a chunk of time that you have to dedicate, it's entirely valuable. And whether intentionally or not, I sort of went with the latter. So if I thought about the series B that was led by Google Ventures, you know, the partner there, Andy Wheeler, and I, we've been talking for years about about helium like all the way back to before we even started the business. And even in recent history of multicoin you know, I had just emailed Kyle out of nowhere, because I didn't know anything about crypto and didn't know anything about crypto VCs. And I'd come across the multicoin blog and really liked their writing about crypto and so I decided to email Kyle and again, this was back I think you needed 2016 or 2017 like way before like any actual funding took place. So to me that was important like getting to getting to know people and and arguably them to know us so they sort of understand what kind of person you are and like what motivates you and what drives you I think, is important because then people are like less surprised by by the paths that you take, right? Like I think everyone involved with helium kind of knew I understood that like, what I really wanted to do was build this like massive scale network. And that the rest of it was just kind of an annoyance

almost that that I felt like we had to just do. And so no one was really surprised by by that, right? Like, when I came out and said, like, we should go back to the original idea. And this is how we should do it this time. I don't think there wasn't a whole lot of shock or surprise about it. Because I, I think we had taken the time to, like, get to know each other, and everyone understood who, who we were to each other. And I think that, to me, was kind of an important thing, in hindsight. And I know other entrepreneurs do that very differently, where they just go through a process quickly, and they get as many term sheets as they can. And, and I'm sure that that can work well, too. And I'm not not trying to say one is better than the other that, just that for me, in that particular circumstance, it turned out to be a good thing that that we had taken the time to get to know each other because it made it made those kinds of decisions, less of a surprise.

Jake 25:54
That makes a lot of sense. I mean, it takes time to build trust, obviously. And for the investors, just the sheer, you know, degree of having known you for however much time and however well. I feel like you know, they sort of knew what they were betting on when they did and therefore when it comes time for you know, you say actually, I want to do this thing, they that's what they signed up for. Whereas if you go on like a roadshow for an individual round, and you meet people, and they sign up for one thing, and then you tell them you want to do a different thing. That's like, you know, they feel like what happened? Why rezone this other thing? There's like all these questions. And it's just like a little bit of a different situation that I'm sure to your point, like, you know, works for certain people, but definitely makes sense to be the way that you sort of went about things. So let's just go actually, before we dive into helium one, one more question on like, sort of the crypto pivot. When you mentioned like 2013 Someone talked about, you know, maybe we can have these things mining Bitcoin, but that was like sort of a, you know how to actually make that work was something that you guys didn't really think much about? Or really seriously consider at that time, you weren't really paying attention to crypto. When did you start paying attention to crypto if you can recall and why like, what was it like Bitcoin? Was it something else? curious to hear, like, the origin

story where maybe you weren't even considering it? Seriously, for helium at that point, but you just sort of identified like, Okay, this is this is an interesting thing, I start paying attention here.

Amir Haleem 27:21
We definitely had a few employees, like I said, our first employee, I think, was was big in the Etherium. Ico. And so he had figured it out pretty early on, like, he bought eath at, I think, 30 cents, or 35 cents, or something like that. And there was a handful of others that were, you know, trading random things that I had never heard of at the time, like stellar and whatever. And it wasn't until, for me at least, that it maybe was earlier than this. But for me reading the file, coin, white paper, or like an early draft of the file, coin, white paper was like a very important moment for me, because it was the first time that I'd seen a crypto project that tried to bootstrap a network by by making mining the thing that you wanted to do, right, like, so. In file coins case, you know, it's obviously a file storage network. And so they had built this mining system that relied on miners making file storage available, right. So if you could prove that you had, you know, like a petabyte of data available to, to, for people to store files, like that was a way that you participated mining. And you were in file going tokens for doing that. That was the first time I had seen that concept. Because usually before that, like everything was a, you know, wrapped up version of proof of work, right? Like even the others file storage networks like storage. Like they were just using your CEO or any of those, they were just using proof of work as the way to secure the network, but had nothing to do with what the network was for. And so that was to me, like a very important moment where I was like, Okay, well, that's really interesting. Like, what if that what if we had a version of that, right? Where where you could solve the chicken egg problem by rewarding people for doing the thing that you need? Right? So in file coins case, it was making file storage available before there was anything to store? And in our case, it was like, Well, what if you could make what if you could reward people for creating the network, so that you solve the cold start problem, right? Because there aren't going to be any devices on the network for quite a while. But no devices are going to come unless there's network coverage. Right. And so yeah, that was the, to me, that was the big deal. And maybe other

people figured it out a lot earlier than I did. I'm not that smart. But when I read that I was I was like, okay, that's awesome. And then we started brainstorming what eventually became proof of coverage, you know, an idea where you could reward people for starting but for me, it was it was really filecoin Maybe for people inside the company they had they had earlier moments of sort of Revelation, but that was it for me.

Jake 29:45
Right so I want to touch on like how this exactly solves the cold start problem like the you know, for Dummies version of why crypto solves this. But maybe before we dig into that and like proof of coverage and things like that For anyone who's been like sort of following the conversation at a high level, but still isn't really sure, like what helium is, and how Kryptos involved and, and all of that, how would you explain helium for someone who just like, you know, they're not really super crypto savvy, they might like have some Bitcoin or something, but not really super familiar. And they don't really know, the first thing about wireless networks other than the fact that like their phones connected to on and, you know, Internet of Things would presumably be using some sort of network as well. What's like the the simple, sort of most fundamental explanation of what helium is today, and maybe you can just, you know, the first generation of like this helium, we can, we can get to the 5g aspect later.

Amir Haleem 30:45
I mean, helium is really like an economic model for building wireless networks, or like, that's, that's the best way I can think of describing it. Right? It is the sort of underpinning technology that makes it possible for pretty much anyone to get involved with being a network operator, right? Like you create a network that other people can use. And you essentially, you participate in the economics of doing that, right? You earn tokens for creating the network, you earn tokens when people use your network. And that's, you know, fundamentally, what helium is all about. It was just how do you create the right economic structure for those kinds of networks to exist, the first version of helium is focused on what we call the Internet of Things, right, these these low power, typically low power sensor kind

of devices. So tracking devices, you know, wildfire, sensors, pollution monitors, like, you know, those kinds of like sensor applications that haven't really been possible before, because you never had the combination of cost, size and battery life on a traditional network that made it possible, right? Like you couldn't make a small battery powered sensor that lasted 10 years, on a cellular network, for example, right? You just wouldn't it technologically doesn't work. And so the first version of helium is that and the way people get involved in it as they buy a device called a hotspot, and a hotspot, you can think of as a combination of like a miniature cell tower, just not cellular, and a crypto minor, right. So it's a combination of, of, of two different devices that are both usually not targeted at consumers, right, which I think was one of the interesting parts about helium, was that we tried to make this thing very consumer friendly, right? Like there's a pretty looking app and use Bluetooth to set it up. And so it resembles something more like setting up a nest thermostat or an Amazon Echo or something that it does setting up like an ant miner, or something, right, like it's a much more friendly process. And basically, you stick this thing in your window. Or if you're serious, you stick it up on a roof with a big antenna. And as a result of doing that you participate in this big network. And if you can be proven to be creating the network, then you get rewarded at at&t, which is the native currency of the network. And so our version of mining is sort of different to Bitcoin, it doesn't use a lot of electricity and, or power or anything like that it uses radio waves instead. But the concept is fundamentally the same, right? Like you, you are being rewarded for creating and securing the network. sort of independently of whether anyone actually uses the network at the start, which I think is sort of the key. So that's sort of the first version, you know, there are subsequent versions of helium coming. The next one that we're focused on is cellular, you know, there'll be a 5g network and an LTE network that gets built the exact same way that I just described, the IoT network gets built. We're talking about fixed wireless applications that things like you know, gigabit broadband to the home delivered this way, Wi Fi, you know, pretty much any type of wireless network infrastructure could be built in approximately the same way.

Jake 33:50

It's very interesting. And, you know, for those who are listening and not really familiar, like this sort of solution to the cold start problem incorporating the crypto and the HMT token, rewarding system, consumer Ising the actual product and getting people to, you know, buy them then and run their own network was sort of the the thing that made everything click, and it's just been a crazy ride. It sounds like for the last couple of years since since doing that. How do you think about, you know, the solution, like you mentioned, filecoin, in part sort of inspiring this at like a generic level, not just related to, like you mentioned, you know, this is an economic model helium, like most fundamentally, is an economic model for building wireless networks. I think he said, but is there any reason why it needs to be limited to, you know, just building wireless networks is, is there a more generic thing here where you've solved the problem? You know, maybe you've solved the cold start problem more generically, or I'm using the word generic, but I mean, like, sort of more broadly and less specific to the concept of wireless networks and More generally, I think helium, to me it stands out is this project that unlike a lot of existing crypto projects, there's like a very, it's very tangible. It's getting real people to buy real products and do real things. And there just happens to be a token attached to it. Do you envision in the next, you know, several years, there'll be more use cases? Or do you think the wireless network issue was like sort of tailor fit to, to this solution in a way like that it's just not as a solution to a specific problem. And it's not going to be, you know, as widely sort of applied? As, as I'm making it sound? Maybe

Amir Haleem 35:41
not? I mean, I think it's, it's doable. I mean, I think crypto in general, or the whole sort of notion of web three, as sort of that idea, right? It's, it's the sort of joint participation of all network participants in in sort of equal relatively equal terms, right? Like, not everyone owns the same amount of tokens. But everyone participates in the same ecosystem, right? And so if the network succeeds, then every agency holder, you know, benefits from that, like, no, no one disproportionately benefits more than the other. And I think that's an important concept. I think just in all of crypto in all of web three is a notion right like this, this idea of, like, decentralizing these applications, and therefore, like spreading the ownership around, I

think, is part of why crypto has taken off, right? Like you have this whole universe of especially millennials and younger, who are sort of keen to like participate in tech investing somehow, and they can't really do that, right? Like you. You either wait until something IPOs, at which point, like, you know, VCs or insiders have already made, you know, 1,000x or 10,000x, or whatever, and you're kind of late, or you don't, right, and crypto I think was the first time that normal consumers or normal people could participate in early stage tech investing. And a lot of it went to zero, right? Like, if you think of the ICO, boom in 2017, and 2018, like, I don't know what percentage of those projects like went to zero, but it's gonna be pretty hot. Like, I can just remember some off the top of my head that seemed ridiculous at the time and never materialized. And so I think a lot of people learned a very harsh and painful lesson in that process that, you know, maybe there is some value to like some parts of the regulating this industry. But I think for most people was exciting that you got to participate really, really early in, in, in some amazing projects, like, like some that grew up over that period of time, like helium and Ilana and others. And if you haven't yet been a baby make a lot of money along the way. But I think you've got to, you know, you got to be part of something. And you got to like, be part of this big community that wants the rest of the community succeed, right, like, you want more applications on salon, or you want more hotspots in the helium network, where you want more use cases where you want new protocols. And I think that's a really exciting kind of notion. And it's a different type of community than I think we've seen before where there wasn't really enough of an economic economic motivation for, for all the participants in terms of helium, like, I think there's a lot that can be done. I mean, future wireless protocols are kind of obvious ones. You know, thinking about cellular and thinking about Wi Fi, and like some of the other stuff that is sort of, I don't wanna say blatantly obvious, but you can imagine, it's not a huge leap to, to think about going from IoT to cellular. But some other ones perhaps are a little bit less obvious. Like maybe you can use the same infrastructure of all these nodes that are distributed, distributed around as part of a decentralized CDN, or decentralized VPN, or maybe there are other uses for the hardware that people have already installed that come to fruition over time. And I think that's a really interesting notion. I mean, there's already 550,000 hotspots that have

been deployed today, and I think 3 million have been backordered. So you're gonna have like millions of devices on a big shared network. And you could leverage that in all sorts of different ways, I think in the future.

Jake 38:53
Yeah, it's gonna be really interesting to see. And I think, you know, seeing that number, just to give people some perspective, I think it took you guys and correct me if I'm wrong on any of this, I think it took you guys like two years to get your first 100,000. I don't know, I guess it's individual hotspots, not necessarily individual people, but maybe it's more or less related, but two years of the first 100,000. And then now you're growing at like 100,000 a month or something like that. I think in the last 30 days, I saw charges, like 80,000 added and now like you said, you're at a little bit over half a million in total. So just growing like incredibly rapidly. And one of the most interesting things to me was like, You guys have this live map, where you can see, you know, all of these hotspots, and it's like so global, it's like unbelievable, they're you know, I don't know how many cities there are, but I think you guys are adding like 5000 a month. It's like, I don't know got to be at least like three quarters of the countries in the world or something like that. And they're just everywhere. I mean, they're you know, it's there's more bright dots in the US than there is in like the middle of Africa, but they're really all over the place. What's it been like to sort of See this community just globally develop in like, really big numbers, you know, in a very short period of time.

Amir Haleem 40:08
I mean, no words to describe. So, I mean, it's 40,000 cities like 163 countries. It just, you know, staggering. I got, I mean, I just remember back to the early days when we had like, 10 of them or something in San Francisco, you know, we would take like, lime scooters around and try and sort of map the coverage area in San Francisco with these, like 10 hotspots or whatever. And so to imagine it now, when you've got like hundreds in cities, and you've got basically perfect network coverage everywhere in these major cities. Like, it's like, there was some stats shared on Twitter, I have no idea how accurate it is. But it's something like 25% of all US zip

codes have healing coverage, or something like that was crazy. To me. So. Yeah, I mean, it's, it's, you know, I think we we executed a lot of things well, but I think also, it's, it's just sort of an example of what can be done when the economics are fair. For everyone involved, I think people have tried to build these community based wireless networks before, like, it's not a new idea. But it was always this kind of tit for tat model, you know, where I share my Wi Fi, and I get to use yours was something like that. And that just doesn't seem like that's never been compelling to me. And I don't think it's compelling to most people. So getting getting to sort of be part of like, the economics, I think, really, really matters. And I think crypto has been the best way of of enabling that.

Jake 41:28
Right. And so we touched on it earlier. But you know, after this enormous success with sort of the original project gone for, you know, sensors and IoT devices, you guys are now I think, as of last year, focused on like sort of a phase two of Helium 5g, can you talk a little bit about like, you know, what that is how you came to identify that is like, the logical next step, where you are today, things like that.

Amir Haleem 41:53
Yeah, so that a couple, I mean, sort of reminds me a little bit of the whitespace thing that I talked about earlier, where there was this sort of unusual moment in time. And this is kind of one of those, again, where the FCC a few years ago, unlicensed, this like huge block of spectrum. And they called it CBRs, which is the citizens band radio service. It's in like the 3.5 gigahertz kind of range. And so that's like, really the first time where you have this like big block of spectrum that can be used to operate a cellular network. And then and pretty much all modern phones are already supported, right? So if you have an iPhone 11, or above, or if you have a Galaxy S 20, or above or, you know, any any of the sort of newer, more flagship phones, they all have support for CVRs built in, right, so they already have the right frequencies that they have the right antennas. So this is a huge deal, right? Because now all of a sudden, you've solved like one of the major problems that smaller companies have in terms of getting started in cellular, which is like, what free? Like, what spectrum are

you going to use, like you probably everyone knows that the spectrum auctions that happen, the spectrum gets sold for billions and billions of dollars, usually Verizon or Google, or at&t or someone, someone acquiring it. So it's just not a playing field that smaller companies can participate in, by the way, I wonder in the future, if like Dows will just start to buy spectrum, which would be awesome. But it's not, you know, not not something that we're, we're looking at right now. So CBRs sort of came along, and it like two or three years ago, and that that sort of changed a lot of things because people started thinking about like, okay, maybe there's a way now to build an open cellular network, and at least in the United States. And then alongside that, like as a result of that development, you started getting these really good open source, cellular protocol stacks, because that's the other complicated part of cellular is that the protocol is quite complicated. So things like LTE and 5g, they're like very, very intense, like serious protocols that we have massive amount of engineering required to execute properly, which is why you've got vendors like Nokia, and Ericsson and Huawei kind of just owning that space, because they're the only ones that are doing this well. And so one of them is is called magma, which has come out of Facebook, or what is now meta, I guess. And that's like an open source, you know, cellular core, basically, right, like something that you can take, and there's like a web component to it, like over a server side thing, and then kind of the rest of it runs on a device that actually looks a lot like a hotspot. And so that was that was a big deal. Right? And And the third thing was, is he sins, right? Like the fact that you can download a sim onto your phone using an app is like a completely different method of delivery for like the access to the network, right? Whereas you used to have to have a store or like at least some kind of fulfillment. This actually can all be done digitally now. Right? And so you had like this confluence of events that felt sort of suspiciously too good to be true. And then of course, crypto is booming, and helium is doing well. And so it now all of a sudden becomes possible to like instantiate wireless cellular networks the same way that we did in the IoT networks. And so, you know, we've been working with partner companies like freedom five, who are building and have built and started To ship what is basically like a cellular version of a hotspot, right? It's very similar in nature. It's like a crypto minor, and a wireless access point, except instead of being an

IoT access point, it's a cellular one instead. And so as a result of that, you know, it's feasible that you will build the biggest cellular network in the United States this way, right? Like, if you look at someone like Verizon, I think the stat is they have like 110,000 cell towers, you know, there's 550,000 helium hotspots with 3 million more coming, not inconceivable that there's going to be 234 100,000 Cellular hotspots in the United States over the next few years. And so the size of the network can be massive, or they can be three, four times the size of something like Verizon. And the cost of deploying it is obviously very, very different from the traditional model. So it's exciting. So you get to build this gigantic cellular network. And then there's going to be different modes of using it right. Like, there, there will be the kind of mode where you sell access to that network to the incumbents, like Verizon, and at&t, and you probably saw us announced this with DISH Network recently. And that's kind of like the the roaming model right where existing carrier takes advantage of the fact that there's this big network and offloads onto that network, whenever it makes sense, whenever it's cheaper, or whenever there's better signal strength or whatever. And the other is that I expect to see actual mobile network operators start to form and take advantage of this network, right, like, because if you think about sort of some of the smaller MVA knows, like Boost Mobile and mins and guys like that, it would make sense to see either some of the existing guys transition onto using something like helium because it's going to be orders of magnitude cheaper, or for new network operators to form to take advantage of the fact that there's this big coverage network that exists. So it's super exciting, because there's so many different ways that it that it can go from a from a How does it get used point of view? But again, I think you can you can use crypto to solve this, like cold star problem with like, how would you build this big cellular network, knowing that it's going to take some time to either onboard existing carriers, or for new carriers to form and take advantage of the coverage and being able to sort of cold start this way, I think is like a huge development.

Jake 47:08
Yeah, it's interesting. I mean, if I think of like, you know, some of my monthly bills, personally, I've got like, phone bill is up there Wi Fi bill is up there. It's not like crazy amounts of money, but it's

not, you know, there's like rent, there's health insurance. And there's not like a whole lot else that, you know, maybe you pay for a car or whatever. But there's certain things that people are just like accustomed to paying every month. You mentioned that it would be like orders of magnitude cheaper, potentially, does that flow like all the way to the end user, just like every person in America, potentially having a phone bill that's like $8, instead of 80? Or something like that? Or are there still costs sort of involved that make that really not how like, things would end up?

Amir Haleem 47:47
I think it's doable. It and I think a lot of it is, is as a result of like, every part of the infrastructure changing, right? Like as a result of things like E Sims, you don't need a network of physical stores anymore, right? And so you don't your cost structure for that part of it is completely different. Obviously, building the network is completely different, right? Rather than spending hundreds of billions of dollars, like deploying the infrastructure yourself, you're now sharing the cost of the infrastructure with everyone that's participating in it. And so no individual entity, like bears the cost like No, no individual entity has like $100 billion, like, you know, capex or OPEX costs governing. And so that, that I think changes everything, right, like all of those factors mean that access to a network can be orders of magnitude cheaper, right? And it will be interesting to sort of see how this plays out. But the actual sort of base cost of like, using the network, or using helium should be significantly cheaper than anything else that's out there. And the question is, like, can you build sustainable businesses on top of that, you know, on top of that network coverage, but again, like, it's so much cheaper to like, do all of this now that it just makes sense to me that that cost would ultimately get passed on to consumers, or there'll be competition within the, within the helium ecosystem, to offer, you know, competing plans in the same way that there are multiple embryos, and multiple, you know, major carriers all doing roughly the same thing. You can imagine that sort of forming just inside the helium ecosystem where different companies have different value propositions to consumers based on the same network coverage.

Jake 49:18

Right, well, look, I mean, it's been really interesting talking to you about all this and I was already sort of somewhat aware and familiar with helium, you know, probably a year ago or something like that. But really, especially in preparation for this conversation dug in and after talking with you today, just like super polish on the whole thing and on you and what you guys are doing over there. So really appreciate you coming on and taking the time to talk about it. A couple things I just want to leave the people with First of all, you know where to follow you guys and you know yourself personally or helium wherever you want to point people. And second of all, and maybe even more importantly, for people who are listening and they're just like, wow, this is like amazing. And, you know, I just want to be involved in like some Way, and maybe it's passively maybe it's more actively, but like, based on sort of the range of people's willingness to get involved, like how do you recommend people just sort of get started and, you know, get on board with helium?

Amir Haleem 50:13
Yeah, I mean, the best place to sort of get started is just helium Comm, you can see all the different options for hotspots. If you want to participate. That way you can learn how to use the network if you're trying to build sensors. following us on Twitter is always a good idea we we have at Helium, we have a huge discord community, which is the chat chat server, which is discord, GG slash helium, if you want to follow me at me or Haleem. But that's probably the best way to get to get started. We're pretty active on all of those mediums so you can actually get to interact with the team and participate in the whole process of joining the network.

Jake 50:50
Awesome. Well, thanks so much, Amir. This has been a blast and really appreciate you taking the time again excited for for people to listen.

Amir Haleem 50:58
Yeah, thank you so much for having me. It's been awesome.