Patrick Moorhead: Mike, it's great to see you, my friend. Thank you so much for speaking at this year's Six Five Summit 2022, the first year that we've had a metaverse track and what a coincidence you happen to be founder and CEO of a metaverse company. So welcome.

Michael Rubin: Well, thank you, Pat. I appreciate it. I'm excited to be here and I'm looking forward to the conversation. I'd love to help provide my perspective on the metaverse as we're pretty early on.

Patrick Moorhead: Yeah. Mike, you and I did a little bit of consumer marketing together back in the day, product management, product marketing, and marketing. The metaverse has come from relative obscurity in the last 18 months to where even my kids know what the metaverse is or they think they do. Everybody has a different definition of it, but there seems to be general recognition of it, but do you think consumers really know what it is?

Michael Rubin: You know, Pat, it's a funny question you talk about your kids. My 80-year-old mom is talking to me about the metaverse. She's sending me articles from newsfeeds, and I just have to have a chuckle. It literally is in zeitgeist now. But there was some recent research that was published by Wunderman Thompson and it's actually up as far as the percentage of people that know what it is or they think they know what it is. It's up to about 15%. So we've got a long way to go. I would say even with those that claim they know what it is, there's still a tremendous amount of confusion of what the metaverse really is. So even as it becomes lexicon in our vocabulary, we have to really break down the word to get to what a metaverse is versus what we're seeing in the early phases here. If you break down the word, it's simple. Meta means to go beyond in some connected way. Verse is really short for universe. So it's some way to interconnect a bunch of virtual worlds that we will all live in.

I would say, unfortunately today, it's a little bit more like the term I created called siloverses because nothing really is interconnected and there's really no on-ramp to get to something called the metaverse. If the metaverse is really going to be the next iteration of the internet, there really needs to be one metaverse. You and I have known each other for the past. We were there as the internet really began to emerge. The precursor to the internet, and I think you have some fond memories of and I do too, are online services. That's really the phase we're in right now for the metaverse. We're in the AOL, CompuServe, Prodigy phase. People are trying to create their own walled gardens with some of the characteristics of what a metaverse could be. Let's take the most outlandish version of that, which is Facebook renaming themselves Meta for the metaverse, but we have a long way to go and there's a lot that needs to be done for us to get to what will be the next iteration of the internet.

Patrick Moorhead: Yeah. I love those analogies by the way. I might lift the splitting of the meta and verse and give you no credit whatsoever, Mike, or maybe I will.

Michael Rubin: Sure. Pat, hey, what's new there?

Patrick Moorhead: Exactly. I'm a really good parroter, aren't I? Mike, if all this is true and open metaverse is better and there's all this history of AOL and Prodigy just not working, what do you think needs to happen to get there? Are we going to know? By the way, when we get there, are we going to know we're there? Are we close? Are we five years away? Are we 10 years away? Where are we on this map?

Michael Rubin: Well, I'd like to say we're months away, but I don't think that's reality. The great thing, Pat, is that we have a bunch of the building blocks. They're there. Really, what we're missing is the browser or the search engine. We're missing some of the glue that makes it accessible. If we think about what really needs to happen, tech stack wise, you're better at following this than I am, but we have or at least we're on a roadmap to have the CPU and GPU power that we need, the density that we need, and data centers. We have AI and computer vision for making these assets for displaying them all in real time, the bandwidth to deliver it in real time, and underneath that, the blockchain technology to allow for some of the decentralization and some of the monetary aspects that need to flow through into a metaverse.

If I look at it, there's three big buckets of things that need to be solved. Some are going to take longer than others, so I would say if we break it down, you have network latency. The speed at which you need to engage and immerse in a metaverse is two to three times faster than the fastest latency that you might have on a cloud gaming platform today. So there's some work that needs to be done there. Don't know exactly how it's going to happen or when it's going to happen, but it's going to be something around moving some of the connectivity of the internet out to the edge. That's deployment. We all know that telcos and internet providers, they move at their own pace and sometimes, they're more responsive than forward-thinking, so it's hard to know what will be the impetus to create new connection points and get to that latency level. The other's user interface. I think this might be, honestly, the longest hole in the tent here. When I say user interface, how are we going to immerse and engage? Are we going to all walk around with VR headsets?

Patrick Moorhead: God, I hope not.

Michael Rubin: Even if they're cool-looking like Ray-Bans or some other kind of Persol glasses, I just don't know that that's reality. I don't know about you, Pat, but every TV that I've owned for the last 15 years has been a 3D television. I got the glasses out once, saw it, and threw the glasses away and haven't viewed that since. Look, we're heading to a place where there's some kind of symbiosis that's going to happen, whether there's contact lenses or implants, some way for us to really bridge this immersive world that's digital and the real world. But probably the biggest piece that I've been focused on and that we're focused on at Dreamium Labs is identity. The reason why is we don't have an identity architecture. We barely have one for the internet. When we do have one, we have very little control or sovereignty over what that is and we just can't allow that to happen for there to be a metaverse.

I think there's a lot to unfold. If I had to put a timeframe on it, I think we're going to see some phases occurring in the next year or two, where things are going to provide some level of engagement that seems different than we're at, but a full, immersive metaverse is in the five to

10-year range for us to get there, for it to be pervasive and open and really be able to onboard the seven billion internet-connected users we have out there.

Patrick Moorhead: Yeah. It's interesting, Mike. My company follows primarily of the three areas that you talked about, probably the first one and the third one. I think we're seeing some good stuff in China where they've built out the mid-band 5G, which has high speed and low latency. Heck, if I want to get millimeter wave, imagine if I'm a developer and I need millimeter wave, what is my TAM like second street on in Austin, Texas? It's pretty pathetic, but I do see mid-band coming up and then we need to compute. We need the MAC, which early investments are in that right now. But China's clearly ahead in this. In China, you have to get one sign off, not 3,200 sign-offs like, let's say an Ericsson would need to get equipment in the United States.

Interface is tough. I think it's going to be multimodal. One size will not fit all. The third one, going to be really interesting. I'm glad that's what you're focused on because the walled gardens that we have on this one are immense and I don't know if I see them changing anytime soon. Mike, you also draw a distinction between the blockchain Web 3.0 identity and the metaverse identity. What do you mean with that? I thought they were the same.

Michael Rubin: Yeah. It's a very important distinction and probably, the best way to frame the distinction, I propose a very simple definition of the metaverse and it's really user benefit-oriented. The definition is the metaverse is where we will live unbounded as digital beings. If we think about that, it's a very positive phrasing of what the metaverse can be. But if we're going to be unbounded and we're going to be digital beings, a lot of that has to involve a complete redo of the user stack of whether it's blockchain where the user stack is oriented towards wallets that are yes, anonymous and private, but not necessarily authenticated or fully secure or fully intercompatible, so interoperable. When we think about the user stack even from Web 2, it's generally a centralized database that's owned by big tech.

You had mentioned it. They're in great prime position to migrate that into the metaverse, but it won't really solve some of the three characteristics when we think about identity in the metaverse. If we are going to be not a flat database, but a multidimensional digital being, it really comes down to a couple important questions. The first is what is identity and identity is not just our data. It's how we represent ourselves. What do we look like? How do we act? What are our characteristics? It's how it will be used. It will represent us, but it has to have some authenticity to it. If we think about ourselves as digital beings, it takes deep fakes and all sorts of other complexities around authenticity to a new level. We have to be able to go over wherever we want. That's where, what we want to use our digital beings or personas for in the metaverse.

The final thing is really foundational which is, who owns it? Who owns that identity? I don't know that we've ever seen a digital space where we actually own our own identity. It's a fundamental shift, but it fundamentally has to happen and the reason why the stakes are pretty large. This isn't just about us being data mind and our data is being used to prop up business models for other companies and who knows when that data's subpoenaed by authorities and all that kind of stuff. When we really think about what's going to happen in the metaverse as digital beings, the tracking level that's going to happen is going to be exponential to what it is today. We

will basically end up with digital copies of our brains somewhere. The idea that that won't be within our purview, within our self-sovereignty, it is frightening quite honestly. There's economic reasons. There's philosophical reasons, but I do believe that in order for us to really get to a metaverse, it's a foundational layer. It is literally the foundation that everything needs to be built on top of.

Patrick Moorhead: By the way, the viewers will be surprised to know that this is not the first time I have talked to somebody about uploading the contents of your brain. In fact, I won't cite the name of the chip company, but they do memory architecture for this chip company and that is a side project that this person is working on. The last time I talked to him, he told me he was 75% there. On the persona side, Mike, in real life, we have different personas. We do change between that, whether I'm dad, I'm a kid of my dad, analyst, I don't know, shell on TV, guy on CNBC. That is real life, but it seems like it might be difficult for them to manage this.

Multimodal interface is never the ability to even switch a smartphone to your work mode and consumer mode, because sometimes there's always something when you're at work and you want to get at the consumer and when you're in consumer mode, you want to hit something in the work mode, and then we just give up and say, "Screw it. Give me it all." How do you manage all these personas in the metaverse?

Michael Rubin: Well, that's a great question, Pat, and it's one that we've been thinking about pretty deeply for the last several years. It's really foundational. It's part of our tech stack and some of the intellectual property that we've built. You hit it right on the head. The reality is if we're going to live unbounded as digital beings in something called the metaverse, we have to really take a lot of the metaphors that we have in the real world. As much as we may not want to admit it, we are different people in different circumstances. An example, this is my conference persona. I don't wear this every day in my life. I barely wear anything like this. I don't always speak this way or interact this way. I have my own persona for different parts of my life.

When you think of ourselves going from place to place to place across a metaverse, we're going to have to be adaptable people as digital beings. We are going to have to not just be able to take who we are, but have it morph into where we are aesthetically, behaviorally. So this idea of being multimodal, of being multi personas, it really led us to really the breakthrough that we bring, is something we call NFT ID. It is based off of a flavor of NFT technology, but what you need to think about this as is this is like a containerized ID system. This is where you have a lockbox that only you have the keys to, where what's inside that lockbox, every way you want to look, how you want to morph, what is your digital brain, what parts of it are you bringing out, and how do you expose it to a developer who's creating these experiences in a way that it can become personalized and utilized without giving away the actual data.

That's accomplished really in very cool ways. I know you're familiar with something called the hardware abstraction layer. We've created something called a persona abstraction layer. It is this in between that allows this interoperability and allows for the advancement of you morphing into all these different personas and being able to utilize and have your skills, your knowledge, everything that you've accumulated go with you from place to place to place. The last thing we

want, Pat, I was just watching a couple of oldies but goodies. One was this movie 50 First Dates. I don't know if you remember, the Adam Sandler-

Patrick Moorhead: Sure.

Michael Rubin: ... Drew Barrymore movie, where she just wakes up every day and she's a blank slate and he's just trying his best. She's in love with this boyfriend. It was best to have her remember anything. We don't want to go from place to place to place in the metaverse and show up as a blank slate. I love to cook. If I go to your house, Pat, and I want to cook for you, I don't forget how to cook. I might have to adapt to your kitchen. We don't want the metaverse to be that where we just are a lump of clay from place to place to place. The other one was Quantum Leap, which is a little bit like our morphing where literally, I don't know if you remember that show, but-

Patrick Moorhead: Absolutely.

Michael Rubin: ... he would go from place to place to place and literally embody a person and bring his knowledge into it, but also become that person. That's a little bit of what we're talking about. Another way to think about it is we're all going to be poly. You talk about multimodal. When I say poly, I mean, polymorphs. We are going to have so many different variations and versions of us. We really need this management system. So the way that we've constructed it, it allows the user to own it, own themselves, keep it secure, and also authenticate it. So it becomes a starting point, a way that we're going to onboard and you'll have a hub. You'll have a hub and think of it like your metaverse transportation center. It's where you go to start. It's where you create your personas. It's where this locker is kept and it transports with you as you choose to go from place to place across the metaverse.

Patrick Moorhead: Mike, I feel like my brain has been expanded a few ounces at least. I guess we've known each other over 25 years, but one thing that I've always known about you is that everything that you predicted eventually came true depending on the year. Maybe that wasn't always perfect, but who can be perfect at anything? Initially, it starts off with, what is Mike talking about? I don't even understand what's coming out of his mouth to, "Hmm. Okay." This starts to make a lot of sense, but you still, in the end, blown me away. The pragmatism that comes into this is important too and appreciate the thoughtfulness that you put into this related to things like identity, privacy, security, and the new risks that come in with some of the new rewards as we come in to the metaverse.

Michael Rubin: Absolutely. Probably the most pragmatic thing that we're doing is we're making it super simple. You and I both know. We've spent a lot of time developing products for users, and if it's not simple, it doesn't work. The reason why we got to all these places on the internet and we were part of this is we presented a box where you just had to think what you want and type it in and took you there. The equivalent of that in today's world is being able to take a selfie. Our whole platform is built off one selfie, and that selfie creates all of this technology for you behind the scenes. Without that simplicity, we're just not going to get there. It doesn't matter what device it's ultimately displayed on. That's irrelevant. It's important for the user, but as far as our platform and having this identity system, it will work across any of these.

Patrick Moorhead: I love it, Mike. Hey, Mike, thanks for helping to the inaugural year of the metaverse track at the Six Five Summit, 2022 a success. I enjoyed it. This is great content. Just thank you so much for coming on.

Michael Rubin: Pat, the pleasure is all mine. Thank you. It's always great to reconnect and I appreciate it. It's been fantastic.

Patrick Moorhead: Thanks, Mike.

Michael Rubin: Thanks, Pat.