EPISODE 1325

[00:00:00] ANNOUNCER: In October 1958, physicist William Higinbotham created what is thought to be the first video game. It was a simple tennis game similar to the classic 1970s video game Pong, and it was quite a hit at the Brookhaven National Laboratory open house. 63 years have passed, and video games are prolific. The company, Pragma, provides a backend game engine that enables developers to create multiplayer and social games. Pragma offers a robust set of features to developers, enabling cross-platform accounts to connect players, creating lobbies, doing matchmaking, game allocation, and end of match processing, as well as storing, saving and updating accounts, inventory, progression and other related data. In this episode, we talk with Eden Chen, CEO and cofounder of Pragma.

[INTERVIEW]

[00:00:53] JM: Eden, welcome to the show.

[00:00:55] EC: Thanks. Thanks for having me.

[00:00:56] JM: I'm very thrilled to talk to you, because last time we spoke you told me about what you're building with pragma, which is basically the cloud for gaming systems. And I probably don't have to convince any of the listenership that it's a useful idea to have a cloud devoted to gaming infrastructure. But what I'll ask is what is Unity? So I know Unity gives you some frameworks and some systems around building games. What is Unity?

[00:01:26] EC: Yeah, we look at like Unity and some things like Unreal as like a 3D rendering engine, which is typically like if you're using the analogy of like a website, you would look at like the frontend of a game or the frontend of a website as what 3D rendering engine handles. I mean, that's a little bit more simplistic, because there's all sorts of other features like networking, and cert replication, and all sorts of things like that that Unity might touch and sort of get into. But the long short of it is that Unity and Unreal are 3D rendering engines. An artists would come in, or an animator, and they would use Unity or Unreal to help make things like physics and the actual look and feel of the game work. So they're a lot more like the look of a game when we think about – When we make a game is that they're sort of like the Pixar

component, which is like you're trying to make things look cool, and things move around, and the physics work and just the game itself. And then you have sort of like the Facebook component, which is like how do you connect players with other players and make sure that they have like social experiences.

So we look at games and how they become more and more social networks, or places that people like hang out. The sort of like networking layer or the backend side becomes more and more complex. Because, evidently, like making Facebook and hiring server and backend engineers are a very expensive endeavor. But yeah, Unity, Unreal, we would look at it more as like a 3D rendering engine that covers for like the frontend of games.

[00:03:01] JM: Why do I need a gaming cloud provider? Why can't I just use AWS, or Firebase, or Google Stadia? Why do I need a cloud provider that's custom built for this?

[00:03:12] EC: Yeah, so I think it's worth like delving into the differences between different services, because everyone sort of uses the word cloud. But there are lots of use cases for the different services that are out there. So like we actually built our service on top of AWS right now, which is that we could deploy on to different cloud providers like an AWS, or Azure, or GCP. But those provides sort of non-opinionated infrastructure for almost any use case. So you could be a game, you could be a SaaS provider, you could be running an ecommerce site. Anybody can deploy on EC2 instance, or on AWS, or on a Azure, or a GCP. So those are like very generalized products. And you've seen AWS actually like move down the abstraction layers in terms of like getting closer and closer to the actual feature sets. But the large cloud providers tend to not be great when it comes to getting very, very close to the actual feature set, because they don't have the distinct industry knowledge that someone working in the games industry might have. So I'd say like we would work in conjunction with cloud providers at a much closer abstraction layer to the games industry in terms of like actually building the features from a platform level. Then you have something like Google Stadia, where Google Stadia is, I guess, like been seen as something that's very difficult. There's something that has struggled from a technical perspective, and that has partly to do with like people view that one day, we don't have to like download games. And instead, we can sort of just like stream a game like you would stream a movie on Netflix. That's what Google Stadia's objective is. It's not really about features for developers. It's more about where the player plays. And Stadia would provide some type of

an SDK, and other people are trying to do this sort of like cloud gaming. And that's more about like where does the player play. Can I not have to download something? Can I just like log on and just like be a website, for example, or any third-party place and then not actually have to sort of download the game, which might be like 20 gigabytes, or 40 gigabytes, or 200 gigabytes. And, instead, can I just like sort of stream the game directly to my device?

And the difficulty with like cloud gaming has been that there's sort of like a packet speed that can cross through your wires. And there's only so fast that a packet can move. And the issue from a physics standpoint is that a packet can literally only move so fast. And so what game developers try to do is they try to sort of predict where a bullet will go before the bullet actually goes somewhere. And there's a lot of that prediction that needs to happen, because the physics are such that you can only move so fast. And the problem with streaming is that for someone that requires like real time gameplay or like synchronous real time gameplay, there's only so fast that something like a Stadia can actually like stream an experience to you. Whereas Netflix doesn't really have to deal with that synchronous gameplay, where when I shoot a bullet on my end, and you're playing in some like other state, you have to be able to see the same thing I see like at the exact same time. That's like a very difficult challenge. But that's a different problem than what we're trying to solve. That's sort of like where are players playing.

And then the third thing that you brought up was like Firebase, which is more of like, I would say, a generic data store. So what Firebase would give you is sort of like you can store your users in sort of columns and rows in a generic data store. What we're doing is a lot more opinionated from like we're defining inventory, achievements, progressions. So like what I would have to do if I were building a game on top of Firebase is that I would have to define and build an inventory system. I'd have to build an achievement system. I'd have to build a progression system. What we're doing is actually like moving again like closer to the actual feature set for game developers and giving people their own inventory systems and have to design that. Some of that stuff is like some of the most complicated things when it comes to making games. It's like designing inventory systems, achievement system, progression systems, and then how do all those systems connect with each other such that like, after a game session, all those things get updated.

So I guess all the things that you mentioned are a little bit different. Firebase is more of like a data store. AWS is going to provide some of those things, but they'll be more like generic cloud provider. And then Stadia is more like where to players play. How do I stream a game to a certain device? And what we're doing is like very, very close to what developers actually want, which is like how do I actually like build a video game that's social?

[00:07:54] JM: By the way, I just got rejected from signing up for Google Stadia with my softwareengineeringdaily.com domain because it's a corporate admin. So unfortunately, there're not corporate plans for Google Stadia today.

[00:08:09] EC: Yeah, I mean, they've they sort of like pulled that. I didn't know that they would reject a corporate site. But yeah, I mean, they pulled back.

[00:08:17] JM: The same is true of Google Assistant. I can't use Google Assistant from that work account, which is kind of annoying.

[00:08:24] EC: Yeah, there's been a lot of weird, interesting deprecation when it comes to like Google and former products.

[00:08:30] JM: Yeah. But here's what I love about Stadia. The ultimate vision of Stadia, I think, is they give you a console, and instead of streaming any of these games over the Internet, because basically they take the VM approach, right? Google Stadia is like they can virtualize any machine and then they stream the game over the Internet. And then you basically get a streamed like screen share, right? It's probably some web RTC screen sharing system. The problem with that is it's ultimately like a bad. It's like the worst approach. You never want to be networking that much over a real time connection. But the fact that they can do it is impressive. And what's going to be more impressive is when they give you a hardware device to keep at your home. And once you have a hardware device in your home, then they can just download the binaries. Then they download the binaries and they can do some kind of interesting streaming operations where they do a lot of this stuff locally. And then they can also use the network for stuff that's more async. But I think a console from Google would be amazing. Like the universal gaming console from Google would be so cool.

[00:09:39] EC: Yeah, that'd be interesting. I mean, I think like the world in which we're moving is that there's more like cross-play and cross-progression. It's been like something that's been a huge barrier in the games industries. It's like you sort of have like these distribution, like walls. One of them being like iOS, obviously with the Epic and Apple case, and then another one obviously being like the consoles, Xbox and PlayStation. So you have Xbox and PlayStation on the console side. You have like Steam and EGS s as sort of like these walls on the PC side. And then you have iOS and the Play Store. Obviously different distribution mechanisms have different sort of like economic taxes, and the iOS store tends to be like, obviously, like a higher tax than Steam. I mean, Steam is 30% too as well, and Xbox and PlayStation are that as well.

But another factor is that like folks like PlayStation had been sort of infamously resistant to allowing cross-play, because it's sort of like removes the distinctive factor in terms of like if they're the dominant console provider, and me as a player wants to play with my friend who has a PlayStation, if they allow cross-play, then I can like sort of like not buy a PlayStation. I can just like play on my PC. I can play on Xbox and I can still like share that same sort of experience with my friend. And if you're the dominant provider, you're just going to be like, "Well, if you want to play with your friend, you got to buy a PlayStation."

And so Fortnite really pushed against that in terms of being one of the first people to sort of break down those walls. And there's like a lot of literature out there on like the back and forth negotiations that had to occur for them to do that. But it's still in very, very early stages in the terms of like, I guess, us as players, we would think intuitively that eventually everything will be cross-play and cross-progression, meaning like it doesn't really matter what device I'm on, I could be on my phone, or Google's new console, or whatever x console, and I should be able to play with any of my friends across any device that they're on. But because it's so centralized amongst like, I guess, these like sort of walls across every single device, or whether you're on console, or PC, or mobile, it has been sort of difficult for that world to happen. We're starting to see it more. But like, I guess, people would have assumed that that would have happened many, many years ago. And so like when people are like, "Well, why is it going to work now?"

And one of the things that we help gaming developers do is some of that cross-play cross-progression stuff is very complicated from a technical standpoint, because you have different rules across different platforms. And you need a centralized database to handle all your

information across all the different devices. But it hasn't worked partly because cross-play and cross-progression haven't really been a reality even though it's been like something that everyone knows will happen. It's still just like very nascent.

[00:12:33] JM: What's your vision for the frontier of gaming? And please don't say the metaverse.

[00:12:38] EC: I was just thinking this weekend I like – I don't know how many people mentioning the metaverse on like LinkedIn and Facebook and whatever. And it's just like driving me crazy.

[00:12:50] JM: Wait. Wait. Wait. Wait. Wait. Real quick. Real quick. I will take the LinkedIn metaverse over the Facebook metaverse any day. Can you just give me any metaverse but the Facebook metaverse? Like can we just changed the channel there? Could you give me like the Slack metaverse, or like the Google Maps metaverse, or the Niantic metaverse, or the Trader Joe's metaverse, or the Instacart metaverse, or the Amazon metaverse? I'm like looking for other brands in the room that I can opt for metaversing into other than the Facebook metaverse. The Nike metaverse? Literally, give me the Johnson and Johnson metaverse over the Facebook metaverse.

[00:13:28] EC: Yeah, I was thinking like metaverse, like all the times I see the metaverse posted are like people that like don't play games at all and they're like trying to generalize games so much so that they like use this term metaverse. I feel like nobody in gaming actually uses the word metaverse. But yeah, I mean, I think the future of gaming for me is like I think like Fortnite gave us glimpses of like what games will be in the future in the sense that like, I mean, at the end of the day, gaming is just one entertainment medium. And it tends to be a more interesting entertainment medium than a lot of other ones. If you look at like why Netflix is very, very interested in gaming, it's like you have, I guess, like more like observational entertainment or like the non-participatory entertainment where I'm sitting there and I'm like watching a show. I think it's really, really interesting. I love that type of entertainment. But there's sort of like another form of entertainment, which is like participatory where you're like really engaging with your form of entertainment. And I think it brings you closer to the actual experience itself. And it's obvious when I think Netflix or read at Netflix has been saying for years that like their greatest competitor

is not, whatever, YouTube or any other like a sort of non-participatory medium, but it's like Fortnite. And I think if you look at gaming, what that needs to mean is that people are going to those experiences not to just, I guess, like go through an engaging experience, but also as a place to like do things and hang out.

So I feel like gaming is becoming a sort of medium that's almost like competing with everything. It's like competing with like your traditional entertainment forums like Netflix and movie theaters. It's becoming social networks to compete with like Facebook, and Snapchat, and LinkedIn where like people are going there to hang out with their friends. And on every level, it's a little bit more interactive than all the existing mediums. So I do think like if you look at like all these players that are starting to get interested in gaming, like Zuckerberg, and Netflix, and all these places, it's because gaming is sort of like competing at every stage. And I think like the vision for gaming, in my opinion, is like people are spending a lot more hangout time. I saw it like years and years ago, when I first had my daughter, I stopped being able to go out at night. For anyone with kids, I think they probably understand that. But I guess like I would hop on once a week with a bunch of friends and I play one night of games and we'd love and enjoy playing the actual game itself. But once a week, when we played games, we'd be doing a lot more other things. We'd be talking about business. We'd be talking about fatherhood, or we'd be just shooting the breeze and just doing whatever on there. And it'd be more of like the place to hang out.

So I think like there's still lots and lots of barriers like I was mentioning in terms of like still being able to do that across any platform. Like Discord has really like – I feel like during the pandemic, we've seen like the rise of Discord, because in terms of like a place to sort of just like hang out, like Discord like sort of extracted the social layer of gaming. But it's sort of not really – I think it extracts one component of that, but it's not every component, because you're still not actually in the experience itself. So I think there's definitely like really, really interesting places for where gaming is going in terms of like how do the social features actually tie into the game itself in terms of the interlinking of those things?

If you think of like, right now, like if I were to play with a friend on one game, anytime a new game comes out, I have to create a new friends list. The game knows nothing about me as a player. None of my achievements and my progression is related to any of the games that I play. They're all just distinct experiences. And the vision that I'm seeing, and I think it's going to take a

long time because of all these distribution barriers are that like the game knows the types of games I like to play, the types of people I like to play with. My friends lists, there's cross-achievements, cross-storefront experiences in terms of like being able to take my identity or my purchases or anything cross game. I mean, you're starting to see some of that sort of vision with crypto and NFT's and whatnot. I think it's just a buzzword. It doesn't really matter if it happens via decentralization or NFT's.

[00:18:08] JM: Sorry. What's the buzzword?

[00:18:09] EC: Or NFT's and decentralization. I mean, just a lot of people talking about crypto, especially when it comes to gaming. I think like cross-store front purchases, whether that be through a centralized medium or decentralized medium, it doesn't really matter from a practical standpoint. What matters is that there will be some interlinking of how identity can be used across different games. Or your purchases can happen across one game and be used in another game, or how your social experiences can happen from game to game the game.

So I think when people are, again, using this like metaverse term, they might be talking about whatever how a specific provider like Fortnite or like Roblox will be creating with metaverse, or Facebook, or whatever. But for me, it's less that. It's more just like how can experiences, whether that'd be social experiences, economic purchases, your achievements, those sort of incentive experiences happen across many platforms and many games.

[00:19:09] JM: So I want to understand clearly, do you think NFT's are a real thing? Or is it some crazy herd mentality?

[00:19:16] EC: I think it's a real thing. I mean, I'd say, say to me, it's too early to tell whether players are adopting it at scale. I think like you're starting to see like people that are interested in NFT's and sort of these like decentralized games, but they're solely interested in them because of the economic sort of benefits or sort of like it's almost like people are in these games because they think they can make money and get rich and things like that. So it's more for the economic reasons than it is for the gameplay or social reasons. I think that those things have to come together for it to really be interesting, because like as soon as like there's a crypto crash or something like that, then people go away and they ignore it and they forget about it. So I do

feel like there needs to be a combination of like people being interested in the gameplay, interested in social elements and interested in the economic like, I guess, experience of the game for it to really work long term.

So I do think like there is that potential, but in terms of like what does it look like for an economic purchase in a game to be used in different games. Or even inside of a game itself, like what would it look like for me to purchase a skin and for that skin to be like sold to another person or for that skin to gain value over time? The reason why I was saying is sort of like a buzzword is because I think those things can happen. And they don't necessarily need to be called NFT's. I think they can be. And I think that's like one way to go about it. But it also could be that developers are creating centralized use cases inside of a game and saying that they're going to allow for that item itself to grow in value over time there for there to be a transparent limited amount of that item created and for that item to be able to be traded amongst players. And that looked very similar to like what we're talking about with an NFT. So I don't think it really matters. But I think it's just – I think it's great. And I think it's interesting that there are like a lot of economic center decentralized games that are out there. But I don't think like it needs to be that way either.

[00:21:32] JM: All right, why hasn't a gaming cloud existed yet?

[00:21:36] EC: Yeah, I think there's like a lot of different reasons. I think like because there's so much centralization around the distribution of games. In other words, there's like no alternatives for like if you're like a game studio today and you're like launching a new game, you're most interested in making sure that you get as much reach as possible. And that really means like you have to be distributing your game on Xbox, PlayStation, iOS, Play Store, Steam, and EGSx. I mean, those are your six like – I mean, EGS is kind of still new. But effectively, like those are your distribution methods. And so those –

[00:22:13] JM: What is – What? EGS?

[00:22:14] EC: Sorry, Epic Game Store. That's like the new –

[00:22:16] JM: Epic Game Store. Don't even tell me about Epic Games. This Epic Games client on my laptop is like doing pop-up ad stuff. What's going on there, man? Like it's really this stupid client is like having this read this ribbon. This ribbon is emerging on my desktop. I'm like, "What is this? Are we back on Windows again? Like what the hell is going on here?"

[00:22:34] EC: Steam does some of that stuff. But yeah, I don't think it's –

[00:22:36] JM: But that's inexcusable. That's inexcusable.

[00:22:41] EC: Yeah, I agree.

[00:22:42] JM: It's like, "Would you like a new Fortnite costume?" Like, "What? Get away from me." Listen man, I think Magic – I think the Magic the Gathering platform distributes their game through Epic. Am I wrong about that? Magic Arena?

[00:23:00] EC: Yeah, I mean –

[00:23:01] JM: To the Epic Game store. This is just such a cluster, man.

[00:23:04] EC: Yeah. I mean, they're like obviously like buying like exclusivity periods through EGS.

[00:23:10] JM: This is the stupidest supply chain I've ever seen.

[00:23:14] EC: Yeah, I mean, it's really interesting what they did. I mean, basically like at Fortnite and all these PCs, and they turned Fortnite into an EGS launcher, which again, it like –

[00:23:21] JM: Stupidest. So dumb. It's like the Zoom strategy. It's the Zoom strategy. We're a Trojan horse.

[00:23:26] EC: Yeah, they're Trojan horsing EGS into like every Fortnite kind of user. But no, I think like – Yeah. I think, like at the end of the day, you have like these, whatever, six, or

however many distribution methods. It's really difficult to be like, "Oh, I'm going to distribute very via web or my own client."

[00:23:43] JM: Wait. Why do I need this? What am I doing here? So I go to Magic Arena, Magic the Gathering Arena, because one of my colleagues on Supercompute, Aaron told me to download Magic Arena. I had downloaded it before, but it downloaded three gigabytes of assets. So I uninstalled it because it took up too much storage space, but she insisted that I need to download it. Now here I am staring at it. And I was correct. It does route you through this Epic Game store. In order to download this game, I need to use this distribution system called the Epic Game Store. Why can't I download this? What am I doing here? Why is this? Why am I on the Epic Game Store? What the heck is this thing?

[00:24:22] EC: Yeah. I mean, it's the same thing in some ways as like other stores. I guess there's like a little bit more choice in PC, obviously. But I think like when it comes down to it, it's really difficult to build your own payment systems as a developer. And that handles some of that. And it's also like difficult to get your game out. And like what Steam has done for a long time, and what Epic is trying to do, is like create that sort of distribution client where a player would be able to go on to Steam. And Steam is sort of like this place where I can like find out about new games. I mean, this is very similar to like the App Store. Obviously, the App Store has like exclusivity on the iPhone. And that's why you would use the App Store. But I mean, it's effectively the same and they're like helping studios with distribution and with things like transactions and things like that.

Again, like a lot of this has to do with like you are a new studio trying to get a game out, and you're looking for the broadest reach possible. What are ways that you can get that reach like through partnering with other distribution channels? Sometimes those distribution channels have economic benefits. Like EGS might say like, "Oh, I'll give you X amount of dollars for like having some kind of exclusivity window so that like people download their game through EGS, and then they have the EGS client on their PC so they can like advertise a Fortnite skin on your computer or whatever."

It has to do with just like distribution and economics. And I think the sort of cloud vision of like, "Can I just play a game anywhere with anyone across any device?" is something that will

happen. And the question is like what is it going to take to get there when there are six very, very dominant distribution platforms out there?

[00:26:07] JM: I mean, I get it. Hold on. Magic the Gathering Arena. This is a game with some basic ecommerce. It's got some basic digital collectibles. It's maybe got a subscription based system. If you're talking about payment systems, I can just use Stripe. If you're talking about authentication, I could just use Google or Facebook. Why would I distribute through this Epic Game Store thing?

[00:26:33] EC: Yeah. I mean, I think there's a lot of like, I guess, complexity not just in the actual economic transaction itself. But I think this gets partly to what we're doing. It's like the difficulty in games is not necessarily just having like a bunch of, I guess, like third-parties to help me do payments and to help me do data store like Firebase. It's actually like the interlinking of all the different services. And it becomes extremely, extremely difficult. Like, for example, like going through like a full game loop, I guess. As an example, like, one, I have to like login as a player. And then I have an account. That account needs sort of player stats like wins and losses. And those wins and losses determine like how good I am as a player. How good I am as a player needs to inform the matchmaking like algorithm so that the game has fair matches. Otherwise, like you could create the best game in the world, but if the game doesn't have a fair match, then you're going to be pissed off as a player if you're like, "I'm just losing every game. Or I'm winning every game." If you're winning every game, someone else is losing those games. So matchmaking algorithm needs to be accurate.

And then at the end of the game, the platform needs informed of did you win or lose that game and then update the player account. Then you have like all sorts of things like seasonal event seasons. You have economies that are constantly changing in terms of like different types of coins, or the supply of coins. You have like skins that are constantly updated like every single day. You have daily events, weekly events, monthly events. And each of these things are like very, very complex systems. And those systems need to be working in conjunction with 20 or 30 other services. And so it just becomes like if you're making a game, you're bogged down in not just like the art and the, again, like the 3D animation, like using Unity and Unreal to create these like beautiful things. But you're starting to get bogged down. And not just like the services

themselves, like can I have a player transact on something? But like how does that sort of update and inform all the other 20 or 30 services that you're interacting with?

So that's like really what we're trying to solve, which is to say like even like something like EGS, I'd say that what they're primarily doing is they're acting as a distribution mechanism for a game. And then there's some type of economic benefit that a studio might get in terms of like distributing somewhere. And then they're handling maybe like payments just on that specific platform. But imagine you're launching on like six different platforms. You need entitlements across all six different platforms. Like if I buy something on EGS, my platform needs to inform the other five distribution platforms what was bought. And like you need authoritative database to sort of handle those things. So that becomes even more complex. Like EGS is only handling the transaction on that one particular platform, but it doesn't necessarily have that sort of authoritative database. And so things get more and more complex as you try to have sort of like this cross-play, cross-platform across like multiple channels. So there's just like many, many different complexities. It's like you're dealing not just with like one service. You're dealing with like 20 or 30 interlinked services that all need to be updated constantly and that are needing to be dynamic. And then you're needing to hail that across like five or six different distribution channels that all have different rules. And then you're also dealing with like geographical issues where like you have like countries that have different rules on the type of usernames that can be used. I mean, it gets like crazy, right?

That again is like, if you want to launch like a global game across like five or six different channels, you're really like – You're going to get bogged down in so much stuff that –Like that's why like if you look at like – It's like a Riot Games or League of Legends. You have like, 200, 300 people on like a platform team that's just like working on live service technology. And that's the same like at every single gaming publisher. If you look at like Battle Net, or Demonware, which is like Call of Duty's central tech team, these are like all 200 to 300 people teams that – These are all engineers that are just working on live services that, or like DevOps and things like that. So it's extremely, extremely expensive. And like if you're, again, like a solo developer, your 5 to 10 person shop becomes like just enormously expensive. And that's why a lot of indie developers just work on like 2D runners and things like that where there's no like networking. There's no like multiplayer, there's no live services. It's just like too complicated to make.

[00:31:15] JM: Is one way to look at Pragma, that its unbundled Epic Game Store type infrastructure or Unity infrastructure?

[00:31:28] EC: I mean, we're doing a lot more than like – Again, like EGS is like primarily the distribution mechanism. And then it handles like payments. What we're doing is more like cross platform payments, but then we're doing like all the other things that happen in like game development on the platform side too as well. So that's like accounts, achievements, progression, your inventory, your events, your game loops, which is like your lobbies, your invites, your game modes. Like if you want to do like 3v3, or 3v3v3v3, or 1v1, 1v1v like computer to that the match matchmaking algorithms to like what happens at the end of the game that updates the platform. So there's like an extremely – I guess, like EGS primarily is trying to be a store. So that's like primarily the economic side and then like how to get the game out. Whereas we're trying to provide much more like a toolset that helps people make the game like a developer toolset that helps people have the actual services that don't have to custom write their inventory and custom write like every single like service.

[00:32:31] JM: Are you trying to build real time style infrastructure? For example, can you help me run Elixir really well so I can do a really good real time gaming experience? Or is that not your business? Is it more about the authentication side and the hosting side? Do you like the networking side as well?

[00:32:50] EC: Yeah, I'd say like, right now, we're primarily interested in the platform side, which is sort of like, I guess, the components that I mentioned. There's like the – We look at the platform side as like three main components. One is sort of like account and social, which is like, again, your like login and how that ties in with like your friends, your chat, your voice chat, all that kind of stuff. It's your game services, which is effectively how you get in and out of games. It's like your lobby or your pregame experience. Your matchmaking, which gets you inside of the game. And then like what happens at the end of the game in terms of packaging everything that happened in the game and then like informing the platform what happened. And then like player data is the third big area, which is like, all the sort of like structured data sets that I talked about before. The networking layer is definitely another problem that is a large problem in and of itself. And there are a lot of people that – I think Unity and Unreal actually

have some networking solutions. And then there're a lot of other providers as well. Like Improbable is trying to deal with sort of like massive scale replication and like allowing –

[00:33:58] JM: You know what broke my heart? The whole Ubiquity6 shutdown, or didn't they sell to somebody?

[00:34:03] EC: Yeah, they sell to – Who did they sell to?

[00:34:05] JM: Niantic?

[00:34:06] EC: Yeah. Yeah. I think that's right. Yeah, Niantic.

[00:34:08] JM: That to me is a tragedy.

[00:34:10] EC: Yeah, I don't really know what happened that it raised a lot of money. And then, I don't know. Like I never even heard of like what happened. Didn't ever seem like anything was launched or anything. It just kind of like –

[00:34:20] JM: I interviewed them. They had some demos that were really cool. There were one of these companies that had really, really cool demos. And I think they probably just got stuck and they got mired in that demo status. Sort of like the other acquisition that broke my heart was Lyrebird. You remember that?

[00:34:35] EC: Yeah.

[00:34:37] JM: I mean, that should have been acquired by the CIA, I'm pretty sure. Right? Like that should not have gone to a technology company. That should have gone to the CIA. That company should have disappeared, basically. All this deep fake stuff – Every deep fakes company that gets founded should just be disappeared by the CIA or the NSA. This should just be absorbed into the CIA or NSA pretty much. Or acquired by Palantir maybe? I mean, what's the best outcome for a Lyrebird company in terms of like social health? Social global stability?

[00:35:08] EC: Yeah, I'm pretty sure like Lyrebird was primarily like – Seems like more of like an acqui-hire.

[00:35:14] JM: It was great acqui-hire technology. But that's like – I mean, it's a dangerous tool. That's a dangerous tool. The video stuff is super dangerous. What do you do with it? I'm going to ask the gaming the gaming infrastructure CEO. The prelaunch gaming infrastructure CEO, your responsibilities to determine the fate of the universe with respect to deep fakes military technology.

[00:35:39] EC: Yeah, let's do it.

[00:35:42] JM: Yeah. So what are we doing? What do you do? Seriously, politically, you've got to like a sclerotic bureaucracy in charge of regulating technology companies that they can't even understand. Like, dude, can you regulate deep fakes? Or is it just intractable? It just seemed like deep fakes are going to be a big problem, right?

[00:36:02] EC: Yeah. Yeah, I agree in terms of just ,yeah, you can like create any person and have them say whatever you want.

[00:36:08] JM: So can you can you do origin source watermarking? Like what if we have an open source watermarking system we embedded in all the cameras? Like all the cameras that Apple makes, all the cameras that Google makes, you make a watermarking system. So you watermark every photo and video? Does that make us resilient against deep fakes? Or can you deep fake the watermark too? It seems like the watermark gets all screwed up when you try to deep fake it?

[00:36:33] EC: Yeah, I mean I haven't spent a lot of time thinking about deep fakes and like camera technology. But, yeah.

[00:36:39] JM: What kind of guest are you? What kind of guest are you?

[00:36:41] EC: Haven't you ever heard the phrase roll with the punches, man?

[00:36:46] EC: Hyper, hyper focused on the –

[00:36:48] JM: Alright, when it comes to gaming, when it comes to gaming, did you ever play Earthbound?

[00:36:52] EC: No, I haven't.

[00:36:54] JM: Have you heard of it?

[00:36:54] EC: Yeah, I have.

[00:36:56] JM: Okay. Earthbound is a cool game. Do you want to make games eventually? Or just be an infrastructure company?

[00:37:02] EC: I mean, definitely, like a bunch of us are gamers obviously. We're like hyper interested in the space. I'd say like, at least right now, there's so much demand for what we're doing that it would be a distraction for us to do a game. I would lie if I said that we are not interested in it. But there's like so much we have to do on the actual like platform development side that we're right now not doing that.

[00:37:25] JM: You know, Supercompute, this company I'm building is a gaming company, right? I told you about that? I think I told you a little bit.

[00:37:29] EC: You're telling me you're working on something gaming related, but not much about what it is.

[00:37:33] JM: I think we're launching today or tomorrow. I'm a little bit on edge and excited about it. supercompute.games if you want a small preview of it.

[00:37:41] EC: I'll check it out.

[00:37:42] JM: So it's like this is why I was looking forward to talking to you, is the more I go into the space – I've always been a gamer, but I've never thought about starting a gaming

company because it always sounded just like a fantasy to me. I'm a huge fan of some of these gaming companies like Steam, or Wizards of the Coast, or like Konami. Konami made Resindent Evil, right? Or was it Capcom? No. Capcom.

[00:38:06] EC: Yeah, Capcom did that. Yeah.

[00:38:07] JM: Capcom did Resident Evil. Who did Silent Hill?

[00:38:12] EC: Let's see.

[00:38:13] JM: Silent Hill is probably my favorite video game series.

[00:38:18] EC: Oh, Konami did Silent House.

[00:38:19] JM: I think Konami is probably my spirit company.

[00:38:22] EC: Yeah. Their most famous is Metal Gear Solid, like the legendary?

[00:38:26] JM: They don't miss. These guys don't miss. They did Streetfighter, didn't they?

[00:38:29] EC: Yeah, back in the day.

[00:38:31] JM: So there's something creative about Konami.

[00:38:33] EC: I mean, again, they're they've been around forever.

[00:38:37] JM: I wonder if there's a book on Konami. Anyway, but I've been thinking about gaming –

[00:38:39] EC: Castlevania.

[00:38:40] JM: Oh, they did Castlevania too. Are you a Symphony of the Night fan?

[00:38:45] EC: Yeah. Mm-hmm.

[00:38:47] JM: Dude, I'm going to make a Symphony of the Night like multiplayer game.

[00:38:50] EC: Is that the vision of Supercompute?

[00:38:52] JM: No. That's like the vision for the fourth or the fifth game. So like the roadmap is like a Magic the Gathering style game. Second game is probably an Earthbound style game. Third game is, I don't know, maybe like a Tetris, right? Like, think Tetris is pretty accessible. Maybe fourth is Bubble Wobble. Actually, let's replace Tetris with Bubble Wobble. Did you play Bubble Wobble? Like the game?

[00:39:15] EC: Yeah.

[00:39:15] JM: Anyway, where I'm going with this is, first of all, with gaming, you could do a whole lot on React. You could do a lot in like React libraries. But beyond that, dude, the infrastructure problems in gaming are so interesting. Tell me about the ideas for infrastructure in gaming that you see.

[00:39:32] EC: Yeah. I mean, there's like a million different problems to solve. Again, like we're focused right now on the platform side, which is just like data, where stuff goes, persistence across multiple sessions. There's like networking issues, which are primarily around like latency. Like how do you get two players to play together where they can see each other at the same time and see the same thing? And there's like sort of the engine side, which just like what Unity and Unreal are dealing with, which is like what do you like see and how are objects rendered? And how do you create many objects at scale without spending millions and millions of dollars on like animating every single object? So there're a lot of like new companies trying to create like AI solutions for like how do you like create a city without like having to like custom make every single building and like custom make every single person? But then there's like different art styles, and like there's just so many different problems there that are yet to be solved.

And then there's like – I mean, there's like anti-cheat around as these systems get more sophisticated and become more multiplayer, and some of them become more economically

viable in terms of like if you're talking about like creating economies inside of games. How do you prevent like fraud and like people cheating and like making a ton of money because like these are not safe providers? That touches sort of what we're doing on the platform side. There's like toxicity. And if they're like social games, like how do you make them safe so that like a 12 year old or like eight year old or whoever doesn't like login to – I mean, Roblox is dealing with lots of different issues here. And like there're all sorts of sexual predators on Roblox right now. And for a while, like the problem is somewhat ignored and passed off to third-parties. And it's still just like a huge problem. And like all the different like safety issues with like games. I mean, there's sort of like a greenfield space of like an unlimited amount of different things that people could look into the side. And that's what makes us really interested too as well.

For us, we're living on the platform side where we're dealing with like social, identity and payments. And so like there are very interesting things around like monetization I think that we could touch. There are things around analytics, which are like how do you even like make a game viable and provide observability so that like all the things – Like you can know every single thing about your game. So there's like – Again, like for us, we're starting right now on the platform side, but there's like a lot of horizontal interests as we expand to the games industry in terms of like areas that we might be able to handle. Like fleet management, server management is another one. It sounds like a small problem, but it's huge in terms of like how does a server gets –

[00:42:15] JM: Heroku is a fleet management business.

[00:42:19] EC: Yeah. I mean, like fleet management at –

[00:42:21] JM: Hey, what do you what do you think of Knative? Have you looked at Knative?

[00:42:25] EC: No.

[00:42:26] JM: Sorry, I don't mean to interrupt you. But tell me more about work workloads and fleet management. Sorry. We can talk about Knative later.

[00:42:32] EC: Yeah. I mean, like fleet management – I mean, multiplayer right now is like one of the bigger ones that Unity owns. I mean, there's like a bunch of new ones getting spun up right now that are all dedicated to fleet management. There's like a lot of specific, I guess, like problems like game developers deal with when it comes to fleet management, which is like when you're having like millions of players searching, like what kind of logic do you use to put people in the right server? Like if you have hundreds of 1000s of people searching, what do you what do you actually do to actually like – Because there's lots of variables that need to be taken into account. Like where is the player geographically? What is the skill of the player? There are things that might be important for the game in terms of like – I'm most interested in getting people into games as fast as possible. Or I'm most interested in a fair game. So that's like something more like that needs to have an opinionated skill-based matchmaking. Or I'm most interested in like people just having a good time when it comes to like a social game.

So like you're both dealing with like time or like where is a player located? To things like the actual experience of the game itself. And that's extremely complicated at scale. So like, yeah, I think the fleet management, server management stuff, it's extremely complicated. I mean, even like working with the multiply folks, like there's just like a lot of growth in that area that I think a lot of people are working on this space. But there's still not a great way for that to happen from an automated standpoint. And it's extremely expensive too as well at scale.

[00:44:18] JM: And if you can succeed in the heterogeneity of gaming, you can build a general purpose cloud provider. True or false?

[00:44:28] EC: Yeah, I think that's true in terms of – Again, I think there are just like probably dozens of different things that are happening at the same time in games right now, just that there's, at least from a gaming perspective, I think it all starts with like what players want. And ultimately, what we know is that players want to be able to play with their friends across any platform that they're on. And it's going to take some time. But overall, like studios have to be able to respond to that. All the distribution platforms need to respond to what players want. But there's a lot of resistance from everyone in terms of technical challenges to just like in terms of, again, like you're a game developer and you have to distribute via six platforms that are all walled gardens. Like how do you do that and do it in a compliant way? Like just that in and of itself is like a huge challenge.

Yeah, I think there are unique things in games that I think like someone like in web development doesn't necessarily have to think about because they're not dealing with like six different distribution channels that are, again, like distinct in terms of their compliance and how they interact with each other.

[00:45:38] JM: What would you like the listeners to take away from this episode?

[00:45:41] EC: Yeah. I mean, I'd say like gaming I think is sort of infiltrating a lot of like the traditional spaces that we think about. Like gaming is becoming a place for people to hang out, which is like infiltration of like social media. Then you have like gaming sort of infiltrating the entertainment space, which is like, again, these like non-engaging or non-participatory sort of experiences. And I always think about like Shopify like when they first started with their product people were like, "Oh, well, no one's like going to really like build online stores. Like only like the biggest retailers in the world can do that." And our vision is that there's going to be more and more game developers because gaming is sort of starting to swallow everything in terms of like – And the definition of gaming being something more like an interactive experience where you can like participate in your entertainment or are a place where you can do something with friends.

For example, for me, when I'm on like Instagram or any other social media medium, it's more about like me observing or looking at what my friend is doing. But when I'm playing a game, I'm doing something with them. And that ultimately creates a deeper experience with that friend. So I think like there's sort of an intuitive like motion towards more interactive experiences as we spend more time online. Especially with like COVID, obviously, people are like spending more time in games. So I think like naturally speaking, there's going to be more and more game developers out there trying to create experiences. And it's not like a perfect analogy, but what Shopify did in terms of unlocking now like millions of e commerce stores, we want to do for games in terms of like us believing that there are going to be millions of people trying to create networked gaming experiences. And that still being an extremely, extremely difficult task today primarily because of the interaction between like all your different services.

So I think like the biggest takeaways are like making games is super hard. I think there was like someone that tweeted that like when Bezos took like the Blue Origin thing, it's like, "Oh, the Blue Origin launch is proof that like making rockets is easier than making games," because Amazon's failed so many times that making a good game despite spending like millions and millions of dollars there. So making games are super difficult. And at the same time, it's a space that's growing. And I think will attract many, many more developers. So like, hopefully, we can be a place that just makes that development easier. I mean, our biggest focus is going to be just like creating tools for developers so that they can easily create like online live service games.

[00:48:20] JM: Alright, last question. Do you know anything about gambling? We're going to have gambling soon. Can we unlock gambling? Gambling is like the coolest gaming mechanic that is not explored at all. And it's really a bummer to me.

[00:48:34] EC: Yeah, I mean, there's been like a lot of really like successful sort of like gambling, especially mobile games. I think like a lot of what is going on in the crypto space is around how the just sort of the intersection of economics and gaming in terms of like how do you economically speculate on something inside of a game. And I think there are both lots of really interesting opportunities and a lot of really dangerous things that can happen when it comes to like gambling and games, because of course, there's like, at scale, there're so many ways that you can create systems that addict people. Like we know that from like all the other experiences that we had with either like social media or other gambling mechanisms.

So I do think there's like a lot of really interesting things that are happening. And then like part of me is also nervous in terms of like types of things that might be created to in terms of addicting people to things that are ultimately harmful to them. So I think there's like both things that need to happen, or like we need healthy ways for these systems to engage people. And then we also –

[00:49:42] JM: So should Instagram be regulated?

[00:49:44] EC: I mean, I think there needs to be more regulation in that space. I'm not like smart enough to figure out exactly what that looks like or knowing like what kind of negative consequences come when you over regulate something. And I haven't spent enough time

thinking about it. But clearly, there's like a lot of negative impacts from social media. And there're certainly negative impacts when it comes to gambling. So when you talk about like gambling at scale and gambling with ways to create addictive sort of cycles, how do you prevent systems from sort of addicting people to gambling ultimately if you combine all those things together?

So I'll just say that I do think there are very interesting use cases. I think those are being explored more in the crypto side because the focus for crypto is like the intersection of economics and gaming. Whereas like traditional game developers are primarily interested in gameplay in terms of like how can we create the most interesting narratives or the most interesting mechanics sort of interest people in the games? Not necessarily like the intersection of how economics of those things go together. So I do think those are very, very interesting spaces. But it's still pretty early, and they're obviously some like dangerous areas too as well.

[00:50:56] JM: Alright. Well, this is a pleasure. I was in LA recently. Would've been fun to hang out, but I forgot to do that.

[00:51:03] EC: We're going to do it next time.

[00:51:04] JM: Do it next time. And with regard to investing, I will ping you.

[00:51:09] EC: Sweet, man. Sounds good.

[00:51:10] JM: Okay. Alright. Talk soon.

[00:51:12] EC: Alright, bud.

[END]