

## [Transcript] FYI - For Your Innovation / Powering the Next Generation of Games with Justin Hulog

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Hello everyone and thank you for joining for another episode of FYI. Today we are joined by a great guest, Justin Hulag, a mutable ex-chief studio officer. We're very happy to have him. I'm also joined with Franklin Downing, one of our crypto analysts and directors of research for the next generation. Internet theme, Justin, it's a pleasure to have you on. We'll jump right into it. We'd love to get your background, how you got involved in crypto, and then a brief overview of a mutable ex and your position there. Sure, and I'm super happy to be on. My name is Justin. I'm the chief studio officer at Immutable. I started actually at a company called Riot Games, which makes League of Legends and Valorant and a bunch of other games. But when I joined Riot, Riot was just Riot game. And so part of my job was to figure out how we could think about launching out more games and then turn it into actually Riot games in Southeast Asia and Taiwan, which is a pretty sizable chunk of the player base. So Riot, despite the fact that it's headquartered in LA, has a pretty sizable chunk of the player base that's based in Asia and particularly Southeast Asia and Taiwan, which were the regions that I managed. And so while I was there, I started the Singapore office and then built up the Taiwan team and the Philippines team and Vietnam. And I launched

so, let's see, TFT, Teamfight Tactics, Valorant, Legends of Runeterra, Bruin King. And the last thing that I worked on before I left was Arcane, which was the Netflix show that came up. And during that time, I spent most of my time in the region, so in Singapore and Taiwan, and then went over to LA for a year to work on the development of Wild Rift, which was the mobile version of League of Legends that was released. Wow, those are some pretty serious games and very notable. I've been covering the online gaming space for a while, so very familiar with Riot. And that's just incredible to hear. You have such deep background in the gaming space. And I'm sure that translates very well to your current position and what Immutable is doing now in the crypto Web 3 gaming space. So could you touch on a bit about your current role and what you're doing there? Yeah, so I'm the Chief Studio Officer at Immutable. Chief Studio Officer is kind of a funny title, right? It's one of those things where people are like, what exactly do you do? But essentially, there's two parts to Immutable's business. There's the platform side, which is you know, the protocol that kind of lay under which we run. And then there's the game side, which is the studio, which is the part that I run. And so my team really focuses on making and developing blockchain games. And so we have a game that's live right now called Gods Unchained that's been out for a couple of years. We're about to launch a game called Guild of Guardians, which is an ARPG, a mobile ARPG. And you know, we are also, we also have another division that partners with games that have launched on the platform side to essentially like build out

their blockchain operations. And so part of what my team has found is that, you know, especially in the past year or so, there have been a lot of people that are a lot of developers that are really interested in getting involved in blockchain. But one of the biggest problems that I think developers have is really figuring out how they can actually change their operations or kind of shift. And basically like the way that I think about it is that it's very similar to this shift from PC and console to mobile a few years ago, right? Where the first set of games that came out were ports, essentially. And you know, developers were still figuring out, so what does this new form factor mean in terms of how I can think about developing a game, how I can think about launching a game, how I can think about the experiences that I can deliver. But especially on the economy side, because I think that the economic shift in terms of the business model of video games, if you remember from so, so when I was a kid, the way that you would play a game was, you know, you'd go to a store or whatever, you'd buy, you know, you paid \$40, \$50, \$60 for a title, you'd pop it into your, you know, pick your console of choice or Nintendo, your PlayStation or whatever. And that was the main way that you made money in games. And so when the shift to mobile came in the shift of free to play came in the early days, there was a lot, there were a lot of questions about how that could be a profitable business model for game developers. And for me, and especially now, especially with the developers that we work with, we see both externally in terms of the folks that have decided to build on immutable and internally on our own games, this question of how do you create a sustainable sustainable economy? What are the tools that developers need to think about when they're building out those economies? And how do you then think about it so that developers can really focus on what they're good at, which is, you know, like frankly, similar to me, like what I'm good at is thinking through, how do you make a cool game experience, right? And how do you really kind of focus on either the story that you're telling or, you know, the core game loop, or all of the things that, you know, are central to the craft of making a game versus a lot of the technical considerations that are quite complex when choosing to get involved with the blockchain space. Okay, I do want to come back to more about gaming, but before we get there, Justin, just maybe you can give the listeners a quick overview of immutable and where it sits within the broader ecosystem of crypto. Yeah, and so I think that the best way to kind of talk about this is to think about sort of how this is really relevant for gamers and how this is really relevant for developers. So essentially, a lot of the buzz that we've been seeing right now around Web3 and NFTs in particular has been based on Ethereum, right, which is a blockchain. And it's there's, we call Ethereum like layer one, right? Layer two, though, is kind of trying to solve two key problems, which I think it's probably worth talking a little bit about the history of immutable and how immutable started. And I think most people don't know that immutable actually started as a games company. So years ago, when our founders, Robbie and James, were getting involved in the blockchain space, they actually started by building out a blockchain game, which is Gods Unchained. And they recruited Chris Clay, who is, you know, was at Wizards of the Coast, which made Magic the Gathering, to start building it out. And one of the biggest problems that Chris found was that so imagine, like, you know, this was like three or four years ago, right? And Clay, like, think about like a car gate, a collectible car gate, and how many cards you have to create, and how you have to mint in order to kind of get this out. And essentially, what Clay found was that even when gas was like two-gway or three-gway or four-gway, right,

to create all of those cards, and to figure out how to transfer them to players, and to allow players to buy all of those things. And the volume of transactions that were required in order to sort of like, operate the game properly was way, way too high, you know. So essentially, what the Layer 2 solution does in layman's terms is two things. One, it allows for you to mint and create NFTs at scale in a way that's cost efficient for both users and for developers, right? But two, and I think that this is actually really important in terms of the difference between thinking about what exactly the Layer 2s do, it inherits a lot of the security that comes inherently from Layer 1, right? And so one of the things that from a developer perspective is so scary about building unblocked games is, you know, the idea that if you make a mistake with, you know, your infrastructure,

if you make a mistake with how you're thinking about your security protocols, or if you make a mistake with your economy, the costs can be so high, right? There's stories that we've seen over the past few years in terms of different hacks that we've seen where hundreds of millions of dollars have been lost. There have been lots and lots of sort of like, and talking to a lot of the developers that I work with in this space, one of their biggest sources of anxiety in terms of getting involved is the cost of experimentation is really, really high. And I'm not sure that if I'm successful that I can scale that properly to the many, many users, right? So some of the games that I've worked on, for example, when we would think in terms of the MAUs that we would have, or the monthly active users that we would have to serve, we would think in terms of the, how do you make sure that you're able to serve a million, 10 million, 100 million people well, right? And the reality right now is that in the state of our layer one is it actually makes it really hard for all of those users to operate at scale. So what layer two is offer is really kind of two things, an answer to scale, an answer to security for developers, and also a way to do that in a relatively cost efficient way. I can definitely identify with that. Actually,

God's of Chain brought this to mind because we have a series of internal dashboards we use at Arc to track the NFT market. And we've looked at the growth of all NFTs minted on Ethereum over time. And there's actually this big spike several years ago that we have to filter out of our data because it's like an anomaly that makes the numbers look all messed up. And it's actually millions of God's on chain, Mars. It's Clay making his million NFTs, which was absolutely necessary in order to run the game. Exactly. And when you think about that scale, we're talking about millions of users compared to some of these like small early applications today, which are like tens of thousands is a big, you know, on chain gaming project today. You can quickly see why the technological

advances needed there. And I think that part of what I think is really important to think about too is that when game developers talk about making a game, and when you talk about what's super exciting about, you know, we talked about something that's ever done in the past, right, like like Valorant or League of Legends or whatever, people are not saying, Oh my God, guys, AWS has

the most secure infrastructure out there. It's going to be so dope, you know, people are not talking about how payments infrastructure is secure and sort of how to make sure that people are talking actually about the content of the game and the game loops and the fact that you can kind of, you know, seraphine as a character is coming out, right? And the champion is coming out and everyone's super excited to play her. And I think that one of the things that kind of often comes

up is that I think that these bull markets were characterized by a pretty significant speculation into the value of the entities and thinking about the entities as almost like financial instruments to a certain extent that would provide some kind of yield. Whereas in fact, the bet that we're trying to make at Immutable is that some of the patterns that you see now with gamers and in the web to space where there's, you know, millions, billions of transactions that are happening every day, but at a much smaller level for \$2 or \$3 or \$5 or \$20 that that will transfer over and become a mainstream mainstream occurrence that will then allow for the shift from one to the web three. I think that's a good segue into another thing that you talked about being really important in your job now, which is helping design in-game economies. And I think this is kind of interesting. It relates to the shift of going from \$69.99 games to free-to-play games that are monetized with in-game payments to on-chain games, which kind of take that to the next level and they allow better ownership and potentially interoperability of assets. What are the main things that you're thinking about when designing sustainable in-game economies? I can think back to, like, I used to play a lot of RuneScape in elementary school and that's an in-game economy. How are blockchain-based economies different and why is it important to get that right? So if you had asked me this question a year ago when I first started working at Immutable, I would have had a different answer. But I think that there's a couple of pieces of context that have shifted since that time and that have shifted where we are making our focus now. I think the first thing is that the first thing that sort of shifted is the context from bull to bear market, which really changes the types of transactions and business models that people are optimizing for. I think that if you looked, say, even in March or April of last year, there was this idea that, oh, all NFTs can go for these. What I thought were pretty unsustainable prices when you just translate them to pure dollar terms over the long term. And this idea of the small transactions was not as exciting, I think, to a large number of developers. But now that we're in the bear market and there's been a shift in terms of what the average price is of an NFT and that you've seen floor prices dropping across the board, there's now a bigger focus on utility, on more sustainable transactions and so I think that that's part of one thing. There's really kind of thinking about the base transaction that you're expecting to drive the sustainability of your economy and just doing a sanity check about whether or not that's reasonable. Is it reasonable that millions of people could spend \$10,000 on our NFT? Or is it reasonable to expect that they'll spend two to three dollars every month or so on something that kind of drives utility? The second thing that I think has really kind of hit home, especially given all of the recent things that have happened over the past year from things like the axi-hack, the ax to all of those different things, is that consumer trust and safety is really key, but also developer trust and safety. And developers are much more scared now to make shifts in the economy. Whereas I think that earlier because of the bull market, you saw a lot of developers who were just more willing to experiment with things that they've never done before. Now their first concern is what I'm doing safe or is what I'm doing going to bankrupt my company because I didn't really fully understand what would happen if I did a user rewards program that got hacked by a bunch of bots. And so the second thing that we are focusing on is really kind of almost creating a taxonomy of economy modules to make it easier for developers to understand. And so I'll give you a very concrete example of what that means in terms of developer safety. One of the things that I think people often think about is how you can use the tools that we have within the blockchain gaming space to drive user

acquisition. And so like a referral program where you get some tokens or get a free NFT, seems like a really kind of simple way to do that. If you were to just to say every time you refer a friend, you'll get a certain amount of tokens or NFTs, it is almost a given that that will be bodied. And that the first day like all of those things will be taken out of the system and not actually lead to more long term sustainable players. So that's like a what we call like a red light module, like one that you probably should not implement. A yellow light module might be like, okay, let's get that behind some action. Like, let's get that behind D 30. So like the player has to play X number of games over 30 days, right? If you were to do that, that's pretty, that's better than the first option. But the reality is a talented programmer can still write a bot or can still create some system in order to harvest that value and then jump out. But if you were to create a module, for example, where you were to say, basically, after every referral, you get 25% of that player's first spend, that actually falls into the category of a green light module, because even if you were to write a bot to sort of like bought that, the value that would go in would would economically not be viable for the bot or to sort of harvest value, there's not a ton to harvest, right? So those kinds of systems, I think, like, if you kind of think about that as how you think about your referral program, developers really kind of want to focus on the details of the referral program. What is the art for the landing page? Like, when are we going to make this announcement to the community? How are we thinking about the in-game event that will help to drive this referral program? So they're thinking about all those things, which are pretty complicated, right? I call it like the unicorns and diamonds problem, which like I talked to a lot of my colleagues at immutable, like, what are you thinking about? I'm like, well, I'm thinking about how many unicorns and diamonds we're going to put in this game and how to make this event cool, right? And they're like, oh, cool, you don't want to talk about some super complicated technical thing? And I'm like, no, like, I want to figure out, like, the thing that will make users excited about it is the content that's being produced, you know? And I think many developers are in this place where they are like, if I can just know which modules are safe to deploy, then I can focus on the thing that will make players want to kind of play those things over time, right? So it's kind of a long answer, but I think that that's kind of really where we're focusing internally. And then I think that the third thing is that, especially given sort of like the shifts on the market side, quality game loops and good game loops. So actually good games is something that the market wants to see now, right? Games that people want to play because the games are actually fun. I think that proof point is something that we're starting to see a little bit more of that we haven't really seen one that's emerged in a mainstream way, you know? Like, I would argue, God's Unchained has made some progress for the end. There's a bunch of other play like Eluvium that have done good strides towards that. But, you know, the whole promise of this industry is the idea that there's going to be a sea change from web two to web three. And what'll do that is a big hit, right? Something like a League of Legends, right, which really kind of helped to kind of shift the tide from like big box three to play and that kind of thing. Does that make sense? Yeah, no, absolutely. I mean, I think, you know, going back to your point about, you know, what happened in the bull market versus, you know, what we're now experiencing in this kind of NFT winter, which is, you know, people got a little frenzied over NFTs. And, you know, as this idea around web three gaming emerged, people forgot that underneath that you need to provide one



utility and, you know, you touched on this, but also you need to provide a fun experience. Otherwise, you know, once those costs come down and the value drops out and the floor price, you know, crumbles, if there's not a game behind that to support users, a game that's actually engaging and fun, you're going to have, you know, long term issues sustaining, you know, what you build. And I think it comes back, you know, and this is something we talk about a lot internally is this idea around cost versus utility. And I think what we've seen dominate the market to date is, you know, this idea of speculation and driving costs up for NFTs. So it's, you know, this quasi investment. And that's what's driving the adoption of the NFT because you're hoping that you're going to be able to sell to someone, you know, later for a higher price than you paid. But you have to have an underlying utility. Otherwise, you know, that becomes a bubble and you don't end up providing any value for those users. And so really what we're trying to internally do is track utility. Whereas the underlying utility, because at the end of the day, cost or cost associated with the end of NFT will trend towards utility. And what we see in most gaming economies, even in web two is the utility provided is, you know, variable between single digits in terms of dollar amounts to, you know, maybe a couple hundred dollars, you don't you rarely see in the web two space something selling for or any value created for a single, you know, type of item worth hundreds of thousands of dollars, let alone millions in some of the cases we see in the NFT space. So I think it's really important to track and to, you know, foster utility in gaming. And, you know, you summarize it as, you know, these games have to be fun. And that underlying utility has to be fun. Otherwise, you're just, you know, you don't have anything real to promote long term. You know, if you're building a game, this is the number one rule. It's a game. It's supposed to be fun. You have to provide utility, especially if you're going to charge users and, and, and, and, you know, directly monetize those users. I think it's, you know, something we forgot in the bull market. And now everyone is learning that hard truth. Okay, you know, when I reevaluate this NFT project, what have they built? Where is the underlying utility? Where does this go next? Can I continue to play this, even though there's no cost associated with it, or I may not make money on it? Those are the things that were forgotten and now are being relearned. As you, as you mentioned, there's two things out of that that I think are, are, are interesting as well. One thing that I think is positive that came out of the bull market is that it's sort of taught or pointed to the idea of how you could layer different kinds of, if not utility, at least value on a digital asset that could be transferred back and forth, right? So, so when you think about the use cases within a game, there's also kind of the use case as a collectible or the use case as an art piece. There's a use case in terms of, you know, having access to, you know, like cool parties, right? Like as a club membership as a sort of marker of digital identity, like all those things. And so, the learning for me coming out of that was seeing, wow, this one asset can have so many different layers to what you can do on it, which expands your creative canvas for what you're building. But I think to the second point, right, so much of the past year was kind of, I would characterize it as like, if you kind of think about the way that immutable structures is business, it's not so dissimilar from the way that like a movie company kind of thinks about it, right? Or on one side, you have like, you know, Netflix, the people that are like building the platform, and then the people that are creating and sourcing the content. And those are two very different skills, like oftentimes the people who are the, you know, like the best creative designers, right, the best game developers,

the best artists are not as interested in sort of like how to make the tool. But like, what are the experiences that they can create for the tool, you know, and what I what excites me actually about the bear market is that now instead of talking about it from a, like, what I call sort of the private equity perspective of like, which which I would characterize as being looking at analogs, right? So like, well, mobile MOBAs have a global market of X, this gate, you know, that that leads to X, Y amount of value. This game is also a mobile MOBA and they'll be able to claim 2% of the market. And so as a result, it may be successful, right? Whereas like, for a game developer's purpose, we're like, it is super cool that there is a cat in a mech suit, shooting a bunch of people out on the field. And isn't that really, really dope? You know, and like, I think that people forget that, right? Is that like, not all rom-coms are the same, not all action movies are the same. The actual specificity of the content that you're producing, the creative genius behind the person that's thinking through that and the quality and craft behind the game is actually what ends up winning in terms of the entertainment business, which is actually kind of ultimately what gaming really is. Yeah, absolutely. I mean, it has to be fun. And I really like your, you know, breakdown of the different taxonomies and, you know, that trying to curb bad actors getting involved in this space, because that's also, you know, having to, or being able to move to the next step within Web 3 Gaming, I think you have to move a lot of those bad actors and, you know, essentially just value thieves, and people that are just trying to deprive these games and economies of fun and look at it just as a way to make money in a business. And to your point, like, we have to get back to the roots of gaming, which is how do we make this fun? How do we make this a creative endeavor for people? And I think that will ultimately end up attracting a ton of developers, because to your point, right, developers aren't necessarily always interested in the business side of gaming. They just want to create something that is fun, dope, as you put it, right? Like, that's what they're looking for. So that's, you know, a great way to bring on a new cohort of developers into the Web 3 space. And what I will say about that is that, you know, what's been interesting about some of the ways that the conversation has shifted is that I think that, you know, especially at the height of the bull market, so much of how we would talk about immutable

was about, you know, sort of like the technology that underlaid sort of like talking about sort of, like, the financial benefits that could come from it, right? Whereas now a lot of it is how we talk to developers is about how we can make their lives easier, and how frankly we are eating our own dog

food in the studio, because we have a lot of people that have come from the Web 2 space, right? Like I told you guys at the beginning of this, I came to Brian, we have a lot of folks at our team that came from companies like Blizzard and companies like Bandai Namco and companies like EA. And

part of what's so interesting is that the steps to making gaming mainstream are about how you educate

a lot of the folks that are coming from Web 2 so that they can take those experiences and replicate them in Web 3. That's a big part of the shift. And that kind of is where the play to earn era of Web 3 gaming went wrong, where because digital assets like NFTs are more easily financialized, and we talk about the convergence between consumption and investing being a feature,

it's also very easy to go wrong if you don't set those dynamics up properly, where play to earn becomes click buttons to make money, and there's nothing to do with gaming involved in it. And really taking, which may sound counterintuitive, but like taking what's worked in Web 2 and using this new technology to deliver that in fun and exciting ways for customers is really what you want to do. And at the end of the day, it sounds like a fancy new buzzword, but NFTs are just like a new technology, just like my game running on AWS. Now my assets

and the ownership of those assets are stored on a blockchain. It's up to the developers to see how to creatively use that, but it should be a tool not the main feature isn't that everything in my game is an NFT. Yeah, I think that's true because you can be very selective about what you're choosing

to make an NFT versus not an NFT or even giving players the choice to turn something into an NFT. What I will say though that the play to earn era, the learning that came from me out of that, is that there are kind of two categories of players and that there's two kinds of games that you're producing. There's actually the in-game experience that you're playing in on your phone or on your PC or on your console, whatever. And then that sort of like I think about axes and breeding, even though it's been tainted a little bit now by sort of like the aftermath of play to earn, that meta game was still a game. It was still kind of fun to kind of think through how you breed axes and create them. And like to me, I think that it's useful to kind of think that what's so interesting is that there are tools that happen for the game that you're designing inside the actual experience you're creating. And you also have to think about the game outside of that experience as well around the actual entities. And as long as you can kind of think about it in terms of a holistic experience that's tied together by something, it can be compelling. It can be compelling to users. Yeah, no, that's it. That's actually a really interesting point. And the idea that you're layering gamification into this broader ecosystem at different stages, right?

Like you have, as you put it, the in-game battling of axes, but then you also have the breeding side, which in and of itself was gamified to a certain extent to kind of bootstrap and grow this population of axes that you needed to then play the game. Yeah, I never really thought about it like that. But I think that is another way of looking at how some of these economies can develop. Can you embed gamified instruments and tools beyond just the broader game itself?

Right. Beyond that actual in-game experience, that out-of-game experience can constitute a second canvas. I'm going to say canvas, particularly because I want to emphasize that in order to make it good, the developer needs to make a conscious choice about whether or not it fits into whatever creative experience they're trying to build. And I think that what's so interesting about that time is that it just pointed to the fact that you could do things outside. And I think, guys, like for me, when I thought about, you know, when I was first getting involved in the blockchain, what was interesting to me was this like ready player one vision, right? The idea that like your entities could be, you know, digital assets that could then translate to some kind of like super metaverse. And I think that oftentimes people think about that and that book and that experience has really charted a potential place where this can go, right?

But I also think what it points to is just the idea that because these assets are not just can be transferred and can be sold and moved around, it can be used across multiple games. It just opens up an entire realm of possibility that just didn't exist before, right? Like my



my League of Legends skin is very much tied to not just my League of Legends, my skin collection is quite large, right? And the, it's a weird sentence to say, but you know, I think like over time, especially if you're a gamer, and I think that this is something that's true of many, many gamers, you just end up buying a lot of things and they end up sitting in your account and like you can and like you can only use one at a time. So why are we constantly buying this? Ooh, this cool Lunar New Year skin or this cool gold, whatever, right? But you do it because it's kind of fun, right? And it's just, it's a like luxury item at the end of the day, right? It's like something that makes you happy to see that change. But the idea now that like, even when I stopped playing that game, that another developer could then take those assets and reference them and start creating new experiences with them with their own game points to an entire web of utility and value that frankly, historically was never really possible. You know, now I will say that in the current environment, many web two companies don't have a lot of incentive to really kind of think through that. But I do think that part of what's interesting about disruptive technologies is that new incumbents can be created who are more willing to kind of delve into those, those spaces in earth. Yeah, absolutely. And that actually is a good segue. We want to touch on competition here because, you know, you're at immutable, but there are other layered two solutions that are also going after the web three gaming space and also other L ones out there that are offering, you know, scalability and security. So what is the pitch that you give to developers to bring them to immutable versus, you know, some of the other competition out there? What has been the biggest draw from your point of view as to why, you know, developers are using immutable versus other L twos

or, you know, even, you know, not even, not even considering the, the Ethereum ecosystem or maybe going to a Solana or some other L one, yeah, L one. So what is that draw you think?

I think that for us and when I tell a lot of the folks that I work with and my friends about immutable is that immutable is the only solution out there that is so laser focused on the developer experience and also has developers in house to test and try those solutions. Because the truth is where we are in this space right now is that there is no, no playbook, right? There's so much like we still don't have, Hey, this is exactly how you create a super sustainable economy. This is exactly how you make a game with work. This is the playbook for how you should think about, like, you know, building out X experience or this is or whatever, right? And on top of that, there's all this other disruption that's kind of coming so, so from like AI and from the way that you think about game development from, from technologies that hasn't fully resolved yet, right? Like not saying anything is either good or bad. It's just that like, we still don't know exactly how all of that is going to play out. But what I will say is that because immutable has an, but essentially my team is the guinea pig for all of the tools. And on top of that, because we actually all come from one to pretty much, right? There's not a ton of shortcuts, like I kind of think about sort of, like how we were talking about sort of the in the pre brief, it's talking a little bit about, you know, my like relative blockchain technical acumen, right? And, and I think that what, what you have

to imagine is that that conversation between will happen a lot between our CTO and me, right, about what it is that we're building and what works. And so it forces him to bring the tools down to a level that is actually intelligible for gamers and for developers, right? So he'll be like, I have this really cool 30 page write up that I just did on a way that we could make

XYZ. I'll be like, cool. So how does that make me put like my make my crystal unicorn cooler, like tell me a little bit more about how this actually helps with X live service event, or tell me a little bit more about this helps with this card set that I'm planning to watch, or tell me a little bit more about how I can translate, you know, this new wallet that you're creating for mobile light to an experience that is better for players, right? And then that combination is actually where you're going to kind of see the growth because it's like, to make platforms work, they need content to make good content. There needs to be the ability for the content creator to understand how the tools can be used, not necessarily how they work, but how they can be used to realize whatever experience they're trying to create. You pretty much answered the question I was going to ask, which is about this approach of having both your in-house development team and bringing third party games onto the platform. And it sounds like it creates this flywheel for you, especially on the in-house side, where you can learn the product requirements and help it shape the technology and being kind of laser focused on gaming, let you do that and talk to developers much more than, you know, worth 50,000 transactions per second versus 1000 transactions per second.

Like what a what a game developer needs is so much more than that. And being kind of your own game devs, it helps guide that product roadmap.

It helps both with developing the products and sort of refining the products, but even on really simple things, like does this documentation make sense? Is the way that we've layered this website like resonating for you, right? Do you think that this tool will actually make your life easier?

Is it just something that we imagine will make your life easier, right? Because we're building our own games in-house and because we are really kind of have so many folks that are coming from the web to space with an immutable, it just means that at any point in time, the product team can just check and see like, does this actually work? And, you know, a lot of times we'll be like, yes, a lot of times we'll be like, maybe, and a lot of times we'll be like, no, I have no idea what this does. Like this doesn't make any sense. It'll be like, okay, that's really helpful feedback. Thank you. Yeah, it's interesting to think about, you know, where this is all headed.

So, you know, curious, I think in thinking back on the conversation we've just had, we've, we're, we keep ending up at this point of like, yeah, we're still so early, so we can't really give like a concrete answer on a lot of, a lot of these topics. And I think that's good, right? That shows that there's still a lot of progress. It's, you know, almost going back and Frank and I use this example all the time, like we're in this app store, you know, early app store like moment with blockchain and Web 3 where it would have been very hard to predict all of the companies and use cases that would have, you know, or did come out of the app store and mobile, right? Uber, Airbnb, all of these companies you probably never would have thought of in early 0708 when all of this was starting. And I think we're in that similar moment right now with Web 3 and gaming and blockchain and, and everything that's going on in the crypto space. But I do have to ask you this question, you know, what is your outlook? Like, where do you see this headed? You know, what is kind of your long term idea of how this all plays out? You mentioned, you know, ready player one, the metaverse, is this really where this is headed? Or is this a subset of gaming as a whole? You know, what, what are you looking at that excites you and you think is really going to come out of this long term? I think that when you strip out all of the noise around it, the core idea that players should be able to own their digital content and to do with it what they

want to do makes a lot of sense, you know, and it's good for players. Despite the fact that, like, if you go to Reddit and you read what players are saying about it, like, if you just kind of think about it for just a second, would you, is it better to own the thing that you paid for? Or is it better to kind of have it always be trapped inside one experience and never be able to transfer or move back and forth? That to me seems very clear. And part of the reason that I made the jump from Web 2 to Web 3, despite the fact that I am not a blockchain, despite the fact that I am not a Web 3 expert, is because I believe that that is a future that is inevitable at some point in time. In the same way that people had a lot of fun about whether or not people would ever do, like, banking on their phones, you know, like, at that time seemed crazy. And I remember my 74-year-old aunt was visiting me right now. And what's actually really interesting about it is that I remember when she was like, honey, I need to see a person face-to-face to do any banking transactions. And now she never goes to the bank. You just see her on her app, like, kind of doing all that stuff, right? It took longer than expected, but it happened. But in terms of the short-term outlook, I think that there's a couple of things. One, I think that the events of last year have created a space where the bear market may extend further. And the silver lining to that extension is that the people who are building are building because they really kind of need to build, not because they're looking to make a quick buck. And that's where I think you'll start to see some of the content come on. I also think that players and owners of NFTs and users are starting to get impatient to start seeing this, like, future, this Web3 future. And so what we're going to see over the next year is a couple of things. One, more quality builders and games and loops that have been delayed for the past year or whatever come out. And I think that that will be something that will be, you'll start to see more games that are really fun and who have economies, which have economies that are much more sustainable and player-friendly and not based on speculation that doesn't make a ton of sense, right? I think two, you'll start to see the beginnings of, you had mentioned that in the early days of the app store, you would never have guessed that an Airbnb or Uber would come out of it. I think you're going to start seeing some of those incumbents start to emerge and to get a sense as to where they're going to come from. And then I think that the third thing and the thing that I'm hopeful for is that you'll start to see more and more developers stop talking as much about the technology or the confusion around the technology and more around the experiences that they're able to uniquely create because of the technology, right? Immutable started because when Chris, when Clay was at Wizards and was thinking about how to create essentially digital magic for gathering, he was like, wait, a core issue is that players don't actually own these cards so they can't trade them. Like part of the fun of magic was being able to trade cards back and forth and blockchain allowed him to realize that thing that he had wanted to build for a long time. I think you'll see more and more developers who are getting into this space and understanding that, wow, some of these experiences that I've wanted to create or start to understand and really realize the creative potential of what blockchain can do. And that's when I think we'll start seeing that mainstream adoption. This is just music to our ears because when you say that,

strip out all of the craziness, strip out all of these new terms and technologies, the core use case and what makes this so interesting and so impactful long term is just this value around digital ownership and what that concept can do to these digital economies and games. I think that is the perfect way to explain to someone why this is so unique to what we've been experiencing up until blockchain. It's this ability to own digital assets. We've been living in a digitally infinite world where nothing is owned, everything is rented or borrowed. And now with blockchain, you have this ability to own digital assets. And I think that inherently changes the way and will change the way people perceive games to your point. And a lot of unique and interesting things will pop up because of it. And I think that is just, yeah, you put it perfectly from my point of view. It's just everything that you just said is exactly why people should be interested in this space and why it does have a place long term, not just in gaming, but in other areas of, I would say, the current digital landscape. This is just going to keep growing. It's going to keep taking share. As more consumers resonate and understand this idea, oh, now I actually own these digital assets. I own these digital cards. I own these digital characters. I can use, I can transfer all of this potentially. There's so many different applications and we haven't seen all of it yet play out. But to your point, those Ubers, those Airbnbs, those potential new incumbents are coming and are probably being built as we speak, potentially immutable. And it's just such an interesting time for the space, especially now that everything has had this reset moment. And as you put it, we're going to see quality over quantity, hopefully. I think that's a great marker of maybe we're coming out of this. Maybe this is starting to ramp up again when you have actors that are there, not just for the value grabs, just to truly build because they're excited about what they're building. I'm excited about it, so. Yeah. Okay. I think this is a perfect place to wrap the conversation. Justin, we really do appreciate you coming on, giving us the overview of immutable, your thoughts on the gaming space. I think we're perfectly in sync in terms of what we think of Web3 and crypto and gaming internally and in-house at Arc, which is just great to hear. It's great to know that the people that are actually developing these games that are working on these blockchains, we are thinking in the same way and we have the same outlook for the space. So very exciting times. Thank you so much. Great. Thank you for having me. Really appreciate it. Arc believes that the information presented is accurate and was obtained from sources that Arc believes to be reliable. However, Arc does not guarantee the accuracy or completeness of any information and such information may be subject to change without notice from Arc. Historical results are not indications of future results. Certain of the statements contained in this podcast may be statements of future expectations and other forward-looking statements that are based on Arc's current views and assumptions and involve known and unknown risks and uncertainties that could cause actual results, performance or events to differ materially from those expressed or implied in such statements.