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Hello everybody and welcome to the max frequency podcast. I'm your host max Roberts and joining me this time is app developer sideloader Riley testa hello Riley Hey max. Thanks for having me on here. I'm excited to talk about all this. Thank you for agreeing to come talk to me we I reached out I think in December I had thought about it I saw this Twitter thread you're like if anyone wants to talk shoot me an email and then After the holidays you've caught up with your email and we made it happen So thank you for for taking the time to sit down and talk with me today Of course, you know a good way to start the year just like get back into swing of things Just start talking about sideloading everything. It's It feels like the year to be talking about it. It's scary on everyone's everyone's mind and honestly The way I wanted to kick off here I think diving into sideloading it was I wanted to ask you what did it feel like to see your name? on Daring Fireball when Gruber wrote up about it. That was like extremely just like surreal because yeah, I've been following the Apple community, the Apple sphere since like I got my first iPhone back in like 2008. And of course Daring Fireball was like always the go to blog and he would like, he'd have insight information or just have great insights. And so yeah, when I was just reading the article he wrote about Altar App Store, alter out stories then he like references me and my Twitter thread it was truly just like a oh wow like Little me like yeah teenager Riley who just started this journey was like, oh, that's really awesome Yeah, I was able to like say something worthwhile in the first place I've well when I was reading his blog post about it because again when Gruber writes especially when he writes original pieces You're in there. You're reading it and when I saw him he Called out your Twitter thread which I had read previously. I was like, that's awesome. It's so cool to see it I mean, he says Testa wrote a concise Twitter thread. I feel like that is such a compliment from Gruber. It really was. I was just so happy with it. Exactly what I wanted. His piece about all this stuff to then just throw in the fact that, "Hey, also, Riley, who's been doing this stuff, has some thoughts." And I'm like, "That's exactly what I wanted to happen with all this." And so, yeah. I'm just extremely happy with it. Yeah, I thought that would feel pretty awesome for you. The Twitter thread in question, it came up afterward from, I think, Gurman had written a piece that day or weekend or something that was basically saying the EU is going to force Apple to allow sideloading either stores or just loading apps to the side. You as the developer of Altstore, the safest feels weird, not quite right, but you have the most official way to load apps onto your phone without jailbreaking. Yeah. Right, it's semi-blessed by Apple because you're using techniques, the tools they've provided. Exactly. Like I'm not trying to break their stuff, I'm just using their stuff in a way they probably didn't foresee happening, but it works. It does work. So, you know, you go through this thread and I think you correct me if I'm wrong, but the gist essentially is, is you're, you would prefer just plain old traditional sideloading rather than letting competitors just open up ton of stores and then fill those stores with exclusive apps using money to leverage that. Right. Yeah. That's pretty much it, which is hard to express the nuanced terms and whatever. But yeah, that was pretty much the underlying point. - I agree with that, first of all. I think the idea of stores segmenting the platform so aggressively, especially when you would have companies like Meta and Epic throwing millions of dollars in and just totally ripping it apart. - Their incentives just don't align with what makes the iPhone honestly so great for so many people. It's just how I view it. All these other app stores, like Meta or Epic, they're really just trying to

get a slice of the pie and just make more money for themselves, even though it's not better for users to now have to go to different places. And so I just think they're just approaching all this, or the people that want third-party app stores, just are approaching it from a completely different set of priorities and stuff like that. - And sometimes you see these companies advocating for their alternative app stores, or just different means, I suppose. But also these companies wanna make money. They just wanna take Apple's 30% and turn it into their 30%, or 12 or 15 or whatever it is. Epic's not really out here going to bat for the Fortnite community. They're going to bat for their platform and their business. Exactly. - Exactly. They're just, again, like yeah, they just wanna make more money, and they're big companies. And so big companies pretty much only care about that. But it's just so disconnected from what I think are the real problems with the App Store, which is app review, just like, or just the fact that app reviews all or nothing. Like I do like app review. I like that Apple curates the App Store. I think it's one of the best things about it. But I just don't like that. Then if they make a dumb mistake, like they reject an app that shouldn't be rejected, then it's impossible to get the app in any way. That's just where I'm like, okay, well, Maybe we could loosen up a bit, or for apps that actually could be allowed, like Delta, my emulator, like I understand, Apple's never gonna allow it. They're too tight with Nintendo to ever like really wanna have an official Nintendo emulator on the store, but it still should exist, I feel like. - Well, it's so crazy because our computers. - Yeah. - I can put, I have, I don't even know how many emulators I have on my computer right now to do different things or try different things out and play with software in unique ways and phones are really only called phones out of habit. Today, what a kid thinks of as a phone is not what we think of as a phone. - Yeah, for sure, yeah. These are just full personal computers that like our entire lives are now revolved around. So it's a very different world than when the iPhone first came out as well. - And even outside of emulators, Let's look at Game Pass. You mentioned them in the past, and some steps you've wrote. Game Pass, totally official. Microsoft is making these deals, offering a streaming subscription service, just like Netflix or any other video service, just for video games. And that's not allowed on the platform because Apple can't personally review every single game. Do they review every show on Netflix? - Exactly, it literally breaks down just the same as that. And it comes down to, they couldn't have done it for Netflix, but they can do it for this because it's a new paradigm. And that's also where Apple needs to cut this out. Apple needs to just chill out a little bit with all these ridiculous ways of controlling the App Store. And just, exactly, we're seeing that it can't last forever. Like they've gotten away with it, but now we're seeing new stuff come up, new technologies, and we're seeing that it's hard to actually do innovation when Apple rejects something that they just don't think matches their idea for the platform. And that's, again, those are the kind of things that annoy me the most. Back in the days when they would reject apps with widgets in the notification center and be like, oh, you can't put interactive widgets in there. That's not the experience we want. It's like, whatever. - I miss the interactive widget. It made Fantastic Cal and calculators time and times better. - Yeah, and whatever. - It's so strange, and we're so, I feel like the energy around Apple and the community this year is we're on the precipice of them opening up iOS to a degree, or iPadOS to a degree, mostly because legislation is kicking in from-- - Absolutely not because they want to. - No, they are, I think, doing almost as little as they can to comply with it, but-- - I would bet exactly on that, as they will truly do. I mean, we've seen them do it before. They've been petty with like the Netherlands dating app stuff where they allow external payments but then still require what? 27%? It's like, that's Apple. Like I'm expecting some level of that here. If they can get away with it, I would not be surprised if they just did want 30% of alternative app store purchases. They'd be like, well, whatever, you can have your other app store still give us 30%. And you know what? I can see them doing it for sure. They could. They absolutely could. Do you think they would use the system like they do on the mat with notarization or anything like that, Gatekeeper, on iOS? I can't say a word but they don't do at least some level of automated checking like that because that gives them a lot of power to reactively shut down malware and stuff like that which I think is what Apple does care about a lot. It means that if there was a cybernet app that really actually was stealing user data, Apple does have the ability to just one button stop that from working on people's

phones, if it's notarized. Because then they can just shut down whatever that approval. Or they can then, while notarizing these apps, they can maybe say, "Hey, this app actually has a malware embedded in it." And they can stop it before it ever gets distributed in the first place. And so I think that's just like a really important safety net if you're getting rid of human review. Because it just means you're going to catch anything that made it through. Right, and the remote shut down if needed later on. So the EU law, I forget the exact name of it or whatever, but they have to comply by 2024, which would indicate iOS 17. Is that what we're on? The number is getting so big now. Yeah, I know. I feel the same way. Yeah, it's iOS 17, which I've been mistakenly saying iOS 18 sometimes. But yes, CIO 17 in theory will be the one that enables this in some way, some form. So does that get announced at WWDC this summer? I think that depends on how Apple has decided to comply with the law, because I have been thinking about it a lot. And basically I think it comes down to two ways. And either Apple goes the sideloading route, where they say, "Hey, you can sideload, not going to do the whole third-party app store stuff. Or they do actually just do the third-party app store things where Meta can have a store and Amazon can have a store. And so I think whether they announce it WWDC depends on which path they choose. If I were to guess, if they chose the sideloading path where you can sideload one-off apps, I can very easily see them framing it, spinning it as like, "Oh, this is a cool new macOS feature." Now from the Finder, you can drag in an app that your friend sent you with one drag it can be installed to your phone. And then for Windows users, we've also allowed it through this way. Or I can see that spin, and they can like somewhat like get ahead of it and control that narrative. I can't see them spinning third party app stores in any way that like is positive for them. And so if that's what they're going with, I bet they would not announce anything and kind of do like a press release or something like that closer to the real release date. And so I think it's, I think it's one to control the narrative as much, and it's only if they can't control it, they try to shove it under the table. - And I guess if it was just the side loading route, that seems to have, to my mind, a more positive message directly to developers. But if it's third party app stores, who are you telling that to? You're telling it to meta, Amazon, Adobe? The customers don't care about that. It's like the disconnects there. They don't realize what that good is. They're like, "Okay, so there's another store." Versus the sideloading can be pitched like, "Hey, your friend just made an app on their iPad with SwiftUI. They don't want to put it in the App Store. Do you want to just have it? They just email it to you. Put it through Finder. It's on your phone." It's like, boom. It's easy to see them positioning it as something like that. Yeah. You could, I can see the commercial now in my mind. It's what's a computer and someone's on an iPad making the app like you said, and then they send it. There's a group message or maybe they're in free form and they drag their app in there. They're all working on an app together. - I can see them doing that because yeah, they can focus on like these one-off experiences. But it's like if they were to announce third party stores, they'd have to announce why that's good. Like they have to say something and it'd be like, now you can install Fortnite again? - Epic's grand return to the app store in the middle of their lawsuit. Like there's no way they're gonna play nice with each other on stage. - Exactly. So that's a game where I'm like, ah, and you know, if Apple realizes they have to allow third party stores, I think that's what will make them do it. If they're like, reading the law, we actually do need to allow full competitive app stores. That's I think the only world I see them actually doing that. And in that world, I don't see them promoting it whatsoever. 'Cause I see them just being like, you know what? Or they'd warn it. They'd say, hey, this is coming, but here are the warnings you need to know. Like they would present it as a bad thing, something like the opposite. - I'm just trying to picture, because you listen to, I listen to Upgrade or something, and Jason Snell talks about, let's say Meta makes their own store, which I think would be, is almost fact. If there's a store opportunity for them, they would make it. But do they just leave, like is the pull of Instagram, I guess, so strong that they could leave the App Store and force their user base, which has to be predominantly iOS, to move into this other segmented pie of installing and managing and updating apps? Instagram is big, but are they that strong? I think it really depends on the exact way Apple's gonna go about this. Because I think Meta would do that. Meta wants to do that. So I think they would do it unless it's just truly

so impactful to their business. And to that, I think this process would have to be so much worse in the App Store in a way that people wouldn't want to do it. But I definitely think they want it. And I do think Instagram has enough pull where if the barrier is low enough, they could get people to switch over to it. Because it's like anything so in-grade like Spotify as well. I think Spotify also has a strong pull to be able to get people to switch from the App Store because they're not going to lose their Spotify library or they want to. And again, why I think Epic will definitely try to get Spotify in their store on something like that. them, but that would be a music, I think definitely has a stronger pull than Instagram or something like that. Yeah. So Spotify I think is probably the number one because yeah, it's like, it, that'd be a real hard sell to, I'm losing my entire like library, my playlist and, or I could keep them as go to the Epic game store. And I think that could be enough to get people to switch for that or something like that. So what do you, you kind of, I think you detail it in the thread a little bit or it may have been in your blog post. But this sideloading process and what it could look like-- I guess it's easy to picture. I bought a Pixel 7 last year to just kind of futz around with Android and get a gauge on that ecosystem. And I tried sideloading an app because I wanted the new recorder app update or something before it was out. And I got to say, that experience was miserable. I was downloading another app from the Play Store, then downloading this app program file, I forget what the extension is over there, but then installing through the app on the phone, but there's all these warnings and complicated language and you have to make sure you get the right file with, it's a mess over there. And then the next day that after installing it at work, I turned the phone on the next day and the app doesn't work. And so it was just-- - That's like it. That's crap. - Yeah, it was an awful experience. And I chalk that up to Android mostly, but Apple's method of sideloading, whatever that may be, it can't be like that. Like that awful. But it has to be cumbersome to some degree, right? - Exactly. That's, it has to, I just, I don't see a world really where you just go to Safari, download an app, and it's installed. Like that easily. Like there's gonna be some more barriers or just things you gotta jump through on that. And I'm really split though on the security alerts because everyone suggests it and everyone says it. But man, I've seen firsthand from writing like Alt Store, people don't read, like they don't. Like literally they will not read anything you throw at them no matter how scary it looks. And so I know it sounds great in theory to say, "Hey, we've got to do the scary alerts." But if there's an app someone wants, they will just follow a tutorial and they will just say yes to very scary alerts without even processing the danger. And so that's where I'm like, I don't think that's enough. I think what you need is something that's just scary on the surface that just deters people from doing it. So one of the things I say is like using a computer. So I think that's one way just to add friction. But I also see if they didn't do that route, I'd imagine something like you reboot your phone into like a DFU mode or something like that. and then you do a terminal command or something like that level where you can still follow the process, but it's scary to non-technical people. And people don't really appreciate how valuable that is as a tool. It's what keeps AltStore really safe right now, because the only people willing to jump through all these hoops to install AltStore are people that know about all this stuff and are willing to take those risks in the first place and understand it. versus like no one's grandma's installing alt store because it's just too much to like try to get through but that I think that's good I don't think people's grandparents should be installing alt store. Well you're saying you're saying my grandmother shouldn't be playing her NES ROMs on her iPhone? I mean I would love for her to but there's a lot of stuff you do got to be aware of when you're sideloading and so if she's technologic savvy go for it. Okay. Duly nothing. That is how That's how I view it, yeah. Just, I think it should be actually scary, or intimidating, to make people think it's a process to do it. Some hoops you have to jerk through. Yeah, but I think maybe just saying yes to alerts is a little too easy, but who knows? Yeah. I, uh, when was it? I don't have the link open now at this moment, but it was in '21, in August of 2021, I reviewed Delta and kind of futzed around with it. Oh yeah, I read your review on that. Yeah, thank you. I'm glad you like it. Yes, I do The thing though with Delta and it's not your fault at all. It's the thing with alt store and just in general is this seven-day After we sign it. Oh god. Yes. It's the worst thing about this Yeah, it's a huge deterrent because I had a reminder in my phone and eventually was like I'm just I gotta let it go

but I say all that now because Before our show yesterday. I was like I need a Reinstall all store Delta dolphin see what that see if it's as easy as I remember it being and I gotta tell you man It is well, I'm glad I still had it installed on my Mac and the plug-in in mail But everything needed to be updated. I still had to go into preference. Yeah. Yeah. Yeah, and I mean three clicks later. I'm in and done but I Was at least tech savvy enough to do the initial setup back then and go through with it. Yeah. Yeah, do you think? - I think, so obviously you design the way to take advantage of Apple's own process. You've designed it to work this way with Alt Store. How do you see that compared to what Apple could potentially do? You're working within current constraints, but they could evolve that or change, do you think it should be more difficult than the way you currently, for example, have it set up? - I definitely don't think it should be more difficult. Because I do think there are certain restrictions that are just pretty ridiculous that I deal with because I don't have another choice. That being said, I think they'll be somewhat similar in a way. So the specific things I expect to change from what I'm dealing with now is the seven days going away. It's so ridiculous that your app will just expire after a week if you don't do anything about it. Like absurd. Apple did it to prevent anyone from doing something like Alt Store. So it's like, yeah, that'll go away. So once you get an app installed, it'll at least stay installed and work. And that to me, I think will be a huge thing because people can go through the process one time. It's a lot to be constantly doing the process. So I expect that to go away. Also right now you're only limited to three apps installed at a time. If you're just, if you're not a developer and that's ridiculous. So I expect you to be able to sign up more than three apps. And then another thing is you can only register 10 app IDs per week. And that's really hard to explain to my users because an app ID is just like either the app or the app extension. Like if an app has like an app and then three app extensions, you have to register four app IDs with Apple to make that work. But there's like a maximum of 10 and it's rolling over a seven day basis. And it's so confusing to explain to people. They're like, "Why can't I install this app?" And I'm like, "What? It's because you just have to wait three days." So stuff like that is just ridiculously overcomplicated and will just go away. But I think the process overall would be similar. Just the process without the long-term restrictions. Like, I think it'd be just a cumbersome thing to install, like Alt Store, may require a computer or something weird like that. And I think it'll be like definitely not as convenient as the App Store. Like it will be, it'll feel like a second class citizen to the App Store. Yeah. I think almost as it should. Yes. And I want that. I think, yeah, I'm not trying to compete with the App Store. Like I really have no interest in that whatsoever. And I don't think the bulk of people's apps on their phones would be coming from a side-loaded - Neons. My Mac is different because I've been using a Mac for, I don't know, since I was in eighth grade. Everything's been collected over time. I have no idea where anything came from. It just now exists on my computer. But my phone, I've settled into most of the stuff that I do and then if there was, or not even if, when the sideloading world becomes reality, there will be things that I do download like a Delta. I would love to see more powerful video editing or audio editing software come to the iPad. - Yes, that's a huge one, yeah. Again, stuff that's technically allowed, but Apple's just really rejecting or holding back because they're being creative about certain iOS limitations or they're using certain beneficial features, which I get in a perfect world, Apple doesn't want, but sometimes the real world, to make a production app, need to do things that maybe Apple doesn't want you to do to get like the best result and so we see to remove that like human curation element that's stopping like cool innovative stuff like this so yeah productivity apps I think will be huge compile like any programming language that's not Swift can now exist on the iPad mm-hmm Wow crazy tremendously more useful it's and And I think also the power that these devices have now, I don't even know what chip number we're on in the iPhones, A1516, whatever it is. But then the iPads now have the M2 just sitting in them. And I feel like side loading apps that take advantage of this power would not only unlock potential for users and developers, but also I would think give Apple a little bit of competition. Like tap into your iPad a bit more, put logic on here. Where's Final Cut? - It kills me, yeah, it really does. Or like a recent example, I'm gonna totally butcher the name, but the Switch Emulator Raijinx or whatever, they just ported their Switch Emulator to Mac for like the M1 Mac. - Oh, okay. - And it can run full speed. And it's using like metal and everything

natively. And then I'm sitting here like, the iPad also has an M1 chip. This means that this is technically possible, but it's not allowed in the App Store. And so no one's gonna take like the dedicated time to port it to the iPhone. And I'm like, Apple, you could have literally like switch emulation running full speed on your iPad right now, if you just like let people push the boundaries. But, oh, yes, it's very frustrating to me to see the power of the Mac, and now that the iPad has the exact same chip in it, and see how limited the iPad is. - It's, you know, Dolphin, also when the M1s came out, they ported Dolphin over to Apple Silicon, and the performance gains alone in the emulator were phenomenal. And imagine, I know there's a port of Dolphin on iOS that's not a part of the official, actually, all the stores allows you to put Dolphin on your phone, which is so much fun. - And I love it. - But, it just, yeah. There's potential here to tap in and to use Apple's own tools more effectively on the platform instead of waiting for, I don't know, like, they just put Resident Evil Village on the Mac App Store. Well, that uses the same chip. Why is Resident Evil Village not on the iPad? As weird as that would be, but why isn't it on there? You can use controllers now. - It just, exactly. And that's why also for a while, before like the EU law was passed, I thought if Apple was ever gonna allow sideloading, they would have to just do it. They'd do it for the iPad only. 'Cause I could get the arguments even like, you know what the iPhone like, still not, like it's still quote unquote a phone. But I was like, the iPad here, they're trying to make a computer. And there's just no world the iPad can compete in this, as a laptop if it's still limited by App Review. That to me is just a fundamental fact. I'm like, because it's too often you're like, "Oh, I can't do this workflow on the iPad." And it's like, that just should stop happening by now. It really should not be a thing that, I get that Apple wants to control it, but if you're trying to use an iPad for productivity, we should be allowing developers to make product, like yeah, productivity apps for the iPad to do, like address all these shortcomings of it. But until that happens, yeah, Like the App Store way will never allow the iPad to reach its full potential. I'm the midst of that. - It feels like we're on the precipice of almost a revival, maybe too strong a word, but in the development and ingenuity scene around iOS and iPadOS, once things open up, it's kind of what it feels like to me. - And that's one of the things I'm honestly the most excited for. because I don't think everyone's really realized how boring apps have become recently. I fell in love with the iPhone back when apps were new and the people were experimenting with cool new things that didn't matter, but they were fun. Like the beer drinking app where you just hold your phone up to your, like stupid stuff like that and that you ask someone, "Why do you need that?" And you'd say, "I don't, it's fine." I feel like Apple's forgotten that, how fun stupid things can be. now they've been like, "Oh, no, the App Store has to be like for all these things that like are really important or like have a business side or anything, oh, that are going to make money." And I'm like, "We just want like these quirky little apps to get that like just push the boundaries in weird ways that aren't like full-fledged like production apps. Like we don't want to have to be like, "Oh, now I'm signing up like distributing." Just like make a quick GitHub project to test out a feature, put it out, let some people install it. And then if people like it, then they know to go after it. But right now it's like you have to commit to building an app from the beginning and then hope that it has a market and then if you get rejected, whatever. Instead of just like feeling out maybe ahead of time, "Oh, there actually is a market for this app. Now I will invest time into it and making like a real App Store app." Yeah, I think that actually leads pretty perfectly into your own app, your Delta. But before Or if we jump to Delta, I have to, I feel obligated to, I should say, bring up the documentation for AltStore. My day job is a technical writer, so I write manuals and this type of stuff. I love it. I didn't even, I was clicking around altstore.io and just seeing how you do things, and honestly I used it to refresh myself to make sure I was installing Delta correctly on my phone. And I just have to tap, not tap, to pat both of you on the back. I think your documentation is beautiful. It's clear. It's super helpful. Thank you. That honestly means a lot because when I brought Shane on board like last year to help me out with like managing all this, that was one of the first things we had to get to work on. I was like, there's honestly a lack of like core information for new people on like how to get set up without store and how to use all this stuff. Because like a year ago, there was nothing on the website. The website FAQ was really like a basic question and answers, but like I was relying really on like

organic like tutorials being made by other people. But so then when Shane came on board, it was like his one of his like first priorities, like we need to build up this documentation. We didn't make it easy for people to answer their own questions so that we don't be answering all the questions and just let them like solve questions themselves. So I'm really glad that you approve, especially with your background, because yeah a lot of work when you do it. - I do, I think they look great. The screenshots are super clean and clear. It's the steps are awesome. You've got videos embedded where it makes sense. It's, I like it a lot. I remember the first time I installed Delta, really I think the first app I installed was Dolphin in an even, I think an older method, but Snazzy Labs, Quinn Nelson, he's made a few videos and I've used him. Yeah, I love him. I love this dolphin video. That was great. Yeah, I remember putting Paper Mario at the Thousand-Year Door on my iPhone and feeling like I was committing witchcraft to some degree. Like this, you know, forbidden method of playing. But I mean, you've got a section with error codes and nice little icons. I love that. Error code. Like that's been truly our past endeavor for the past six months. But like, Okay, we need to really revamp a lot of our error handling because there is a lot of, again, like, information being dropped, like an alt store shows that little alert. Like if something goes wrong, it's a tiny little alert. But that's not enough information to show a lot. And so we're like, hold on, we need to put a lot more information out there. And so the past six months, we've literally been revamping error handling to make it easier for people to look up error codes they're seeing and all this stuff. And so yeah, another huge thing that's not a priority when you launch, But it's like one of those things you need to build out as you're evolving the platform. Yeah. I'm glad it's working. Yeah. Well, great job. Love the documentation. Big fan. Really appreciate that. I get one more thing, I guess, before we go to Delta. Just in this world where Apple allows sideloading, what happens to AltStore? So good question because one is we have to wait and see exactly. But what I would love for Alt Store to be, like my perfect world is I would want to position Alt Store as whatever Apple makes the process for sideloading be. I want Alt Store to be like maybe a convenience on top of that or a way to discover all these third party apps or as an easy way for indie devs to put out their apps. I really just want to establish Alt Store as the niche for apps that aren't either ready for the App Store or aren't allowed in the App Store. And so I think there can be a strong market there that can coexist with the App Store. And so that's really what I want. Basically, also, I want Alt Store Day without the stupid restrictions. I would be very happy. Yeah, that would, I think that would be ideal. It's like a curated space for new cool apps. Yeah. Like you say, quirky, fun, like things that you haven't seen before because it's gotten stale. just become so overpopulated with apps and stuff. It's just not a fun playground for new ideas anymore. And so I think a smaller market will actually just be more fun for that. Similar in a way to like Mastodon compared to Twitter now, like obviously Twitter is way bigger, but Mastodon, all these developers making Mastodon clients and the developer ecosystem is really just like big on Mastodon. And I think that's a huge reason Mastodon could be a success is because it can be smaller, but have dedicated users to make the space separate from Twitter. - Mm-hmm, I like it. It sounds good over there. It's exciting. Looking forward to this year with Apple. - Yeah, this year will be a lot. - This year's gonna be a ton actually, holy smokes. When you start thinking about what's supposed to happen this year, The Mac Pro should theoretically finally make the jump to Apple Silicon. There's USB-C on the iPhone possibly, all the sideloading. Phenomenal. And then this headset, whatever the headset will be. The headset, god I know. That's also just like so much of the Apple sphere talking about right now. I'm also incredibly excited for it. Yes, I'm a big... I've been excited for it for years, even though I was originally definitely on board for the Apple glasses and a little more skeptical on the headset VR side, but we'll see. - I've been a proponent of VR ever since I tried. I was like walking between classes one day at UCF and they have like a Vive set up in the middle of this engineering building, so I tried it out. I've just been a huge fan of VR since. Not in the Zuckerberg metaverse sense of spend all day, more the get in here and play and have fun or do unique things. similar to the tangent of if you're into it something you'll go through whatever steps it takes to make it happen. I remember when Nintendo released the Labo Patch for Breath of the Wild you can play Breath of the Wild in stereoscopic 3D But you gotta have this tablet strapped to your face

But some people figured out how to take the original PSVR and it's just mishmash of cables and plug it into a switch dock but also plug it into a ps4 oh wait whoa yes it's basically splitting the cable at the end a little further and like dock because the PlayStation has the power of the processor thing but it's just an HDMI am long story short I'm like laying on the floor in my apartment trying to stay close to where all this stuff's plugged in all nicely to make Zelda on my face work. And it does. And that's just so VR, I'm excited to see what they do. Oh, that's really cool that that worked out. That's and I think that's true. Because I do think VR has potential for sure. And the only thing that I can just think is, I trust Apple, I still trust Apple, that they're only going into the space, if it makes sense. And And so I think I'm similar to like a feeling like Gruber wrote his article about like the heads or he's written some piece about the headset. And it's like, a lot of these rumors make it sound weird. But I don't think Apple would release a weird product. So there's either something like the rumors aren't like fully grasping, or it's like we're missing the full picture because I feel the same way. I'm like, like the external battery pack. I'm like, "Mmm, oh, f- off." An external battery pack for this thing, that seems a little rough. But who knows, maybe it's an optional thing, or maybe it's like, it just truly, the experience makes up for it, but I don't know. It is kinda weird. - I see both sides to the battery thing. Obviously, it's just visually not as appealing, 'cause there's a cord dangling, and there's some, there's a hot battery in your pocket, or on your hip. That's just not appealing. coming PSVR one is, I don't know, two cables from the headset into the processor and then that's a whole mess behind the TV. Like, cables aren't fun, that's why the Quest 2 is so successful, because-- - That's true, yes. - It's hands-free, wireless, totally put it on and go. - Yeah, that's what you need for like the immersion feel. - So, that's like, you hear a battery pack and it's a step back, but it makes it last longer, theoretically than the Quest, certainly longer, I would think, than the meta Quest Pro, which I think has like an hour and a half battery life. You could buy multiple batteries, which I'm sure Apple would love if this was the case, and you could just hot-swap, you know, almost like an Xbox controller where you just pop in double A's and you're good to go. Full charge. So I see that side of it, and the comfort of whatever this headset is, which sounds pretty technologically advanced and dense up there. That's another benefit of PSVR compared to something like the Quest. It's lighter on the face, especially in front of your eyes. And I do think that will matter a lot for this. Because like, again, I'm still not convinced this is going to be something I wear all day. But if it is, or if I'm supposed to be wearing like still hours at a time. It has to be comfortable enough like that. Like it just has to. And so if the battery pack made it light enough that like, I guess that would be some trade off. Like, like, maybe better than a heavy headset. I guess I'm just concerned that I just don't want the product to be released before it was ready. Like if we could have waited a year without the battery pack, that's my, I guess my biggest thing is like, is this now the time, but I trust Apple. I feel like they're like, you know what, this is now the time to release this headset with everything. It is. And the thing that we don't know, part of that full picture you're talking about is arguably the best thing Apple is known for, which is their marriage of hardware and software and interacting in this space. You know, the Quest 2 software as nice as it is, honestly, it's genuinely nice. It's really Android just with the skin over it and when you poke you can see that and sometimes it just doesn't quite work but the idea of the Apple an Apple OS in a virtual space is appealing to me and seeing what they can come up with this you know the this is the company that pinch to zoom you know just now how do we extend the natural way into the virtual world I'm curious and excited to see what they have been cooking up over the past however many years they've been working on this. Yeah, however you're going to be interacting with stuff, I think is going to be... Yeah, that's what I want to see the most. I'm so fascinated by what they settle on. All we can think of is basically pointers and stuff. I'm like, "Is Apple just going to be pointing at things?" No, I feel like I would bet I'm one of the more immersion tactics, like, I don't know, reaching out doing stuff, but who knows? Who knows? We'll we'll see. I'm excited for it. Because, yes, it's a whole new paradigm that we haven't really seen, like, come up with a good way of doing it. We've just seen lots of attempts of UIs in the virtual world. Yeah. So, Apple headset tangent, we'll bridge it into Delta here. Delta Nintendo emulator. Mm-hmm. Virtual Boy emulator? You know what? I think if we have the

headset, I think that'd be a great system to add. I'd start I think just even before just to say that I had it even if I was never gonna really make it a full supported thing you're like hey it's just for fun try on Virtual Boy in the headset. I've again the go through the effort of doing it you can side load a Virtual Boy emulator onto your Quest 2 and I went through those steps which is it's quite a process though you've got to put your headset in developer mode blah blah blah so yeah I think Delta on the headset would be nice. You could see all your games on like a 120 inch virtual screen. I think the headset would be an amazing fit for Delta personally. And so I, as soon as Apple announces it, I'm going to be trying to see like, yeah, what can I do with it? How could I put Delta on it? And yeah, cause I'm imagining easy, just put screens and everywhere, just easy one or just, and I'm also bad with the glasses, how great that future would be. when you just have your glasses in the real world and just like have a Pokemon game going like your top right corner you can just play or something like that. I think it would be a great fit. The real question is, is Apple gonna allow sideloading onto the headset? And interesting. I guess I'm just assuming yes, because the iPhone has to allow it and I assume it's all roughly similar. I'm betting it would be similar to the Apple Watch where the first Apple Watch it was you were installing apps to the iPhone and then the iPhone was then putting those apps like on the watch and so if they did something similar here then if you can sideload to the iPhone you should be able to sideload to the headset but there is a world where if they are trying to make this actually a standalone device that maybe they're like you know what it's not tied to the iPhone if you have an iPhone it'll show you but like the rumors are it has an M2 chip or whatever. So if they go that completely separate route, then it's like, you know what, maybe they won't allow sideloading because the logs say you need to allow sideloading for headsets. So I wouldn't be surprised. I'd be disappointed, but I'd be very sad. I agree with you. I could see it. I could see them making that segmentation, but I think that segmentation is anti-Apples to a certain degree these days because their platforms are so woven together and it's part of the cell is stuff on your iPhone comes on your Mac it's on your iPad it's on your watch your AirPods transition between everything you know so I do think it would feel very strange if every other platform could load apps from other places how whatever those those means are except the headset, because then it gets really, that could get messy. - It depends on how you view the platforms. 'Cause for example, I don't think they're gonna allow side loading on Apple TV. I don't think the law requires it. And as much as I want to put Delta on the Apple TV, because I think it'd be perfect, I don't see them allowing that. 'Cause I'm just like, eh, I don't think Apple actually gets anything for them and annoying, like I'm like, oh, it'd be so cool. But I don't think they allow that. And so that's why I'm like, it depends how this headset's positioned to them. Like if they view it as like an Apple TV accessory where it's not like a dominant thing, they could be like, eh, it's not your primary computing device or whatever. But if they were like trying to replace, like if this was like the eventual replacement for the iPhone, then I would think there'd be some sideloading, either though maybe it'd have to be another law. Like, jeez, I just, I don't trust Apple to be like benevolent about this kind of thing at all. - That is, that's a very fair point. So Delta, we've talked about it here and there, the origin of Delta, GBA for iOS, it was a school project, right? - Yeah, or just suddenly I made while in high school just because I wanted to play Game Boy games on my phone. Like to me, it was just, I had been developing apps for like a couple of years by then. And I was looking for a new thing to work on. And I came across old open source code base for a Jailbreak app that lets you play Game Boy Advance. It was GPS phone or whatever. So, and I was like, huh, you know what would be really cool? If I could just hack this thing together and get it to compile and put on my own phone so that I can just be playing Game Boy Advance games, and that was really just it. And so I did it for me. And then I also thought some of my friends' devices. And then it was just coincidentally around that time, there was a service called Mac Build Server that said, "Hey, we have enterprise certificates," which are like things you can buy from Apple companies to distribute apps internally, and they were saying, "Hey, if you connect your open source app to our service, you can sign it with our certificate and anyone can download it as if they're part of our company." And so I was like, "Oh, whoa." This is like back in like 20, I don't know, 2013. And I was like, "Oh, wow. A way to distribute apps outside the App Store? Sounds great." So I

just hooked up GBA for iOS to the service and then turns out people really wanted to do that. And so, yeah, that I learned really quickly that there's a big demand for playing like Game Boy games and the classic apps or classic video games on the iPhone. And so I learned from that and then Apple eventually shut that down because I was using, they shut down certificate and then there was a weird bug I exploited, but anyway, they shut it down within a year. And so I was like, okay, that was really cool to learn that there actually is like this market for people that want to play these old games. And so I was going into college that year. And so I was like, you know what? I think what I want to do is now like, make this like actually my priority, like not just a hack together, like side app. I want like to make a real like emulator app that I dedicate all my time to to make it really polished. And so I thought that'd be fun. Oh, and also around this time was Swift was announced. So I was like, "Oh, I need to learn Swift somehow. I need a new project to work on to learn Swift." And so I was like, "You know what? Maybe I'll just learn Swift and make a personal project, build up this cool emulator and see where it goes." And so it started with, "Hey, I just wanted to learn Swift and do this for fun." But then what changed that for me was, I think a few months after I started working on it, I went to WWDC and I had a meeting with the app review team there. And I basically said, "Hey, I'm working on this emulator. And is there any way at all that I can put this in the App Store?" Like, I understand that it's a gray area, but I will do anything. I'll jump however high you tell me. I'll do whatever you say. And then I talked to people and they were saying, "Yes, you know what? Our problem with it is that it's like an open pipeline of games. Like, we can't review all the games and make sure they're safe." Very similar to the Game Pass argument. But I believed them. I was like, "So our problem with it is that we don't want to allow any game, so you could, we will allow Delta if you like send us a list of ROMs to review with like every update, and then you can have a white list of like approved games." And I was like, "Okay, fine, whatever. I'll send you a list of Pokémon and Mario games at first, and then people can play Pokémon, and then I'll like update lists." So it was like a stupid restriction, but I was like, "Whatever." So with Apple's blessing, I was like, "Cool, I'm actually now going to treat this more seriously. It's not going to be as my personal project for Swift. I'm going to dedicate all my time to it." And so then I worked on that for the next year. And then the next dub-dub, I met with the Apple View team. Again, I met with the same person, just to catch him up on how I was doing. And then he basically said, "So yeah, I talked to the higher ups. We can't allow emulators in any way whatsoever." And so that was just really frustrating, upsetting. Just I felt all the emotions because I had invested so much time into Delta, knowing that there's a market for it and to what I thought, knowing that I'd be able to distribute in the app store. And so just for Apple to then say, "Nope, actually you can't do anything with it." I mean, it pissed me off. And I was like, I understood, but I was really pissed off that I'd been been led on. And so I was like, I'm not going to throw away all this work. So whatever. So that's when I was like, started on the whole alt store track up, I need to find some way to distribute this outside of app store. I don't care how cumbersome it is. And eventually I just try to come up with like the least cumbersome way that could exist. But yeah, all this is good. I just wanted to be making a Nintendo emulator. I think it's fun. I love playing Nintendo games on my phone. I think, yeah, the DS especially is awesome. Yeah, just being able to play all the touchscreen games on the iPhone. - Yes, yes. - Like, so amazing. Like, so perfect. Or if you're on the iPad, like if you have a stylus, I'm like, yep, what a great experience this is. - I mean, I wanna touch on the DS, but-- - Yeah. - Before we get specifically to that, what is it like building an emulator? I've never ever, I just use 'em. (laughs) So my brain, it's, you have to understand how to read these games, portray them accurately to some degree, allow for different things. Like what is that process like? I'm curious. Well, so I should start off by saying that I've, I haven't written any of the true emulator cores that I'm using. You're using cores, other cores. I'm using scores that like I've open source made made by other people because my background is an iOS app developer. Like I started learning programming with Apple, I've with the iPhone stuff. And so that's all I've known. And so when I started working on GBA for iOS, it was wrapping that open source existing code base and then wrapping it into like an app that I can write, like wrapping an iOS app. - Gotcha. - And so that's my focus for Delta. So I have not written these from the ground

up, but from working on it now for a long time, I've learned a lot about how it works under the hood because I've now had to go multiple times, Mellon DS especially, or the DS core, I'm using Mellon DS. I really wanted to make sure that DS was working well on the iPhone. So I would go into that, I went into that code base and would make some changes to like optimize it for iPhone or stuff like that. And that was really fun to be like doing some like low level stuff on it. But still, I just had to, the people who are building these code bases are way smarter than I am. Like they are doing incredibly advanced things to be able to exactly replicate all the nuances of these old hardware systems and get perfect emulation and accuracy. It's really impressive. And it's a skill set I want to, like my long, long term goal would be, I would love to write one of the cores for Delta myself. Like take the time to write the NES core in Swift and be like, hey, this is actually my NES emulator now. So I think it'd be a cool thing to do. Who knows when I'll have time to do that. It's definitely not a priority, but it would be fun. - I think that would be super fascinating on a technical level. - Exactly. - I've never even, I don't, I feel like, are there game emulators written in Swift? Like, I don't even know if that's a thing. - None that are like, none that are, I wouldn't surprise if someone's made a proof of concept one but I think Swift, because it's very performant but also really nice to write, I think it'd be really cool to write, like a cutting edge emulator in Swift. And also, the reason I want to do it, I could put it in Swift playgrounds. I'd be like, "Hey, it's no hacks. It's just literally a Swift playground, just running a full NES emulator." Because right now I've done ways to put my emulators in Swift playgrounds, but they require compiling to web assembly and running it through a web browser, and it's really hacky. - Yeah. - It's a mess. - Sounds like it would be. And if you wrote something in Swift like that, you would be able to tap into Metal and other Apple APIs and tools, right? It'd be easy to do that, yes. I can already do that in theory if I wanted to. I'm not using Metal yet. I'm still using OpenGL for a lot of stuff, because a lot of old emulators just expect you to be using OpenGL. But yes, it's the real reason I think I want to be, I'm using all these new APIs or the Apple first APIs or writing my own core in Swift is I think that's just what the future looks like for Apple platforms is more and more like you're going to be having to use their APIs or stuff like that. And so I view it as like future proofing. I'm like, if I have a Swift NES emulator, that will always be available to run on Apple platforms. Even if they're like, "Hey, we don't allow C++." They're like, no matter what they decide to do, I'm like, "If I have a Swift app, I can keep that modern and updated for Apple platforms." And that's why Delta, the app itself is all Swift. Like everything I'm writing is just Swift. The only non-Swift code is when I have to wrap the emulator cores themselves. Gotcha. And I did that because I think banking on the few for Apple platforms, you just always want to be using what they're recommending. And so using Swift from the beginning, I want to start doing more and more Swift UI in Delta because I would strongly that the headset will require Swift UI for actual full experiences. But yeah, just all this, I think it's just like in general banking on using all Apple first party technologies is a good bet if you're an Apple developer. It's probably the safe camp to be in. I guess that kind of touches on one of my questions about your design philosophy. You're using the Apple tools. Delta has this Apple touch to it. There's peak and pop, rip, I guess, force touch. I love peak and pop. It's the thing I miss the most. I just upgraded from a XS Max to a XF Pro Max, and peak and pop is the thing I miss the most. I'm with you. I loved it. It's why I specifically put in Delta because I was like, "Oh, it's just so nice to just peek into a game or something and just see what's happening. I don't know. RIP. There's playfulness to it, and usefulness, but playfulness. It pairs well with games, but your Delta feels like an Apple app that has that Apple kind of flair to it. So I'm just curious about your design philosophy as you're sitting down. You've got NES, Super Nintendo, Game Boy, DS. I think Genesis is even in there, I get not Nintendo, but well, these days, these days, NSO, you can get Genesis games, so it's kind of- You're right, that's true. I know, I did fudge, it does make the marketing for Delta a little harder now, I'm like, Nintendo emulator, also Genesis. Plus Genesis. Yeah. So what, you know, what is that process like for you, your philosophy there? So first of all, it really does mean a lot that you're saying that it feels like an Apple app, because that is really what I always try for. Because just as an indie developer, the dream is always to get an Apple design award for your app and just to make an experience that could be displayed at WWDC or something like that. And so I've

always been really inspired to just make really great apps that could be like a level of that on the level of Apple. So that's just in general my philosophy. But then especially for emulators, I was just so painfully aware of how ugly and technical and just really intimidating the emulator scene can be to people. Or just using emulators. They're really cool, technologically, but man, they kind of look jank. If you ever use these systems, I'm like, "Ah." I like that I'm playing these games, but I just really feel like so many people aren't even trying emulators out because they're deterred by how hacky or technical it feels. Or like they'll give you all the options you could possibly imagine for your emulation setup. And so to me, I learned for me that was overwhelming. Like I didn't like playing using emulators that just seemed so like that seemed like tools I wanted instead to play games like with an experience. And so I really was like, if I'm building this emulator and people are already jumping through all these hoops. I don't want to feel like a sh*t like thrown together or whatever. Like just like, I don't know, crappy apps. I want to feel like this is what emulation could be like. Like this is the joy. This is fun. Just playing your old games. And so much of that, like there's a lot of those things. Like I, in GBA for iOS, I use the word ROM. I don't use the word ROM anywhere in Delta. Cause I'm like, that's just like such a deterrent for people that don't know what this is. So it's just games everywhere. Just download your games, use your games, small things like that, I think it makes a huge difference to people. And so I also think it's really a fun challenge to try to bridge this gap between the really advanced technical people who want this and also the Apple lovers who really like polished experiences. - Oh yeah. One of the things I love about Delta is when you pull in your game or your ROM, but your game, and you load art for it right away. - Oh yeah. - That's one of the things that emulators just will pull it in and it'll just have a question mark. It's like, well, I know what game that is. That's Pokemon Emerald or Super Metroid. And you're pulling in art from different databases and give options to change. You allow skins to change the control scheme, which is just-- - The skins, yeah. That's one of my personal favorite features about Delta. And that was because back in the day for GBA for iOS, my friend, who's still my friend, but we were working together on GBA for iOS at the time, and he was the one that pitched me on, "Hey, you should let people like customize this. You should let people like make this, like make their experience exactly how they want," instead of just like this whatever like skin I had. And so he pitched me hard and he like designed like five different skins for me. Like one was made of wood, one was like a squirtly like Pokemon one. And I was like, oh, wait, you're right. This is amazing. Like why would anyone not want to be able to customize it? And so from that point on, I've been like, oh, focusing really hard on that aspect of just, yeah, customizing Delta. So you just really recreate the exact experience you want. Well, I've also got to say that your skins, the defaults are beautiful. They have polish to them that most emulators I would argue don't have. And just their visual appearance. It's not even the functionality of the, it could just be a transparent button map like most iOS games are today. It's functionally the same, but you're presenting it in this beautiful wrapper or skin of a controller that feels like the console that you're playing. And that, yes, exactly. That was again, a very important part. It's like, I want to feel like you're playing the system. And when you have a touch screen, it's hard to fully recreate that. So I was like, how can I make it feel like you're playing NES and like that recreate that feeling. But I was like, oh, if you have like that NES controller skin that gives you that semblance of like, yeah, be using a real NES or like, yeah, the N64 skin as well, like, how can I possibly put all these buttons onto a touchscreen in a way that can also look good? But then we were able to do that. But I also say, all of the credit for the skins goes to my friend, best friend Caroline, who has helped with alt store and also a lot of Delta stuff. She's an incredible designer and I am not. So I can recognize that these look good, but I understand why emulators don't look great because man, I could, I would not be able to produce these beautiful skins like she can. And I'm so thankful that she's willing to help us out. We can literally reach out to her and be like, "Hey, Caroline, we're adding a new system to Delta. Would you mind like helping us design a new skin?" and then she'll be like, "Yeah, sounds great." And then she'll blow us away with like, such a beautifully recreated skin that also works on the iPhone. So, huge pop star. - She's the best, pass along my thanks, 'cause it truly is one of my favorite parts of Delta in that experience. - Oh yeah, I absolutely will. - The feel, another part of

the feel, you have haptics. You're using the taptic engine. Oh my goodness gracious. It changes touch gaming on the iPhone. For sure. I can't imagine playing without it, because you just don't realize how much the game-- you kind of rely on knowing that the button was pressed. Just knowing that it happened. Without that feedback, before an earlier GBA Fryer stuff, I'm like, oh. Yeah, it just felt wrong. You didn't know if your button was pressed, and that just disoriented you. And yeah, it just makes me more confident using touchscreen controls. So yeah, I love that feature too. Another thing that Apple now supports pretty officially is game controllers, which would be the next step away from it. I don't know if you remember my tweet from, I think it was a year, well I guess it was around the Delta review, so about a year and a half ago. But I was able to hook up a real N64 controller to Delta and play Super Mario. Oh, is that, like the adapter? Yes, I used like a daisy chain of adapters. Yeah, yeah, yes, I do remember that. That was sick. That was amazing. It was super fun. I love it so much. Just the fact that it was even possible. But most people aren't going to go through a daisy chain. Now there's an official N64 switch controller, which I'm sure I could just hook up via Bluetooth and that would work right away. So I bought that and I was really excited for it. It shows up in the iOS settings as a Bluetooth controller. I can connect to it, but I cannot get any games to recognize it yet. And I'm like, so I think maybe it's maybe still being rolled out support for it. I don't know. But here I have this, I've tried out like the NES ones. These work fine. Like these do work. And so I could use this in Delta and I'm like, oh, thank you, Apple. What an amazing gift you gave me being able to use official Nintendo controllers to play Nintendo games on your iPad. - Yeah. It's too good. So how has that controller support been in general, just outside of an intended... because Apple supports the PlayStation controller, the Xbox, and while you don't have cores for those, those controllers can be used. Was that easy to implement these tools? Yeah, that was... Apple thankfully has made it easy to at least add decent game controller support, because I've supported game controllers back from when it was just like the MFI controllers that Apple allowed. And I'm glad I did. But yeah, the adoption was not as high on those. People were not buying those like dedicated controllers. But I think that's the time. Yeah, they were and just not as good quality. But so I think about the black backbone. That's great. I love my backbone when that came out eventually. But then just when Apple finally when they announced the PlayStation controllers and the Xbox controller support, that to me was when I was like, "Okay, this is when it matters now." Because before people, some people had it, but after that, almost everyone had controllers. And so I already had basic controller support, but then I was making sure that that was a primary feature of Delta to be like, "Yes, touchscreen's great, but now that you can use real game controllers that you probably already own, that is way better." And then when Apple then finally added support for Switch controllers in Iowa 16. Truly the icing on the cake for me to be like, "Oh, now if you have a joycon, you can play Delta or if you just have two joycons, you can do two player like Delta stuff." And so. That's true. I didn't even think of that. Oh yeah. And the Apple's done a great job with it. You can like hold down two buttons to either turn the two joycons into one controller or you can separate them out into two. It's really amazing that I'm like, the iPad basically just is a switch now with the support. And so that to me is like, yeah, the game controller stuff is what makes emulation worth it. I do also have keyboard support and so on my iPad with like the Magic Keyboard, it will work like a computer, but it's not the same immersion. It doesn't feel the same. It never, it never has. So the other, the other element of feel here is that DS emulation. I mean, flat out, I think this is the best way to emulate a DS game. Hands down. Because the touch, the touch screen on the DS, you have to be able to, clicking with a mouse is not the same. Exactly. It's just like, I mean, you're an alien. That just emerged, it kicks you out of it. You're not playing a Nintendo DS game if you're using a mouse. It just breaks a barrier. But when you're literally touching the touch screen on the iPhone. When I had that working, it's like, I also was like, yeah, this is, I mean, it is my favorite system in Delta. And I really just think it's the best showcasing of how emulation can be done in a way for newer platforms that take advantage of like new, like all of the iPhone's capabilities. Because like, yeah, the iPhone has microphone, the iPhone has the camera. So if I wanted to have like GSI support, I could make like like the DSi. It has all these things like, "Oh man, the DS is so perfect for Delta that I really

want to take a lot of time to make sure I can really capture that experience as best as I could." I love it. I was exploring Delta as an option to maybe stream or capture some DS gameplay footage and at the time I had the XS Max and it wasn't feasible with the current setup. It's something I would definitely consider now, especially if I was playing the game for my own enjoyment instead of some sort of technical thing. Like, I'll just load a DS ROM on my computer for something quick, but the full experience, like sitting down and playing something, it just feels natural and right. And I love it. I'm so glad that it's a system within Delta. Yeah. I love it. Definitely the system I've played the most personally for me in Delta. Because just like, I mean, I also loved the DS as a kid. No, yeah. Huge Nintendo fan, you can't tell. But the DS is great. And so I played while working on Delta, I've played so much Mario Kart DS or New Super Mario Bros, or playing through Pokemon HeartGold or Diamond or whatever, and just like investing so much time in that because again, also, the DS is so great for iPhone because it's like portable, you can just put in your phone or put in your pocket and then if you're out about you could just pick it up and play like a few minutes of the DS game, which is not always the same for like an N64 game, which I mean, Delta supports, but you want to play that more at home. Generally is what I'm learning. And so I think yeah, for the iPhone specifically, the DS is so great and Gameboy 2. Yeah, I'd love to use it. The DS just feel it's so right. It's just right. It's the way it's supposed to be. It's just a match made in heaven. And - And in a world where the 3DS eShop is gone, the Wii U eShop's gone, which the Wii U had some DS games, Delta stands out as the way to play, I would say. So, hats off to you, sir. Thank you for your service. - Thank you, I really appreciate all that. - It's the best. I'm curious the benefits that you've noticed, if any, what they would be of Apple Silicon, specifically to Delta. As they've made this transition in their Macs, the iPads now have the same chips as Macs, and the phone obviously has been on Apple Silicon since, I wanna say the 4S something? Anyway, around that time, the phone's been a while, but the computer and the iPad and the Apple TV, what have you noticed in Delta? So I would say there probably isn't that much direct anything I'm noticing yet, because I think the biggest, or rephrase, the biggest immediate advantage to Apple Silicon and Delta would be like, "Oh, now I can put Delta on the Mac." But I'm already planning to do a dedicated Mac Catalyst port to make a real experience, not just an iPhone app on the Mac. And so then that would work on Intel Macs anyway. So that even is like, if I want to just put Delta immediately on a Mac, I could do that. But what does, I think, help Delta the most with this transition is that we've already started seeing emulators start to add support for macOS and the ARM-based macOS. Because now, like, because Melon, like the DSM that I'm using, added support for like like the M1 Macs or like I said, or the switch and that are right. I would say it, they add support for M1 Macs. And by adding support for that, it makes it much easier to then port to Delta or to iPhone. Versus, so I think we'll see a lot more of that where just by nature of the fact that iPhone and Mac are now the same, whenever an emulator is ported to Mac, it'll be way easier to get to iPhone, which wasn't always the case before. Sometimes it was, but as we got to like more complex systems like GameCube, it'd be very hard to port a full performance Intel-based Dolphin to the ARM-based iPad and get all the performance you want. And so I think it's just more of going to the future. We're going to see a lot more emulators support all these platforms now because it's unified. And so when they make it for Mac, just the iPad will get those benefits down the road. Well, what we need to see next is the 3DS emulator scene. get on the Apple Silicon train and maybe we can see Citra in Delta someday. That would be super sweet. I definitely plan to add 3DS at some point because I also like, I mean, I would love to add all Nintendo systems on an infinite time scale. But yeah, the 3DS one would be great for me to add whenever I have time to actually invest the effort into dedicating. That's honestly the hardest part about running Alt Store in Delta right now is, Delta is my passion. my passion. I love Delta. Alt Store takes a lot of my time because I'm, it's a platform other developers are using and so I'm like, "Oh, I have to make sure that other people are also able to use it." But yeah, I just want to be able to work on Delta and make these cool little features. Yeah, I, well, I'm here for it. I'm very excited about the future of Delta, Alt Store. It seems like changes could be coming your way this year, directly from Apple. It seems that way. And you know what? It's something I've been expecting since launching. I've been expecting

this to eventually happen before I launch alt store, but it's really surreal to actually now see it actually happening. To be reading these news articles about Apple to alternative app stores. I'm like, "Okay. Yep. I suspected that this is where things are going, but I guess it's finally here now. Time to actually see what happens." Time to prepare the way, as some may say. Exactly. And so, you know, I'm just going to be prepared for anything, but definitely going to be an exciting year, I'm pretty sure. Awesome. That's great to hear. I'm looking forward to this year, not only for Apple, but for you as well. You and Shane over there at AltStore and Delta. So thank you so much, Riley, for joining me on the show. Where can the people find AltStore, Delta? Just let the people know what's going on. Yeah, you can find, well, right now we have a Twitter. You can follow us on Twitter @AltStoreIO. But we will be moving to Macedon very soon. Because I, personally, I am also on Twitter @ReillyTesta, but I've stopped posting there too. So you can find me @ReillyTesta @Macedon.social if you want to catch up with stuff there. And then, or just the normal website, altstore.io is where you can get all the AltStore information. Awesome. There will be links to all of that in the show notes. Rest in peace, Twitter. Rest in peace, third party clients. R.I.P. Oh, I know. So sad. R.I.P. Tweetbot and Twitter. They had the best run. It's a shame. I'm very sad. Stark times. Anyway, you can find my writing over at maxfrequency.net. My other show, Chapter Select, a seasonal podcast where we bounce back and forth between games or movies exploring their evolution design and legacy season fives going on right now resident evil which was on the game cube you know I did yesterday in my testing of Delta you know just to reinstall and stuff loaded up Code Veronica X it's like ah there it is there's a nice nice yeah excellent so you can check out that season we've got other seasons you can check out as well. And then I'm on Twitter @MaxRoberts143. I just tweet when articles go up. So really just go to maxfrequency.net. That's all you really need to do. Thank you all so much for listening and until next time, adios. I just installed, so my previous guest on the show was Javed Starlet. I don't know if you've seen his Good Blood videos or the Hyrule Journal stuff. He did like an Ocarina of Time essay about four years ago called Ocarina of Time a Masterclass in Subtext and that's when it kind of took off. Anyway, I talked with him and part of my research was his videos have like widescreen Ocarina of Time and Majora's Mask. I was like, how do you do that? That sent me down the rabbit hole of the new PC port of Ocarina of Time. Oh yeah. They've reverse engineered it and like installing that on my Mac is super hacky. It's wild to To act, it doesn't even use the menu bar, so like to get into the settings of the game, you actually, I'll load it up, I'll send you a screenshot. It's you have to hit like F1, which I remember last time I had to hit F to get a menu. Yeah, who uses the function? Yeah, the function row. So, I, okay, so it's actually up. I'm gonna put it away. Does this tell you? If you want to see the screen. Oh, yeah. Okay, I can see. Oh, yeah. It might be slow. So it's not telling me hit F1, but if I do hit F1, then the menu. Oh yeah, oh. See, this is what I'm talking about. It's like, it works. It works, and they've done some things. I'll give them credit. So like, there's presets, so if you want certain things, they do a lot for you. But there's cheats, there's tools, you could load a randomizer. I mean, it's awesome. They have all the stuff you want, but... - Exactly. - I'm just like a little snob. It's like, "Ah, when I use software that looks like that, I almost like, I like don't use it." It's why I didn't jailbreak. It's that's the reason. I didn't like how hacky jailbreaking was. I was like, "Oh, it feels so weird. Like it feels like unpolished." And so I'm just a snob for like app design. And so I appreciate, it's really cool. But that's why I was like, for any of the others, I'm like, "We're really missing out on like the basic like things here." Like the game looks great, but it never feels like an 8-in-a-mac app or anything. Not to hate you. Like I'm not hating. Again, they're doing way more impressive things than I. It's harder to make the emulator than to make the wrapper around it. So I can't fault them at all. It's just, it's the same thing though. But yeah, but like, yeah, the F1, if I'm, it's like, oh, it's like, sure. It's but like those things to me are what prevent people from sticking to a product, in my opinion. It's like, it's cool to try out, but if I want long term thing, I have to not have those title hiccups all the time. I agree with you. So, um, Delta for Mac someday. Yes. Someday soon. It will happen. Yeah. Please. Definitely will. It's just another thing I got time for. Delta for Apple TV so I can put GameCube games on the TV. I still remember that tweet you had. I know. Yeah. And I need to get back to it. 'Cause the problem is it was still really hacky to even get it working, but I mean--

- Oh, I'm sure. I don't even know how to get apps onto the TV. - That was the hardest thing to, oh. Getting it to people out there would be hard, but man, it was (beep) wild having Mario Sunshine or Double Dash on the Apple TV. 'Cause yeah, you just go to the game. And again, you use a pro controller, and you're like, okay, well, this is perfect. Yeah, so. - That's awesome.

- It'll happen, whether it's an official app like you gotta compile it from GitHub, I'll make it happen somehow because it's too cool. It is way too cool. And just think of the upscaling capabilities and just... I know. It's like my passion project for me. Like I really want that. And so I'll build it because I want my Apple TV to be able to do all this. But okay, we'll see. There's so much to it. Apple TV, Mac, iPad, headset. Everyone, I'm trying to build them all and also build alt stores. Yeah, it's awesome.