When Phil Daian walked on stage at <u>DevCon Bogata 2023</u>, Ethereum was a few weeks removed from<u>the merge</u> and the activation of MEV-Boost. It had also been nearly 4 years since the <u>Flashboys 2.0 paper</u> illuminated the <u>MEV crisis</u>. Phil's talk titled "MEV for the Next Billion: It's Time to Get Serious…", walked the audience through the history of MEV, the state of MEV at that time, and a shared <u>vision</u> for research and development of the next generation of tools and protocols for MEV externality mitigation.

Introducing the world to **SUAVE**, the single unifying auction for value expression

, Phil underscored the need for primitives that enshrined privacy into the MEV supply chain and increased everyday users ability to express their desired outcomes. He shared that SUAVE was a concept rooted in years of research on privacy, mechanism design and protocol security, that would need the help of everyone in the industry:

"[SUAVE] is the genesis of a new phase of MEV, a new cooperative, positive-sum phase of MEV, to get us out of this zero-sum, negative, centralizing ecosystem that we are headed toward. Even though we have avoided vertical integration, we now need to avoid builder centralization – so that will be the next job of Flashbots."

Fast forward to today, SUAVE has grown from that idea into something tangible: a protocol in development. In July of this year, Robert Miller released an initial roadmap for SUAVE in his post, "The MEVM, SUAVE Centauri, and Beyond", which introduced the MEVM and outlined SUAVE Centauri and Andromeda – parallel R&D tracks for SUAVE development. More recently, we hosted a number of events at <u>Devconnect Istanbul</u> highlighting the progress made on SUAVE. From the UNISUAVE researchathon with Uniswap Foundation to the ETHGlobal Hackathon, researchers and developers were excited to begin exploring and contributing to SUAVE!

Bankless x SUAVE

This week, Phil and Andrew Miller, joined the <u>Bankless podcast</u> to share an update on SUAVE and dive deeper into the question: what is SUAVE?

Phil and Andrew, moderated by Bankless hosts RSA and David Hoffman, took listeners step by step through the history of MEV and laid out the foundational principles of what SUAVE is trying to accomplish and how it can achieve these goals.

Below, we've compiled some excerpts from the interview to guide listeners through their own SUAVE treasure map...

Bankless - Episode 198 - SUAVE Explained with Phil Daian & Andrew Miller

Introduction

1:41 – "First, this episode requires a bunch of prerequisite knowledge. [...] And there's been slow incremental progress in actually harnessing MEV and making sure that it doesn't corrupt and destabilize our systems. Now we have arrived at this new frontier of SUAVE, which is an evolution beyond what was this most previous frontier, which was MEV-Boost, also produced by Flashbots. And one of the questions I asked Phil is, is this the end? Is this the conclusion of MEV research? Is this the final meta? And his answer was, like, 'perhaps it is'." - RSA

8:04 – "So I think in order to really understand SUAVE, we have to go back in time and run through the idea maze that is Flashbots. Flashbots has this crazy, awesome arc to it. And it's been one of the cooler stories that I've been following since my early days in crypto. [...] So I'm wondering if you could speedrun us through the history of MEV and Flashbots." - DH.

History of MEV & Flashbots

9:28 – "[...] this problem kept coming up that there was this breakage in the abstraction that people kind of held canon, which was of the blockchain as a bulletin board secured by these rational actors. And actually, if people were purely rational actors, there were many ways in which these properties people took for granted about this blockchain or bulletin board as they were thinking about it, this public channel kind of breakdown, potentially leading to the collapse of the entire system." - PD.

10:42 – "Once people are aware of the problem, the next question is, what do we actually do about it? How do we solve this? How do we fulfill the ideals of crypto? I think for me, decentralization is super important. I'm a decentralization maxi. [...] I saw MEV and the concentration of power through MEV as kind of the way decentralization dies in some ways. And I think for me, humanity at least deserved a chance to explore and try to integrate these decentralized approaches into various places where today we have trust, kind of to fulfill what we were talking about earlier about the kind of original ideals that bring, for example, Andrew here." - PD.

11:30 – "Can you describe the problem? What is the problem of MEV? And maybe the easiest way to understand for a crypto-native, for a crypto-listener, what is the class of problems that you saw then and you're still on a quest to solve?" - RSA.

12:00 – "Well, I think the fundamental problem is that what blockchains try to and need to do for them to work is to come up with an order of events of transactions that they're processing and communicate to everyone that this is the order that we all accept for these events or these transactions. I think people hadn't maybe taken into account how much discretionary power there is in the mechanism that actually comes up with this order." - PD.

14:49 – "One of the reasons why I think many people who are in crypto for the tech come to crypto is they see the equitable foundations on which these platforms like Ethereum, like Bitcoin provide to the world. I think, Phil, what you identified in MEV is like, oh, we do have this equitable foundation, but MEV can tilt power into the balance of parties that already have it, right? [...] It's like, how do we preserve the equitable foundations of these platforms? One of the big flagship products out of Flashbots was this thing called MEV-Boost. Can you talk about MEV-Boost and how it helps maintain the equitable foundations of Ethereum?" - DH.

Proposer Builder Separation & MEV-Boost

15:42 – "MEV-Boost came out of a line of research called PBS or Proposer Builder Separation. Highly recommend reading up on that if you're not familiar with it. [...] And this is the idea of basically separating sophisticated activity of optimizing blocks from the activity of proposing blocks on the network. [...] The reason for this was we had a system called MEV-geth, which worked on proof of work. It was a very different auction. And all we were trying to do there is basically show people, one, ordering matters. And two, in a permissionless auction for ordering, you basically get more value for all parties if that auction is permissionless and competitive than you do in a proprietary or like side deal style auction.

When proof of stake came the question was okay what's different here I think one big thing was the desire to allow solo stakers so parties that were not as sophisticated to participate. And MEV-Boost and PBS was basically a way to try to contain the specialization to this layer and this role that was called the builder. [...] The idea being that if you were a validator, even if you were not sophisticated and you were just proposing blocks and validating Ethereum, you could still make as much money as the sophisticated parties by essentially receiving bids from those parties for your action space" - PD

Power, Decentralization, & MEV

- 17:40 "One of my favorite parts of this story, Phil, is not only were you and the Flashbots team responsible for making the entire crypto community and the crypto industry aware of the power of block ordering, which we were previously unaware of, you guys actually put together a solution. So it's kind of rare to have somebody surface the problem and then also architect the solution to that problem. And whenever that happens, it's just a fantastic thing." RSA.
- 21:22 "[I was researching] what it takes to build a credibly decentralized system that relies on trusted hardware for its shared private state. And so that all kind of came together at the moment that I heard about the SUAVE proposal, and suddenly a whole bunch of things kind of clicked. So first of all, the need for privacy, not in the long-term user privacy, like protecting dissidents, user privacy view. For MEV, there's this very obvious but short-term kind of privacy need.

So you care about pre-trade privacy. And then that's actually really important, not just for users' own sake, The big challenge in working in privacy tech is that users won't pay for privacy. They don't understand it very well. So it's very challenging to get adoption of good privacy technology. And so this is a setting where you really need privacy." - AM.

- 24:48 "So I do think that these are areas where auctions in general, things like order flow auctions, all sorts of components in the MEV supply chain, they implicitly rely on privacy that comes right now only through the mechanism of just trust. And that is fundamentally a centralizing force. And so trying to build something that avoids that is hugely important." AM.
- 25:38 "We've been setting the stage of what I think is going to be a good place to bring up SUAVE here. We have the history of Flashbots and MEV-Boost and the mechanism design that that was created to contain some of the MEV. Then Andrew, we're bringing in some privacy and some further mechanism design tools to add into the mix of what it takes to fully solve this problem." DH.
- 26:32 "Ultimately, MEV is about what is the power distribution in your system? How is information propagated and who profits off that? I think you can always very easily solve it. through centralization. This is actually what, when I first, even years before Flashbots, when I first discovered this in the context of DEX design, this was before Uniswap launched onchain back in the EtherDelta days. When Uniswap asked me, hey, what do you think of this design? I was like, well, you should really have a centralized order book that you all run in a permissioned way and don't cheat because otherwise there's no protection." PD.
- 28:28 "[...] to me, the only solution [to MEV] is to have a fair, decentralized, permissionless way to harness it. And you want to be thoughtful, basically not to be needlessly sending too much to the validators or sending too much to jump crypto or anything like that in your market structure. [...] I think what SUAVE is trying to do is to add decentralization to as many of those systems as possible to provide a new trade-off point that's more decentralized from an infrastructure point of view.

And to me, this is both the solution and the minimization of MEV because then users will be able to harness it because they have a permissionless competitive environment. They don't have to be at the mercy of whoever controls the pipes the way they are in TradFi." - PD.

29:47 – "[...] for two or three years before the paper, I tried to solve it by myself and with a few collaborators on a whiteboards. And I went down all sorts of different directions, including social choice theory, fair ordering, auction theory, block space futures, these are all, papers that I had half of and then decided it didn't work. And like, we threw it out.

[MEV] touches on things in law, economics, market microstructure, and protocol politics in terms of distribution to holders validators, consensus research, distributed system security, economic mechanism design – using settings that we haven't even seen yet in academia in terms of complexity.

[...] I think at least for me, my biggest thing that keeps me up at night is like, Can we come up with a power distribution that doesn't collapse to centralization? Can we maintain permissionlessness? What are the best economic mechanisms to kind of encourage that kind of competitiveness and distribution versus more predatory rent extraction or zero-sum games or sniping or something more socially wasteful?" - PD.

32:01 – "And so without SUAVE, there isn't a good alternative way of addressing all of those, and especially not in a generalizable way. [...] So after banging your head against the wall, trying to solve MEV through doing the mechanism design yourself, you realize this is going to be a game that continues through metagame phases and the meta shifts over time. There isn't going to be one mechanism that wins them all. So it's necessary to come up with more of a platform view. So a platform for building MEV relevant mechanisms all the interesting ones are going to need privacy. [...] to me, that's, you know, basically what frames the problem that SUAVE solves." - AM.

What is SUAVE

33:45 – "I think we've done a pretty good job actually defining the spirit of SUAVE and the goals of SUAVE, the contours of SUAVE, but I think it's about time now to actually approach this conversation head on. So Phil, what's SUAVE?" - DH.

34:00 – "SUAVE is the single unifying auction for value expression. It's a platform, it's a set of tools, and also systems that are deployed, nodes and things like that to allow you to write applications that have several properties. Number one, they are privacy enabled in a very decentralized way. Number two, they are able to be distributed across like different infrastructure providers and different node operators. And number three, that there is some credibility to these computations.

[SUAVE is] a platform for building these apps. The first set of which, that we're focusing on, will be MEV time applications. So apps that run while a block is being created on Ethereum in like the 15 seconds between protocol making a decision. [SUAVE is] a tailored set of privacy and infrastructure solutions to build those apps." - PD.

35:29 – "I'd say the most general is it's a platform for building apps that require decentralized coordination. And maybe without SUAVE, we only know how to build these in a centralized trust model." - PD.

36:04 - "So would MEV-Boost be an example of an app on top of SUAVE or is MEV-Boost something separate?" - RSA.

36:15 – "MEV-Boost can interact with SUAVE in many ways. So certainly you could build a credible MEV-Boost validator on SUAVE where the validator commits to taking the highest bid in MEV-Boost. You can also build various components. MEV-Boost itself is like an overarching name for the protocol, but there's many subcomponents and any of those components can be built on SUAVE.

One big example is the relay in MEV-Boost. Right now it's responsible for two things, making sure blocks that go to a validator are accurate and valid, and they're not spamming. You could write these modules as apps on SUAVE where instead of having this relay that validates your blocks and attests to the payment and maintains the privacy. But you could also do this for the builder, which is another component in MEV-Boost. Distributed Decentralized Builder is one of our main projects." - PD.

38:40 – "I think an encrypted mempool is certainly one set of apps we want to build and encourage on SUAVE. Specifically, I think the winners in the privacy preserving mempool space are ones that like do handle the MEV intelligently and let the user control the value of their information, but also leverage it in that block production process to get the best price, to get the best outcomes, to get the best execution for that trade. I think you really need privacy to do a lot of these things. One of the apps that we will build on SUAVE is a programmably encrypted mempool. And we also encourage others to kind of reach out and collaborate there." - PD.

40:09 – "My simplistic way of thinking of it, SUAVE is a layer two blockchain. It runs smart contracts. The smart contracts offer credible computation and privacy because they run in trusted hardware enclaves. And then the smart contract environment is called MEVm, so it's EVM except modified with pre-compiles that are helpful for the task of building blocks and other MEV-time applications." - AM

42:24 – "I think one of the underappreciated factors is like, where does MEV come from? One place it comes from is conflict. So fundamentally, like, I want to include my transaction that's worth money for me, you don't want me to include my transaction because it gives you a worse price. I want to win this ARB, you want to win this ARB. There are ultimately preferences that the world has and all of these actors in the system. And as great as it would be for everyone to get their number one choice on everything, that's not how the world or the blockchain works.

So then the question is, how do we coordinate an actually useful outcome that balances all of these different preferences and resolves these conflicts in a sane way? And unfortunately, the only answer we've seen in the past in crypto is add centralization. So I think what SUAVE is trying to do is provide a way to do this without centralization.

SUAVE is intended to add one option to: how do you match these intents? What is the most efficient way to both maintain value and privacy, but also get the execution you want." - PD

SUAVE-chain

47:02 – "SUAVE will have a SUAVE-chain that's able to do consensus, maybe faster or with some different trade-offs than Ethereum consensus. The way I described it is like these things are written on smart contracts. Where does smart contract

live? On a blockchain. Not all SUAVE contracts will be on Ethereum." - AM.

49:02 – "We want to be very flexible in what use cases people have and like what the requirements are. SUAVE-chain is there basically to lend economic weight to certain actions or messages that require this, this weight in a trustworthy way. There may also be advantages of using the SUAVE chain because it's kind of purpose built for a lot of this stuff." - PD

Decentralized Block Building

- 54:59 "I want to take a new lens for viewing SUAVE, and that's through the lens of being a decentralized block builder. Phil, can you talk about how SUAVE is a decentralized block builder and where those blocks actually go and what that even means? Can you just explain that process?" DH.
- 55:13 "The idea of decentralized block building is essentially once you have privacy, you can decompose what happens inside a block builder into different kinds of processes and different parts. And there's really nothing fundamental that says that these processes need to occur on a centralized server or in one place. [...] The idea of SUAVE is basically to let you write those [processes] as a smart contract.
- 1:00:05 "The world of block building competes on order flow. So whichever block builders have the most amount of order flow, the most amount of transactions flowing through their system that they have and no one else has, that block builder is going to be able to produce a more valuable block and become more profitable of an organization. Why would SUAVE be a better alternative for order flow versus a centralized builder?" DH.
- 1:00:31 "My thesis is that the value of decentralization and the amount of surplus that unlocks in the economy is far higher than the technical overhead of decentralization. [...] in terms of the things that SUAVE lets you do that you can only do because they're decentralized, how valuable are those? There is certainly some value to decentralization. The ability to have meta properties people care about, like censorship resistance, or robustness, or not being subject to any single regulatory regime, because you're located within the bounds of a jurisdiction, that unlocks a lot of value that we see in crypto today.

And my thesis is like, fairly valuable, even if you just look at a decentralized builder, or a decentralized relay in MEV-Boost, and you look at relays versus builders today, and the real constraints centralization imposes, I think those outweigh kind of people's first impulse, which is like, oh, the latency is very high, etc. I think actually, you know, the latency may be even far lower than they imagine. But there is obviously always some communication overhead to decentralization. So does it outweigh the value?" - PD.

- 1:02:36 "So during this entire time when we've been talking about SUAVE, we've used the term private many, many times. And Andrew, I know you have a particular interest in that space. In fact, that's maybe part of the reason you've decided to team up with Flashbots and fill in the team over here. Tell me, why is privacy so important to SUAVE, and what tech have you chosen for that, and why?" RSA
- 1:02:58 "Whoever has your data and is computing on it, so like a builder or a relay in the MEV supply chain today, they get to see your data, they're computing on it, you trust them not to abuse that privilege, but that's just how it goes. You have to trust them. So privacy and guaranteeing that you do what you claim, that you follow your own stated policy with the sensitive data, those are one and the same in these kind of applications.

So to start out, we are using trusted hardware enclaves and in particular Intel SGX. [...] they have an isolated execution environment where even the host of the computer, even if you have kernel access, even if you have hypervisor access, you still can't tamper with or inspect the contents of computing while the processor is computing on that process. It is a way of letting the computation happen on data without revealing it to even the person who's got root access on that machine." - AM.

Privacy & Trusted Execution Environments

- 1:04:32 "Andrew, people sometimes I've heard say SGX has backdoors, it's not secure enough, this type of thing. What do you say to those criticisms? Why is it the right technology for SUAVE?" RSA.
- 1:04:40 "So it's the right technology just because there's no other viable alternative right now. And I think that with the right system design around it, it's just good enough to be useful for this kind of credible computation." AM.

Benefits of SUAVE

- 1:08:24 "Could we just really quick rattle off the wins here from various stakeholders? So if I'm Ethereum, and SUAVE is kind of in existence, and it is providing decentralized block building, what's the win for Ethereum? How about other chains, other layer twos, or maybe alternative layer ones? What do they win if SUAVE is fully realized? How about users themselves? What do they win? Could you go through this from a stakeholder perspective?" RSA.
- 1:09:17 "It's really giving you the option to mitigate a lot of centralization pressure in your chain through these apps. So things that would normally make your chain more centralized give certain incentives to the biggest validators. You get some options to design solutions that basically reduce this without needing to necessarily build all the infrastructure yourself. So in Ethereum very specifically, our hope is that the MEV market remains kind of competitive, permissionless, and fair. And there are certainly many forces that are incentivized to make that not happen. And so the more tools the protocol has, the better a chance it has at maintaining its decentralization." PD.

- 1:10:48 "The value for Ethereum, with SUAVE in existence, is greater decentralization. And after all, isn't that the purpose of blockchain and crypto? Decentralization so that we can preserve these things like censorship resistance And, you know, diffusion of our validator set and all of these things and the checks and balances that are inherent in the system, that's the entire point. And you're saying you kind of provide a shield for an existing chain like Ethereum to bolster that and to resist the forces of centralization that are attacking it. That's what SUAVE is doing for Ethereum." RSA.
- 1:12:52 "Okay, so how about a layer two? What benefit do you get from that from SUAVE?" RSA.
- 1:12:55 "A lot of layer twos are in a very hard place right now looking at what to do with their sequencer. There's several choices. They can run a centralized sequencer, which is what all the major ones are currently doing.

A lot of these L2s want to decentralize the sequencer. But then you get into thorny questions of MEV, basically, depending on what design you choose. So maybe for those parties, it can provide kind of like a reference implementation almost, here is what a decentralized stack could look like for you, where you can also maintain control to kind of customize this however you want, you know, you can integrate with it or not." - PD.

- 1:15:56 "Are there any wins for the high throughput Solanas of the world with SUAVE?" RSA.
- 1:16:02 "There will be. I think that's less been our focus given our limited resources in the last, let's say, six months. But it's for sure part of the design." PD.
- 1:20:39 "The incentive to solve MEV, if you have like \$2 million a year of DEX volume on your system, is fairly low because it won't probably collapse your whole thing immediately. That being said, it's worth working on it early because otherwise you get blindsided." PD.

User Welfare

- 1:21:38 "All right, so the last set of stakeholders is users. Can we talk about user welfare in a world where SUAVE exists? How do they stand to benefit?" RSA.
- 1:21:55 "My thesis is pretty simple which is: you will not internalize the value of your data of your transaction as a user unless you have privacy there's just no market structure in which you efficiently do that Why? Because, like, what are your choices you can sell it to someone but then you have to negotiate a price under information asymmetry and when they go to actually execute that or serve your auction, there's now a principal agent conflict between you and them, where they're incentivized to screw you as much as possible. And there's no recourse for you. There's no falsifiability. And there's no competition, keeping them honest, either. It's kind of what you see in TradFi.

I think as a user, what you want is you want your order and your information, anything you're selling, you want competition, and you want basically leverage over like the competition. And I think that's what privacy provides you.

It's what we see with Uniswap X. There's no privacy, but there's a centralized server that permission gates who has access to the information and also generates fake information on your behalf that they know is fake, but no one else knows. So you end up with a kind of trust in the system in that way. And that's centralizing." - PD.

1:24:00 – "Can I just summarize maybe all of this, all of the wins for stakeholders? And I wonder if it just is as simple as this: If we want a system that is different than TradFi, SUAVE helps make that possible. SUAVE helps enable that.

Or it's a shield to prevent our system from becoming more like the TradFi banking system we just left. Is that the summary here?" - RSA.

MEV-time Applications

1:25:20 – "The property about SUAVE that I find interesting is it's very meta – like being pre-blockchain, being in the mempool or even pre-mempool layer is a very meta place to be.

I saw when I learned about Intents, I was like, oh, this is a way to abstract away all of these different chains away from users. And all of a sudden, the choices about where to find liquidity and how to bridge and which assets to route through and ultimately what chain to be on could, in theory, be abstracted. I'm wondering if you just have any thoughts about how SUAVE might help abstract all of the many, many, many different layers." - DH.

1:27:30 – "The abstraction is basically There's now this abstraction of a MEV-time application that you can write as a smart contract application. So what's happened is I thought of it as a separating thing, but it will be a unifying thing here as an abstraction, but it's a separating of what's now, you know, a block builder is both running their own hardware, providing this compute work.

[With SUAVE] you don't have to run a trusted data center yourself. So that separation of tasks means that the now unified notion is writing a MEV-time application and having a smart contract way to do that, to me is the thing that really opens up a new abstraction." - AM.

Fixing Crypto UX

1:29:12 - "I just almost feel like emphasizing that the left curve take on this: this is going to fix crypto UX. Is that true?" -

1:29:30 – "I think it's possible. I think it depends how many people build and integrate on top of it and the quality of the UX work we do. Because crypto UX tends to be like a history of us shooting ourselves in the foot over and over again. So hopefully we don't. Hopefully we don't repeat that process.

But yeah, I mean, I think it gives you a lot of new tools for building new types of crypto UX, like much more abstracted products in general. Like, I think you could even have products that somehow interact with swaps and give you some guarantees about blockchain state. But maybe the blockchain somehow is even more abstracted from this than just like, which token is being processed.

I think one fascinating direction eventually is like, okay, do you want LLMs on the blockchain? How do you want to interface with these, you know, that kind of brings up these questions of like, how do you actually do that in a decentralized way? I do think we're going to have for sure in like, a few years, way more options for building abstracted crypto apps. And maybe that's a lot of what's been missing in crypto." - PD.

SUAVE Roadmap

1:30:46 – "So what's the roadmap for SUAVE? What are the big obstacles that are left to get over? And when can we start to see mainnet, is that the appropriate word here? Like when SUAVE mainnet?" - DH.

1:31:00 - "I mean, you could have a SUAVE test net that produced real Ethereum L1 blocks, would that count?" - AM.

1:31:06 – "I think our current timeline, which is subject to the usual engineering constraints, is that we are building modular pieces towards this vision that are almost very separate, but will come together into one system, infrastructures for the chain and commitments, pre-compiles for MEV, privacy modules that are secure against various attacks. I think you will see much more by the end of the year and into Q1. I think we plan to have more public docs about where we're at. Our loose target is having some sort of testnet for people to play with, sometime in Q1. But before that, there will be components released." - PD.

Ad Auctions & Taylor Swift Tickets

1:32:33 – "Any stones that we've left unturned?" - DH.

1:32:46 – "So I think that there will be a lot of surprising ideas for applications that are hard to anticipate. That's kind of what I'm the most looking forward to." - AM.

1:33:41 – "If you want to drop some alpha along that vein, one fun one is like sneakers or concert tickets on SUAVE, anyone? Those options are pretty bad in the real world." - PD.

1:34:50 – "Okay, so this is why crypto needs SUAVE that's already been established. But at some level, I feel like our industry and we do lots of crazy things, of course, but one of the areas we are really pioneering in is solving coordination failure problems, seeing these better economic mechanisms that can create better cooperative games and better outcomes. And I think we are front-running that. We are ahead of the rest of the world with respect to that.

But it is a problem set and domain that spans outside of crypto, to Taylor Swift concert tickets, to obviously TradFi, which we talked about so much, to how do we solve the Al alignment problems? It's all kinda of there.

And I'm wondering, maybe this is a meta question on which to end Phil and Andrew is, we've talked about why crypto needs SUAVE, why does the world need SUAVE? How can we then take this and export this to the rest of the world? Because I think your ambition maybe doesn't stop with solving coordination failure problems within crypto. I think you probably see, once you see it, you see the world is full of these coordination problems. And this can be something we export to the world. How does that happen?" - RSA.

1:37:50 – "I do think we can go far beyond crypto. This is, I think, what crypto is trying to do. But I think we can't do it if we don't solve MEV. So they go hand in hand." - PD.

1:38:04 – "I mean, decentralized systems, Web3, blockchains, I think these all have, you know, no limit to their ambition of trying to reinvent institutions, coordinations, everything, kind of, you know, support human coordination more broadly. Those are all, I think, the right goals. I think this kind of technology, you know, trying to make SUAVE, it's addressing some of the obstacles to that and will be necessary to reach that vision." - AM.

Contributing to SUAVE

1:38:51 – "Where do you need the most help, Phil? I'm serious about that. Like, yes, your team deserves a lot of help and needs a lot of help. You want people to, you know, what's the shout out for help?" - RSA.

1:40:00 – "Build swaps, brainstorm swaps in various contexts. Think about decentralization, engage in our research conversations around privacy and we have like many, many research topics that are active, we're constantly putting out papers.

So whatever you're interested in, like come engage.

But ultimately, really, my ask is build the decentralized future, think about it really critically, like what do we need for decentralization? Is this the right way or not? And let's work together rather than us solving it and telling everyone how to do it. I don't think that will be decentralized. That's why we need your help to really make it decentralized." - PD.

If you are interested in contributing to SUAVE, check out our<u>open roles</u>, join the conversation here on the forum, or contribute to the SUAVE <u>github!</u>