

diffusetap
Virtual Event Series

DEX Deconstructed

Guest Speaker:



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Founder
Crocodile Labs

Hosts:



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DiffuseTap: DEX Deconstructed

Last time on DiffuseTap, Douglas Colkitt, Founder of Crocodile Labs, talked to us about what a DEX is and how it works, what separates it from a traditional centralized exchange, and the key opportunities that DEXs provide for traders and institutional investors.

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DiffuseTap

This networking session is part of our weekly virtual events series. Networking (you'll bump into at least a dozen high caliber fund managers) meets purposeful (you'll tap into brand-new sources of ideas)... straight from your armchair like a boss.

Meet the Speaker



Douglas Colkitt is the founder of [Crocodile Labs](#) and creator of [CrocSwap](#), an original multi-chain protocol that employs an innovative single-contract architecture. CrocSwap – available soon across all Ethereum compatible environments – drastically reduces gas costs and tax burden, and is the first ever protocol to support concentrated and ambient liquidity in the same liquidity pool.

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KENNY ESTES: Now, you all are here to hear from Mr. Douglas Colkitt. Doug, would you mind introducing yourself?

DOUGLAS COLKITT: Hi, everybody. Good to be here. A little bit about myself. I am the founder and CEO of Crocodile Labs. We're building a protocol called CrocSwap, which is a new AMM decentralized exchange. We should be out on Mainnet in about a month from now. I'm really excited about that. We think we're bringing a lot of new and interesting things to the space.

My background mostly involves high frequency trading. I started my career there at Citadel, then spent time across a number of smaller teams. Before building a protocol. I was an MEV researcher for a little bit, and I was trying to build a DEX or an AMM more from a trader market structure perspective, having been in the trenches. That's a quick intro on me.

AYLA KREMB: Beautiful. I think you and Kenny might have more in common than we thought, given you have a heavy trading background. But we'll get to that in a second. Let's start off with the basics. What is a DEX? Maybe you could give us a good overview of what a DEX is.

DOUGLAS: Right. A DEX can be a lot of different things. A DEX stands for decentralized exchange. It's different from your traditional centralized exchange. It's a venue. Way back, there used to be one or two people on the trading floor. Today, it's a bunch of servers in a data center, and there is one centrally administered computer or system that matches the orders and processes all the trades.

The idea with a DEX is that instead of building a single system or a single venue, or even a single entity that controls that trading, we have a decentralized protocol. Those could run on a blockchain, such as Ethereum or Solana. The idea is that by using a decentralized protocol, no single party has control over how the trading is executed. Everyone can see the rules. Everyone knows how trading works. This way, people can participate in it without the traditional barriers it would take to be onboarded to a centralized exchange.

KENNY: So, how does that actually work? I get that we have a server that's matching bids and offers, and now we also have these smart contract things, but can you try to explain a little bit more about what the code is actually doing?

DOUGLAS: One thing to keep in mind is that smart contracts are programs, and those programs run on blockchains. But unlike traditional computer programs, it's much more computationally limited, because every node in the blockchain network has to verify the computation. Typically, you can't run a full centralized order book. There have been different attempts to do something like that with different



blockchains. But on something like Ethereum, it just isn't computationally feasible to run your traditional limit order book.

So, the way DEXs actually work is they use something called an automated market maker, or an AMM for short. Basically, instead of having traditional market makers that come in and place bids and move them around, because again, that would be too transaction intensive and would require too much computation to run on the blockchain, you have a pool of liquidity. Anyone can come in and provide liquidity in that pool, which basically means depositing some amount of capital.

Let's say the market is ETH versus USDC. I can come in, put an equal amount of Ethereum and USDC into the pool, and then the pool sits there and that capital is providing liquidity. Then, other participants can come in to access that liquidity. If I wanted to buy some ETH with my USDC, or sell my ETH for USDC, I go into that pool, I spend a little bit of ETH into the pool, and the pool sends me back some USDC at the current market price. The more ETH I send or the more USDC I send, the more slippage occurs. And then, the price moves over time.

Basically, the pool is always trying to balance out the value of the two pairs in the pool. Now, there are a lot of variations of that. There's concentrated liquidity, which means you're only providing liquidity in certain ranges. There are also pools that add more than two assets. And there are special types of algorithms that work with a pegged exchange rate. For instance, USDT and USDC should theoretically always be one to one.

There are a lot of variations of how you can do that, but the general idea is you have two sides. You have swappers who want to trade, and you have liquidity providers who want to earn some yield on their capital. It's a way for liquidity providers to come in, provide capital, and generate yield. That's a DEX in a nutshell.

AYLA: I have a couple questions here. I think people are really interested in the whole concept of AMM. How does this whole thing relate to options markets? When it comes to trading in options markets, especially in crypto, is AMM the future? Or is it still a pipe dream?

DOUGLAS: That's a really interesting question. One interesting property of AMM is if you're a liquidity provider, you're short gamma all the time. Going back to options 101, there is this concept of gamma. The higher the volatility is, the more money I make. That's when I'm long options on long gamma. But if I'm short options on short gamma, more volatility is bad for me.

Being a liquidity provider is actually in some sense being short gamma or short convexity because your portfolio is always rebalancing in the wrong direction. If Ethereum is going up, you're continuing to sell Ethereum and getting USD. That means you're losing on the way up, and you're also losing on the way down. The more that price moves around, the worse it is for you as a liquidity provider. In that case, your hope is that the yield you generate from the fees and the pool outweighs that.



When you're providing liquidity into a pool, you're taking a bet on how volatile this price is going to be. And you're betting that hopefully, it's not going to be that volatile. There are a lot of interesting connections between that and traditional options theory, especially with concentrated liquidity. That's because you can set your ranges at certain prices, where you can stop providing liquidity at a certain price. That starts looking a lot like traditional options with a strike price.

There is a lot of interesting mathematical work being done around it. But a lot of it is in an early research stage about how to turn x into y. There are some wrinkles on the side on how to do that. That's in terms of the options. The other question is whether AMM is the future. We'll see who can answer it. I personally think there are a couple of very interesting properties you get with AMMs that people didn't really appreciate until they were in the wild.

It's very hard for me to go to NASDAQ and provide liquidity. If you're just a random guy and you want to provide liquidity on Microsoft, well, good luck. You're going to have to be collocated. You need to have very sophisticated market making algorithms. The limit order book makes it inaccessible for average people to provide liquidity. They're very "undemocratic" in that sense.

But in an AMM, we're all in the pool together. In an AMM, we rise and fall together. It's very hard for one participant to get a systematic leg up like the way you can in a limit order book, where if you have low latency, you can get to the front of the queue. I think that's a very interesting property. The other nice thing that comes from that is high frequency liquidity providers are great, but they tend to be very thinly capitalized because they're just there for huge returns on a small amount of capital.

As a result, you have a system where average people or non sophisticated participants can't step in and provide liquidity when all that liquidity gets exhausted. So, I think AMMs have a lot to add in terms of giving a larger range of participants the ability to provide liquidity. And to be honest, I think we'll probably keep innovating on the mechanisms side. I think in the future, you'll see not just AMMs and limit order books, but something in between.

KENNY: That makes a lot of sense. You didn't touch on one of the other unintended consequences of TradFi, which is the arms race of shipping information through satellites and microwave towers. They're all super expensive, and it's not clear whether they will actually benefit society. That's something to think about.

Now, we talked about how DEXs actually work. Has it got significant traction? Maybe volume is not the most meaningful number there, but what about assets?

DOUGLAS: Well, it is hard to compare assets. Again, AMMs are not as capital efficient as traditional market making because you can't replicate traditional market making. I can put a little bit of liquidity at the top of the book and move around when the prices move. But traditionally, an AMM is more capital



intensive because you can't move around liquidity. You have to provide liquidity through larger price ranges.

That being said, the amount of liquidity and the assets in AMMs are on the order of 10 billion, depending on which protocols or which blockchain you're looking at. The volumes are pretty meaningful as well. Volumes are on the order of 1 to 2 billion a day. Uniswap, which is the biggest protocol, is not too far behind Coinbase. That gives you some sense of how big they are.

AYLA: Fascinating. Maybe we could dig a little bit deeper into the opportunities that are available on a DEX but not on a traditional exchange. What are the opportunities that you can get access to in one of these DEXs?

DOUGLAS: Sure. The simplest thing is that AMMs are permissionless. If there is a new token out, anyone can spin up a new pool on Uniswap or any other AMM. And now, we have a market for this token. You don't even need the token creator's permission. I think one big reason that AMMs took off in 2020 is because they serve this long tail of assets.

When a new token or a new digital asset comes out, there has always been this chicken and egg problem. No one will trade it until it's on an exchange like Coinbase or Binance. But Binance and Coinbase don't want to list it until people are actually trading it and until there is some sort of market validation for it. So, one interesting thing about AMMs is that they have way way more assets, especially longer tail smaller cap assets, than on Coinbase or Binance, or other centralized exchanges.

If you want to get in the very early stages of projects or tokens, AMMs are often the only way to do that from a more sophisticated trader's perspective. There's also the opportunity to provide liquidity and earn yield in a way that isn't similar as in centralized exchanges. And finally, a lot of the people I've talked to in the space are saying "we're doing as much volume on DEXs as we are on centralized exchanges because when we look at our smart order routers, we're often getting better execution at DEXs."

The prices at DEXs are often better or tighter than they are on centralized exchanges. I think there's also an opportunity there if you're running a big fund. If you're executing a lot of volume, you shouldn't be ignoring the DEX space.

KENNY: That makes sense. I have a softball question from Tim. You're going to love this one. What sets you apart from the rest of the DEXs? What's unique about your offering?

DOUGLAS: Sure. That's a great question. We've built a number of factors. We're a concentrated liquidity DEX, and there's only one other out there right now, which is Uniswap. That's the first thing. We've also built our offering to be substantially more competitive in terms of gas costs. Anytime you do operations on the blockchain, there are always gas costs associated with it, which is what you pay to the Ethereum



network. People are paying \$100 on gas costs when they can be paying \$50 to use our network. We think that's a big value add, especially for smaller users.

We're also building a lot of interesting new primitives in the space. We have this concept of permission pools. Now, those don't just have to be our permission pools. Those could be any kind of Oracle. I think people have been left out, or more institutions need to know their counterparty and who they're trading against. As a solution, we can build both permissionless pools and permissioned or KYC whitelisted pools side by side. You can choose what suits you best.

The other problem with AMM that we're innovating on is, it hasn't been great for liquidity providers, because often, the convexity costs outweighs the fees you're earning. Traditionally, AMMs just have a fixed fee, such as 30 basis points in a given pool. One problem with that is market makers often narrow their quotes when volatility is low. Or when there's not much toxicity in the market, they widen their quotes.

As an LP in an AMM pool, you're not getting those few times where the market's crazy volatile, and people will pay up for liquidity. A lot of AMMs sell liquidity too cheap during times of volatility, and liquidity providers are not getting the yields that they could. And so, we're doing a lot of interesting things around dynamically setting the fees, and making sure liquidity providers are charging accurate amounts for liquidity depending on market conditions.

AYLA: That ties in with one question that made its way over to Telegram, for some exciting reason. Someone was wondering about being passive LPs without incentives of any kind. Do you think that is the backbone of this industry?

DOUGLAS: That's a really interesting question. We've done a lot of research around how liquidity providers should be incentivized. And to give some context, what incentivizing means is not only will you earn the fees generated by the pool, but some external party will incentivize its own liquidity, and will give you additional rewards for providing liquidity. That external party could be the DEX or the token itself.

It's a really good thing to bootstrap liquidity when a market is just starting out, but the problem is that too many protocols have become addicted to it. Most of the yield is just coming from these token emissions, and that's not sustainable long term. It's just diluting the token supply over time. I also think dynamic fees is a big thing, because you do lose out on fees you could be earning in higher volatilities, where people will actually pay for it. As a passive provider, that isn't great.

The other problem with DEXs is that the order flow is very toxic. There are a lot of bots that are just sitting there arbitraging prices between centralized and decentralized exchanges. And ultimately, that comes out of the pocket of liquidity providers. There's also MEV, or what's called just in time liquidity which picks the pockets of passive liquidity providers. We have a couple of mechanisms around that, especially around the MEV, that I think will enhance the yield. Right now, it's about breakeven. It doesn't take much to make the toxicity a little worse, and make the fees a little bit higher to make the equation a lot more sustainable long term.



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Dennis Chookaszian

Corporate Director, CME Group

DiffuseTap: Institutional Grade Governance

Sharing his decades-long expertise on corporate governance, Dennis talked about how to avoid a co-partnership going sour, the problem with overly idealistic CEOs, and the importance of keeping your board in check. [Read on](#)



Susan Brazer

CEO & Founder, LionShare Media

DiffuseTap: Media Metaverse 2022

Susan described the 2020 digital media landscape; the evolution of media distribution; how converging, emerging technology points to the metaverse; and the prospect of having an open, decentralized, and free Web 3.0 marketplace. [Read on](#)



Raj Mukherjee J.D.

VP/Global Head of Tax, Binance.US

DiffuseTap: Crypto Taxes Decoded with Binance.US

Raj explained the complexities of the US crypto tax landscape, how he built a dynamic tax information system for [Coinbase](#) and [Binance](#) from scratch, and how investors can profit from crypto without getting caught in a taxation mess. [Read on](#)

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