Intro: Why Superfluid?

LayerZero, to the excitement of many, launched just last week. LayerZero is a protocol that enables cross-chain messaging; it's simply infrastructure that others can build on top of to create interesting applications, such as the Stargate bridge which also launched last week. Stargate's STG token quickly rocketed from its $0.25 cent launch price to over $3 now as investors looked for a way to get exposure to the use cases that the LayerZero infrastructure enables. LayerZero also just raised a $135 million round at a *$1 billion* valuation.

Why are we mentioning LayerZero in an overview on Superfluid? Because, in our opinion, we're looking at a similar type of setup here: a blockchain infrastructure technology that really does have the potential to reshape the way we do something – in the case of Superfluid, the way we process payments. Multicoin capital, a lead investor in Superfluid, called it "the biggest step forwards in value transfer since the advent of Bitcoin". This is certainly a bold claim, but, regardless of whether you agree with it or not, it highlights a reason why we should care about Superfluid.

Superfluid currently has no token, so we cannot directly invest in it through public markets, but it's certainly something worth learning about and monitoring due to the potential use cases and benefits it unleashes.

What is Superfluid?

Superfluid is a smart contract framework that enables the streaming of on-chain funds according to pre-defined rules and without on-going gas fees. For instance, if you wanted to pay an employee $20/hour, you could set up a stream to pay him or her 0.00555 USDC stablecoin per second. This would constantly flow from your wallet to the employee's wallet, with no further intervention needed on your part until you wish to cancel the subscription. The employee can claim the so-far-received funds at any time.

What are some advantages of Superfluid?
- Money can constantly flow; there is no need for a monthly lump sum payment, and the employee can spend half his salary halfway through the month. Payments are immediate.
- The stream can be arbitrarily complex; money can flow to any number of receivers (say, multiple employees), and those receivers can claim it or build streams to move it elsewhere (for instance, "stream the first $1200 of my salary, per month, to pay rent").
- **A single transaction can start an indefinite flow**; this stands in stark contrast to the way we currently use blockchains, which requires a user to initiate (and pay gas fees) for every single payment or smart contract interaction.
- Better capital requirements; if you're paying a $1200/month subscription, you could instead turn that into a stream payment and therefore not need all $1200 up front.
- System in place to stop a stream if there are 0 funds left in the sender's wallet (we'll talk about this later).
- No one else can charge your account like modern subscription services or ACH can; the sender must initiate the stream. This can reduce fraud.
- Superfluid is live on Ethereum, Polygon, Optimism, Arbitrum, and xDAI chains.
- Superfluid is backed by some great funds/people, including Multicoin Capital, Delphi Digital, DeFiance Capital, Do Kwon, and Stani Kulechov.

Use Cases

Aside from the use cases we already mentioned (paying employees, paying for a subscription

service, and paying rent), there are other great use cases that can be enabled by Superfluid.

- Peer-to-peer payments; if I owe you $100 but don't have it all right now, I can stream it to you over the next month.
- DAO payrolls; this is a big one! Superfluid also supports Gnosis Safe wallets, which many DAOs use to handle funds in a safer way.
- Real-time investing; you could stream 10% of your salary into automatically buying Bitcoin or some other token(s).
- Protocols can leverage it internally; derivatives protocols and credit/debt protocols can use it for things like settlement and collateral management.
- IOT devices to facilitate real-time payments.

How's it Work?

In general, using Superfluid is fairly simple. First, the token(s) that you want to stream to someone else need to be converted into a "super token", which is just a representative of the original token that can be streamed. If you want to stream ETH to someone else, you'd convert it to ETHx programmatically or via an interface like the Superfluid dashboard.

Next, you'd determine your stream's rules. This could be something like, "stream 0.0005 ETH to Jeff's wallet every second". It could also be more complex, perhaps involving multiple recipients or rules. Then, you'd submit the transaction to begin the stream. Until you wish to cancel the stream, you're done! The receiver will be able to come claim the so-far streamed funds at any time, or he or she can stream them elsewhere.

However, what happens if your wallet runs out of ETH while the stream is ongoing? Well, when you first initiate the stream, you must lock some capital (usually about 4 days' worth of your stream) as the "buffer". If you run out of funds, **Sentinels** are responsible for monitoring the network and ending your depleted stream. The buffer is there as an incentive for them to do so, and there are also punishments in place for Sentinels who fail to do so. Anyone can run a Sentinel, and, perhaps in the future, there could be an incentive system build around the Sentinel network that uses a Superfluid token…just something to watch out for.

Current State of Superfluid

It seems like, generally, Superfluid's technology is flying a bit under the radar right now. Some of that may be due to the fact that it has no token (everyone loves a token!), but it also is likely just early on in the adoption cycle. Despite this, there are some protocols already leveraging Superfluid's technology. A few notable ones are:

- Diagonal: A protocol for accepting and managing subscriptions using tokens.
- Ricochet: An investing protocol that allows users to stream funds into a variety of crypto assets and yield farms.
- Debt DAO: Leveraging Superfluid to enable payroll financing for other DAOs.

Overall, Superfluid is certainly developing a piece of infrastructure that can revolutionize the way we use blockchains to make payments; for many use-cases, streaming payments simply *makes more sense* when compared to monthly, yearly, or one-time payments. We will certainly be monitoring the progress of Superfluid over time, and we look forward to seeing more use-cases come to life and gain adoption!

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