Rating
76/100⭐

All data is from 2/9/22

Snapshot	
Ticker	SYN
Current Price:	$3.07
Market Cap:	$554,740,249
Circulating Supply:	180,881,601
Token Type:	ERC-20
Sector:	Infrastructure

Note: Everything pertinent is bolded - if you want to read the shorter version of the report, feel free to read only the bold parts. If you want the more in-depth version, the non-bolded parts go deeper.

Executive Summary

Synapse Protocol is, to summarize it in one word, a bridge. It allows users to move assets from one chain to another and it does so without the need to issue synthetic assets that can confuse users and force unnecessary integrations. With a "multi-chain future" on the rise as Ethereum's market share of smart contract platforms has fallen to under 60%, projects like Synapse that allow users to quickly move funds across chains are becoming more and more important.

Synapse split out of Nerve Finance and launched in August 2021. Since then, it has processed over $6 billion worth of asset transfers[1] and become my bridge of choice when I need to use one. In this report, I'll focus on its SYN token, the fierce competition it faces, and potential catalysts that could differentiate itself from that competition.

How It Works

Synapse is built to power asset transfers, swaps, and messaging across various blockchains. Although it can also be used for swaps on the same chain due to its built-in AMM (automated market maker), the uniqueness of Synapse comes from how it works as a bridge.

Synapse is powered by a network of secure multi-party computation (MPC) validators operating with threshold signature schemes (TSS).[2] It's not as complicated as it may sound; all this means is that, when user A wants to bridge asset X from chain 1 to chain 2, the user sends the asset to Synapse's smart contracts on chain 1. The validators, using off-chain programs and operating with TSS, are watching for transactions coming into this contract, and they run the same process, privately, to ensure it is correct. Once ⅔ of the validators have signed off on the transaction, consensus is achieved and a transaction is issued on chain 2 to give user A the requested asset X on chain 2. A relatively simple process at a high level.

As mentioned earlier, Synapse features an AMM to perform swaps of assets, such as swapping one stablecoin for another (like USDC to USDT). It also has its own cross-chain stablecoin called nUSD, which is fully backed by Synapse's liquidity pools and serves to make the

cross-chain swaps necessary for bridging. These liquidity pools, which currently hold over $1 billion worth of assets, are what makes it possible for Synapse to take tokens, like USDC, on chain A and give you USDC on chain B rather than a synthetic asset.

An example may make this more clear. Say you want to bridge 5,000 USDC from Fantom chain to Avalanche chain. To do so, you'd initiate the bridging process, using Synapse's interface, while connected to Fantom chain. At the time of writing, you must pay a 6 USDC fee (to pay gas fee on the destination chain, Avalanche, which is calculated using average gas costs), and the exchange rate for USDC on Fantom to USDC on Avalanche is 0.9995. So, all in all, you'll receive about 4,992 USDC on the Avalanche chain, as well as 0.025 AVAX which is given so that you have enough gas (gas on Avalanche is paid with AVAX) to make 1-2 transactions. You'd submit the transaction and, after a short time to ensure that the transaction is finalized on both chains, you'll receive your USDC in your Avalanche wallet.

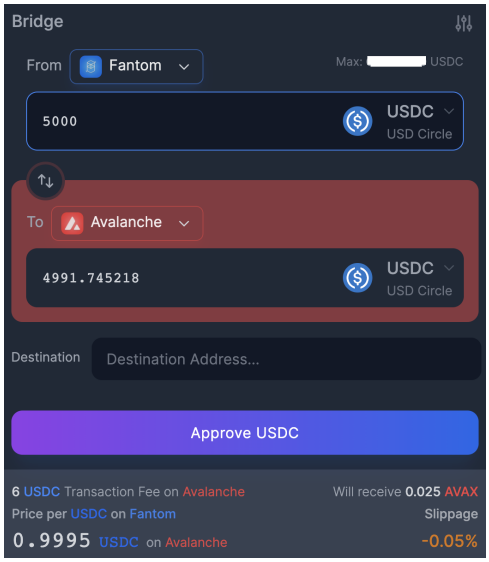

Figure 1: Bridging USDC From Fantom to Avalanche

Under the hood, your USDC on Fantom is first put into the stablecoin liquidity pool on Fantom, which currently has about $44.5 million in it. This pool contains USDC and USDT, as well as nUSD which is simply a stablecoin that represents the liquidity provided by the UDSC and USDT. Next, Synapse swaps some liquidity into nUSD, and that nUSD is bridged to Avalanche by the validators, who see the request and then sign off on it, allowing nUSD to be destroyed on Fantom and minted on Avalanche. Then, that nUSD is swapped back into USDC using the Avalanche liquidity pool, which has about $95 million worth of liquidity between USDC, USDT, DAI, and nUSD. Synapse's high liquidity in these pools allow these swaps to happen with very small price discrepancies, and the AMM setup used allows for very small fees. Lastly, you're given the resulting 4,992 USDC on Avalanche.

Synapse has liquidity pools for stablecoins (USDC, USDT, DAI, and BUSD) on various chains, as well as pools for ETH on certain chains. Using the AMM, however, it can support some other assets like SYN, FRAX, and gOHM. **Synapse also supports 12 chains at the moment: Ethereum, Avalanche, Binance Smart Chain, Polygon, Fantom, Arbitrum, Harmony, Optimism, Boba, Moonriver, Aurora, and Moonbeam.**

Competition

Synapse is, of course, not the only protocol out there working on cross-chain transactions and communication. Multichain, which rebranded from AnySwap, has processed over $56 billion worth of asset transfers,[4] over 9x what Synapse has processed thus far. Other competitors include Wormhole, Layer Zero, Hop Exchange,

Connext, Thorchain, Composable Finance, Cosmos' IBC, AllBridge, Umee, and chain-specific bridges like those of Avalanche, Arbitrum, Near, and Polygon.

Discussing competition becomes *especially important* when looking at cross-chain projects like Synapse for two reasons. (1) As crypto becomes increasingly cross-chain oriented, users will likely bridge more often and the security of these bridges will be paramount. There is money to be made by betting on bridging protocols as this change further plays out, but some will be outcompeted or their security will fail. **(2) Simply moving assets straight from one chain to another is not the "end all be all" of cross-chain communication, and competitive advantages can be acquired by offering other functionality. To that end, we'll look at two things in this section: technologies and usage.**

Technologies

1) Synapse, Multichain, Wormhole, and Thorchain all employ the MPC validator strategy to facilitate bridging.[4]

Pros:

-New chains can be added relatively quickly.
-Flexible transaction types.

Cons:

-Smart contract risk, since the protocols use their own contracts.
-**External validators must be trusted**! Synapse and Multichain require liquidity providers to constantly trust the validators, and Wormhole requires holders of their synthetic assets to constantly trust the validators.

2) Cosmos' IBC protocol and Near's Rainbow Bridge allow chains to communicate directly with each other - if chain A sends assets or messages to chain B, chain B directly processes that transaction.

Pros:

-Removes the need to trust external validators; you must only trust the chains' existing security.
-Can allow for flexibility in transaction types.
-Standardized method of communication.

Cons:

-Comes with more complex setup requirements.
-Interoperability issues since obviously not every chain implements, or even could effectively implement, IBC due to consensus differences and high costs of running a light client.

3) There are other mechanisms as well, such as those implemented by Hop and Connext, which are focused mostly on rollups (scaling solutions).

Pros:

-Only require the user and one counterparty user to interact with each other.
-Utilize existing validators to confirm transactions.

Cons:

-Not easily extensible to a variety of transaction types, though Connext is working on this.[5]

4) Further, Layer Zero is using yet another type of setup, which involves oracles, relayers, and proofs.[6]

Pros:

-No need to trust external validators; dual security via specific oracles and relayers needing to collude to misbehave.
-Cheaper vs. light-client-based implementations.
-Generalizable/flexible transaction types.
-Unified liquidity and built-in swaps.

-Developing an IBC implementation that uses Layer Zero as the transport layer.[7]

Cons:

-Not live yet (and no token).

-Still need to trust specific oracles and relayers.

Overall, it seems that the exact bridges used may vary by use case in the future. If a *large* fund or company is bridging assets and wants to use the safest method they can find, they can opt for something like the Hop/Connext setup or IBC. This minimizes trust while, in the case of Hop and Connext, limiting what types of transactions can be done. They also may simply move their assets to a centralized exchange and deal with withdrawing to another network from there, but that's out of the scope of this report.

Where most of the other volume may occur and, in my opinion, where winners will be crowned via high user volume and attention, will be on more flexible cross-chain experiences. Being able to interact with a variety of chains and do various actions (swapping, providing or removing liquidity, voting, managing yield farms, lending, etc.) with less transactions and, in some cases, without needing to necessarily know what chain you're using is one end goal for effective cross-chain communication. **Layer Zero is certainly making tremendous progress towards this, especially with the combination of Layer Zero and IBC. Still, Synapse is also, due to high flexibility and development speeds provided by the separate validator set, potentially in a good position to accomplish this. Multichain is also openly pursuing this goal.[8] The trust requirements and implementation for each approach are different, and we'll have to see who reaches this point here and gets major adoption.**

Usage

As interesting as it is to talk about the potential seamless future of cross-chain communication, the tech is not there yet. Currently, basically all cross-chain communication leverages simple asset transfers from chain A to chain B. Synapse is certainly a major competitor in this space, but Multichain is a leader in terms of volume. Let's take a look at some stats comparing Synapse and Multichain (see table at bottom of page).[9,10]

Some notes on these stats:

(1) Multichain has been around longer than Synapse.

(2) Multichain's token used to be ANY; they have converted to MULTI along with their rebrand.

(3) Multichain makes their validators public, while I was unable to find info on Synapse's exact validators - though this changes in the next phase of Synapse (discussed later).

Synapse *has* seen solid growth since its August launch (see Figure 3 and Figure 4 on the next page for volume and transaction from August until now).

Protocol	30d Transactions	30d Volume	TVL	# Chains	Token	Token Market Cap	Token FDV
Synapse	109,720	$2.34 B	$1.18 B	12	SYN	$554 M	$787 M
Multichain	569,637	$19.71 B	$8.04 B	32	MULTI	$470 M	$2.5 B

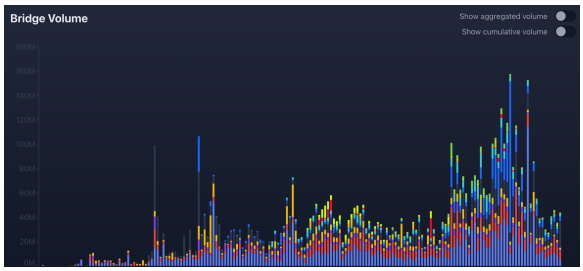

Figure 2: Synapse bridge volume, 8/16/21-2/9/22

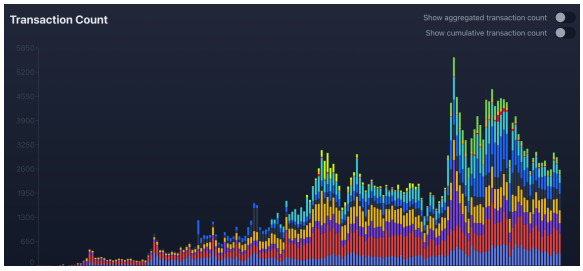

Figure 3: Synapse bridge transactions, 8/16/21-2/9/22

Still, when you combine these stats together, it doesn't paint a rosy picture for Synapse at its current price, compared to Multichain. Multichain's partnerships with protocols like Aave, Curve, SushiSwap, and DeFi Kingdoms, upcoming tokenomics changes, and fees paid to stakers definitely makes it a fierce competitor to Synapse, and one that Synapse is trailing at the moment.

Overall, Synapse is obviously facing solid competition as it competes for a larger market share of the growing cross-chain communication ecosystem. **Projects like Synapse, Multichain, Layer Zero (eventually), Composable Finance, and others are all competing for cross-chain transaction volume (and therefore revenue via fees), liquidity, and technical advantages. It will be important to monitor changes in these stats over time but, based on the current numbers, Synapse is not *the* leader in this space.**

As you could see in the Synapse vs. Multichain table earlier, Multichain, despite its token having a lower market cap than SYN, has been doing multiples of Synapse's volume. However, Synapse's high relative price may be explained by catalysts coming for Synapse. After all, the market (at least somewhat) prices in potential future growth.

Catalysts

Synapse's high price relative to Multichain may be a reflection of a potential bright future ahead. It may also be due to a more user-facing experience (from what I've seen, most Synapse users use it directly through the interface, while many Multichain users go through a different interface via a partnered protocol), but let's focus on the catalysts here.

Some important upcoming catalysts include a UTXO-EVM bridge (allowing bridging to chains like Bitcoin and Cardano) **and a Rust-EVM bridge** (allowing bridging to chains like Solana and Cosmos chains such as Terra or Osmosis)**. The increase of users going cross-chain and probable increase in this number as easily-usable rollups come online is another obvious catalyst that is already driving increased bridge volume.**

However, the big catalyst is the potential for Synapse to become an L1: its own proof of stake blockchain. In the "Archean Phase", the *next phase* of Synapse, the validator set will be decentralized (anyone can do it, versus right now where only specific entities can run validators) **and each will be required to stake SYN to validate the chain. This will lock up more SYN, reducing circulating supply. In**

exchange, validators will earn a share of protocol fees and SYN rewards. If they behave maliciously, their some staked SYN will be slashed (taken away).

This could potentially be a huge catalyst as it introduces the concept of SYN being required for transactions that do not directly bridge to another chain, creating more value/use-cases for SYN. It also allows people to build directly on the Synapse proof of stake chain and strengthens the reliability of validators due to increased economic incentives and decentralization of the validator set.

To prepare for this move (there is still no exact timeline announced for when the chain will go live), **SIP-06 (see Figure 4) was passed by governance. This approves SYN staking to begin even before the chain goes live** - rewards will auto-compound, and 4.5 million SYN has been ear-marked to be used as staking rewards over a three month period. Additionally, when you want to unstake, there will be a 7-day period where your SYN is locked, similar to mechanisms used by many Cosmos ecosystem projects. **However, although this vote was passed last November, we're still waiting on staking. It's being worked on, as is the chain itself, but nothing is live yet. Keep in mind Synapse only went live 5-6 months ago.**

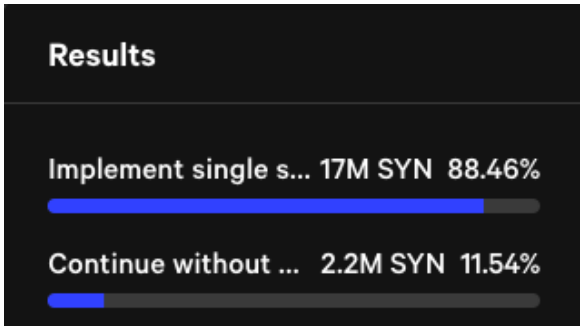

Figure 4: SIP-06 Passes, Approving Future SYN Staking

Finally, I will note that Synapse is one of the top 20 protocols on Fantom (due to their high amounts of liquidity on that chain) and received some of the initial supply of the Solidly project's token - Solidly is a DeFi project created by Andre Cronje, founder of Yearn and a some other high profile projects. Synapse will most likely be partnering with Solidex, a project building on top of Solidly, to maximize earning potential and perhaps even distribute tokens directly to SYN holders. DAOs such as Curve, REN, Geist, Yearn, Multichain and veDAO are also joining Solidex, so this could strengthen Synapse's relationship with those DAOs and perhaps result in future partnerships.

Tokenomics

Synapse's SYN token has a maximum supply of 250 million tokens, and over 180 million of them are already circulating. This is a breath of fresh air, especially considering the many projects out there right now that have a far smaller percent of their eventual maximum supply in circulation. **SYN, aside from being used for governance, is really just there to offer liquidity provider incentives and a way to speculate on Synapse's future (*for now*).**

Newly minted SYN is used to incentivize liquidity providers to deposit liquidity. Liquidity providers earn SYN at an interest rate determined by the protocol and the amount of liquidity in the pool. These SYN emissions to liquidity providers have also been reduced as the protocol has matured, and some has been directed to Olympus Pro. Synapse's longer-term goal is to own more of their own liquidity, so they joined Olympus Pro which allows them to sell some SYN in exchange for liquidity shares

like SYN/ETH LP. This should reduce the need, over time, to pay SYN to external liquidity providers, as Synapse will own more of their own liquidity. All of **this is important because liquidity is what makes the bridge *work*.** Additionally, Synapse has partnered with Fei Protocol and Ondo to get cheaper liquidity for their SYN token, which is also a plus.

Synapse collects small fees from transactions. 60% of these fees go to the treasury, and the other 40% go to liquidity providers. The 60% to the treasury helps the treasury accrue a variety of assets, including many stablecoins, so that it can diversify and be used for future endeavors.

Obviously, once Synapse's proof of stake chain goes live, some of this will change. As mentioned above, SYN will likely be required to pay gas fees for certain transactions, SYN will be awarded to validators who stake SYN, and validators can have SYN slashed for malicious behavior. **Until then, however, SYN's tokenomics are set up such that inflation is not *extremely high* - about 560,000 SYN is emitted per week to liquidity providers.[11] If this emissions schedule stayed constant, SYN would reach the max supply in about 123 weeks - just over 2 years. Emissions will likely be decreased far before that.**

Overall, SYN's tokenomics look solid, but, for now, the main point of the token is just to incentivize liquidity providers while also providing a way to speculate on Synapse's future. It's also used to vote on governance proposals.

Team Analysis

Aside from my (positive) interactions with the team in their Discord, **I was not able to find a ton of information on them**. Here is one team member, AureliusBTC, and here is another (though his bio says "prev: Synapse", so he may no longer be involved). Here and here are two more. **All of these members I found are anonymous, which is not a huge red flag as it is obviously very common in the crypto space. The team has shipped a great product and, based on their announced plans, is continuing to innovate. Plus, the investors mentioned next can provide some reassurance if this scares you.**

Since Synapse broke off from Nerve Finance, we can refer to Nerve's investors to gauge which investors are backing the project. These include Three Arrows Capital, CMS Holdings, Alameda Research, Immutable Capital, and Primitive Ventures. This is a *very good* list of investors - a great sign. Avi Felman, Co-PM at BlockTower Capital, also tweeted "I've known the team for some time, really appreciate their focus, talent, and vision. Rare you find all three of those qualities."[12]

Risks

SYN does not come without notable risks, including hacking risks, competition risks, and execution risks.

Synapse has seen one vulnerability so far, but it was related to smart contracts developed by Saddle Finance, and the hack (worth over $8 million) was prevented by the validators. The

vulnerable contracts have since been replaced with more battle-tested AMM code. However, **there is always the risk of potential future hacks which would certainly affect the SYN token price**. Bridges are certainly high-value-targets for hackers, evidenced by the recent $300+ million hack on Wormhole and the vulnerability found in Multichain smart contracts just a couple weeks ago (both of these were fixed).

The aforementioned **strong competition is another risk. Synapse is already facing strong competition from the likes of Multichain and IBC, and more projects (like Layer Zero) are set to enter the space. Continuing to innovate by, for example, launching SYN staking and a proof of stake chain and allowing for even more dynamic cross-chain transactions will be key for Synapse to retain a competitive advantage.**

Further, **in the future, many dApps that are deployed on various chains may choose to integrate bridges to allow users to go cross-chain from the dApps own UI**. Projects like DeFi Kingdoms have already done so via Multichain's bridge. **If more popular dApps go this route, it will be key for Synapse to secure high value partnerships** to continue to draw more volume into their bridge.[13]

Finally, related to competition risk, **there is execution risk. Synapse has a terrific product and interface right now - it's one that I use weekly - but the team must execute on future improvements in order to continue drawing value to the Synapse token and volume to the bridge.**

Rating Summary

Synapse is an emerging player in a rapidly growing sector. The crypto world is growing increasingly multi-chain, setting up Synapse for potential explosive growth. At the same time, Synapse sees high competition in this sector from current leaders like Multichain, who currently does multiples of Synapse's bridge volume while having a lower market cap, and new entrants with new technologies like Layer Zero and Umee. Synapse's clean interface, growing userbase, and future catalysts to compete are laid out, but these must be executed on and partnerships must be made.

There are pros and cons to every protocol in this space and I feel as if a 76 rating, given the upcoming catalysts and strong tokenomics, in combination with the strong competitive environment, is a rather fair rating.

SYN Ratings
Catalysts: 18/20
Competitive Analysis: 10/20
Tokenomics: 18/20
Team Analysis: 16/20
Risks: 14/20
Total: 76/100

How to Buy

SYN can be purchased by swapping ETH for it on SushiSwap on Ethereum mainnet. It can also be purchased by swapping AVAX for it on Trader Joe on Avalanche chain, or by purchasing it on Gate.io, a centralized exchange. These latter two options are less liquid, however.

Citations

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