Whitepaper

A DeFi automation platform

Abstract

Mimic is a platform to automate the way users interact with different DeFi protocols making their assets management experience much easier than before. It simplifies the interactions with DeFi protocols by automating them into actions that are triggered when pre-set conditions are met. These actions determine how assets of a treasury are swapped, bridged, allocated, or withdrawn, among other things.

As opposed to other asset management solutions, Mimic provides an enormous flexibility to embrace this constantly-changing ecosystem, making it usable for tons of use cases while remaining **transparent, trustless and non-custodial**.

Introduction

During the last years, cryptocurrencies have become a mainstream that keeps gaining traction over time. The fact that many people have tons of money in crypto assets sitting there not knowing how to put them to work, is a well-known problem. This becomes even a bigger **question mark for DAOs and financial institutions**.

The rise of DAOs as vehicles to drive organizational growth has been exceptional over the last few years. There are many trending DAOs holding +10 billions of dollars in treasury assets. With DAOs gaining popularity, many of them started wondering how they could **maximize their treasury** while building healthy and sustainable liquidity for their native token.

However, it is hard is to deal with community decisions on-chain. This becomes even worst when talking about putting the DAOs assets to work in DeFi strategies. We have seen many DAOs trying to circumvent their own processes to invest their money, at the end trusting individuals to do it carrying huge security risks.

On the other hand, even though financial institutions don't have to worry about on-chain decision making, there are no robust solutions they could use for their own clients in order to allocate their assets while ensuring transparency and security.

> **Interacting with DeFi protocols is hard. It involves many steps and the complexity level is getting higher every day. Even worse, many mistakes can be caused when interacting with these protocols manually putting your assets at risk.**

Here is where Mimic comes into play in order to simplify cross-layer interactions with the most popular DeFi protocols with a fully trustless, transparent, and non-custodial solution. It provides a simple, flexible, and secure way to automate treasury management while saving time and money.

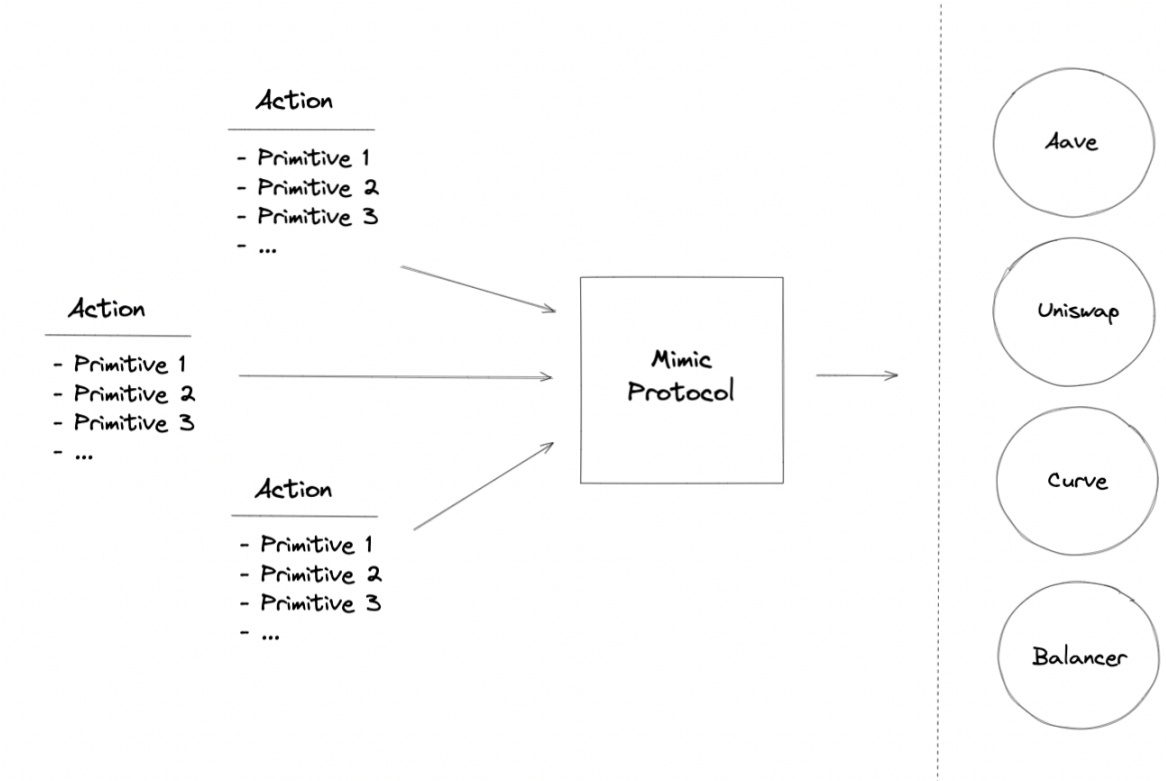
For instance, these are some basic automated actions that are currently being explored by some DAOs, financial institutions and individuals:

- Collect assets from different places, swap them at the best rate among decentralized exchanges, and join a specific ERC-4626 vault.

- Provide liquidity to an AMM pool, keep track of the earnings obtained from swap fees and liquidity mining, and withdraw those gains on a monthly basis.
- Bridge assets between lending protocols from different layers depending on which one offers the best interest rate.
- Switch your market maker positions on an AMM protocol by joining or exiting pools when their TVL, volume or APY reach certain pre-set conditions.

These are just a few examples, Mimic opens the doors to model any other type of actions that could be automated to improve your treasury management experience.

How it works



Primitives

Primitives are atomic interactions that can be modeled and automated for any treasury. Mimic defines a few standard primitives to cover the following basic concepts:

1. **Collect —** Transfer assets from an external address to Mimic
2. **Swap —** Swap assets on any decentralized exchanges
3. **Bridge —** Bridge assets between different layers
4. **Join —** Allocate assets from Mimic into a DeFi Protocol
5. **Exit —** Withdraw assets from a DeFi Protocol back to Mimic
6. **Withdraw — T**ransfer assets from Mimic to an external address

Each primitive comes with a set of parameters that can be configured for its execution. A parameter can be forced to always be the same, it can be limited within a range, or it can be dynamically adjusted. For example, the slippage of a swap primitive can be limited to a maximum value. Additionally, primitives can be configured relying on any transactions metadata like sender, gas price, timestamps, target protocols, etc.

All these primitives follow a simple interface in order to communicate with the rest of the Mimic protocol. This allows users to implement custom primitives to interact with their assets, ensuring full flexibility for specific processes.

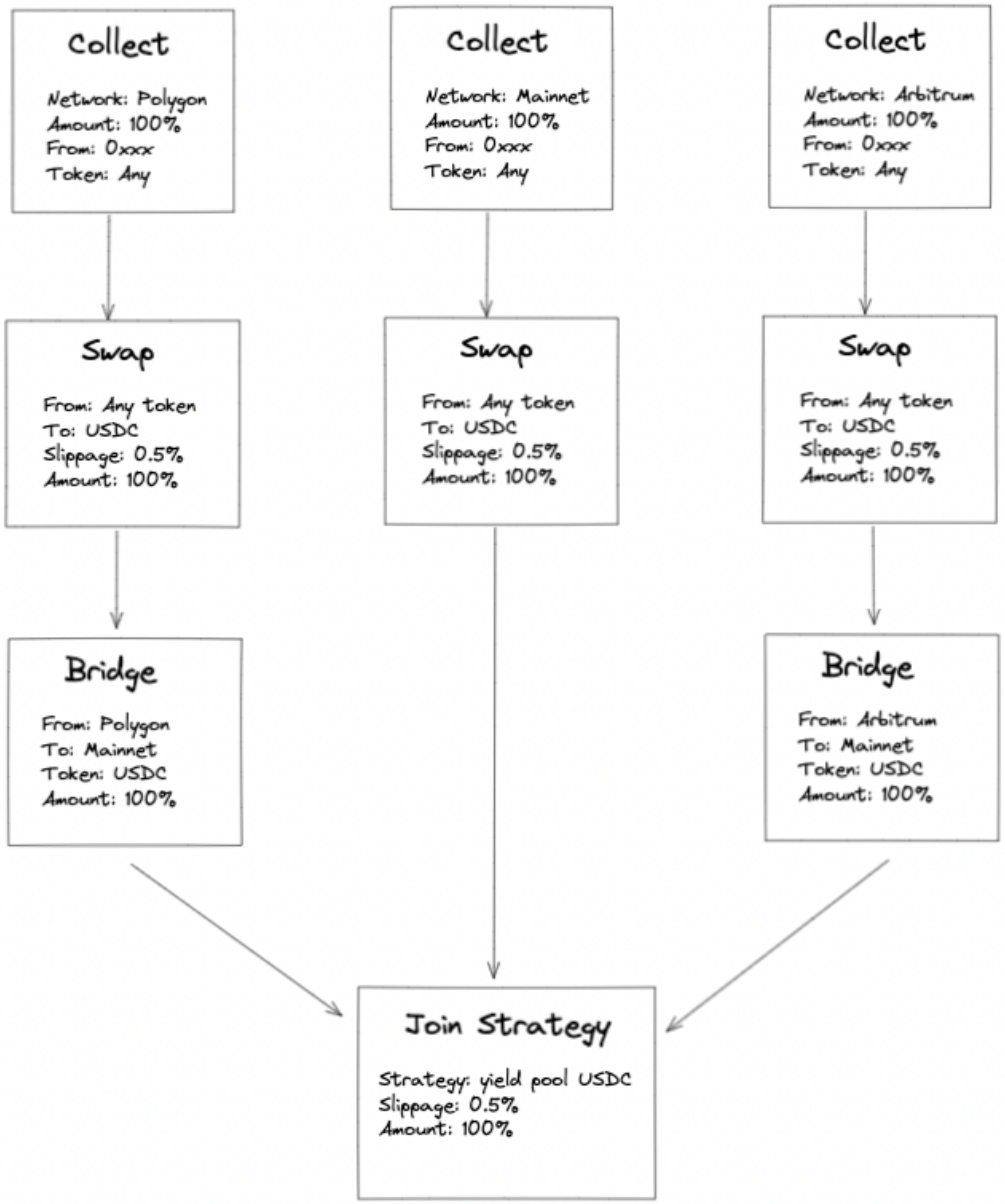
Actions

Usually to automate complex processes, primitives are not executed in isolation. They are composed into a group of primitives and executed under a certain order. Theses group of primitives are called actions.

An action defines how primitives are connected to each other and in which order they are executed. Each action usually runs within a single blockchain transaction and can be configured to be triggered by EOAs, other smart contracts, and/or Mimic bots.

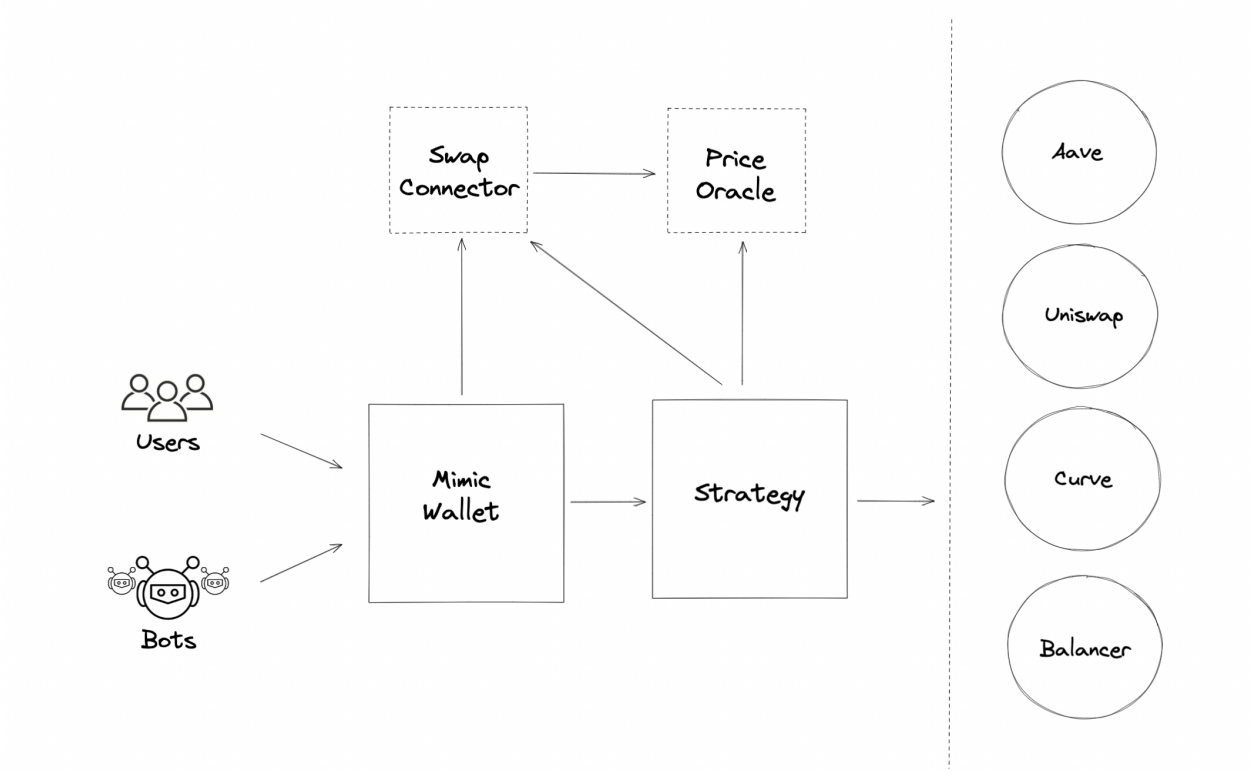
It is possible to add conditions to enable or disable certain actions. These conditions can be tied to time (one time execution, specific date range, every certain period), to market prices, to other smart contract status, among other things.

Here is an example of an action to collect assets from different layers, swap them into USDC, bridge them all to Ethereum mainnet, and use them to join an AMM pool:



If an action gets too big to run on a single transaction, it can be split into smaller actions that are dependent and run on different transactions. Dependent actions imply a strict and blocking execution order.

Architecture



Mimic Wallets

Mimic wallets are a key component of the protocol. They provide built-in logic to create add, remove, modify, and run actions. Wallet owners can create actions with the primitives supported by Mimic protocol and configure who, when, and how these must be executed.

> **Mimic wallets are replicated across different EVM-compatible chains to make sure owners can interact with them transparently.**

Mimic wallets provide mechanisms to simulate actions on-chain, allowing users to know what is going to be the result out of them. Sometimes it is extremely hard to calculate the outcome of a position if it requires two or three moves beforehand. The simulation process allows to know these outcomes easily with no mistakes or rounding errors.

Additionally, Mimic wallets are where all assets are held before allocating them to the different DeFi protocols. Thanks to it, Mimic protocol can make sure that the accounting is properly done. Note that this doesn’t mean the protocol is in custody of the wallets assets, each wallet owner keeps having full control of his funds.

Strategies

These are smart contracts that hold the integration logic to interact with different DeFi protocols. Mimic provides a standard interface to make sure all DeFi protocols can be accessed in a simple way by wallets.

Mimic includes a few implementations to integrate different DeFi protocols like Curve, AAVE, Balancer, Compound, Uniswap, and LIDO. However, custom strategies can be developed in a really easy way. They just need to follow the standard interface specified in the ERC-4626.

Mimic also offers a custom standard for strategies that work as an extension of the ERC-4626. However, it does not force ERC-4626 vaults to implement any extra functionality, it simply adds more informational functions to allow Mimic to perform on-chain accounting and track their APY.

> **Mimic opens the doors to a whole world of community developers that want to contribute to strategies development. The protocol and curation process are open to anyone. Assets can be allocated to any strategy, whether they use the curated list offered by Mimic's community, a custom whitelist, or simply a private strategy developed for their own business.**

The protocol also provides a curation process for strategies. The curation process will be done by a governance committee, but it is already planned to become fully decentralized.

Swap Connector

The Swap Connector is a smart contract that simply assists other smart contracts in order to swap assets. This part of the protocol is held in an external module so it can be

replaced by other implementations if desired in the future. This decision can be made only by the governance committee or the Mimic DAO in the future.

It simply interfaces with external exchanges to swap assets and it is mainly used by Mimic wallets or strategies. For example, it allow Mimic wallets to swap assets in order to join strategies to have a better position. It also allows strategies to swap rewards in order to re-invest them.

Price Oracle

The Price Oracle is another external module similar to the Swap Connector that can be used to query the price of an asset in a decentralized way. This module is used along with the Swap Connector in order to have another source of information when validating the prices offered by the Swap Connector. It allows handling slippage in a secure way so the Mimic wallet does not have to depend only in what the Swap Connector is saying.

The Price Oracle is also used by some strategies to query token prices. It is useful to guarantee they can be joined or exited in a secure way.

This module can be replaced by another implementation if desired as well. This decision can be made only by the governance committee or the Mimic DAO in the future.

Executor bots

Actions can be triggered not only manually, but also automatically with Mimic bots.

Wallet owners can allow Mimic bots to execute certain actions based on the pre-set conditions. These bots will monitor the blockchain and trigger these actions automatically only if said pre-set conditions are met (which will be also ensured by each wallet on-chain). For example, in case the owner of the wallet wants to withdraw his gains coming from a strategy on a monthly basis, it can be easily set to be triggered by a bot.

Currently, Mimic runs the bots internally, but in order to ensure trustless execution, the system will eventually migrate to a decentralized network of bots.

Revenue model

Mimic protocol implements what's called protocol fees. Protocol fees are initially turned off but could be turned on at any time. The only one allowed to do that is the governance committee. There are three different types of protocol fees:

- **Performance Fee:** a fee can be charged to each Mimic Wallet based on the performance of the strategies they have joined. If there are no gains no performance fees are charged at all by the protocol. Performance fee cannot be greater than 20%.
- **AUM Fee:** AUM fee can be charged based on the assets balances of each Mimic wallet. AUM fee cannot be greater than 2%.
- **Execution Fee:** when actions are triggered by Mimic network of bots, a flat fee can be charged to each execution.

Accounting

Accounting is a hard feature to implement via smart contracts, that is why treasury owners end up doing bookkeeping off-chain. For a protocol to be completely trustless, accounting must be done on-chain.

Tracking gains is not an easy task. This is because it can represent anything, it can be the yield earned out of a DeFi protocol, liquidity mining returns, the growth ratio between two assets (eg. ETH vs USDC), or a combination of all of them.

This is why, once again, Mimic design decisions regarding accounting were mostly focused on making sure it was flexible enough. The protocol allows the strategy creator to define what do gains mean. To do that, it uses an abstract concept called “value” to keep track of the strategy gains. By comparing how the value grows, it can determine how gains grow.

$$gainGrowth = currentTotalValue / previousTotalValue$$

Let's see some examples of how yield can be tracked in different DeFi protocols:

AAVE

AAVE is a great example of an easy yield to track . The total value of the strategy equals the amount of the aToken the strategy holds.

$$totalValue = aTokenBalance$$

The amount of aToken that the strategy holds grows over time as it accrues interests from being borrowed on AAVE. It's growth represents exactly the growth in yield.

Balancer

It is a bit more complex to track yield on Balancer. This is not only because Balancer pools involve many tokens but also because swap fees are collected in any of these tokens. In this case, the total value of the strategy equals the amount of BPT tokens that the strategy holds times the rate of the pool.

$$totalValue = bptBalance * poolRate$$

The pool rate represents the appreciation of one BPT relative to the underlying tokens. Underneath, the pool rate is computed dividing the invariant by the total BPT minted. Because swap fees are the reason why invariant grows within swaps, pool rate can be used as a measure of yield growth in Balancer protocol.

> **In addition, strategies can be scaled to discount any potential expense from gains. For example gas fees, DeFi protocol fees, trade price impact, pools' impermanent loss, among others.**

Governance

Mimic will include a governance token that anyone could get in order to participate in the Mimic DAO. The DAO will be able to control mainly three things in the protocol: fees, whitelisted strategies, and whitelisted tokens.

Initially Mimic will be governed by a small committee formed by members of the founders, advisors, and investors teams. Once the governance token is deployed, the Mimic DAO will be created and it will be fully transitioned to it, there are no middle steps here, Mimic will be fully decentralized by then.

The governance token will be used for voting to participate in the Mimic DAO. Holders will be able to lock their tokens in order to boost their voting power, usually know as the "voting escrow" model.

Additionally, there will be a liquidity mining program in order to reward wallet owners. There will be an initial amount that will be minted to reward early users. Liquidity mining rewards will be paid in the governance token, and how much will be distributed per strategy and wallet will be decided by the Mimic DAO.

Mimic will distribute protocol fees to Mimic stakers pro-rata to their stake (buyback or burning), benefitting stakers as adoption of Mimic increases -- stakers of Mimic are incentivized to propose, discuss, and vote for proposals that further merit the protocol.

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