

Dexify - Automated Cross-Chain Decentralised Social Trading Protocol

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Abstract

Dexify is a platform provider supporting cross-chain social trading in a transparent and decentralised manner. It enables individuals and organisations to manage and invest in digital assets based on audited on-chain digital asset management strategies.

A smart-contract rules-based protocol enables decentralised investors to safely allocate their capital to traders based on a provable, verified track-record. The Dexify platforms automated smart mirror contracts ("Dexfunds") allow investors to seamlessly mirror trades executed by the original Dexfund while leveraging the security of the blockchain to protect against fraud.

The Dexify routing layer provides Dexfunds with optimal trade execution and frictionless transactions across multiple blockchains. Utilizing the combined assets across all Dexfunds enables Dexify to minimize the transaction-fees paid by individual investors and provides access to tools normally only available to large volume traders.

1 Background

The digital asset ecosystem has seen a dramatic rise over the last few years with decentralised financial applications ("defi") set to capture a significant share of the traditional financial sector [1]. This new asset class is currently largely dominated by retail investors [2] facing a significant challenge in navigating a rapidly changing space with tens of thousands of different projects and associated tokens. The technologically complex and innovative nature of digital assets makes it difficult for the average investor to conduct rigorous fundamental analysis and manage this new asset class effectively. Grandiose claims and complete scams have already cost investors billions of dollars [3] and growing.

Humans are startlingly bad at detecting fraud. Even when we're on the lookout for signs of deception, studies show, our accuracy is hardly better than chance. - Maria Konnikova

These market dynamics have spawned a host of

"crypto influencers" enthusiastically encouraging followers to buy into their ideas in order to generate unparalleled returns. The lack of a common standard and framework for tracking and evaluating these claims has resulted in defi investors being inundated with information that is practically impossible to parse.

This paper will discuss how the Dexify platform aims to provide individual investors with an easy to use interface to evaluate the track-records of traders and portfolio managers as well as deploying capital to their strategies.

2 Dexfunds

2.1 Definition

Dexfunds are smart-contracts that enable Dexify users to automatically follow the actions of the Dexfund creator. Anyone is free to create a Dexfund and specify the modules associated with it. Any investor can join the Dexfund and mirror the original execution and performance. Management and performance fees are calculated automatically and distributed according to the agreed terms once an investor leaves, the Dexfund closes, or a set period is reached.

2.2 Security

The ability of a Dexfund creator to dictate the execution of trades on behalf of separate parties presents a number of potential security risks. For example, the Dexfund manager could create their own token and list it on one of the decentralised exchanges, after which they could initiate a purchase on behalf of their Dexfund, essentially buying the token from themselves as well as for anyone mirroring the trade. We have taken a number of steps to mitigate these security risks, and will conduct extensive audits of all deployed code. One such step is to offer separate modules on top of the base Dexfund contract. These modules can be configured in order to offer varying levels of security, permissions and fees.

2.3 Modules

The purpose of the Dexify smart-contract modules is to enable Dexfund creators to have as much freedom as possible in specifying the particular permissions and parameters pertaining to their Dexfund, while also offering transparency to investors as to the level of risk they are being exposed to by mirroring traders. Below are some example modules.

2.3.1 Exchange modules

Selection of supported exchanges for the Dexfund to execute trades on. Price feeds from these exchanges are automatically included in order to calculate performance, net asset values, various portfolio metrics and fees.

2.3.2 Tokens

List of tokens that the Dexfund is allowed to trade. Limiting the selection of tokens that could potentially be purchased to more liquid, and well known projects prevents many attacks such as the dummy token creation.

2.3.3 Blockchains

Specify supported chains that the Dexfund is able to trade across using our cross-chain bridges.

2.3.4 Allocation limits

Limiting the maximum possible allocation to a single token or blockchain. This not only limits the risk of a significant part of the total portfolio being lost on a minor speculative blockchain, but also limits the potential for order book manipulation on behalf of the Dexfund manager.

2.3.5 Management participation

Specifications for the required share of the total net asset value that must be owned by the Dexfund creator at any given time. May be a minimum, target or maximum requirement. Value are monitored by the Dexify router and balanced automatically.

2.3.6 Fee modules

Dexfund managers can select from a range of different fee calculations, such as a set periodic fee, management fees as a percentage of gross asset value under management, performance fees as a percentage of profits generated, or a combination of these.

2.3.7 Module alterations

Alteration of a Dexfunds active modules can be done in set intervals given adequate notice. Investors that do not approve of the change of Dexfund modules by

the time changes are set to deploy will be automatically divested from the fund by the execution router.

2.3.8 Notes on modularity

The separation of the base Dexfund contract and the additional permission modules allows us to easily iterate on the system, adding new modules or editing existing ones as market conditions and consumer demands change. Publishing the Dexfund contract interface parameters encourages anyone to create and submit proposals for additional modules according to their needs. Dexify is a free and open platform enabling traders and their strategies to be paired with investors capital. The dynamics of this transparent free market incentivises traders to construct Dexfunds with a set of modules that provide the optimal trade-off between permissions and risk in a way that is clear to investors, while still enabling the Dexfunds to generate competitive returns.

3 Execution router

3.1 Definition

The Dexify execution router ("router") is the key layer separating individual investors and Dexfund managers. It serves the dual purpose of providing additional security against market manipulation, as well as enabling efficient order execution and portfolio management. An aggregate liquidity pool and common execution layer enables individual investors to benefit from the scale of the platform, receiving the best available execution and access to cutting edge defi tools.

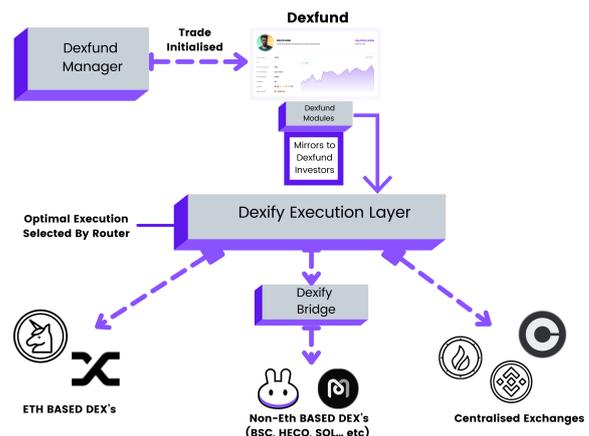


Fig.1 - Example router order-flow execution

3.2 Price feeds and transaction security

Dexify maintains price feeds from decentralised exchanges across multiple blockchains as well as to their

centralised counterparts. These price-feeds are provided to individual Dexfunds according to the permission modules selected. The router leverages our proprietary path-finding algorithm to determine the best possible execution for each order. Routing through the aggregate liquidity pool is prioritised in order to minimize execution fees and slippage.

3.3 Addition and redemption

The router enables Dexfunds to continuously onboard new investors or redeem existing allocations without requiring set lock-up periods. The router handles the addition of any supported token, or set of tokens by determining the optimal path across available exchanges resulting in a matching allocation distribution to the Dexfund being mirrored. For a given Dexfund:

$$Dexfund_{portfolio} \rightarrow \begin{bmatrix} ETH_{mainnet} \\ \dots \\ BNB_{bsc} \end{bmatrix} \quad (1)$$

such that

$$tokenAmountIn \begin{bmatrix} Price_{ETH} \\ \dots \\ Price_{BNB} \end{bmatrix} \rightarrow Dexfund_{mirror} \quad (2)$$

3.4 Fee distribution

A similar process is executed upon redemption, with the notable difference of distributing fees to the Dexfund manager according to the pre-defined fee modules. The router, in conjunction with the Dexfund contract, keeps track of the entry prices and trade history while participating in the fund and converts all remaining holdings back to the desired token, with fees deducted.

3.5 On-chain execution tools

Recent months have seen an emergence of a multitude of tools used to analyse transactions that are broadcast to blockchains. Due to the distributed, public nature of the technology, malicious actors are able to analyse transactions as they are being broadcast and interfere in a manner that allows them to manipulate prices.[4] Naturally this is at the expense of the originator of the transaction. This manipulation may even extend as far as to the miners themselves re-organising blocks in order to manipulate the prices received upon execution. Solutions to circumvent this manipulation are at the cutting edge of blockchain development and may be too complex for individual traders to implement, however by providing a common execution layer via our router, Dexify is able to socialise the cost of these implementations and share the benefits between all investors. Dexify will work directly with miners,

as well as leading transaction obfuscation frameworks such as flash bots [5] as well as any other providers that may emerge in the future, in order to ensure that our trades are executed at the best possible price.

4 Bridges

4.1 Definition

Dexify bridges provide an interface for Dexify traders and router to transfer digital assets across multiple chains. A single bridge consists of two vaults in the form of contracts that freeze assets until they can be redeemed. When a cross-chain transaction is initiated, the original token amount is locked up in the original chains vault and a corresponding amount is released on the target chain. The tokens on the original chain can then be redeemed at any time by repaying the owed tokens on the target chain. These vaults on either end extend the permission modules in the base Dexfund-contract in order to allow for temporary transfers cross-chain.

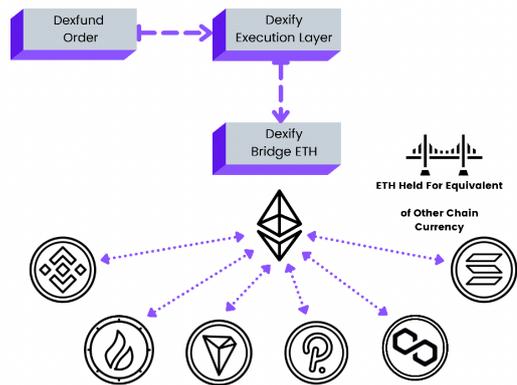


Fig.2 - Illustrated bridge system flow

4.2 Fees and insurance pool

A percentage fee corresponding to the relative counter-party risk posed by the secondary chain is set aside in an insurance pool. Should the secondary chain protocol be compromised somehow, the insurance pool will cover investors losses to the extent of the liquidity available at the time. The ethereum mainnet is considered to be the chain against which all other chains are being bridged for the purpose of this insurance pool.

5 Portfolio re-balancing

5.1 Definition

Portfolio re-balancing is the act of realigning assets in a portfolio back to their target allocations. This can be a target percentage weighting of each asset

as a part of a whole portfolio of assets. During re-balancing assets are traded such that the value held in each asset shifts toward the target allocation. This process is executed by the router at pre-determined intervals.

5.2 Passive vs active management

Dexfund creators can create both actively and passively managed Dexfunds, where "actively" refers to the manual trading of a set of assets while "passive" sets specifies target allocations to a set of assets as a percentage of the net asset value. Dexfunds can be either wholly or partially actively or passively managed. Managers can choose when, or how frequently to rebalance their portfolio. The complexity of portfolio management and re-balancing is abstracted away and executed by the router in the most efficient manner, the only thing managers have to do is specify the target percentages and re-balancing periods.

5.3 Permitted periods

During the initial stages of platform growth, the portfolio re-balancing periods will be limited to pre-defined intervals of 1/2/3/4/12 and 24 hours. This is in order to maximise the utilization of the aggregate liquidity pool and ensure best execution on behalf of investors. Dexfund managers can manually request to re-balance the portfolio at any given time, in which case this will be executed at the next possible interval.

6 Dexify indexes

The Dexify platform can support a broad range of strategies trading not just across multiple assets but also across multiple chains. As such these Dexfunds provide significant diversification potential across decentralised assets. Taking this further, Dexify will provide custom indexes allocating to subsets of existing Dexfunds based on various metrics such as cross-fund correlation, volatility, counter-party risk and security metrics. This allocation will be made on behalf on the index fund in the same manner that an individual would mirror a given Dexfund, with the index effectively acting as an intermediary layer.

7 Conclusion

Dexify offers a permissionless and decentralised platform for traders to create Dexfunds. By leveraging blockchain technology, we are able to audit the performance of these traders over time and present their track-record and metrics to investors in a cryptographically verifiable manner, thus ensuring that their record is indeed legitimate. The Dexfund mirror contract and associated permission modules miti-

gate investor risks through built in safe-guards in order to prevent manipulation and malicious behaviour on the part of the Dexfund creators. The Dexfund platform enables investors to clearly differentiate between Dexfunds, their historical performance, assets under management and active permission modules. Investors can then select the Dexfunds that suit their risk profile and preferred selection of assets.

Our cross-chain bridges allow Dexfund managers to move assets across blockchains with a single click. The vaults and insurance pool help secure investor funds in case of critical failures and black-swan events by appropriately socialising losses across all investors.

The trade-offs we have chosen between centralisation and public on-chain deployment present a sweet spot between the benefits of blockchain technology, and our ability to offer a competitive, easy-to-use service. Anyone is able to build on top of our base layer and improve the existing protocol. Our smart contracts are deployed on public blockchains and freely auditable by any interested party, contributing a further layer of security.

The Dexify router ensures that not only do our investors receive the best possible execution in the market but also have the possibility of frictionless execution through our aggregate liquidity layer.

By amalgamating all the Dexfunds on our platform, we are able to provide cutting edge tools that have previously only been available to large investors. Ensuring that anyone, no matter the account size, has access to a fair and level playing field.

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