Amun Ecosystem Tokens:

A collection of index tokens providing the crypto community with access to various smart contract platforms on the Ethereum Blockchain.

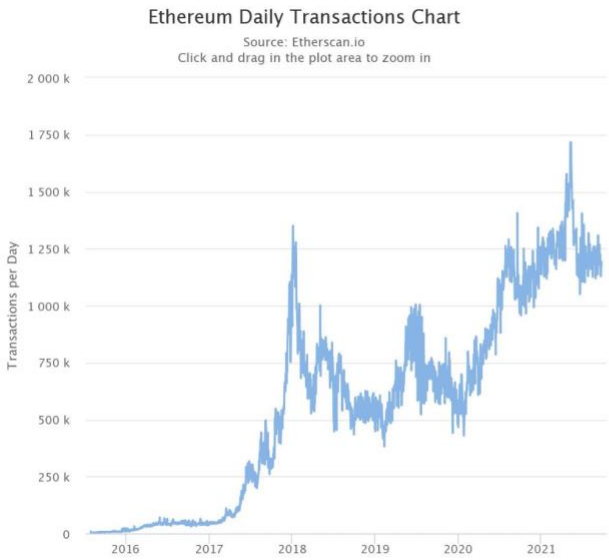
https://amun.com

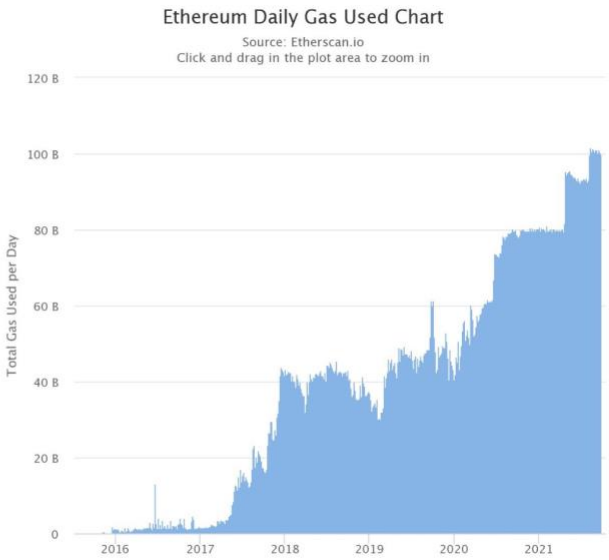
Version 1.0

Abstract

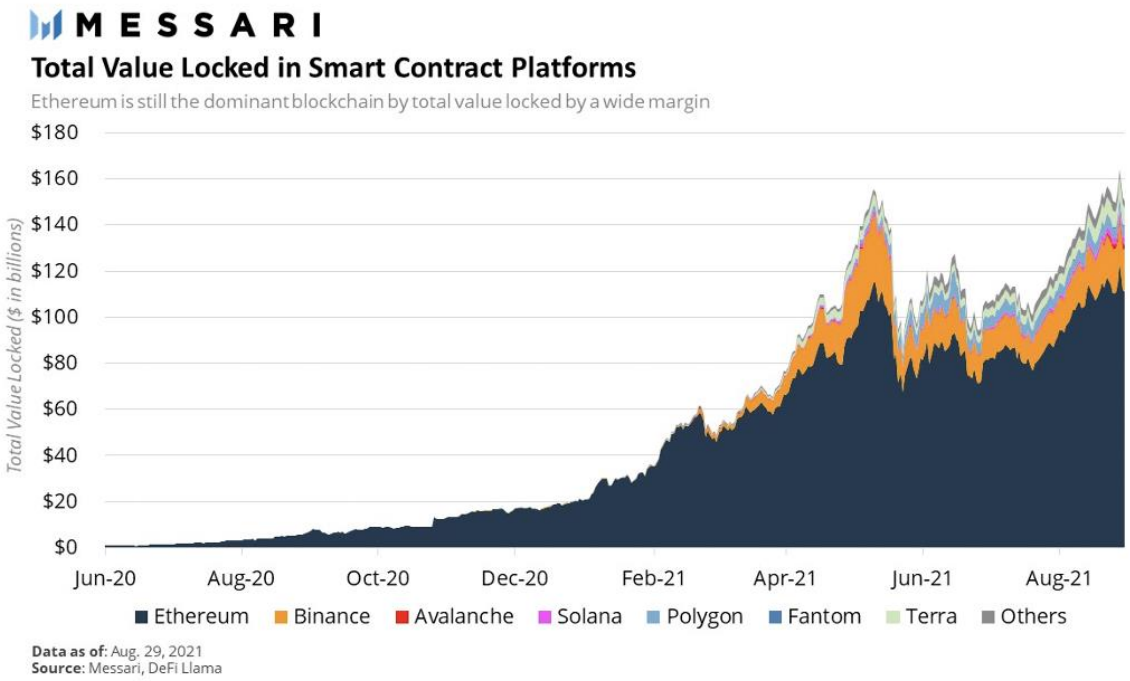
Background

Towards the end of 2020 and the start of 2021, the Ethereum network began showing its scalability limitations. As the network is still in its early stages, the inflow of users resulted in a significant increase in both transaction time and gas costs.





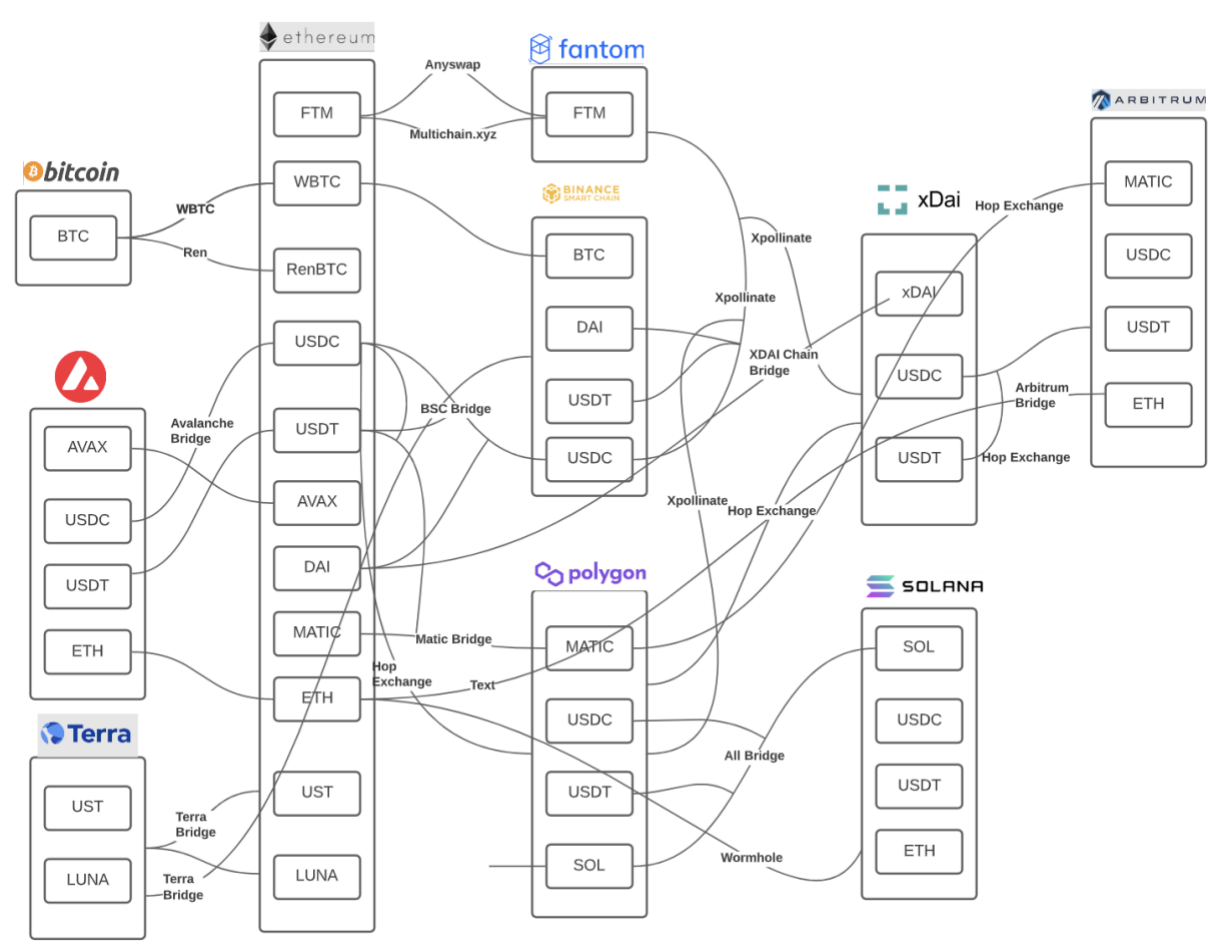
As a result, both developers and users started looking for possible scaling solutions. In 2021 this led to the rise of alternative smart contract platforms, with Binance Smart Chain taking the lead and soon many others followed. We have now seen that these ecosystems mature along with dapp verticals with several network native tokens reaching market caps over $100 million.



The Problem

Despite the growth of smart contract networks, accessing these platforms in a decentralized manner is still not easy for the DeFi average user. While many strides have been made with regards to interoperability between different networks, bridging technology is still in its infancy and in many cases not the most user friendly. For starters, configuring your wallet to add a new network is not a straightforward task for those who are new to DeFi. Some networks, like Solana, require the onboarding of new wallet providers altogether. In addition, the process of bridging funds can involve multiple steps and may be time consuming, with the withdrawal of some assets taking anywhere from three hours to seven days to bridge back to Ethereum. In some cases, the use of these DeFi tools are inaccessible to users in restricted jurisdictions.

As we see DeFi and cross-chain tools evolve to improve interoperability, it also brings greater fragmentation among the various bridges. Understanding the available solutions for bridging assets cross chain is often reserved for the most knowledgeable DeFi user.Below is an example of the various links between the different blockchain networks to demonstrate the complexity of these solutions



Introduction to Amun Ecosystem Tokens

Purpose

Amun's Ecosystem Tokens intend to alleviate these issues by providing users with exposure to network-native assets without having to go through the troublesome process of bridging funds over to other blockchains. Our goal is to provide users with exposure to tokens such as Binance Coin (BNB), Pancake Swap (CAKE), Quickswap (QUICK), Solana (SOL), among others on the Ethereum Blockchain. Although these alternatives have grown extensively in 2021, Ethereum is still the gateway into Decentralized Finance.

Protocol Statistics *(as of Sep 7, 2021)*

Network	TVL	DApps	Active Wallets
Ethereum	$123.21b	2514	485, 816
Binance Smart Chain	$17.07b	1430	1,058,967
Solana	$7.83b	368	N/A
Terra	$7.06b	10	N/A
Polygon	$4.62b	435	172,986
Avalanche	$2.06b	48	129,229

To date, Ethereum is still the largest smart contract platform by a considerable margin. It continues to absorb the majority of liquidity, users, dapps and developer mindshare. As scalability issues become more apparent, DeFi will continue to expand its solutions across other Layer 1 blockchains. Despite the fact that most of these ecosystems are in their infancy, there is evidently demand from users to have exposure to alternative Layer 1s. We therefore see significant value in providing users with exposure to these ecosystems in DeFi's Ethereumepicenter.

Design

Basics

The Amun's Ecosystem tokens are an ERC-20 standard token that represents an index of the top coins native to the respective blockchain network. Anyone who holds these tokens has direct exposure to the underlying coins stored in the smart contract. The smart contract will be held on each of the respective networks the tokens are providing exposure for.

By purchasing a token, a user captures the returns from a set of underlying tokens, which will comprise the top protocols in the network. The tokens will be available on a variety of platforms beginning with select decentralized exchanges, and through creations directly minted with the smart contract using the Amun Tokens web interface. Each ecosystem token is tied to a proportional amount of constituents tokens that composes the basket in total. The basket tokens' smart contract is controlled by a multi-sig that requires the votes of the Ecosystem Token Holders. Each Ecosystem Token Holder can propose a change on which all Ecosystem Token Holders vote afterwards. No individual Ecosystem Token Holder can change the smart contract for basket tokens held by it - changes always require a majority vote.

These tokens follow the ERC-20 standard, meaning holders can freely transfer them to any address they like. The tokens utilize off-chain data APIs that provide the price feed information for rebalances with the necessary details about allocations. In addition, in order to ensure executions are taking place without the need of a centralized authority, the tokens utilize Decentralized Exchanges (DEXes). To prevent large orders from having a significant price impact, contracts are integrated with DEX aggregators who spread orders across multiple venues.

These index tokens will have contracts on both Ethereum and the network they are providing exposure to. Users can buy or sell tokens on Ethereum and the respective network and bridge them over using a variety of bridging protocols.

Minting and Burning

These tokens can be bought or sold on select decentralized exchanges. In addition, users can mint or burn these tokens through the Amun Tokens platform at its Token Value. The process of minting and burning directly with the contract works as follows:

Order Stage

Users send ETH or stablecoin from their wallet to the token smart contract. The smart contract holds at any given moment, information about its current index weights and allocations. Upon receiving the user funds, the contract determines the amount required to be purchased from each constituent. This is determined with the following formula:

$$Constituent_X \#Tokens\ to\ Purchase = \frac{Value\ of\ ETH\ Delivered}{Token\ Value\ at\ time\ of\ minting} * Weight\ of\ Component\ * \frac{}{Weight\ of\ Constituent_X}$$

Once all required constituents amounts are determined, a swap manager contract is set in motion and purchases the required tokens to collateralize the basket token.

Minting Stage

After conclusion of the swaps into the underlying constituents, the next phase in the process is the minting of tokens. The amount of tokens to mint is determined by the below logic. The first step would be to determine the current Token Value. Given the set of token in the index denoted by i $\in$[1,...,20], and the time intervals from time t=0till time T The Net Token Value (NTV) at time T is formally expressed as:

$$Per\ Basket\ Token_{NTV,T} = Per\ Basket\ Token_{NTV,t=0} \times \prod_{i=1}^{20} \quad \prod_{t=1}^{T} \quad (1 + w_{i,t} r_{i,t,t-1})$$

Where $Per\ Basket\ Token_{NTV,t=0}$ is the initial value of the token at time $t = 0$, and $\prod_{i=1}^{20} \quad \prod_{t=1}^{T} \quad (1 + w_{i,t} r_{i,t,t-1})$ is the compounded product of the weighted average returns of the underlying tokens in the index from $t = 0 \rightarrow T$, such that $w_{i,t}$ represents the weight of token i at time t and $r_{i,t,t-1}$represents the return of token i from time $t - 1$ to time t.

Moreover, since each basket token represents the value of the underlying index assets then it also holds that:

$$Per\ Token_{NTV,t} = \frac{\sum_{i=1}^{I} \quad Underlying\ Asset_{i,t,USD}}{\#\ OutstandingTokens_t}$$

where$\sum_{i=1}^{I} \quad Underlying\ Asset_{i,t,USD}$is the sum of the underlying assets purchased in USD value at time *t* based on the reference prices provided by the index, and $\#\ Outstanding\ Tokens_t$ is the number of outstanding basket tokens at time *t.*

Given that the execution of the swap may incur price slippage, the amount of underlying purchased, and subsequently the number of tokens to be minted are a function of the actual execution price (blind auction mechanism). Mathematically, the number of tokens that are minted is expressed as:

$$New\ Tokens\ Minted\ = \frac{Value\ of\ ETH\ Delivered}{(Per\ basket\ Token_{NTV,t} + Per\ Token\ Slippage \quad _{USD})}$$

where the per token slippage is the USD value of the slippage for trade execution of the underlying assets in the predefined proportions.

Once tokens have been minted and sent to the purchaser's wallet, the process is concluded.

Redemption

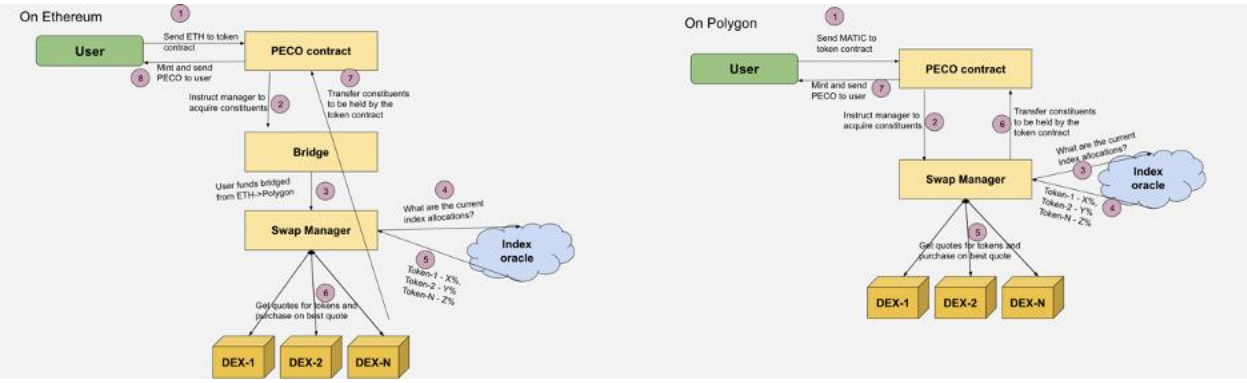
In the opposite direction, the Ecosystem Token Holder can disinvest by burning their basket tokens (i.e. using their private keys to sign a transaction that will burn the basket tokens). The Ecosystem Token Holder can choose whether to receive ETH or stablecoin.

Bridging

To provide exposure to tokens native to respective networks, our smart contract makes use of bridging technology to move funds over from Ethereum to blockchains such as Polygon. Below are flow diagrams of the steps done in the process should users wish to deposit or withdraw directly with our contracts on the Ethereum network. These diagrams will be using fund flows from Ethereum to Polygon for our Polygon Ecosystem Token (PECO) as a reference.

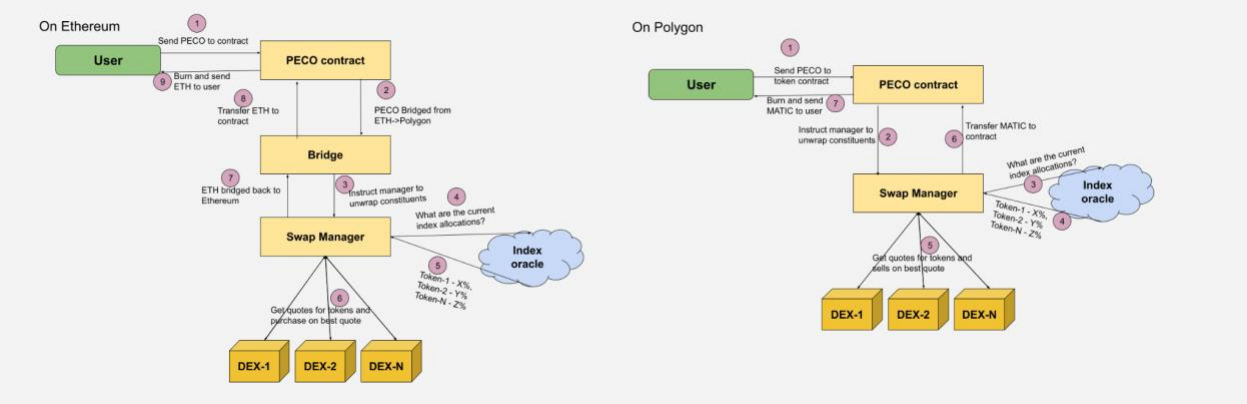
For Deposit

When users wish to mint new tokens on our platform through Ethereum, the process that goes on in the background is outlined below. Users will send ETH or stablecoin to our smart contract, our smart contract will then bridge those funds over to the new network to a contract called the Swap Manager. The Swap Manager then determines the approximate amount of the index underlyings to purchase on exchanges and store those tokens in the main contract. In return users will receive the Ethereum version of the index token that they can trade on decentralized exchanges, bridge over to the other network, or redeem through our platform at a later point in time.



For Withdrawals

For withdrawals, the opposite sequence of events take place. Users will send their index tokens to our contact. The contract will then bridge the index tokens over to the new network to the Swap Manager. The Swap Manager then takes the amount of index tokens it received to determine how much of the underlying constituents need to be sold into ETH or stablecoin. Once the trades have concluded, the ETH or stablecoin is bridged back over to Ethereum and delivered to the user's wallet.



Rebalancing

Ecosystem tokens will be rebalanced on a monthly basis on the first of the month in order to ensure proper tracking of the underlying index. In the event that the top eight ecosystem token weightings have not changed, no rebalance will occur for that month.

Index Methodology

Ecosystem tokens will track a decentralized index with the calculations and methodology determined by parameters in the contract. These parameters are defined below.

Calculation

The underlying index will pull all available Polygon-native tokens market capitalizations from CoinGecko. The tokens are then ranked in descending order from the highest mcap to lowest, with added smoothing of 30 days moving average over values.

Eligibility

In order to be eligible for the index, this index will only contain tokens native to protocols offering one of the following services in a decentralized manner.

- The project must be native to the respective network and contribute to its ecosystem.
- The project must have launched on the network's mainnet for a period greater than 2 months, to eliminate transient, unsustainable projects.
- The project has organic adoption in liquidity and market cap.
- The project has sufficient liquidity on the network's primary Decentralized Exchanges. For a starting point, we look for DEX liquidity above $3 million.
- To start, the network's native token will make up a greater proportion of the index composition. As these ecosystems mature, we expect to lower the portion of native token to make way for more project tokens.
- The remainder of the index is composed of protocol tokens weighted using the averaged ratio of market cap and DEX liquidity.

Fees

This product will incur fees to offset daily costs. There will be a rebalance fee whenever such an event takes place that will cover the costs of performing these actions. These costs include the gas costs required to make these trades (denominated in ETH).

To start out, this token will not incur fees pertaining to performance or minting and burning; however, that could change at a later date in the future. All rebalance fees are also waived through 2021.

Appendix

About Amun

Amun is a leading cryptocurrency issuer which aims to make purchasing crypto more accessible, and efficient.

Under its 21Shares brand, Amun is the world's largest issuer of crypto exchange-traded products (ETPs). The 21Shares suite of ETPs has simplified access to crypto for both institutional and retail investors in the traditional finance community. In a similar fashion, Amun aims to provide tokens that will make it easy for the crypto community to access sophisticated strategies that are not otherwise readily available in this space. Amun is a

team of entrepreneurs, engineers, and financial product developers who are uniquely placed to revolutionize cryptocurrency investing through the issuance of our broad range of tokens. Our goal is to make these tokens present a new paradigm in cryptocurrency investing and to facilitate their use.

Our investment in superior technology and automation has enabled us to both release products, as well as work directly with top organizations including the Bitcoin Cash Foundation, Bitcoin Suisse, Binance, Bitwise, Coinbase, FlowTraders, Sygnum, and the Tezos Foundation as launch partners or customers of the Amun Platform.