ARMswap - A Cross-Chain Router Protocol
ARMswap UAB

1. Introduction

The expansive ecosystem of public blockchains encompasses numerous independent networks, each distinguished by its unique features, benefits, technical specifications, and user communities. The advent of decentralized finance (DeFi) applications has injected new momentum into the blockchain landscape. However, it has also created challenges, particularly in addressing the fragmentation of value across multiple blockchains. Consequently, facilitating seamless information exchange between these networks has become a focal point, as it is essential for enabling interoperability and unlocking the full potential of DeFi.

Cross-chain bridges serve as a pivotal technology for enabling the transfer of digital assets between different blockchain networks. These bridges function as intermediaries, facilitating communication and asset transfers between otherwise isolated networks. Typically, they leverage **smart contracts**, which are self-executing agreements designed to carry out transactions automatically when predefined conditions are met.

The process begins when a user initiates a cross-chain transaction. The digital asset is first locked within a smart contract on the original blockchain network. The cross-chain bridge then facilitates the transfer of the asset to the target network, where it is held in another smart contract. This second smart contract is programmed to release the asset only under specific conditions, such as receiving confirmation from the original network.

These bridges play a crucial role in enabling interoperability between blockchain networks with varying protocols, consensus mechanisms, and smart contract languages. They empower users to harness the unique advantages of multiple networks while expanding the utility of their digital assets. However, current cross-chain bridges face notable technical challenges, including issues related to **atomicity, scalability, and security**. Addressing these challenges is essential to ensuring the integrity and reliability of cross-chain transactions.

In this paper, _____ Finally, we highlight ARMswap's excellence in addressing these challenges. By overcoming critical technical barriers, ARMswap has established itself as a reliable and efficient solution for enabling secure, seamless, and scalable cross-chain interactions.

2. Background Knowledge

2.1 Cross-chain Bridge

In blockchain terms, a protocol that accommodates the transfer of assets from one blockchain to another is known as a cross-chain bridge. Cross-chain bridges increase token utility by facilitating cross-chain liquidity between distinct blockchains. A cross-chain bridge typically involves locking or burning tokens on the source chain through a smart contract and unlocking or minting tokens through another smart contract on the destination chain.

The Web3 ecosystem is increasingly becoming multi-chain, with decentralized applications existing across hundreds of different blockchains and layer-2 solutions, each of which with its own approach to security and trust. Due to the ongoing challenge of blockchain scalability, this trend is likely to continue, supported by the launch of more blockchains, layer-2 and layer-3 solutions, and standalone networks such as application-specific blockchains, which can be tailored to the specific technical and economic requirements of a single or a smaller cluster of decentralized applications.

With so much economic activity siloed on isolated networks, it is becoming increasingly clear that Web3 needs robust cross-chain interoperability solutions that enable data and tokens to move across an interconnected network of blockchains in a secure and seamless manner.

2.2 Cross-chain Swap

Cross-chain swaps are a mechanism for trading a token issued on one blockchain with a token that's been issued by a different blockchain in a trust-minimized manner.

While users today can already access cross-chain swap functionality through centralized exchanges, this introduces multiple layers of friction (e.g., transferring tokens to an exchange, swapping them directly or indirectly through a medium of exchange such as USD, and then moving the swapped tokens back to a wallet on a different blockchain). Additionally, this process requires users to leverage custodial services and temporarily give up custody of their assets. For something as fundamental as a cross-chain swap, this becomes a key barrier for building a world powered by sovereign digital asset ownership.

2.3 Decentralized Exchange – DEX

Decentralized exchanges, or DEXs, are platforms that facilitate peer-to-peer cryptocurrency trading without relying on intermediaries or centralized authorities. These exchanges operate on blockchains, allowing users to trade directly with one another while retaining control over their private keys and funds. Decentralized exchanges prioritize security and user autonomy, making them an appealing choice for traders seeking a more decentralized trading experience.

DEXs are based on smart contracts. These are simply computer programs developed to perform certain functions. They oversee establishing exchange prices according to the market and linking buyers and sellers, among others.

As we said, the funds always remain the property of the user. This prevents theft, seizure or blocking of funds by governments or other entities. Cases that can occur in Centralized Exchanges (CEXs), since they are obliged to pass certain legal filters.

Consider decentralized exchanges (DEXs) as a representative example to illustrate the operation of DeFi applications. Existing cross-chain DEXs are implemented through the integration of two independent Dapps: a cross-chain bridge and a DEX. Each component fulfils its respective function sequentially. As depicted in Figure 2, a cross-chain bridge maps Token A on Blockchain A to Token A' on Blockchain B. The DEX on Blockchain B operates on Token A' and Token B, both native to Blockchain B. Consequently, the DEX facilitates the swap between Token A on Blockchain A and Token B on Blockchain B at a logical level.

In essence, the current cross-chain DEX model utilizes a two-step process:

- **Cross-chain bridge:** Enables the transfer of Token A from Blockchain A to Blockchain B, resulting in the issuance of Token A'.
- **DEX:** Facilitates the swap between Token A' and Token B, both native to Blockchain B.

This two-step process enables users to exchange assets across different blockchains while maintaining the execution of the DEX on a single chain.
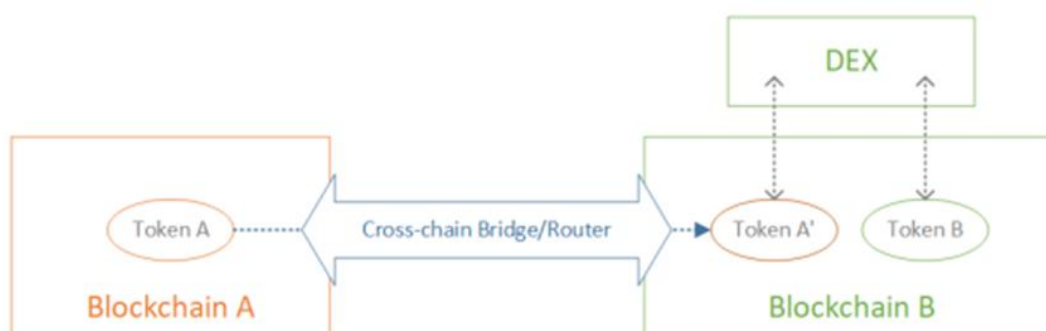

Figure 1: How a cross-chain DEX works based on a cross-chain bridge.

2.4 Order Books

An order book is an electronic list of buy and sell orders for a security or other instrument organized by price level. These orders can be both manual and electronic. Although they generally contain the same information, the set up may be slightly different depending on the source. They are used by almost every exchange for various assets like stocks, bonds, currencies, and even cryptocurrencies. These lists help improve market transparency as they provide information on price, availability, depth of trade, and who initiates transactions. It is

an automated list where all open buy and sell positions appear at any given moment. We are talking about a dynamic book that fluctuates constantly as users open and close orders.

Normally, there are three elements within an order book:

- Buy orders: These represent the current demand for digital assets, ordered by price from lowest to highest
- Sell orders: These represent the amount of digital assets users want to sell, ordered by price from highest to lowest.
- Order History: This shows all past transactions, providing a record of market activity.

Additionally, an order book is accompanied by a candlestick chart. Such a chart provides useful information about the current state of an asset pair (BTC/USD, for example) and how the market has been oscillating.

Both open orders and candlestick charts provide the user with information about the market situation. It can help users make buy or sell decisions according to the market trend.

We can currently find two types of decentralized exchanges with order book. These are:

- **On-Chain Order Book:** Orders are stored within the blockchain. It eliminates the need for external servers to store transactions. It is the mechanism with the most decentralization but depends on the processing capacity of the blockchain and its gas costs.
- **Off-Chain Order Book:** Set orders are established outside the blockchain to reduce network fees and increase speed. Within the network only settlement of trades occurs.

2.4.1 Challenges

- If a market is illiquid, order books don't really work. You can make an order, but finding a match for it won't be as easy, and you'll have to wait for a long time. This often means you'll not be able to escape volatility and large spreads occurring in these situations.
- Order books also pave the way for market manipulation. For example, speculators often determine in which direction the asset's price would go depending on clues from the order book. If a book hits a buy or sell wall, that could indicate that traders are looking to buy or sell an asset, respectively.
- Manipulators often tend to abuse the order book and provide false clues for the market sentiment, causing many traders to make wrong decisions. Decentralized exchanges also give room for wash trading, pump and dump schemes, and more. That's one reason why many traders don't treat order books as the best choice for DEXs.

2.5 Liquidity

Liquidity is a fundamental component of financial markets that significantly influences asset pricing. In simple terms, liquidity refers to the ease with which an asset can be bought or sold in the market without causing a substantial change in its price. High liquidity indicates that an asset can be traded swiftly at a price close to its current market value. Conversely, low liquidity suggests that the asset is more difficult to trade, and transactions may occur at prices that deviate significantly from the market rate.

In decentralized finance (DeFi), liquidity assumes even greater importance for the effective operation of decentralized exchanges (DEXs). Liquidity pools, which aggregate assets contributed by multiple users, are a common mechanism to enhance liquidity within DeFi ecosystems. These pools ensure continuous availability of assets for trading, thereby supporting liquidity across various tokens and helping to minimize price volatility.

A thorough understanding of liquidity is essential for traders and investors, as it affects their ability to execute trades efficiently and manage risk. For instance, major cryptocurrencies such as Ethereum generally exhibit high liquidity, allowing for rapid transactions at relatively stable prices. In contrast, lesser-known altcoins often suffer from lower liquidity, leading to increased price volatility and challenges in executing trades.

2.6 Liquidity Pool

A liquidity pool is a smart contract that holds a significant amount of cryptocurrency, digital assets, tokens, or virtual coins, which are locked up and readily available to provide essential liquidity for decentralized trading networks. Decentralized exchanges heavily rely on liquidity to ensure smooth and timely transactions. By connecting to liquidity pools, decentralized exchanges can maintain a functional network that doesn't cause delays for traders.

In a liquidity pool, digital assets are locked and ready for exchange. These pools serve as digital asset reserves that provide liquidity to decentralized finance (DeFi) markets, such as decentralized exchanges (DEX). Unlike traditional finance, where buyers and sellers are paired to complete a transaction, liquidity pools do not require direct user connections. Instead, they operate automatically through automated market makers (AMMs), which connect users to smart contracts containing their requested digital assets.

Liquidity pools play a significant role in providing liquidity to illiquid markets and boosting the DeFi ecosystem. Peer-to-peer exchanges often suffer from low liquidity, which effects the trade process, and Traders may be less likely to use a DEX with low liquidity because of the risks of high volatility, slippage, and difficulty in executing trades. However, liquidity pools with sufficient liquidity facilitate rapid transactions.

Moreover, liquidity pools offer fair prices for asset exchanges. These prices are determined solely by the automated market makers (AMMs), ensuring more accurate pricing compared to traditional exchanges influenced by individual traders' bids.

2.6.1 Working of Liquidity Pools

Liquidity pools utilize automated market makers (AMMs) to connect users who wish to trade pairs with the appropriate smart contracts. AMMs are algorithmic protocols that determine the prices of digital assets and automate asset trades on liquidity pools.

To participate as a liquidity provider, you can follow these general steps:

- Credit your crypto wallet with the tokens you intend to deposit in a liquidity pool.
- Connect your wallet to a liquidity pool platform of your choice or sign up on a liquidity pool platform and credit the liquidity pool wallet associated with your account.
- Identify the trading pairs you intend to invest in and deposit your cryptocurrency into those selected pairs.
- Upon depositing, you will receive liquidity pool tokens corresponding to the specific trading pair as a liquidity provider.
- Based on the amount of liquidity provided, user will receive a portion of the swap fees earned from exchanges conducted with the liquidity pool.

2.6.2 Earn as a Liquidity Provider

As a liquidity provider (LP), you earn trading fees by depositing tokens into a liquidity pool. Each time a trade occurs in the pool; a small fee is charged to the trader. This fee is distributed proportionally among all LPs based on their share of the pool's liquidity, allowing you to earn passive income.
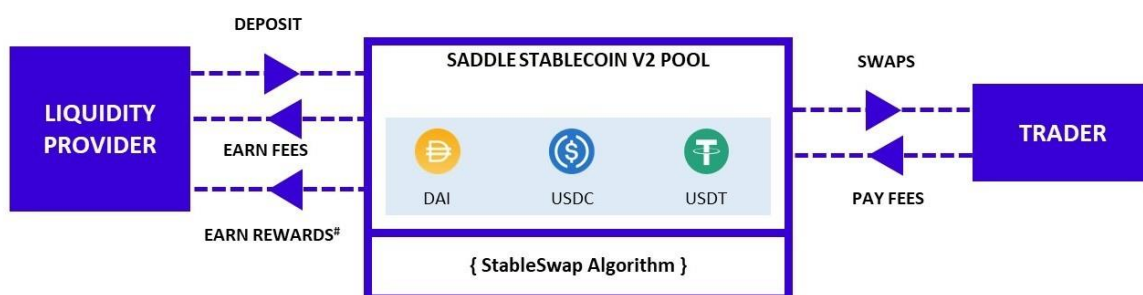

Figure 2: How a liquidity provider (LP) earns from a liquidity pool.

2.6.3 Challenges

- **Scam liquidity pools:** It's important to research the integrity of liquidity pools before participating. Some liquidity pools may have vulnerabilities that allow developers to access and exploit locked assets without permission.

- **Risky price changes:** Liquidity pools are subject to constant price changes determined by automated market makers. Significant price fluctuations can lead to losses or gains for assets stored in the pool.
- **Impermanent loss:** Volatile changes in prices can impact small asset portions, leading to potentially unrecoverable losses for liquidity providers.

2.7 Liquidity Pools vs. Order Books

Liquidity pools and order books differ in the way trades are executed. Liquidity pools enable users to receive assets directly from smart contracts that contain trading pairs ready for exchange. On the other hand, order books require platform intervention and confirmation between traders before assets are released.

Liquidity pools use automated market makers (AMMs) to determine asset prices, while order books are commonly used in centralized exchanges to price crypto assets.

Liquidity pools offer several advantages over traditional order book models:

- **Lower Entry Barrier:** Liquidity pools enable smaller traders to participate in the market by eliminating high gas fees associated with order books.
- **Reduced Slippage:** The constant token ratio in liquidity pools minimizes price slippage, providing traders with more accurate and predictable trading experiences.
- **Continuous Liquidity:** Liquidity pools ensure continuous liquidity for various tokens, even during times of low trading activity.
- **Passive Income:** Investors who contribute tokens to the pool receive a share of the trading fees or other incentives offered by the exchange, allowing them to earn passive income.
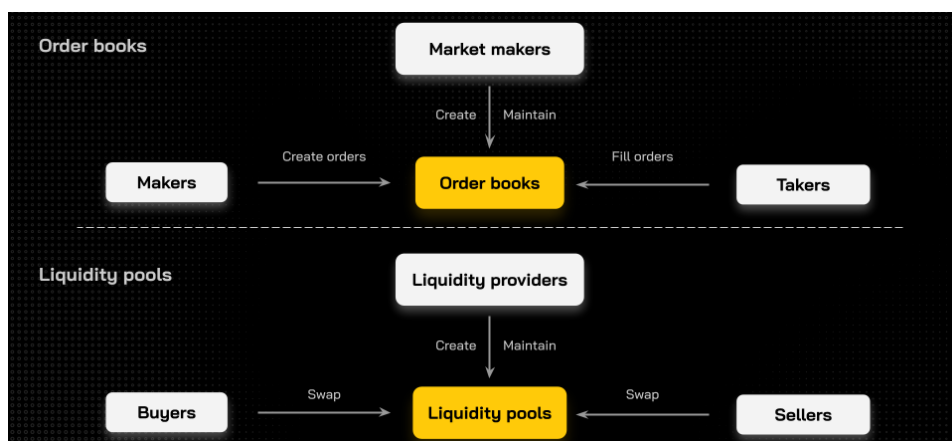

Figure 3: Liquidity pools vs. order books.

2.8 Total Value Locked (TVL)

Total Value Locked (TVL) is a metric that represents the total value of assets locked within a DeFi platform. It serves as an indicator of the platform's liquidity and potential for growth. Platforms with higher TVL are generally considered more attractive to investors, as they offer greater liquidity and stability.

2.9 Annual Percentage Rate – APR

The monetary value or reward that investors may earn by making their crypto tokens accessible for loans, taking into consideration the interest rates and any other fees that borrowers must pay, is referred to as the annual percentage rate (APR). Customers are encouraged by multiple platforms to deposit their crypto assets by offering them a high annual percentage rate (APR). APR is exclusive of compounding interest.

For Example:

Imagine you have 10,000 USDT and want to invest them in DeFi. A platform offers you 10% APR on staking USDT for one year. Then at the end of the year, you'll have a total of 11 000 USDT.

- Earned = Principal= 10,000×0.10 = 1,000.
- Total Value = Principal + Earned = 10,000+1,000 = 11,000.

3. ARMswap

Emerging from the pressing need for diverse blockchains to communicate seamlessly, ARMswap establishes itself as a cutting-edge infrastructure. Each blockchain boasts unique services, a dedicated community, and an independent development ecosystem. To unlock the next level of user experience, our industry requires a swift, secure, affordable, and reliable solution for facilitating value exchange and control across different chains. ARMswap's innovative solutions enable interoperability across 30+ blockchains and incorporating virtually all blockchain types, eliminating restrictions imposed by specific technological frameworks. Whether it's Ethereum-like chains (e.g., Binance Smart Chain), Layer 2 solutions on Ethereum (e.g., Polygon), networks of Parachains (e.g., Moonbeam in the Polkadot system), Bitcoin-esque chains (e.g., Litecoin), or Cosmos chains (e.g., Terra), ARMswap is either already integrated or actively pursuing integration. Additionally, its universal applicability extends to all ECDSA and EdDSA encrypted chains, solidifying its position as a truly ubiquitous interoperability layer.

This comprehensive approach to cross-chain communication empowers users and developers to leverage the full potential of the blockchain ecosystem, regardless of the underlying technology employed by individual chains. By enabling seamless interaction, ARMswap paves the way for a more connected, collaborative future for the blockchain industry.

Underpinning this groundbreaking technology is a robust Secure Azure Key Vault Managed HSM (Hardware Security Module). This sophisticated service ensures the highest levels of confidentiality and integrity throughout every cross-chain transaction, safeguarding user assets and mitigating potential security risks. With ARMswap, users can finally experience a unified blockchain ecosystem where assets are freely transferable without compromising security or privacy.

ARMswap protocol supports the following features:

- Cross Chain Bridge: Users can deposit their tokens into the protocol against a source blockchain and get bridged tokens on a destination chain.
- Cross Chain Swaps: Users can perform a swift swap between tokens on diverse chains.
- Liquidity: Liquidity provider could add and withdraw liquidity into swap pair and earn fee.

3.1 ARMswap Cross-chain Bridge

The ARMswap bridge marks a paradigm shifts in on-chain asset interoperability, eliminating the barriers between disparate blockchain networks. This revolutionary solution empowers seamless cross-chain interactions, allowing users to effortlessly transfer their assets across diverse blockchain environments.

ARMswap bridge works on liquidity pool mechanism, where pools are created either by ARMswap team or users. Sufficient liquidity for both tokens will be needed on both the chains that are in pair in pool. Users can then bridge their asset against the available pairs at ARMswap protocol.

If you want to bridge your ETH from Ethereum chain to Fantom chain, if pair is not already available, you will need to create a pool, of ETH-WETH where ETH is on Ethereum and WETH is on Fantom. provide liquidity of both (the ETH and WETH), allowing bridge transactions to occur against this pair.

If the Wrapped Ether (WETH) on the Fantom network has insufficient liquidity, an ETH-WETH liquidity pool (LP) token will be minted and transferred to the user as a receipt. The user can later redeem this LP token for WETH once adequate liquidity is restored on the Fantom network.

Beyond secure transactions, the ARMswap bridge boasts a range of noteworthy features:

- Universal Interoperability: Seamlessly transfer assets between any two or more supported blockchains, regardless of underlying technology or design principles.

- Real-Time Swap Rates: Gain access to real-time swap rates for all supported assets, enabling informed decision-making for your transactions.

ARMswap serves as the ultimate bridge for web3, providing a robust infrastructure for arbitrary cross-chain interactions. By eliminating the barriers between blockchain ecosystems, the ARMswap Bridge unlocks a new era of collaboration and innovation within the crypto space. With its unparalleled security, flexibility, and universal interoperability, the ARMswap Bridge stands poised to revolutionize the future of cross-chain interactions.

3.2 ARMswap Cross-chain Swap

ARMswap's cross-chain swaps operate on a similar liquidity mechanism as its cross-chain bridges. Users can swap their tokens with other available tokens across more than 30 blockchains, provided that a swap pool exists for their desired tokens. If a swap pool is not available, users have the opportunity to create their own swap pool, thereby earning rewards.

3.2.1 Workflow

While ARMswap cannot directly mint assets like ETH, it utilizes a sophisticated system of liquidity pools to facilitate their cross-chain transfer. These pools, established by ARMswap, or individual users, essentially act as reservoirs of specific assets on various chains.

When a user initiates a cross-chain swap, say, n ETH from chain A to FTM on chain B, the following steps occur:

- **Depositing on Chain A:** The n ETH coins are deposited by user within the corresponding liquidity pool on chain A.
- **Receiving on Chain B:** If the pool on chain B holds sufficient FTM, this amount is automatically transferred to the user's wallet on chain B.
- **Minting LP Tokens:** In the event of insufficient FTM on chain B, ARMswap mints LP tokens on chain B and sends them to the user. The LP tokens represent the user's entitlement to an equivalent amount of FTM on Chain B, effectively serving as "pool shares.
- **Redeeming LP Tokens:** Users can redeem their LP tokens for an equivalent amount of FTM on chain B, contingent upon the availability of sufficient liquidity. this process burns the LP tokens, thereby adjusting the user's claim within the pool share.

3.3 Pool Replenishment

The liquidity pools are replenished through two primary mechanisms:

1. Cross-chain bridge transfers: When users transfer XYZ away from a chain, the corresponding amount is added to the respective pool on that chain.

2. Direct deposits: Users or projects can directly contribute to pools available at ARMswap, thereby increasing available liquidity. Moreover, users have a liberty to create pools of their choice if they do not exist, primarily.

This system ensures that users can transfer assets across chains while mitigating the risk of insufficient liquidity. The use of LP tokens provides a seamless and transparent experience, ensuring users retain their rightful claim to their assets throughout the process.

3.4 Empowering Investors and Liquidity Providers: Rewards and Opportunities in ARMswap

ARMswap extends a unique opportunity for investors and liquidity providers to optimize their capital and reap significant rewards. By participating in the ARMswap liquidity pool, they can contribute to the smooth functioning of the cross-chain ecosystem and receive a 21% of the share from the fees generated on every successful swap transaction along with ARMSP (ERC-20) tokens, equivalent to 0.14%.

This revenue stream, proportional to their share in the pool, provides a compelling incentive for investors and liquidity providers to participate actively in the ARMswap ecosystem. This incentivizes community engagement and fosters a sustainable economic model for the platform. By rewarding those who contribute to the liquidity pool, ARMswap ensures efficient cross-chain asset exchange while simultaneously generating attractive returns for its participants. This win-win scenario creates a thriving ecosystem where investors and liquidity providers benefit alongside the entire ARMswap community.

3.5 Add Liquidity or Pool Creation

Users can add liquidity to any pool to earn rewards. Here's a simple guide:
1. **Connect your wallet:** First, connect your wallet with application to provide liquidity.
2. **Select Tokens pair:** Select the token liquidity pair to which you want to add liquidity.
3. **Provide liquidity amount:** Enter the amount of liquidity you want to add for both tokens.
4. **Click proceed:** Once you've selected your pair and provided the liquidity amount, click proceed.

Our system will then check if a pool for this pair already exists. If it does, your liquidity will be added directly. If not, a new pair with a unique ID will be created and your intended liquidity will be added to this pair.

3.6 Exchange Pricing

ARMswap utilizes a unique approach to price determination, foregoing its own AMM model in favour of real-time market data sourced from leading providers such as CoinGecko. This ensures accuracy and reliability in token rates. A simple swap calculation is then applied, allowing users to determine the exact quantity of tokens they will receive on the destination chain after a successful swap.

$$DestToken = (SourceToken * SourceTokenUSD) / DestTokenUSD$$

where;

$DestToken$ is the number of tokens user will recieve after swap

$SourceToken$ is the number of tokens user wishes to deposit for swap

$SourceTokenUSD$ is the current USD price of SourceToken

$DestTokenUSD$ is the current USD price of DestToken

3.7 ARMswap APR Calculations

Pool APR = Fees APR / TVL

- Fee APR = Total Value Locked / Annualized Fees
- *F* annualized = *F* × period / 12

Where:

- **F annualized** is the annualized fee.
- **F** is the total fees earned over the specific period.
- **Period** is the length of the period for which the fees were collected (e.g., number of months, weeks, etc.).

What else to expect? ARMswap will initially support 30+ blockchains and more will be continually added after the launch. Moreover, ARMswap will initially support MetaMask and 420+ wallets through WalletConnect which includes Trust Wallet, Binance Web3 Wallet, Safe, Argent etc. Later, more hardware wallets will be added.

3.8 How ARMswap's Cross-chain Backend is Deployed

ARMswap's utilises its innovative cross-chain router as its backend that leverages HSM as its core technology. This router comprises three key components:

- **On-Chain Addresses/Smart Contracts (router contract):** Deployed on both Blockchain A and Blockchain B, these contracts facilitate the processing of tokens on the respective chains and their mapped counterparts on the target chain.
- **Hardware security module (HSM):** ARMswap utilizes **HSM** to facilitate the secure and trust less transmission of transaction information and status between the source and target chains.
- **Cross-Chain Interaction Trigger:** Upon confirmation of the transaction status on the source chain, the router automatically initiates corresponding operations on the target chain, enabling seamless cross-chain interaction for digital assets.

This distributed approach eliminates the need for centralized authorities, ensuring transparency, security, and immutability throughout the cross-chain process. By leveraging this innovative architecture, ARMswap empowers developers to build and deploy Dapps that seamlessly interact with diverse blockchain ecosystems, unlocking a new era of interoperable functionality within the Web3 landscape.

3.8.1 Cross-Chain Execution: Orchestrating Interconnected Logic

The execution of the Cross-Chain Router transcends simple contract calls or multi-contract interactions within a singular blockchain. Instead, it leverages a hardware security module (HSM). This mechanism facilitates secure cross-chain communication, enabling the execution of business logic across multiple chains in a coordinated and trust less manner.

4. ARMswap's Security Model

Hardware Security Modules (HSMs) are integral to the security framework of ARMswap, serving as physical devices designed to handle and protect cryptographic keys essential for secure transaction processing. Their primary role is to safeguard the security and reliability of all transaction signings on our platform.

4.1 Key Functions of HSMs in ARMswap's Security Framework

- **Transaction Verification:** Every transaction undergoes thorough verification by HSMs before it proceeds. This layer of verification enforces secure and authentic transaction execution, reinforcing trust in ARMswap's processes

- **Data Encryption and Decryption:** HSMs generate a unique key to encrypt transaction data, which is then transmitted over a network. The HSM decrypts the data when it's received.

- **Operational Isolation:** HSMs function independently from ARMswap's primary systems. This isolation means that even if the main platform experiences a breach or

disruption, the cryptographic keys within the HSM remain secure, protecting the integrity of transaction processing and data confidentiality.

- **Secure Key Management:** In addition to key protection, HSMs provide lifecycle management for cryptographic keys, including secure key generation, distribution, and destruction, which are essential for maintaining long-term security and compliance.

By leveraging HSMs, ARMswap ensures a resilient security architecture that supports the confidentiality, integrity, and availability of transaction data, giving users confidence in the platform's security standards.

5. ARMswap Token - ARMSP

The ARMswap utility token (ARMSP) is a cryptographically secured digital asset issued on the Ethereum blockchain. It serves as a transferable representation of the functional attributes defined within the ARMswap protocol and code. ARMSP is integral to the operation of the ARMswap ecosystem and is intended to be used exclusively as the primary utility token within the platform.

The ARMSP token is a non-refundable functional utility token designed to serve as an economic incentive within the ARMswap ecosystem. It will be utilized to reward users for their contributions and maintenance efforts, thereby fostering a mutually beneficial system where all participants are equitably compensated for their efforts.

ARMSP is a fundamental and essential component of ARMswap. Without ARMSP, users would lack the necessary incentives to invest resources in participating in activities or offering services that benefit the entire ARMswap ecosystem.

For ARMswap to function properly, users would need to be incentivised to play the role of liquidity providers and stake their digital assets into the market making pools. These liquidity providers would be rewarded with ARMSP tokens.

The ARMSP token will also function as a governance token, enabling holders to participate in the decision-making process regarding future platform developments through voting, for example:

- Voting to increase the number of supported blockchains
- Voting for changes to the governance procedures and rules.
- Voting for MVP nominee

To clarify, voting rights are exclusively limited to decisions regarding the features of ARMswap. ARMSP holders do not possess the right to vote on matters related to the

operation and management of the Foundation, its affiliates, or their assets. Furthermore, such voting rights do not confer any equity interest in these entities.

5.1 ARMSP Allocation

A total of 1.25 billion ARMSP tokens have been generated during the genesis phase and will gradually become available over the span of one year. The distribution breakdown of ARMSP is outlined below:

- 20% allocated for liquidity for buy/sell on different exchanges, comprising **250 million ARMSP.**
- 32% allocated for Token Sale, totalling **400 million ARMSP**.
- 20% designated for contributors within the ARMswap community, amounting to **250 million ARMSP**.
- 20% reserved for ARMswap founders, comprising **250 million ARMSP**.
- 8% assigned to the core team members and prospective employees, comprising **100 million ARMSP**.

5.2 Vesting Period

We carefully planned to release the vesting period from ARMSP after the 12th month following its release. Our goal is to ensure a fair launch and organic growth of the ARMSP by distributing token fairly among the community. We've laid out a well-structured token distribution plan and, to prevent manipulation by large investors, we've set a maximum purchase limit during the first-year phases. By end of 2025, ARMSP is expected to be accessible on multiple exchanges.

5.2.1 Transfer Control

The **Transfer Control** functionality in the ARMPS smart contract is responsible for managing the transfer of tokens. It enables the transfer of token. Initially with the launch the **Transfer Control** is disabled and as per listing aims for ARMSP, we enable the transfer of ARMSP from the 12th month following its release. Users can then easily transfer their ARMSP token from their possession to others. Schedule to lift vesting period may vary as per the community decisions in ARMswap governess.
Note: Transfer Control can never be disabled again once enabled.

5.3 Distribution of ARMSP in Hardware Wallet

Security is our utmost priority. Whether it involves safeguarding user assets or ensuring the integrity of our platform token, ARMSP, we maintain full compliance with rigorous security standards. Dedicated hardware wallets have been deployed to securely hold funds for each entity within the ARMswap ecosystem. These funds are held in reserve until their release is

necessitated, either upon demand or as the project seamlessly transitions into a new phase within the first year of its launch. In addition to these specific wallets, a distinct Pool Wallet is maintained to facilitate effective fund management. Upon the initial release of tokens, a precise allocation strategy ensures that funds are promptly directed to the following specific wallets:

5.3.1 Token Sale Wallet

The Token Sale Wallet holds funds designated for the public sale of tokens. Tokens to be released in subsequent phases will remain in Pool Wallet. Additionally, a 12-month vesting period will be enforced following the token listing.

5.3.2 Community Incentives Wallet

This wallet is managed by ARMswap. Funds for community contributors, bounty programs, audits, monthly/MVP rewards, and ARMswap grants are held here. Moreover, claimable incentives will be moved to the Community Reward Wallet.

5.3.3 Community Reward Wallet

A wallet exclusively containing funds claimable by contributors, reward winners, bug bounty recipients, or grant achievers. A 12-month vesting period applies after listing.

5.3.4 Angel Investor's Wallet

A wallet containing funds designated for donations to angel investors and ARMswap founders.

5.3.5 ARMswap Team's Wallet

A wallet specifically for the ARMswap development team and employees.

5.3.6 Pool Wallet

This Wallet is responsible for managing funds for bridging, swapping pools, and protocol stability. ARMSPs specified for Token Sale in future phases will Initially be held here. The remaining tokens will be transferred to the Pool Wallet, to be released in subsequent phases. The user will make a payment to the Pool Wallet to purchase ARMSP tokens. 0.05% platform fee will be charged.

5.3.7 Pool Reward Wallet

This Wallet holds ARMSP supply to be rewarded for LP's shares in pool's liquidity. ARMswap is charging 0.35% swap fee from every successful swap will be distributed among the

stakeholders according to the below table. Along with swap fee the liquidity providers will also receive the ARMSP as reward.

6. Fee Distribution

ARMswap is providing and supporting access to create more pools across 20 blockchain and facilitating cross-chain pairs across 11 blockchains through its third-party provider, "Changelly." The fee plan for both ARMswap pools and Changelly pools is given below:

6.1 ARMswap Pools:

The swap fee to perform cross-chain transactions among ARMswap pools is 0.35% of the amount to be transacted, exclusive of the network's gas fee. Out of 35%, 0.21% swap fee is distributed proportionally among the liquidity providers according to their share in the pool. Additionally, ARMSP (ERC-20) tokens, equivalent to 0.14% of the transaction amount, are also distributed among liquidity providers. furthermore, ARMswap incentivizes ARMSP holders who have purchased and are holding ARMSP tokens from www.token.armswap.com. A significant portion, specifically 0.105% out of 0.35%, from each successful cross-chain swap conducted on ARMswap will be allocated proportionally based on users' holdings.

Distribution	Value in %
Liquidity Provider - Native	0.21
ARMSP Holders - Native	0.105
ARMSP from Community Pool to Liquidity Providers	0.14

Table 1: ARMswap pool – breakdown of fee and rewards.

6.1.1 Changelly Pools:

The fee charged by the third-party provider, Changelly, is 0.4% for every cross-chain transaction in Changelly pools. ARMswap has no share in this fee.

Distribution to	Value in %
Partnered Platform (Changelly)	0.4

Table 2: Changelly pool – breakdown of fee and rewards.

6. Rewards

A total of 250 million ARMSP will be locked in a Hardware wallet and distributed among the contributors of ARMswap ecosystem.

Liquidity Rewards will be incentivised based on successful swaps which will be calculated after every 24 hours. ARMswap charges a fee of 0.35% for every swap transaction, each liquidity provider will be rewarded according to his proportion in liquidity volume.

Community rewards are managed in following two wallets:

- Community Incentives Wallet.
- Community Reward Wallet.

7. ARMswap: Mission and Vision

7.1 Advancing Cross-Chain Infrastructure: ARMswap's Vision and Research Efforts

As a fundamental service component for building cross-chain router as its backend, ARMswap will further track and spearhead technological advancements towards a more sophisticated cross-chain router. This evolution will involve scaling from distributed to truly decentralized cross-chain router by integrating layers comprising Oracles and Relayers. These layers will integrate generic cross-chain messaging between blockchains in parallel with Secure Multi-Party Computation (SMPC). This combination will enhance their suitability for current and future multi-chain application environments, aligning with ARMswap's vision to become the ultimate router in the Web 3.0 era.

So far, ARMswap's research on Oracles/Relayers represents a preliminary effort to explore this field. Moving forward, ARMswap will invest more to enhance their integration to be more functional, efficient, and secure. This investment aims to create additional value for project developers and deliver an improved user experience.

7.2 Expanding the Blockchain Coverage

ARMswap's journey into the realm of Web3 is marked by the launch, where we proudly support over 30 blockchains on our cross-chain platform. Users can seamlessly engage in cross-chain bridge and swap transactions across this extensive network of blockchains. However, our ambition doesn't halt here. We aspire to become the leading cross-chain platform within the Web3 ecosystem, with the widest coverage of blockchains possible. To

achieve this, we are committed to continually expanding our reach by integrating both EVM and Non-EVM blockchains.