



Scalar DAO

Open source Cross chain **Leverage** Protocol

Whitepaper V 1.0

scalardao.eth.limo

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1. Opening Bell

1.1. Background

Decentralized finance (DeFi) and blockchain technology have transformed the financial landscape, providing access to a wide range of products. Leveraged trading, specifically **margin trading**, has emerged as a powerful tool within the DeFi ecosystem, allowing traders to amplify their exposure to various financial assets and potentially magnify their profits. However, the existing margin trading platforms are **not without their challenges**, hindering the full potential of this exciting financial instrument.

Traditional margin trading platforms, while serving as an integral part of the financial landscape, are inherently centralized and reliant on intermediaries. This centralization introduces **counterparty risk**, **lack of transparency**, and **potential vulnerabilities** to hacking or fraud. Additionally, these platforms often have a limited selection of supported assets, leaving traders with limited choices and access to opportunities within other blockchain ecosystems.

Furthermore, the **lack of cross-chain compatibility** in traditional margin trading platforms restricts traders' ability to tap into assets and liquidity pools on different blockchains. This limitation hinders the scalability and efficiency of leveraged trading, preventing users from capitalizing on diverse market movements and potential returns.

While cross-chain protocols have emerged as a solution to some of the challenges in traditional margin trading, they too currently face certain limitations. The technical complexity and **steep learning curve** associated with many existing cross-chain protocols present barriers to entry for less tech-savvy users. The **lack of interoperability** between different blockchains restricts seamless asset transfers and margin trading opportunities across multiple networks.

Additionally, **security risks** such as oracle manipulation or cross-chain bridge attacks pose threats to user funds and the overall integrity of cross-chain protocols. These concerns emphasize the need for a robust, audited, and secure cross-chain leverage protocol that users can trust.

Scalar DAO, is hence, born from the collective aspiration to build a decentralized, secure, and interoperable leverage protocol that empowers the DeFi community. Our mission is to democratize margin trading on DEXs, making it accessible to traders of all skill levels, while ensuring transparency, security, and community-driven decision-making.

At the heart of Scalar DAO lies a **commitment to decentralization and transparency**, as we integrate blockchain technology and smart contracts to enforce rules and execute

leveraged trades without intermediaries. We embrace cross-chain compatibility, allowing traders to access assets and opportunities across multiple blockchains, ultimately enhancing liquidity and market diversity.

1.2. Purpose of the whitepaper

The purpose of this whitepaper is to introduce the concept of **Scalar DAO** as an **Open-Source Cross-Chain Leverage Protocol** that aims to address the limitations and inefficiencies of existing margin trading platforms by providing a decentralized, interoperable, and community-driven solution.

This whitepaper serves as a comprehensive guide to understanding the Protocol end-to-end including the technology aspects, core concepts of the leverage protocol, the problem statement, the solution provided by Scalar DAO, Margin Trading on DEXs as well as the ethos and DAO-related aspects that underpin its operation.

1.3. Scope and Objectives

The scope of this whitepaper covers a wide range of concepts related to Scalar DAO. It explores the technology aspects that enable cross-chain compatibility and Margin trading on DEXs, delves into the core concepts of the leverage protocol, and identifies the challenges faced by traditional margin trading platforms in the DeFi space and existing cross-chain protocols. Additionally, it provides a detailed overview of the solution offered by Scalar DAO, emphasizing its decentralized governance, security measures, and user-friendly experience and interface.

The objectives of this whitepaper, hence, are to:

- **Introduce** the concept and significance of Scalar DAO as a Open-Source Cross-Chain Leverage Protocol that aims to democratize Margin Trading on DEXs.
- **Explain** the technology aspects underlying Scalar DAO, such as blockchain compatibility, smart contracts, oracles, and governance mechanisms.
- **Elaborate** on the core concepts in the protocol, including Margin trading, cross-chain swaps, synthetic assets, liquidity pools, and risk management.
- **Present** the problem statement, highlighting the challenges faced by traditional margin trading platforms, existing cross-chain protocols, and centralized exchanges.
- **Propose** the solution provided by Scalar DAO, emphasizing its decentralized, interoperable, and community-driven nature.
- **Discuss** the ethos and values of Scalar DAO, emphasizing trustlessness, transparency, community involvement, fairness, and security.
- **Explore** the DAO-related aspects of Scalar DAO, including its decentralized governance, tokenomics, and voting processes.

- **Provide** a roadmap for future development, milestones, partnerships, and community engagement.
- **Conclude** by summarizing the potential impact and use cases of Scalar DAO and inviting readers to take action.

In the subsequent sections of this whitepaper, we will delve deeper into each of these aspects, providing a comprehensive understanding of ***Scalar DAO as a transformative force in the realm of decentralized finance and decentralized margin trading on decentralized exchanges.***

2. Problem Statement

2.1. Challenges in Traditional Margin Trading

Traditional Margin trading platforms often face several challenges that limit their effectiveness and accessibility:

- a. **Centralization:** Many traditional margin trading platforms operate in a centralized manner, relying on intermediaries to execute trades and manage user funds. This introduces counterparty risk, lack of transparency, and potential vulnerabilities to hacking or fraud.
- b. **Limited Asset Selection:** Traditional margin trading platforms typically have a restricted range of supported assets. Traders may miss out on opportunities in other blockchain ecosystems, limiting their access to diverse investment options and potential returns.
- c. **Cross-Chain Incompatibility:** Margin trading platforms are often constrained to a single blockchain, making it difficult for traders to access opportunities and liquidity across different chains. This lack of cross-chain compatibility hinders the scalability and efficiency of this type of trading.

2.2. Limitations of Existing Cross-Chain Protocols

While cross-chain protocols have emerged to address some of the limitations of traditional Margin Trading, they too face certain challenges:

- a. **Complexity and Technical Barriers:** Existing cross-chain protocols often require technical expertise and complex procedures, making them inaccessible to less tech-savvy users. The learning curve and technical requirements may hinder widespread adoption and participation in margin trading.
- b. **Lack of Interoperability:** Interoperability between different blockchains is still in its early stages, and many existing cross-chain protocols have limited compatibility. This restricts traders' ability to freely move assets and execute margin trades across multiple chains.
- c. **Security Risks:** Cross-chain protocols must address security risks associated with asset transfers and smart contract interactions. Vulnerabilities, such as oracle manipulation or cross-chain bridge attacks, pose significant threats to user funds and the overall integrity of the margin trading ecosystem.

2.3. Issues with Centralized Exchanges

Centralized exchanges (CEXs) have been the traditional avenue for margin trading, but they also have notable drawbacks:

- a. **Lack of Transparency:** CEXs often lack transparency in their operations, making it challenging for users to verify the fairness of trading processes, settlement mechanisms, and risk management practices.
- b. **Counterparty Risk:** Trading on CEXs involves entrusting funds to a centralized entity, which introduces counterparty risk. Users are reliant on the exchange's security measures and solvency, leaving them exposed to potential losses in the event of hacking or insolvency.
- c. **Limited Control:** Users on centralized exchanges have limited control over their assets and decision-making processes. They are subject to the rules and policies set by the exchange, which may not always align with their individual trading preferences or risk tolerances.

2.4. The Scalar DAO Solutions

Scalar DAO offers a comprehensive solution to address the challenges and limitations faced by traditional margin trading platforms, existing cross-chain protocols, and centralized exchanges. The key elements of Scalar DAO's solution include:

- a. **Open-Source Cross-Chain Leverage Protocol:** Scalar DAO establishes a protocol that supports Margin Trading across multiple blockchains, fostering cross-chain compatibility and expanding traders' access to diverse assets and liquidity pools across multiple chains and decentralized money markets.
- b. **Margin Trading on DEXs:** Build a decentralized, scalable, secure, margin trading platform that enables traders to take out short-term loans to trade margin positions from publicly sourced liquidity from different AMMs / decentralized exchanges.
- c. **Decentralized Governance:** Scalar DAO embraces decentralized governance principles, allowing token holders to actively participate in decision-making processes. This ensures that the protocol evolves in a transparent and community-driven manner, aligning with the interests and needs of its users.
- d. **Enhanced Security and Transparency:** Scalar DAO prioritizes security and transparency through the use of audited smart contracts, reliable oracles, and robust risk management mechanisms. By leveraging blockchain technology, Scalar DAO minimizes counterparty risk and provides users with verifiable and transparent trading processes.

- e. **User-Friendly Interface and Tools:** Scalar DAO strives to create a user-friendly interface and intuitive tools that simplify the margin trading experience. This approach enables both experienced traders and newcomers to participate in margin trading without significant technical barriers.
- f. **Interoperability and Liquidity:** Scalar DAO promotes interoperability by allowing users to trade and transfer assets seamlessly across different blockchain networks. By leveraging liquidity pools provided by the community, Scalar DAO ensures sufficient liquidity for Margin Trading activities, creating a vibrant and dynamic ecosystem.
- g. **DAO Growth & Marketing Contributor Network:** This is a unique community-driven initiative where Scalar DAO will invite contributors to actively engage in marketing efforts, promoting the DAO's products, services, and values. By leveraging social media, content creation, and community engagement, the network fosters wider adoption and awareness. Contributors will be rewarded for their efforts through decentralized incentives, aligning their interests with the DAO's success.
- h. **DAO Participatory Network:** This is another unique initiative of Scalar DAO to overcome the multi-faceted requirements within a project such as technology, marketing, business development and community growth. A Scalar DAO participant project will be a partner in the mutual growth of the ecosystem and will be a contributor to the DAO in any or all the above disciplines for the DAO.

3. Overview of Scalar DAO

3.1. Definition and Concept

Scalar DAO is a revolutionary, decentralized, open-source, cross-chain, community-driven **Leverage Protocol** that aims to democratize and enhance **Margin Trading on DEXs** within the decentralized finance ecosystem. It leverages the power of blockchain technology to provide a secure, transparent, and efficient platform for traders to amplify their exposure to digital assets across multiple blockchains.

At its core, **Scalar enables users to engage in margin trading by leveraging their existing cryptocurrency holdings utilizing liquidity available in open markets such as a Decentralized Exchange or DEX.** It introduces a set of smart contracts and protocols that facilitate margin trading on DEXs allowing traders to take advantage of both upward and downward price movements in the market.

3.2. Key Features and Benefits

Scalar DAO offers several key features and benefits that set it apart from traditional margin trading platforms and existing cross-chain protocols. Each of the features below reinforces Scalar DAO's commitment to a decentralized and user-centric ecosystem:

- a. **Cross-Chain Compatibility:** Scalar DAO is designed to be compatible with multiple blockchains, enabling users to access margin trading opportunities across different ecosystems. This cross-chain functionality expands the reach and liquidity of the protocol, providing users with a broader range of assets to trade.
- b. **Decentralized User Interface:** Scalar DAO's platform boasts a decentralized user interface (UI), providing a seamless and trustless experience for users. The Scalar UI will operate directly on users' browsers, eliminating the need for centralized web servers. This we believe will offer enhanced security, privacy, and data integrity, apart from a user-friendly yet decentralized environment for margin trading on DEXs.
- c. **Decentralized Governance:** Scalar operates on the principles of a decentralized autonomous organization or DAO as we call it, empowering token holders to participate in protocol governance. This ensures that decision-making processes, such as parameter adjustments, fee structures, and protocol upgrades, are conducted in a transparent and community-driven manner.
- d. **Interoperability:** Scalar will foster interoperability between various blockchain networks, allowing assets to be seamlessly transferred and traded across different chains. This interoperability opens up new possibilities for traders, enabling them to access a diverse range of assets and tap into liquidity pools across multiple blockchains.

- e. **Enhanced Security:** The DAO prioritizes security by leveraging smart contract technology and implementing robust auditing measures. The use of audited and battle-tested smart contracts mitigates the risk of vulnerabilities and enhances the overall security of the protocol. Additionally, Scalar DAO employs reputable oracles and price feeds to ensure accurate and reliable market data for Margin Trading activities.
- f. **User-Friendly Interface:** Scalar emphasizes providing a user-friendly interface and tools to enhance the trading experience. The platform strives to make margin trading on DEXs accessible to both experienced traders and newcomers by offering intuitive dashboards, educational resources, and user support.

3.3. DAO Participants

Scalar DAO caters to a wide range of audiences within the decentralized finance ecosystem, including:

- a. **Traders:** Scalar appeals to traders who seek to maximize their potential profits through margin trading on decentralized exchanges (DEXs). It offers a decentralized and efficient platform for traders to amplify their exposure to various financial assets across multiple DEXs functioning on multiple blockchains.
- b. **Liquidity Providers:** It relies on liquidity pools to enable the margin trades. Liquidity providers can deposit / stake their assets in these pools and earn passive income through APY on their deposits, while also contributing to the liquidity and stability of the protocol.
- c. **Developers:** We believe that developers will play a crucial role in expanding the capabilities and innovation of Scalar DAO and in process add immense value to the leveraged ecosystem in DeFi. The DAO will eventually welcome developers to contribute to the open-source protocol by building and improving various components, interfaces, oracles, additional functionalities, and building new products layered on the protocol.
- d. **Contributors:** Being an open ecosystem, Scalar DAO also encourages people of all skill sets- e.g. marketing, growth, public relations, investor relations & more - to contribute in their own way to grow the DAO. The system is designed in a manner to enable proponents from business development, marketing and more to participate in the growth of the system and get incentivized by the protocol.
- e. **Governance Participants:** Scalar provides an opportunity for token holders as well as blockchain companies to actively participate in the governance of the protocol. Those interested in shaping the future of Scalar DAO and influencing its decision-making processes can actively engage in voting, proposing, and discussing improvements and changes to the protocol.

3.4. Market Analysis & Potential

Surge in DeFi

The DeFi market has seen exponential growth in the past few years with the global market size expected to grow from a **\$10 billion valuation in 2021** to an impressive projected worth of **\$150 billion by the end of 2023**. This remarkable surge in value can be attributed to the rapid adoption of decentralized finance protocols and applications, which have revolutionized traditional financial systems by leveraging blockchain technology.

As of 2023, there are approximately **10 million active DeFi users worldwide**, highlighting the increasing popularity and trust in decentralized financial platforms. This dynamic sector has also witnessed the launch of over **1,000 unique DeFi projects**, catering to a wide range of financial services, including lending, borrowing, staking, yield farming, trading and decentralized exchanges.

Traders, Trades & Trading Numbers

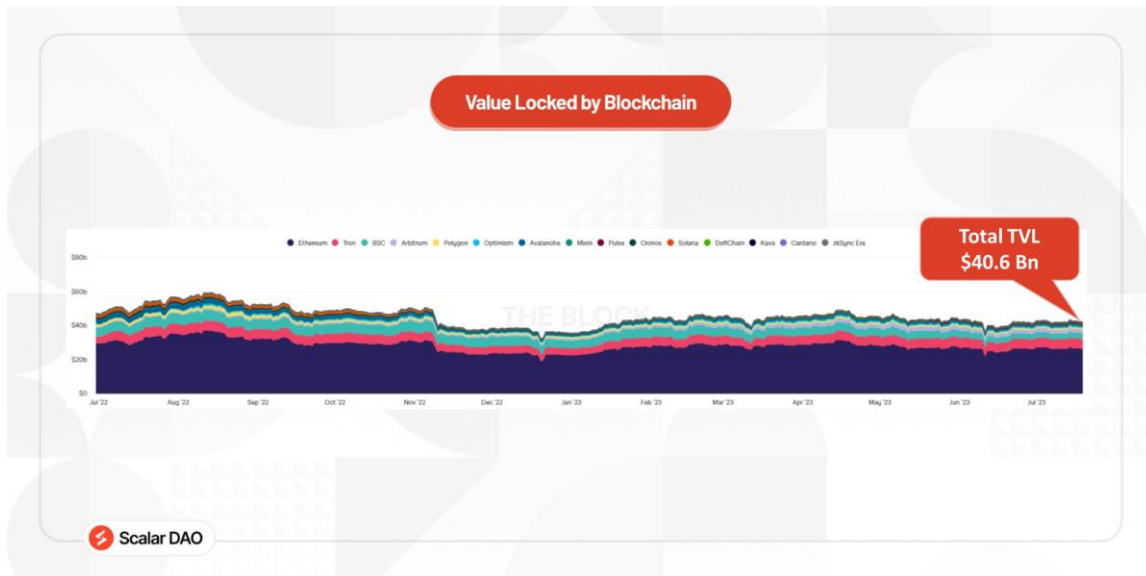
As per data from '[The Block Research](#)', we have witnessed a continuous flow of monthly volumes in the past year, the stretched bear period notwithstanding. As per numbers tracked on Dune Analytics, the **total volume in trades on DEXs in the last 30 days has been over \$50.5 B** (Source: [Dune Analytics](#)) and **\$852 B** (Source: [Dune Analytics](#)) in the last 12 months (as per [Dune Analytics](#) on 29 July 2023) - this is at the time of writing this whitepaper.

During the same time we saw over [5 million unique users](#) involved in daily trading on some of the largest DEXs such as Uniswap, Curve, DODO, QuickSwap, PancakeSwap and more. **These unique trading numbers have now swelled to [37,009,898 Total unique trading addresses](#)*** at the time of writing this whitepaper. (*Source: [Dune Analytics](#) as of 29 July 2023)

This only shows that users in the DeFi space across the world are turning in great numbers to trade on DEXs. Let us further break these numbers further down in images to showcase the immense potential of opening up the liquidity and bootstrapping it to users for Margin Trades on DEXs.

TVL by Blockchains

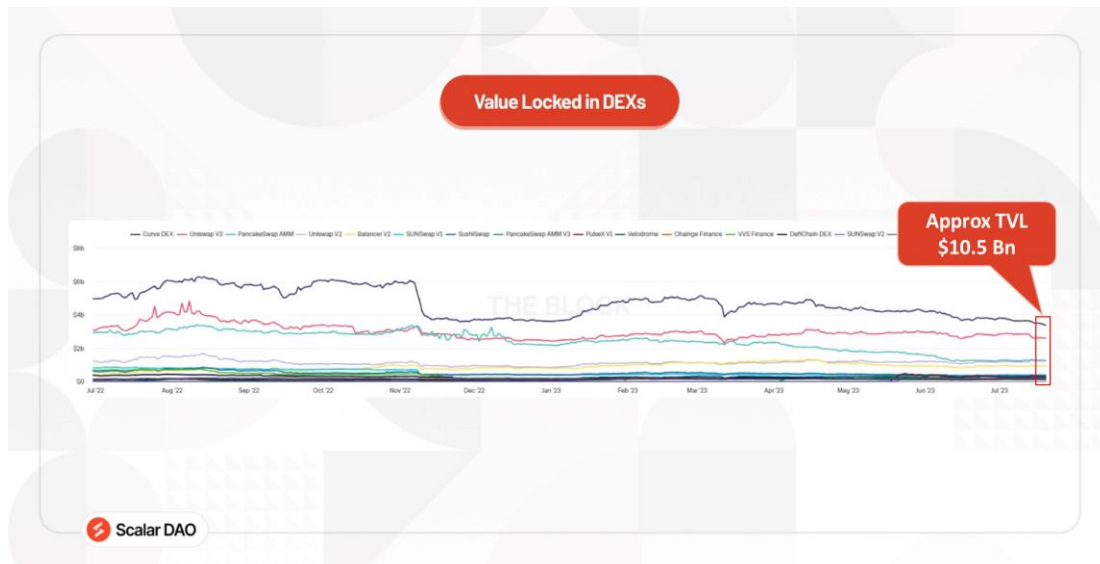
The Total Value Locked serves as a key indicator of widespread adoption for any DeFi project, as it calculates the total value, in USD, of all assets locked in the associated smart contracts, such as staking, farming, and more. The following chart illustrates the aggregated DeFi TVL for each blockchain.



TVL by Blockchains | Source: [The Block](#)

TVL By DEXs

The following data shows the value locked in various DEXs.



TVL By DEXs | Source: [The Block](#)

Trade Volume on DEXs

The 24H trade volume on DEXs was over **USD \$ 1.9 Billion (\$1,004,524,337)** as shown on [CoinGecko](#) with a vast chunk of volumes coming from the top 10 DEXs lead by Uniswap, PancakeSwap and Balancer.

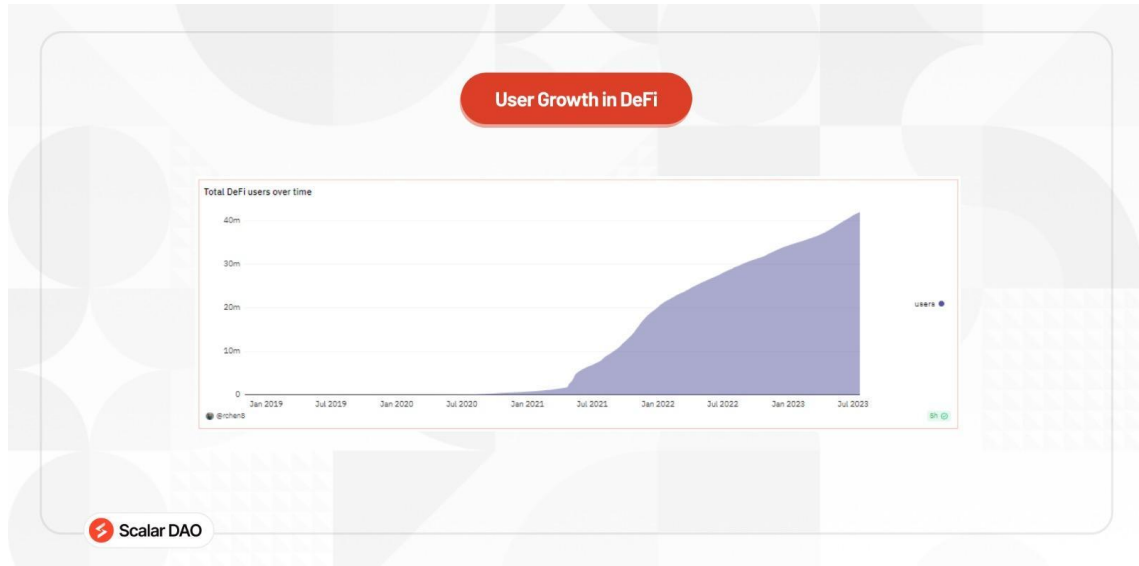
Moreover, there were over **118 Million (118,897,443) monthly DEX visits by DeFi users** (Source: CoinGecko).



Trade By Volumes | Source: The Block

User Growth on DEXs

The figures presented in the image below may be overestimated since a user can have multiple addresses. Nonetheless, this unique number has reached **nearly 42 million on all chains**. This showcases the rising interest in the DeFi space.



Source: [rchen8](#) on [Dune Analytics](#)

The data above reveals the untapped liquidity and tremendous growth potential in DEXs. As DeFi models continue to gain traction, decentralized trading platforms will offer promising avenues for users to access a wide range of opportunities.

We believe this makes margin trading on DEXs a promising and attractive option for more users to capitalize on untapped liquidity.

4. Technology Overview

4.1. Choosing a Fully Decentralized Route

Scalar DAO's fundamental ethos was in reshaping the decentralized margin trading landscape by completely doing away with any element of an intermediary that is in any way centralized. Hence, we have decided to take the full-on decentralized mode to its operations which starts from choosing its web domain to its web hosting, data storage on decentralized applications to preserve the ethos of complete decentralization. Scalar DAO application is hosted on decentralized networks rather than centralized servers to preserve and verify the data's integrity. Decentralized hosting offers a more private, secure, and censorship resistant alternative to standard websites by utilizing peer-to-peer (P2P) networking, cryptography and blockchain.

4.2. Embracing A Web3 Web Hosting Architecture

Scalar DAO is registered on ENS (Ethereum Name Service) followed by adding another layer of privacy by using the LIMO framework. While ENS translates cumbersome Ethereum addresses comprising random numbers and letters into memorable names - LIMO functions as a decentralized alternative to Cloudflare's (often unreliable) eth.link service. Our website domain is - <https://scalardao.eth.limo/> - making Scalar DAO the first fully decentralized DAO / DeFi application.

We will discuss these more in the Architecture section of this whitepaper.

4.3. Blockchain and Cross-Chain Compatibility

Scalar DAO leverages blockchain technology to provide a decentralized and transparent Margin Trading platform. The protocol is designed to be **blockchain agnostic**, allowing compatibility with multiple blockchains. By utilizing & integrating cross-chain bridges or interoperability protocols, it will enable users to access Margin Trading opportunities across different blockchain ecosystems. This cross-chain compatibility enhances liquidity, expands the asset pool available for trading, and provides users with increased flexibility and options.

4.4. Smart Contracts

Smart contracts form the backbone of Scalar DAO, ensuring the secure and automated execution of Margin Trading activities. These self-executing contracts are built using Solidity, a programming language specifically designed for creating smart contracts on the Ethereum blockchain. Solidity enables the implementation of complex financial logic, risk management mechanisms, and leverage calculations within the Scalar DAO protocol. The use of smart contracts ensures that trades are executed without the need for intermediaries, reducing counterparty risk and enhancing the overall efficiency of the Margin Trading process.

4.5. Oracles and Price Feeds

Accurate and timely market data is critical for the proper functioning of Scalar DAO. Oracles play a vital role in providing reliable price feeds and other external data necessary for Margin Trading activities. Scalar DAO integrates reputable oracles that fetch real-time market data from various sources and deliver it to the smart contracts. **In fact Scalar uses a multi oracle setup, therefore avoiding the price manipulation via compromise of any one oracle.** These oracles ensure that Margin Trades are executed based on accurate and up-to-date prices, minimizing the risk of price manipulation or inaccuracies.

4.6. Governance Mechanisms

Decentralized governance lies at the heart of Scalar DAO. The protocol empowers token holders to actively participate in the decision-making processes that govern the platform. Scalar DAO implements on-chain voting mechanisms, allowing token holders to propose, discuss, and vote on important protocol parameters, upgrades, and policy changes. Through the governance mechanisms, token holders can collectively shape the future direction of Scalar DAO, ensuring that the protocol remains aligned with the interests of its community.

4.7. Security and Audits

Scalar DAO places a strong emphasis on security and conducts regular security audits of its smart contracts. By engaging reputable auditing firms, the protocol ensures that potential vulnerabilities or weaknesses in the code are identified and addressed promptly. **In addition to standard audit firms Scalar DAO will also encourage community driven open audit programs, using platforms like [Code4rena](#) and [Immunefi](#).** Additionally, Scalar DAO implements industry best practices for smart contract development, adhering to rigorous testing, code reviews, and continuous monitoring to maintain a high level of security for its users.

By leveraging these technology aspects, Scalar DAO establishes a robust and secure foundation for its Protocol.

5. Core Components in Scalar DAO

5.1. Margin Trading Platform

Margin trading is an integral part of the Scalar DAO protocol. The platform allows traders to borrow additional funds (margin) to increase their trading capital and enter larger positions. By utilizing margin trading, users can amplify their potential returns while effectively managing their risk through proper risk management strategies.

5.2. Decentralized Exchanges

DEXs are an essential component within the Scalar DAO ecosystem, providing a decentralized and trustless platform for traders to execute Margin Trades. Scalar DAO integrates DEXs to enable Margin Trading allowing users to trade directly from their margin wallets on the platform, ensuring that they maintain control over their funds throughout the trading process. This enhances the security, transparency, and user privacy on all the trades that are executed on the platform.

5.3. Liquidity Pools

Liquidity pools play a crucial role in Scalar DAO's leverage protocol. These pools consist of staked assets provided by liquidity providers, who contribute to the overall liquidity and stability of the platform. Traders can access these liquidity pools to execute Margin Trades, and liquidity providers earn a portion of the trading fees generated by the protocol. Liquidity pools ensure that there is sufficient liquidity available for Margin Trading activities while incentivizing participation from the community.

5.4. Margin Wallets

"Margin wallets" in Scalar DAO refers to dedicated wallets that store a trader's collateral and borrowed funds. These wallets facilitate leveraged trading by providing the necessary funds to enter positions, track margin requirements, and manage the trader's overall exposure. The margin wallets play a crucial role in maintaining the integrity and security of the margin trading process within the decentralized and community-driven ecosystem.

5.5. Cross-Chain Swaps

Cross-chain swaps enable users to seamlessly transfer and exchange assets across different blockchain networks as and when a margin trade position is opened or closed. Within Scalar DAO, cross-chain swaps are utilized to facilitate Margin Trading across multiple blockchains. Users can initiate swaps between supported assets on different blockchains, allowing them to access Margin Trading opportunities in a decentralized and interoperable manner.

5.6. Risk Management

Effective risk management is an essential aspect of Scalar DAO's leverage protocol. The protocol employs various risk management mechanisms, including margin requirements, liquidation thresholds, and automated risk monitoring. These measures are in place to protect both traders and the stability of the protocol. By implementing robust risk management strategies, Scalar DAO aims to minimize the potential for liquidations and ensure the overall health of the leverage trading ecosystem.

6. Core Concepts in Scalar DAO

6.1. Collateral ratio

The Collateral Ratio (CR) in the margin trading on DEXs enables traders to utilize leverage by securing a position with collaterals valued at less than the total position size. To avoid liquidation, traders must ensure that the collateral ratio remains above the market value. Each pair listed on Scalar DAO's margin trading platform will have a unique collateral ratio determined by factors such as the pair's volatility, block time, and transaction throughput on the chain.

$$CR = \frac{\text{Value of Collateral Deposited} + \text{Unrealized Profit \& Loss}}{\text{Notional Value of borrowed Asset} + \text{Accrued Interest on Deposited Asset}}$$

6.2. Max Leverage

Scalar DAO will enable traders to open positions with a predefined leverage (between 1x to 5x) depending on the asset leveraged upon and the credit history of the trader. This is as long as they can keep the collateral ratio above the market limit.

6.3. Deposits

Liquidity providers deposit their funds into liquidity pools in lieu of interest. Traders have to deposit funds into their margin account and borrow assets on margin for leveraged trading. Margin accounts enable traders to access additional capital and enter leveraged positions, amplifying potential gains or losses. By providing idle capital in liquidity pools LPs earn yield on their capital and margin traders access more capital for margin trading on their positions.

6.4. Borrowings

Traders borrow funds from the liquidity pools to increase their trading capital and enter leveraged positions. By borrowing, traders amplify potential profits or losses, as they have access to more assets than they originally deposited. This mechanism enables traders to engage in leveraged trading without needing to solely rely on their own funds, enhancing trading opportunities within the decentralized and secure ecosystem.

6.5. Opening a Position

This refers to the act of initiating a leveraged trade. Traders open a position by borrowing funds from liquidity pools provided by other users to increase their trading capital. This allows them to enter larger positions and amplify potential profits or losses. The smart contract-based mechanism ensures that trades are executed transparently and securely without the need for centralized intermediaries. By opening a position, traders can take advantage of

market movements and participate in leveraged trading within Scalar DAO's decentralized and community-driven ecosystem.

6.6. Closing a Position

Closing happens when a trader ends an existing leveraged trade. Traders close their position by repaying the borrowed funds from the liquidity pools and settling the trade. This action results in the return of the borrowed assets and the potential profits or losses generated from the trade. By closing a position, traders effectively exit their leveraged trade, realizing their gains or losses. Scalar DAO's smart contract-based system ensures transparency and security throughout the closing process, allowing traders to actively manage their leveraged trading activities within the decentralized and trustless ecosystem.

6.7. Borrowing Interest Rate

When initiating a leveraged position, whether long or short, you will be subject to interest charges on the borrowed funds from Scalar DAO liquidity pool. The interest rate will be variable and determined by the pool's utilization, meaning it can fluctuate over your holding period. As a result, the initial interest rate at the time of opening the position may not remain constant throughout the duration of your trade.

Interest Calculation: Normally done on an annualized basis, the interest is counted per block basis on the blockchain the trade is done on.

E.g. Lets say the margin trade is conducted on Polygon Mainnet via QuickSwap DEX. The borrower's interest payable, hence, will be calculated every 2 or 3 seconds as per the block creation time on Polygon.

$$\mathbf{Interest} \text{ (per block)} = \left[\frac{(\text{No. of Units} \times \text{Annual Interest Rate } (\%))}{3,15,36,000 \text{ (Seconds in a Year)}} \right] \times \text{Block Time (secs)}$$

6.8. Fees

Margin Trading on the Scalar DAO's product for Margin Trading on DEXs will incur a Transaction Fees of 0.25% apart from the DEX fees as applicable in real-time. Once the DAO governance kicks in, the fees and allocations can be adjusted based on how the DAO members vote.

6.9. Liquidation Price

It represents the price level at which a leveraged position will be automatically closed to prevent further losses. If the asset's price reaches or falls below the liquidation price, the smart contract will trigger a liquidation event to settle the position. The liquidation price is determined based on the extent of price fluctuations, ensuring that leveraged positions are adequately protected from potential losses. By considering the specific characteristics of each asset pair, the liquidation engine aims to accurately assess and manage the risk of liquidation for traders who have taken margins.

6.10. Profit & Loss

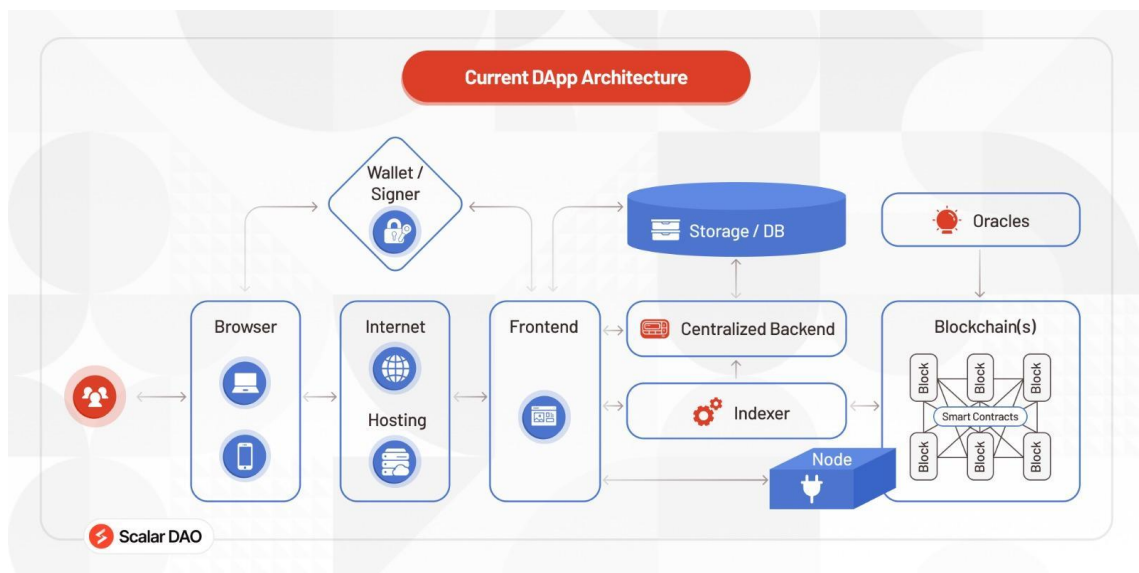
This refers to the net financial outcome experienced by a trader after closing a leveraged position. It represents the difference between the initial investment, including borrowed funds, and the final asset value upon exiting the trade. Positive values indicate profits, while negative values indicate losses, reflecting the success or failure of the leveraged trade within the decentralized and secure ecosystem. The Profit or loss in a Margin Trade conducted on Scalar DAO will be calculated as follows. Users must note that leverage trades may result in BIG results which may go either way.

$$***PnL = Held Assets - Borrowed Assets - Value Collateral***$$

7. Application Architecture

7.1. Current dApp Architecture & Issues of Centralization

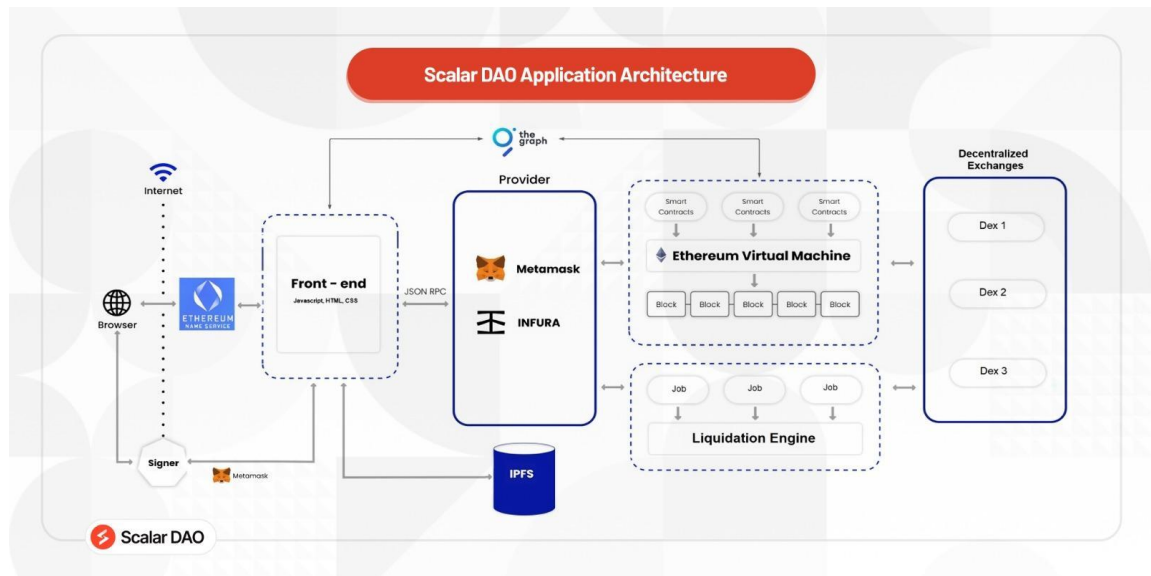
As mentioned in Section 4.1 & 4.2 above, Scalar DAO has taken the fully decentralized route to do away with the use of any intermediary application whatsoever, that is in any way centralized. But before we dive into how Scalar has changed the architecture game, we must understand the current architecture that allows us to compare the changes.



With the above diagram as reference, certain components within the DApp architecture exhibit centralization.

- The **domain**, often hosted by single entities, may result in server downtime and censorship risks, compromising decentralization.
- Similarly, conventional **hosting** relies on dedicated servers from single providers, introducing single points of failure and censorship possibilities.
- The **frontend**, though user-friendly and dynamic, relies on third-party centralized entities for storage and data.
- **Indexing solutions**, serving blockchain data, typically use centralized web-indexing systems, further centralizing the ecosystem.
- Moreover, large-scale **data storage** in DApps frequently resorts to centralized solutions due to scalability and cost constraints in the blockchain.

7.2. Scalar DAO Architecture



Scalar DAO is truly a dApp from the word go. Here's how:

Domain

Scalar DAO has chosen to register its domain on the Ethereum Name Service, the blockchain equivalent to Domain Name System (DNS) - so it has a **.eth (dot eth)** extension. We did not stop there. We have added another layer of privacy by using the LIMO framework.

LIMO is a privacy-preserving ENS gateway, enabling users to access Ethereum-native dApps and content on any browser, functioning as a decentralized alternative to Cloudflare's (often unreliable) eth.link service.

So our website - <https://scalardao.eth.limo/> - is a fully decentralized domain system, securely stored on the blockchain, ensuring the integrity of the system.

Application, Storage & File Retrieval

The Scalar DAO application leverages JavaScript, React, HTML, CSS, Solidity, and primarily **IPFS technology**. The application files are fragmented into smaller data chunks and stored across various network nodes using IPFS, a peer-to-peer network. This **decentralized storage** approach ensures enhanced resilience, availability, and protection against single points of failure within the application.

The network's nodes collaborate to locate and deliver the application files to the user's browser. This eliminates delays, as there is no reliance on a central server to respond. With files distributed across multiple locations, the process becomes swift and efficient, ensuring quick and effective delivery.

Indexing

Scalar DAO utilizes the Graph Protocol for indexing and querying blockchain data, enabling real-time data synchronization. This ensures instant notifications for users when relevant events take place. Moreover, the DAO can promptly trigger webhooks or actions in response to on-chain events with greater accuracy and efficiency. No centralized element whatsoever.

Access & Content Delivery

Users can access the application (<https://scalardao.eth.limo/>) through a web browser, similar to any other web application. This grants users a Web2 experience, while simultaneously providing full protection through the underlying Web3 layer.

Scalar DAO bypasses intermediaries and centralized servers, directly delivering application content to the user's browser. This decentralized method ensures heightened security, privacy, and data integrity, reducing the risk of data breaches and hacking attempts. User data is not stored on a single vulnerable server, enhancing protection against potential attacks.

Scalar DAO's comprehensive utilization of decentralized and privacy-preserving applications showcases its dedication to decentralization, empowering users, and cultivating trust and transparency.

These integrations embodies Scalar DAO's commitment to creating a secure and user-centric environment, where data privacy is upheld, and users have full control over their digital assets and interactions within the ecosystem.

7.3. Other Tech Components

The technical architecture of Scalar DAO's leverage protocol is designed to ensure efficiency, security, and scalability. It consists of several key components:

- a. **Smart Contracts:** Scalar DAO leverages smart contracts to execute and automate various functions within the protocol, including margin trading, cross-chain swaps, risk management, and governance mechanisms. These smart contracts are deployed on the chosen blockchain(s) and are responsible for enforcing the rules and logic of the leverage protocol.
- b. **Oracles:** Reliable and trusted oracles play a vital role in Scalar DAO's leverage protocol. They provide accurate and real-time market data, such as asset prices and other relevant information, which is essential for executing Margin Trades and calculating risk metrics. Scalar DAO integrates reputable oracles to ensure the integrity and accuracy of the data used within the protocol.

- c. **Cross-Chain Bridges:** Scalar DAO incorporates cross-chain bridges or interoperability protocols to facilitate the seamless transfer of assets across different blockchain networks. These bridges enable users to access Margin Trading opportunities on multiple blockchains, enhancing liquidity and asset diversity.
- d. **User Interfaces:** Scalar DAO provides user-friendly interfaces, including web and mobile applications, to enable traders to interact with the protocol easily. These interfaces allow users to execute trades, manage their positions, monitor performance, and engage in governance activities. The interfaces are designed to be intuitive and accessible to both experienced and novice traders.

7.4. Smart Contract Mechanisms

Scalar DAO's smart contracts incorporate various mechanisms to ensure the secure and efficient execution of Margin Trades. **Scalar is implementing systems like Defender from [OpenZeppelin](#) and [Gelato Network](#) for smart contract automation** that will handle various functionalities & processes on the product and provide a seamless and automated user experience:

- a. **Margin Requirements:** Smart contracts enforce margin requirements, which determine the amount of collateral needed to enter a leveraged position. These requirements are based on risk parameters and are designed to mitigate the risk of liquidation and ensure sufficient collateralization.
- b. **Liquidation Mechanism:** Scalar DAO's smart contracts implement a robust **liquidation** mechanism to protect the protocol and traders from excessive risk exposure. If a trader's position falls below a specified liquidation threshold, the smart contracts automatically trigger the liquidation process, ensuring that the position is closed and collateral is appropriately distributed.
- c. **Risk Management Strategies:** The smart contracts employ various risk management strategies, such as stop-loss orders and position rebalancing, to minimize the impact of adverse market conditions and volatility. These strategies aim to protect traders' capital and maintain the stability of the protocol.
- d. **Trading Engine:** Scalar DAO's smart contracts include a trading engine that facilitates the execution of margin trades based on predefined rules and calculations. The trading engine ensures that trades are executed accurately and efficiently, taking into account leverage ratios, asset prices, and relevant market data.

8. Benefits and Potential Impact

8.1. Benefits for Traders

Scalar DAO's leverage protocol offers several key benefits for traders within the decentralized finance ecosystem:

- a. **Increased Access and Liquidity:** Scalar DAO enables traders to access margin trading opportunities across multiple blockchains, expanding their asset selection and liquidity options. Traders can tap into a broader range of assets and liquidity pools, enhancing their trading strategies and potential returns.
- b. **Decentralization and Transparency:** Scalar DAO operates as a decentralized platform, reducing reliance on intermediaries and introducing transparency in trading processes. Traders have greater control over their funds, ensuring that their assets are secure and that trading activities are conducted in a trustless and transparent manner.
- c. **Cross-Chain Compatibility:** Scalar DAO's cross-chain compatibility allows traders to seamlessly trade assets across different blockchain networks. This opens up new avenues for diversification, enabling traders to explore opportunities and capitalize on market movements on various blockchains.
- d. **Efficient and Automated Trading:** Scalar DAO's smart contracts enable efficient and automated execution of Margin Trades, eliminating the need for manual order placement and reducing trading delays. Traders can leverage the power of smart contracts to execute trades accurately and in a timely manner.

8.2. Potential Impact in the DeFi Ecosystem

Scalar DAO's Open-Source Cross-Chain Leverage Protocol has the potential to revolutionize the margin trading landscape within the decentralized finance ecosystem:

- a. **Democratization of Margin Trading:** Scalar DAO lowers barriers to entry for margin trading, making it accessible to a wider audience. The protocol's user-friendly interface, cross-chain compatibility, using DEXs for liquidity provisions and decentralized governance encourage participation from traders of all skill levels, democratizing access to margin trading strategies and potential returns.
- b. **Interoperability and Liquidity Boost:** Scalar DAO's cross-chain compatibility and integration of liquidity pools foster interoperability and liquidity across multiple blockchains. This not only enhances trading opportunities but also contributes to the overall growth and maturity of the decentralized finance ecosystem.
- c. **Trustless and Secure Margin Trading:** By leveraging blockchain technology and smart contracts, Scalar DAO minimizes counterparty risk and enhances the security

of margin trading activities. Traders can have confidence in the integrity of the protocol, knowing that trades are executed in a secure and transparent manner.

- d. **Community-driven Innovation:** Scalar DAO's DAO-based governance structure encourages community participation and collective decision-making. This fosters a collaborative environment where users can contribute ideas, propose improvements, and actively shape the future development of the protocol. The community-driven approach promotes innovation and ensures that Scalar DAO remains responsive to the evolving needs and preferences of its users.

9. The Project & DAO Ethos

9.1. Decentralized Autonomous Organization (DAO)

Scalar DAO operates as a decentralized autonomous organization (DAO), guided by the principles of decentralization, community governance, and collective decision-making. As a DAO, Scalar DAO empowers token holders to actively participate in shaping the protocol's direction, development, and governance processes.

9.2. Community Governance

Community governance lies at the core of Scalar DAO's ethos. Token holders have the opportunity to propose, discuss, and vote on important protocol parameters, upgrades, and policy changes. This inclusive governance structure ensures that decisions are made collectively, with diverse perspectives and interests taken into account. By involving the community in governance, Scalar DAO aims to foster a sense of ownership, transparency, and alignment with the needs of its users.

9.3. Community Engagement

Scalar DAO places great importance on fostering an engaged and vibrant community. The platform encourages active participation, feedback, and contributions from community members, including traders, liquidity providers, developers, and governance participants. Scalar DAO aims to provide educational resources, support channels, and a collaborative environment to facilitate knowledge sharing and community growth.

9.4. Ethical and Sustainable Practices

Scalar DAO upholds ethical and sustainable practices within its ecosystem. The protocol prioritizes security, transparency, and fairness in all its operations. Scalar DAO conducts regular security audits of its smart contracts, implements stringent risk management measures, and promotes responsible trading practices. Additionally, the protocol is committed to minimizing its environmental footprint by exploring energy-efficient blockchain solutions and supporting initiatives that drive sustainability within the blockchain industry.

By embodying these ethos and DAO-related aspects, Scalar DAO establishes itself as a community-driven, transparent, and responsible platform for Margin Trading.

10. Tokenomics & Utility

The Tokenomics of Scalar DAO is designed to incentivize active participation, provide economic benefits to token holders, and align the interests of the community with the growth and success of the protocol. **A detailed document will be shared with the public later, as we progress in the project.** The DAO will operate with its native token, which plays a crucial role within the ecosystem. The Scalar DAO token serves multiple purposes, including:

a. Governance

Scalar DAO's governance empowers DAO token holders to **actively propose and vote** on protocol upgrades, new features, and policy changes, ensuring decentralized decision-making, allowing all stakeholders to have a say in shaping the platform's future. Holders of the token can submit proposals, voice concerns, and collaborate on key initiatives, fostering transparency and consensus enabling adaptability and responsiveness to the evolving needs of the users and the ecosystem.

b. Voting Power

Scalar DAO token holders possess **voting power to influence critical aspects of the margin trading platform** such as - trading parameters, collateral requirements, fee structures, and other essential governance decisions. This ensures that the community has an active role in shaping the platform's rules and policies & participate in defining the platform's direction, fostering a sense of ownership and alignment.

c. Staking and Rewards

Scalar DAO token staking allows users to provide liquidity to the platform and earn rewards, such as additional Scalar tokens or partner tokens. Staking incentivizes participation, enhances platform liquidity, and aligns the interests of token holders with the protocol's success.

d. Collateral

The token can be used as collateral to access leverage, providing traders with more capital for margin trading. Traders can leverage their token holdings to gain access to additional capital, amplifying trading opportunities and potential returns within the margin trading ecosystem.

e. Fee Payment & Discounts

The native token can be used to pay for transaction fees and other costs associated with utilizing the Scalar DAO platform. Token holders may also receive discounted trading fees on the platform, encouraging increased usage and loyalty.

f. **Liquidity Mining**

Scalar DAO may implement liquidity mining programs that rewards liquidity providers with additional tokens for contributing to the platform's liquidity pools. This mechanism should encourage greater participation, enhance liquidity, and promote a thriving trading environment within the ecosystem.

g. **Ecosystem Incentives**

Scalar DAO will allocate tokens to fund bounties, contributions, ecosystem development & more adding more utility to the token. These incentives should motivate contributors to enhance the platform's security, user experience, and overall ecosystem growth.

h. **Developer Grants**

As mentioned in one of the sections above, Scalar DAO will be open sourced to enable developers to build on top of the protocol. This will allow the DAO to offer grants to external developers for building innovative tools and services that enhance platform capabilities. These grants encourage external contributions, fueling the platform's growth and technological advancements.

i. **Community Fund**

A portion of token holdings will be allocated to a DAO community fund, supporting educational initiatives, hackathons, and events that align with the DAO's vision. This fund empowers the community to initiate projects that promote the DAO's growth and engagement.

11. Closing Bell

Scalar DAO's Open-Source Cross-Chain Leverage Protocol represents a groundbreaking advancement in the world of decentralized finance (DeFi) and margin trading. By combining cutting-edge decentralized technologies in its application architecture and integration of privacy-preserving applications, Scalar DAO emphasizes the need for full decentralization, user privacy and data integrity, fostering trust and transparency within the ecosystem.

Scalar DAO is out to create a robust and secure ecosystem that empowers traders and liquidity providers and also bring the tech & non-tech community together on a collaborative growth path, living up to the true composable ethos of DeFi. As we move forward, Scalar DAO remains committed to continuous improvement, ongoing development, and community collaboration.

Join the Scalar DAO community today and be part of the transformative journey towards a decentralized and inclusive financial future. Engage in governance, utilize the tokens, and explore the powerful margin trading opportunities. Together, let's shape the future of DeFi and leverage the collective strength of our community to unlock unprecedented possibilities.

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