Doldrums Whitepaper

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December 27, 2023

Abstract

Doldrums is a protocol for issuing a Delta-Neutral Stablecoin. It stands out by leveraging the inherent strengths of both Viction (previously TomoChain) and Arbitrum through LayerZero, providing a multi-chain framework. This enables Doldrums to integrate with various features like native ZeroGas transactions at Viction, support a wider range of assets, and solve the problem of liquidity fragmentation.

1 Introduction

The advent of blockchain technology has revolutionized the financial sector, introducing a new era marked by the rise of digital assets such as Bitcoin and Ethereum. These assets have not only garnered significant attention but have also become integral components of the emerging digital economy. Their widespread adoption underscores the transformative impact of blockchain technology in creating decentralized and transparent financial systems.

However, this innovation comes with inherent challenges, chief among them being the volatility of these digital assets. While Bitcoin and Ethereum have shown tremendous potential for growth, their prices are subject to dramatic fluctuations. This volatility poses a significant barrier to their adoption for everyday transactions and long-term financial planning, as the value of these assets can change rapidly and unpredictably.

In response to this challenge, the concept of stablecoins has emerged as a promising solution. Stablecoins are a type of digital currency designed to offer the benefits of blockchain technology — such as security, transparency, and decentralization — while maintaining a stable value. They achieve this stability by being pegged to more stable assets like fiat currencies or gold, thereby providing a reliable medium of exchange and a stable store of value in the digital asset space. Amidst this backdrop, the Doldrums protocol presents a groundbreaking approach to stablecoin issuance. What sets Doldrums apart is its utilization of the Viction (previously TomoChain) and Arbitrum as LayerZero platforms, creating a unique multi-chain framework. This innovative design allows Doldrums to not only support a diverse range of assets but also to seamlessly integrate with various decentralized finance (DeFi) ecosystems and native features of each blockchains. By doing so, Doldrums offers a more versatile and adaptable stablecoin solution, addressing the limitations of existing stablecoins while leveraging the full potential of multi-chain technology.

2 Technologies

2.1 Zero-Gas Transfer with Viction

Viction stands as a groundbreaking layer-1 blockchain, uniquely designed with a people-centric approach. Its hallmark feature is the provision of zero-gas transactions, ensuring a cost-effective and user-friendly experience. At its core, Viction operates using the Proof-of-Stake Voting (PoSV) consensus algorithm, achieving an impressive throughput of up to 2,000 transactions per second (TPS) while enhancing security through a double validation mechanism.

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Figure 1: Liquidity Fragmentation occurred in USDC on Saber, Solana

A key innovation in Viction is the VIC ZeroGas feature. This revolutionary runtime function enables gas-less transactions using VRC25 tokens, significantly simplifying the user experience. Integrating VIC ZeroGas into the Doldrums protocol eliminates the need for users to maintain a reserve of VIC tokens in their wallets for transaction purposes, thereby streamlining the process and enhancing efficiency within the Doldrums ecosystem.

2.2 Perpetual Derivatives Dex on Arbitrum

Arbitrum emerges as a leader in Layer 2 technology, providing a robust platform for users to explore and build within Ethereum's extensive Layer 1 ecosystem. It boasts a diverse and expansive ecosystem, including prominent decentralized applications like the GMX derivatives Dex. In the Doldrums protocol, we currently harness the capabilities of GMX to create offsetting positions for each type of collateral. This switches on delta-neutral features in the stablecoin, preceding the introduction of a native derivatives dex on the Viction blockchain.

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2.3 Omnichain Transfer with LayerZero

LayerZero stands as a pioneering omnichain interoperability protocol, defining the future of cross-chain communication and application development. It introduces the Omnichain Fungible Token (OFT) Standard, a revolutionary approach that allows for the seamless transfer of fungible tokens across multiple blockchains. This process is achieved without the need for wrapping, middlechains, or liquidity pools. Doldrums USD (DUSD) is built on the framework of the OFT Standard, enabling

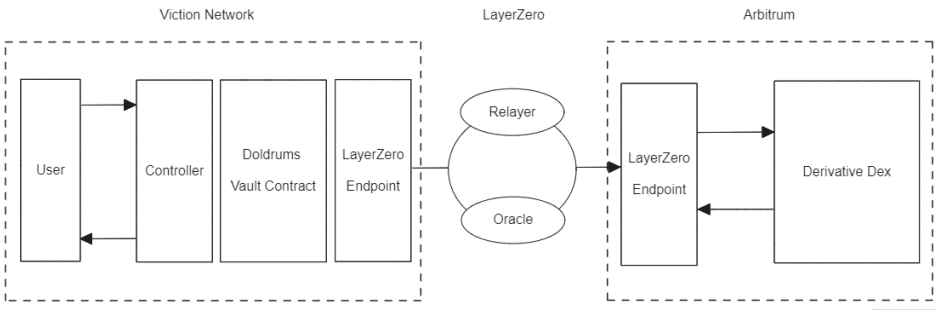

Figure 2: Fund Flow in Doldrums Protocol

frictionless and efficient transfers between different blockchain networks. This solves the problem of liquidity fragmentation at previous stablecoins such as USDC.

Figure 1 shows the problem at Solana. Since USDC was not officially deployed on Solana mainnet, every bridge using lock-and-mint mechanism issued its own USDC, leading to confusion in user experiences. Natively, OFT does not need any lock-and-mint bridges for cross-chain transactions, solving these fragmentation issues.

3 Doldrums Protocol

3.1 Fund Flow

Figure 2 presents a schematic overview of the stablecoin system's architecture, representing the integration between the Viction Network, LayerZero, and Arbitrum to ensure efficient and secure cross-chain transactions. The flow is demonstrated as below.

1. User deposits collateral into Doldrums Vault contract. Vault is a smart contract where users' assets are deposited, and from which stablecoins are issued or redeemed. It serves as the cornerstone of the Doldrums protocol on the Viction Network.

2. Upon a transaction request that involves cross-chain communication, the Doldrums Vault Contract interfaces with the LayerZero Endpoint. This endpoint acts as a portal on the Viction Network side, facilitating the message and data transfer to the corresponding LayerZero Endpoint on the Arbitrum side.

3. Transaction payload is sent through LayerZero network.

4. The payload arrives at the destination chain (Arbitrum), making a derivatives position to hedge the collateral's price exposure.

5. As the position is opened, data is returned back through LayerZero, and the corresponding DUSD stablecoins are minted to the user on Viction.

3.2 Delta-neutral strategy

To protect users from price fluctuation of underlying assets and possible liquidation, Doldrums protocol always short perpetual swaps on a derivatives dex (currently set as GMX) to an equivalent amount of the DUSD in circulation. This enhances capital efficiency by ensuring users to deposit the collateral whose value is exactly the same as what they want to mint, and stability without any possibility of liquidation of underlying assets of DUSD.

Suppose that ETH is $3,000, and Alice deposits 2 ETH at Doldrums vault to mint DUSD. Then a short position for ETH/USD pair at the perpetual derivatives dex is opened, offsetting the price fluctuation of ETH. When ETH price plummets to $1,500, total PnL from the short position is +$1,500, while the total PnL for the collateral is -$1,500. Thus, the collective PnL of DUSD issuers is always $0.

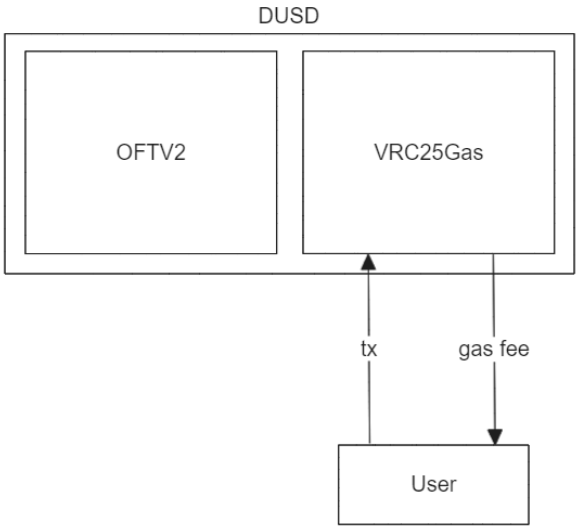

Figure 3: Structure of Doldrums USD

3.3 Doldrums USD: DUSD

DUSD is a token contract composed of LayerZero OFTV2 and Viction VRC25Gas. OFTV2 is responsible for cross-chain transfer of DUSD, while VRC25Gas is for zero-gas transactions. When a user makes a transaction, it calculates the gas fee to be paid in terms of VIC, a native token in Viction Network, and sends the corresponding fee to the user.

3.4 Comparison with MakerDAO

1. High Capital Efficiency: Doldrums maintains the principle of minting stablecoins efficiently. Users can mint DUSD with an equivalent value in crypto assets, ensuring capital efficiency and ease of access, while MakerDAO requires collaterals whose value is larger than the value of DAI minted.

2. Stability: Doldrums ensures the value a user is holding to be always equivalent to the initial position, by opening a short position at a perpetual dex to offset the price fluctuations of collateral assets, while MakerDAO liquidates the underlying assets when the Loan-To-Value ratio meets the certain rate which is set at the time of deposit.

3.5 Limitation

Since cross-chain actions take place in an asynchronous environment, the inherent latency disturbs users from interacting with Doldrums protocol in a seamless way. This can be resolved through the introduction of Viction-native perpetual derivatives dex, which is estimated to be on mainnet in Q2 2024.

3.6 Roadmap

1. Phase 1 - Dawn (Q1 2024): Testnet for Doldrums protocol will be launched. In this phase, the team will concentrate on the stabilization of the platform, and development of native perpetual derivatives dex on Viction, which will enhance the user experience in terms of interaction speed. Also, the insurance fund to handle protocol fees and funding fees from the perpetual positions will be formed.

2. Phase 2 - Sunrise (Q2 2024): Doldrums will be launched on mainnet of Viction and Arbitrum, enabling deposit of collaterals and mint of DUSD. The launch of perpetual dex on Viction is also scheduled within this phase.

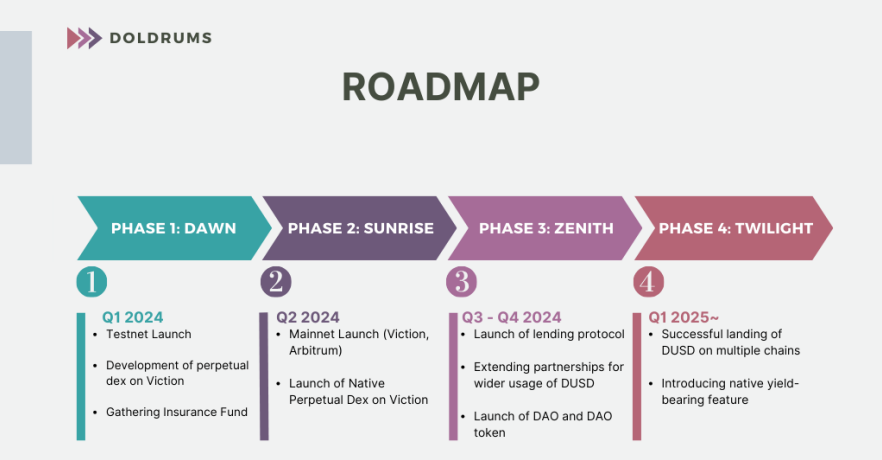

Figure 4: Roadmap of Doldrums Protocol

3. Phase 3 - Zenith (Q3 - Q4 2024): Lending protocol to extend the usability of DUSD will be launched. Through partnerships with various exchanges and DeFi protocols, DUSD will be able to be used in many places across chains. Also, to ensure decentralization and rational decision making at Doldrums, DAO will be launched along with DAO tokens.

4. Phase 4 - Twilight (Q1 2025 -): DUSD will be live on most of the blockchains. Also, re-depositing the collaterals to liquid staking protocols or decentralized exchanges will be enabled to provide yield for DUSD holders.

4 Conclusion

Doldrums protocol opens a new era of stablecoin, with delta-neutral strategy, zero-gas transfers, and omnichain support. Mainly depending on the technology of Viction and LayerZero, Doldrums USD (DUSD) can solve the problems of stability issues at the previous stablecoins, liquidity fragmentation, and bad user experience.

References