

Z!P, a cross-chain crypto-commodity

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Abstract—ZIP is a crypto-commodity which can be used across blockchain networks, such as Bitcoin and Ethereum. It removes the complexity of managing tokens in favour of a cloud computing credits model. ZIP is not creating a network or blockchain, it aims to make existing blockchains usable.

Keywords—Blockchain, commodity, decentralisation, smart contract, cloud computing, DAO.

I. MOTIVATION

Adoption indicators for web3 are down, notably active developers and the number of new dapps deployed per month [1]. Blockchain’s primary barrier to adoption is UX, and while existing solutions approach *technical complexity*, no solution thus far has fully addressed *economic complexity*. In response, ZIP tackles economic complexity, notably:

- 1) The complexity and friction of managing multiple tokens.
- 2) Token and ledger cost (gas) volatility.

Following the development of an initial prototype, ZIP was presented to 15 enterprises consisting of an even mix of bluechip and crypto-native firms to validate the project. Of these 15, 14 supported the approach, with 3 clear points of commonality between the enterprises:

- 1) Multi-chain interchange is challenging, locking enterprises into siloed ecosystems.
- 2) Lack of price predictability is a blocker to enterprise as it is impossible to plan costs.
- 3) There is no single unit of account across chains, creating further cost planning friction.

II. TECHNICAL IMPLEMENTATION

ZIP is a multi-network gas station backed by a collateral pool. The token itself is a mint-and-burn model with four key elements to its operation:

- 1) Tokens are locked up as collateral.
- 2) ZIP is minted at the market rate according to an oracle.
- 3) Users purchase ZIP.
- 4) When ZIP is spent, the tokens are burned, and the collateral is used to cover the cost of ledger use.

ZIP is pegged to a universal unit of compute, i.e. the price of ledger operations in USD. The abstraction is analogous to FLOPS, and the price to the user is stable, updating quarterly according to a forecasting model. The margin on actual ledger

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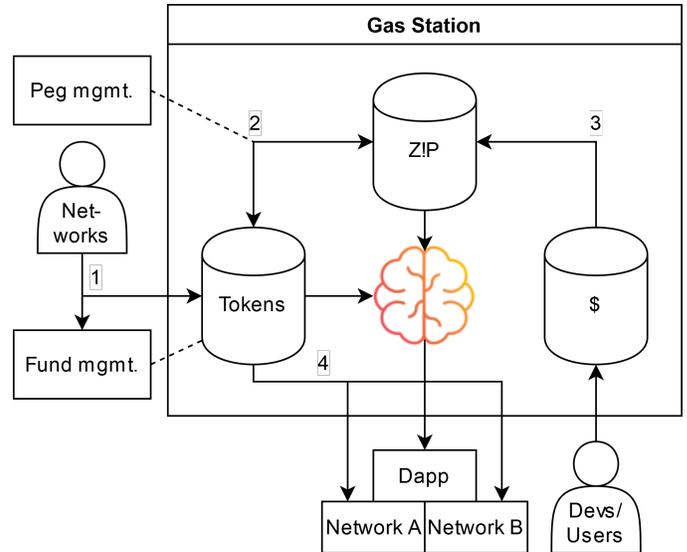


Fig. 1. An overview of ZIP collateralisation and redemption. Labels 1 and 2 highlight how tokens are locked up as collateral, minting ZIP. Labels 3 and 4 indicate how users who have purchased ZIP can redeem it on any of the supported networks, burning it, with the relevant collateral tokens used to cover the cost of ledger use.

costs versus the sale price of ZIP serves as the project’s primary source of revenue.

The collateral pool is a managed basket of tokens that can be used to build dapps across the networks corresponding to the tokens it contains. Participants are incentivised by two means:

- 1) Basket interest, achieved through Alkemi or a similar approach [2]. Basket interest serves as a secondary source of revenue for the project.
- 2) Networks can lock tokens in exchange for ZIP to hedge against their own token’s volatility, as ZIP is not pegged to USD.

Cross-chain redemption is achieved via *migration contracts*. This is a set of smart contracts which lock an asset on one chain, and release a second asset on another. The locking contract emits an *event* to be picked up by an open-source off-chain listener, which submits the release transaction on the other chain. Use of migration contracts has two key benefits. First, several major chains have live migrations, allowing ZIP to utilise existing infrastructure [3]. Second, support for chains can be built while ZIP is live: on-chain logic may be set in stone (consisting of a function call specifying a locking contract address and the amount to redeem). The locking contract and external-chain redemption contract can be developed and deployed at any time, without the need to

change the already deployed ZIP code.

III. GOVERNANCE AND REVENUE MODEL

ZIP is governed by a Decentralised Autonomous Organisation (DAO). The DAO is entrusted with the project's funds and makes decisions on the development focus of the project, which includes supported blockchain networks, as well as monetary policy. Major decisions are decided by vote, with voting power that corresponds to participants' governance token holdings. The governance token is a separate token to ZIP, launched on the Aragon platform [4]. Initially, governance token holders are limited to a small number of founding members who bootstrap ZIP's initial liquidity.

As outlined in the technical implementation, ZIP has two sources of revenue: margin on token redemption and basket interest. The primary source of revenue, the redemption margin, is characterised by a delta in the true operating cost versus the nominal price of ZIP. The operating cost is effectively the gas cost per ledger operation (e.g. for addition of two numbers), which is highly volatile, but can be accurately forecasted for sufficiently large timesteps. In order to maintain familiarity for enterprises using existing cloud compute platforms, ZIP's nominal price is set quarterly. Thus, by forecasting the mean operating cost for the next quarter using a regression model, and allowing a margin for error by shifting the nominal price upward, ZIP is able to maintain a healthy profit margin for the majority of trading days.

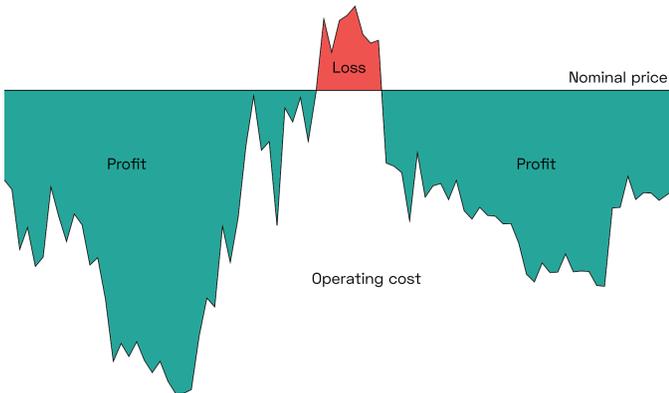


Fig. 2. ZIP's margin on redemption. Profit is taken when the ledger operating cost is below the nominal ZIP price (green). Losses occur when the ledger operating cost rises above the nominal price in a given quarter (red). By implementing a margin for error, i.e. shifting the nominal price upward, periods of loss are minimised.

ZIP's secondary source of revenue, basket interest, is the return on investment generated by management of the collateral pool. Interest may be made on the token holdings by intelligent trading of the assets using the Alkemi protocol and/or active portfolio management [2], [5].

Each of ZIP's revenue streams naturally hedges the other. In the event of a sharp drop in the price of the tokens collateralising ZIP, the basket interest may fall, however margin on redemption rises, as the operating cost falls but the nominal price of ZIP remains the same. Conversely, should there be

a rapid rise in the price of the basket tokens, the margin on redemption will decrease, however basket interest increases.

IV. ROADMAP

ZIP's development consists of a number of core milestones, after which project direction is subject to change based on DAO governance. At launch, ZIP has reached milestone D, and made progress on milestone E. The development team anticipates that milestones E and F will be voted on to be funded by governance token holders.

A. Mintable ERC20

The first milestone is the creation of a reliable and robust ERC20 token with mint and burn functionality.

B. Ethereum collateral pool

ZIP's second milestone is the creation of an on-chain liquidity pool on Ethereum, where ERC20 tokens may be deposited, minting ZIP, and withdrawn, burning ZIP.

C. Redemption for ERC20 tokens

Milestone C is functionality for ZIP to be redeemed on any network using an ERC20 token.

D. Redemption on non-Ethereum chains featuring a token swap contract

The fourth milestone is functionality for ZIP to be redeemed on any network with an active token swap contract.

E. Quarterly pricing model

Milestone E entails stable pricing for ZIP with quarterly updates, including monetary policy to support this pricing.

F. Support for other non-Ethereum chains

The final milestone is support for non-Ethereum chains that do not feature an active token swap contract. This milestone is likely to be split into several objectives, with the DAO participants voting on which blockchain networks to support.

V. SUMMARY

ZIP is a crypto-commodity which can be used across blockchain networks. It removes the complexity of managing tokens in favour of a cloud computing credits model. ZIP is collateralised by a basket of tokens, with revenue on the margin between operational ledger costs and the nominal price of ZIP, as well as intelligent management of basket assets.

ZIP is governed by a DAO where participants vote on the direction of the project. At launch, ZIP has reached the stage of supporting redemption for ERC20 tokens, as well as non-Ethereum chains with an active token swap contract. Future development focus will be governed by the DAO.

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