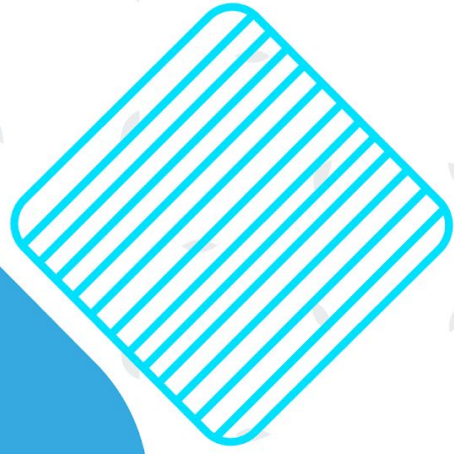# Zenswap Network

Whitepaper 1.0 version

Abstract

We present Zenswap Network, an on-chain protocol which enables instant exchange and conversion of cryptocurrencies or digital assets (e.g. tokens on smart contract blockchains) with high liquidity, low cost, and automated price determination. Zenswap Network will implement ideal properties we all want for an exchange, those are instant trades, decentralized execution, low cost and high liquidity. Zenswap Network will also plan to develop and include value-added services that might elevate the recognition, adoption, and utility of the corresponding involved platforms or assets. These value-added services are digital assets management application, reputation scoring platform, charitable programs and many more being drafted. Zenswap Network plans to include a support in a swap of a wide array of cryptocurrencies using cross-chain and relay platforms. With the future transitioning to a more decentralized and digital tomorrow, Zenswap will be positioning itself on building one among many bridges for mass adoption.

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1. Introduction

1.1. Background

For centuries we use coins, banknotes, cheques, gift card, bonds, equity and even precious metals for a token of value. In 2009, Bitcoin [1], created by Satoshi Nakamoto, introduced the idea of decentralized digital currency secured by cryptography and solves the double spending problem using blockchain. After bitcoin, it created a new wave of blockchain applications, cryptocurrencies and digital assets. Cryptocurrencies allow users to transact, manage their digital assets in a decentralized and trustless model without relying on a middleman or third-party.

In late 2013, Vitalik Buterin proposed Ethereum [2], an open-source, public, Turing-complete [3] blockchain-based distributed computing platform and operating system featuring scripting functionality like smart contracts [4]. The Ethereum smart contract has been used in many applications like internet-of-things, multi-signature wallets, decentralized exchanges, voting, digital collectibles and the most famous Token Generation Events that give birth to thousand of ethereum-based tokens using ERC20 token standard [5]. These tokens, while mostly differs in uses and characteristics (e.g. means of membership, incentives advantage or utility for a platform or dapps), all tokens abstractly represent some kind of economic value that is denominated usually with ether or bitcoin and being traded freely on free market or exchanges.

The blockchain technology has the potential and ability to transform and transcend any industry to a more secure, immutable and efficient system. A lot of companies and organizations (e.g. IBM, Microsoft, UN) are already digging deeper into blockchain (mostly private or consortium blockchain) and started to explore [6] on how this technology could reshape or improve their existing business or operating model.

Many applications of blockchain technology, such as public blockchain, are already disrupting dozens of industry, whereas power, value, decision, control, incentives and many more features are being distributed in a decentralized manner. These public blockchain platforms utilize their own coin or token to use the platform or service while other serves as proof of ownership of digital assets linked to real world assets or digital collectibles (e.g. collectible digital cats by Cryptokitties). These coins or tokens created a new form of the market known as cryptocurrency market, where coins or token that has monetary value is being traded and exchange with mostly paired to Bitcoin, Ethereum, and Fiat Currencies. Thus opening a huge opportunity for businesses like cryptocurrency exchange.

1.2. Market
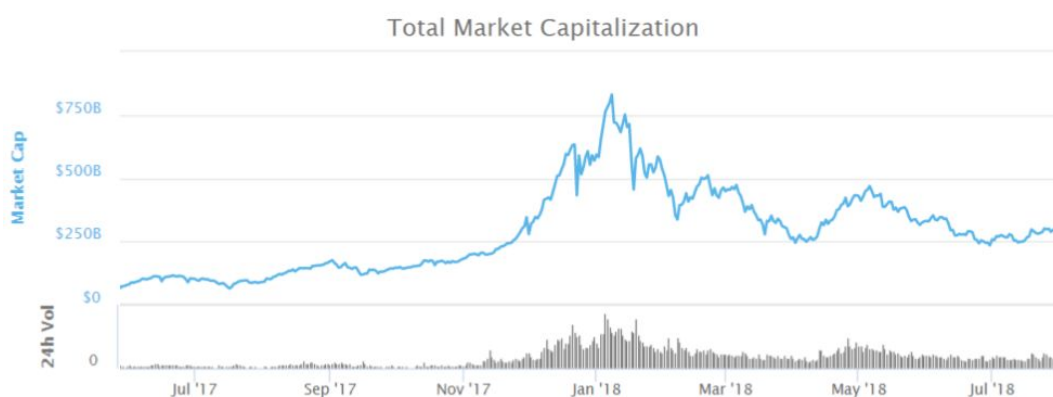
Data screenshot from CoinMarketCap.

As of July 2018, the cryptocurrency total market capitalization is hovering at $250 billion level. It's more than 70% lower than it's January 2018 level and 250% higher with respect to its level a year ago. These changes and volatility in cryptocurrency prices and market capitalizations are proof that cryptocurrency is rewarding and risky from an investors perspective in respect of its value to fiat currency. While most of the cryptocurrencies swing their prices independently, smaller market capitalization digital assets are more volatile than the biggest cryptocurrency by market capitalization. This is because they are mostly paired with BTC and fiat currencies, and speculation accompanied with low liquidity, low adoption, and patronage of their respective platform play a role in affecting its price movements. But even if the prices

are volatile, some blockchain based platforms that utilize their respective cryptocurrency or digital assets are still using the same amount of token for the same service and benefits, regardless of its fiat value. If you have an ether today that valued $500 per ether and normal network transaction cost you 0.001 ether to send Ether to another Ethereum address. The same amount of ether is being charged normal network condition even if ether is valued twice in terms of USD.

The cryptocurrency market has exponentially grown in value and trading volume over the past years due to the growth of its network, media attention, noticeably increasing use cases and importance. The cryptocurrency market has still more room for growth and still young compared to traditional markets like stocks, bonds, forex and real estate. The need for exchange platforms will continue to grow and will be needed more than ever as more platforms, applications, and protocols are being built to reshape and transform the digital future.

1.2. Motivation

The explosion of cryptocurrency growth in terms of the number of platforms, protocols, and applications being built is proportional to the number of exchanges opening its doors for participants worldwide to trade and exchange their cryptocurrencies or digital assets for another. Although most of these cryptocurrencies are public and decentralized, the majority of the trading volume exchanges between these cryptocurrencies and digital assets happens on centralized platforms. Centralized exchanges have its own advantages and disadvantages, and risk of trading manipulation and internal fraud is high. Increase in centralized exchange hacking incidents [7] is an ongoing concern affecting thousands of users and loss of millions of dollars worth of cryptocurrencies.

The inability to withdraw the asset instantly from an exchange adds another inconvenience affecting user experience. Some of the exchanges often require users to wait for several minutes and even some rare cases an hour for their withdrawal to take place. Although sometimes this process is done for security reasons, this causes a vexation on some users and causing delay to others who needed it instantly.

Usually, cryptocurrency or digital asset that has a small market capitalization and trading volume is always a candidate to extremely market price fluctuation and volatility. The inability to exchange cryptocurrency or digital asset to another without affecting much of the price or the traded value is due to low liquidity and a large spread. Users that wanted to exchange their cryptocurrency or digital asset into favorable price often had to wait for the order book to be matched.

The introduction of new digital cryptocurrency and digital assets into the cryptocurrency space thru a process called initial coin offering and token generation events poses a new challenge to investors and administrators of the projects on having an immediate convertibility to their coins or tokens.

2. Zenswap Network

2.1. Zenswap Platform

Zenswap Network, an on-chain decentralized exchange, for cryptocurrencies or digital assets (e.g. tokens on smart contract blockchains). Zenswap Network will be simple, practical and decentralized liquidity solution for cryptocurrencies and digital assets with a seamless swap transaction in a secured and immutable blockchain platforms like Ethereum. The project will initially focus on the development of the platform for swapping Ethereum-based tokens. As the cryptocurrency market is currently flooded with Ethereum-based tokens, a good asset range to begin with. It will continue development to accommodate more cryptocurrency and digital assets (from different blockchain platform, e.g. QTUM-based tokens, Neo-based tokens) using cross-chain and relay protocols. The integration of cross-chain asset swap will depend on the availability and achieved development standing of the following blockchain projects: Polkadot, Komodo, AION, Wanchain, Cosmos and other parallel blockchain or cross-chain protocols.

Zenswap platform, the core platform in this project, will implement a pricing algorithm deployed in the smart contract that allows the exchange of two assets with the mediation of liquidity token native to the platform. The algorithm is designed to automate price determination based on an economic model of supply and demand. This pricing algorithm makes the prices adjust on the pressure being applied to it. If a cryptocurrency or a digital asset is experiencing a selling pressure, the prices automatically drop or when it is experiencing a buying pressure, the prices automatically climb based on the volume of trade and weight of the reserve balance.

The platform has no orderbook and price spread but instead uses the pricing algorithm to determine prices for a particular intended trade volume. Users will know the conversion rate before initiating a transaction and receive the corresponding estimate amount within the range of price slippage. Zenswap platform normally charged a very small fee for every trade transaction being made and Zenswap native tokens give the ability for users to enjoy a different tier of discounts on swap fee.

The core platform, Zenswap, will be deployed on a decentralized blockchain based cloud computing platforms to allow it to scale, guarantees continuous uptime and increase platform security. The Zenswap has plans to utilize few of these platforms: 0chain, iExec RLC, DADI, ChainLink, FriendUP and lagon for decentralized cloud computing service, content delivery network (CDN) and application programming interface (API).

The Zenswap Network will be using a dual token system, namely Zenswap Network Token (ZNT) and Zenswap Liquidity Token (ZLT) that has distinct roles within the platform. The decision to adopt a dual token system is to make the token behave independently and does not affect the value of the token involved in bridging the value of two assets being swapped.

2.2. Zenswap Cryptosphere

The main priority of this project is to develop a decentralized liquidity solution with Zenswap Network to build one of the connecting bridge for mass adoption. It won't just stop there, as Zenswap Network and its mission to help the users traverse into different blockchain platform and decentralized applications will include value-added services within its cryptosphere. It will help them with their overall smart crypto experience in blockchain based or decentralized applications.
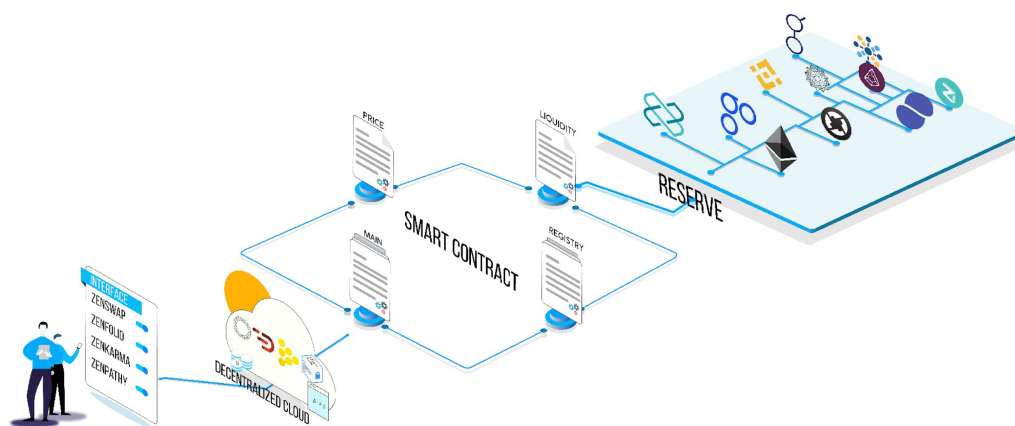
2.3. Value Added Services

Value-added services within the Zenswap cryptosphere will help the users get the best experience as possible. As Zenswap Network philosophy is to be a user-friendly platform, it will do everything on its ability and utilize available resources to provide the user and the community the best benefits and value.

2.4. Zenfolio

A cryptocurrency and digital asset portfolio and management application that will help users observe and track their cryptocurrencies and digital assets performance in the market. It provides data like the price, trading volume, changes in trend, supply, market capitalization, market providers website, social channels, explorer, wallet providers, relevant documents, reputation scores and community pulses. The cryptocurrencies, digital assets and market providers listed in Zenfolio platform are all subject to a data reputation system linked to the platform ZenKarma.

2.5. Zenkarma

Reputation is one of the vital benchmarks when it comes to any form of business. Cryptocurrency is no exception, as reputation in this space is quite hard to determine and solidify. Zenkarma, along with collective data from the diverse reputation platforms will provide aggregated information and median score for cryptocurrencies, digital assets, organizations, companies, projects, personalities, products, services, and communities within this particular space. It will also grant any Zenswap native token holders to participate in casting reputation scores.

2.6. Zenpathy

We envisioned this project not only to provide a liquidity solution and bridge for a decentralized tomorrow but also to help those organizations, foundations, and individuals that are also making an actual difference to the world. How would you feel that by just making a $1000 trade volume of digital assets swap in the Zenswap platform, you can possibly provide a fund to feed one hungry kid for a day, provide a fund for a pair of slippers or provide a fund to plant five trees? Zenpathy program will provide a way to make this possible. You will also be able to donate directly to charities and foundation listed in Zenpathy program with any spare coin or token that you don't have any plan to use anymore.

2.7. Potential V.A.S.

There are a lot of possible value-added services that can be added to Zenswap Network to increase the utility of the native tokens and the value given to the users. Some are in the discussion table to be added for the development lineup once that funding, development volunteers, and necessary platforms or protocols are available for them. These potential value-added services are payment system integrations, social discussion platform, mobile games, and a marketplace.

3. Pricing Algorithm

The pricing algorithm is central to the Zenswap platform, it allows to programmatically adjust the asset price based on the trade volume and liquidity reserve weight. This built-in liquidity and automatic price determination mechanism are written and deployed in a smart contract. And the transaction happens on-chain, just like other decentralized exchanges. This makes it safe from any manipulation and fraud since it only adjusts prices or rates based on data being supplied to the smart contract function like asset info, trade volume, swap directions, and price slippage conditions. The individual assets liquidity reserve serves as the automatic market makers for the trader. In theory, it is mathematically impossible to deplete a particular asset in its own liquidity as it will increase its price dramatically in terms of Zenswap Liquidity Token. All of the assets in the Zenswap Network are linked together by Zenswap Liquidity Token. This token facilitates and mediates the value for the exchange of two different assets. It moves from reserve to reserve every time there is a swap transaction initiated.

Supposed for instance a trader wanted to swap his Token ABC to Token XYZ and executed it using Zenswap UI. Within the smart contract, the user transfer his token Token ABC and the token enters to its dedicated liquidity reserve. The reserve will then query and calculate the rate of Token ABC in ZLT. The ZLT will be extracted out of the Token ABC reserve and will be transferred to Token XYZ reserve. The reserve will then query and calculate the rate of Token XYZ in ZLT it received and send the Token XYZ to the trader's wallet. This happens seamlessly in the background with only one action required by the user.
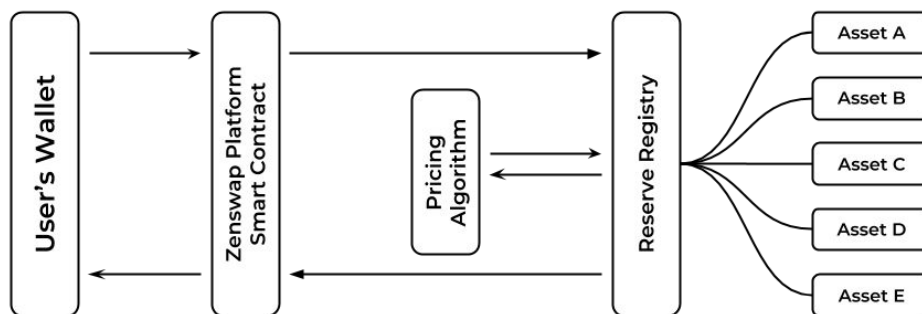
3.1. Pricing Formula

At any given time, the initial price of a particular asset within its own reserve can be algebraically solve based on irrefutable data stored in its reserve smart contract. This allows for an automatic price determination for any asset at any time. All of the reserves uses the same formula but uses different price and supply weight. These weights are determined and configured by Zenswap operators based on certain conditions or in the future the smart contract configures these weights automatically.

Using this Formula:

$$P = \frac{1}{S^2}$$

We determine the initial price by:

$$\text{Initial Price} = \frac{1}{(\text{Initial supply})^2}$$

Where:

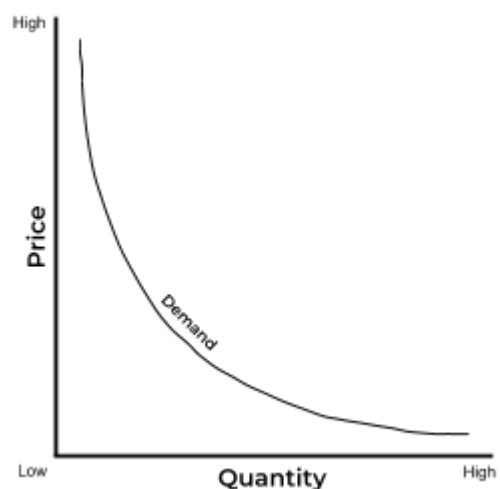$$\text{Initial Supply} = \frac{\text{Initial Asset Supply}}{\text{Supply Weight}}$$

After calculating above formulas, we can determine the price in ZLT:

$$\text{Initial Price in ZLT} = \text{Initial Price} \times \text{Price Weight}$$

Since the asset supply, supply weight and price weight is always obtainable to all reserve smart contract. We can easily determine the initial price using the formula above.

3.2. Supply and Demand

If the user wishes to swap an asset to ZLT, the final price of an asset will decline in terms of ZLT. If the user wishes to obtain an asset, its final price denominated in ZLT will rise. This price sensitivity movement simulates an economic model of supply and demand. This ensures that the reserve adheres the market pressure of an asset without directly observing the external market. This model allows it to disperse its reserves strategically.

The final price of an asset will be determined by the following formula.

Using this Formula:

$$P = \frac{1}{S^2}$$

We determine the final price by:

$$\text{Final Price} = \frac{1}{(\text{Final Supply})^2}$$

Where:

$$\text{Final Supply} = \frac{\text{Initial Asset Supply} \pm \text{Traded Amount}}{\text{Supply Weight}}$$

After calculating above formulas, we can determine the price in ZLT:

$$\text{Final Price in ZLT} = \text{Final Price} \times \text{Price Weight}$$

The change in the initial price and the final price clearly illustrate how the algorithm responds to trade action simulating an internal economic model of supply and demand. If the supply is low and the demand is high: the price will soar, and if the supply high and demand is low: the price will drop.

3.3. Price Adjustment

The initial price and final price was determined using the formula above. But both can't be used as a basis of effective trading price. Since using the any of the two could result in an unfair outcome and an illogical pricing concern. The situation arises this question, "How will a trader get the same amount of ZLT by selling an asset in one transaction or by splitting the order into many small transactions?" If we were to implement a pricing based on either initial price or final price, we will get an inconsistent result where trading one big transaction is better than splitting it into small portions or the opposite. To address this, we look into the volume to get the actual pricing for specific trade amount. Determining the volume gives an efficient actual pricing consensus on whether a trade is executed with one single transaction or splits it into many small transactions. The area of the section below the curve in the graph represents the trade volume (not the solids volume). To determine the volume, we use definite integrals of its boundaries.
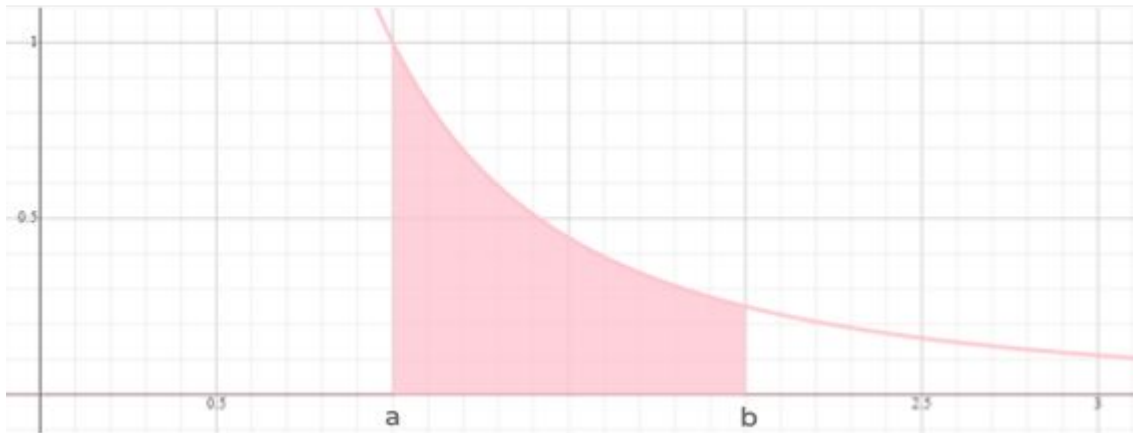
We calculate the trade volume using this formula:

$$V = \int_b^a \frac{1}{x^2}\,dx = \int_b^a f(x)\,dx = F(b) - F(a)$$

$$V = \lim_{x \to b^-} (F(x)) - \lim_{x \to a^+} (F(x))$$

$$V = \lim_{x \to b^-} \left(-\frac{1}{x}\right) - \lim_{x \to a^+} \left(-\frac{1}{x}\right)$$

$$V = -\frac{1}{b} - \left(-\frac{1}{a}\right)$$

$$V = \frac{1}{a} - \frac{1}{b}$$

Using the formula for initial and final supply, we define :

$$S = a \ \text{or} \ b$$

$$a = \frac{S_a}{S_w} \quad \text{and} \quad b = \frac{S_b}{S_w}$$

Using the definition above, we calculate the volume in ZLT :

$$V_z = \left(\frac{1}{a} - \frac{1}{b}\right)\left(P_w\, S_w\right)$$

$$V_z = \left(\frac{S_w}{S_a} - \frac{S_w}{S_b}\right)\left(P_w\, S_w\right)$$

Using the volume and supply data, we can calculate the actual conversion rate in ZLT :

$$P_{actual} = \left(\frac{V}{b - a}\right)\left(P_w\right)$$

The above formula demonstrates how much efficient actual pricing is achieved when trade volume was used to determining fair pricing consensus. The formula below illustrates the opposite when a trader exchanges the ZLT to the amount of an asset a trader will acquire by deriving the formula above.

Using the formula for trade volume we can derive S_a and the amount of tokens:

$$V_z = \left(\frac{S_w}{S_a} - \frac{S_w}{S_b} \right) \left(P_w \, S_w \right)$$

Token amount received = $S_b - S_a$

$$\frac{V_z}{(P_w \, S_w)} = \frac{S_w}{S_a} - \frac{S_w}{S_b}$$

$$S_a = \frac{S_w}{\dfrac{V_z}{(P_w \, S_w)} + \dfrac{S_w}{S_b}}$$

3.4. Pricing Sensitivity

The Zenswap pricing algorithm will be using different levels of exponentiation (power of n) for influencing price sensitivity. The formula described above has a price sensitivity level of n = 2. Zenswap will also be using n = 0.5, n = 3, n = 5 and some instance n = 9 for assets that has severe external market volatility. The price sensitivity n = 0.5 will be implemented for assets that design to be as less volatile (e.g. DAI and Havven). The rest of the formula in this whitepaper are illustrated in n = 2 for demonstration purposes.

Pricing and trade volume formula for different pricing sensitivity level:

$n = 0.5$ $\qquad P = \dfrac{1}{S^{0.5}}$ $\qquad V = \displaystyle\int_b^a \frac{1}{x^{0.5}} dx = 2\sqrt{b} - 2\sqrt{a}$

$n = 2$ $\qquad P = \dfrac{1}{S^2}$ $\qquad V = \displaystyle\int_b^a \frac{1}{x^2} dx = \frac{1}{a} - \frac{1}{b}$

$n = 3$ $\qquad P = \dfrac{1}{S^3}$ $\qquad V = \displaystyle\int_b^a \frac{1}{x^3} dx = \frac{1}{2a^2} - \frac{1}{2b^2}$

$n = 5$ $\qquad P = \dfrac{1}{S^5}$ $\qquad V = \displaystyle\int_b^a \frac{1}{x^5} dx = \frac{1}{4a^4} - \frac{1}{4b^4}$

$n = 9$ $\qquad P = \dfrac{1}{S^9}$ $\qquad V = \displaystyle\int_b^a \frac{1}{x^9} dx = \frac{1}{8a^8} - \frac{1}{8b^8}$
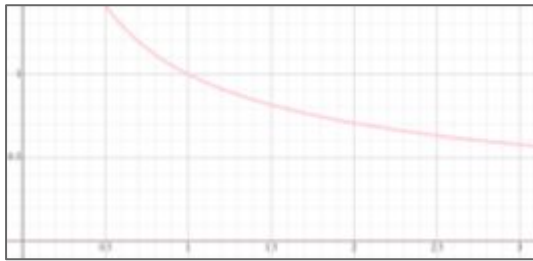
n = 0.5
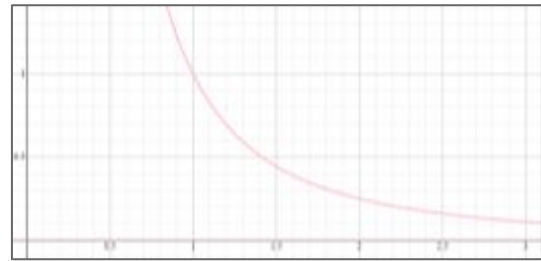
n = 2
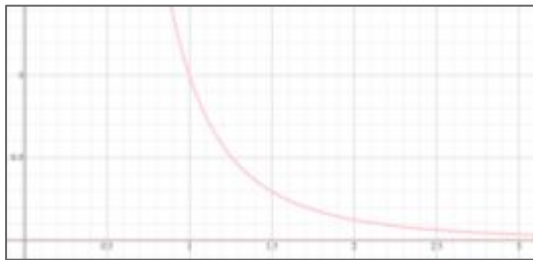
n = 3
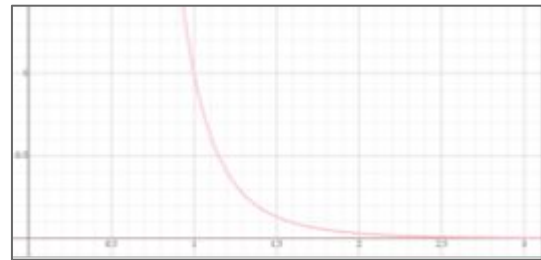
n = 5
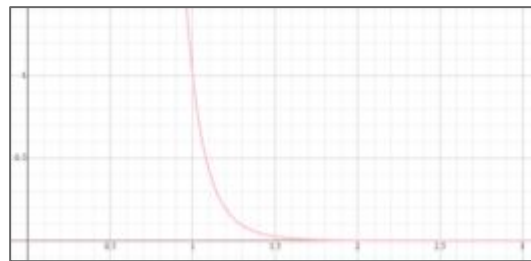
n = 9

The different price sensitivity level represented by n in exponentiation illustrate how these levels affect the dynamic price changes. The smaller n exponentiation level shows a smoother and slow price sensitivity suitable for a less volatile asset like stable coins. The median n exponentiation level shows an average price sensitivity appropriate for an established asset with a working platform Ethereum or Golem tokens. And the high n exponentiation level shows a more dynamic and aggressive price sensitivity suitable for an asset that has high volatility activity. These assets are typically in the developments stage, low market capitalization, and has a varying influx rate of users on its platform.

3.5. Pricing Sample Computation

As an example, say a trader wanted to trade 20 Token ABC to Token XYZ. The Token ABC has price weight of 100, supply weight of 1600 and the reserve has initial asset supply of 2000 Token ABC. The Token XYZ has price weight of 0.40, supply weight of 400,000 and the reserve has initial asset supply of 700,000 Token XYZ. With this given data, how many Token XYZ a trader can expect assuming both reserves has been set up with n = 2 price sensitivity level?

To demonstrate the difference between prices, we calculate the initial price, the final price, and actual conversion price.

Initial Price in ZLT:

$$S = \frac{S_a}{S_w} = \frac{2000}{1600} = 1.25$$

$$P = \frac{1}{S^2} = \frac{1}{1.25^2} = 0.64$$

$$P_z = P \times P_w = 0.64 \times 100 = 64$$

Final Price in ZLT:

$$S = \frac{S_b}{S_w} = \frac{2020}{1600} = 1.2625$$

$$P = \frac{1}{S^2} = \frac{1}{1.2625^2} = 0.627389$$

$$P_z = P \times P_w = 0.627389 \times 100 = 62.7389$$

Trade Volume in ZLT:

$$V_z = \left(\frac{S_w}{S_a} - \frac{S_w}{S_b} \right)\left(P_w \, S_w \right)$$

$$V_z = \left(\frac{1600}{2000} - \frac{1600}{2020} \right)\left(100 \times 1600 \right)$$

$$V_z = (0.8 - 0.792079)(160000)$$

$$V_z = (0.007921)(160000)$$

$$V_z = 1267.36$$

Actual Conversion Rate in ZLT:

$$P_{actual} = \left(\frac{V}{b-a} \right)\left(P_w \right)$$

$$P_{actual} = \left(\frac{0.007921}{1.2625 - 1.25} \right)\left(100 \right)$$

$$P_{actual} = 63.368$$

Notice that the actual conversion price is in between the initial price and the final price. The actual conversion pricing formula gives a fair and effective pricing by using the trade volume and traded amount to derive the actual conversion rate. Using either the initial price or the final price for the conversion rate could result in a severe liquidity imbalance. A trader and the asset reserve could lose the liquidity equilibrium by using the initial or final price. Initial price is used only to determine the price where an asset could begin changing price dynamically. Final price is the new initial price of an asset after a trade is executed.

We now have the volume in ZLT of 20 Token ABC. The amount of Token XYZ a trader could expect can now be calculated using all given data from Token XYZ reserve.

$$S_a = \frac{S_w}{\dfrac{V_z}{(P_w \, S_w)} + \dfrac{S_w}{S_b}}$$

$$S_a = \frac{400000}{\dfrac{1267.36}{(0.4 \times 400000)} + \dfrac{400000}{700000}}$$

$$S_a = \frac{400000}{0.007921 + 0.571429}$$

$$S_a = 690428.928972$$

Token amount received = S_b - S_a

Token amount received = 700000 - 690428.928972

Token amount received = 9571.071028

The user got approx 9571.071028 Token XYZ for swapping his/her 20 Token ABC. Assuming that there is no other interference to the given data, like a swap transaction similar to this or similar involved asset that has a higher position in Ethereum block or earlier block than this specific transaction. This swap conversion didn't have a transaction fee. The main platform will charge an actual fee on each swap transaction depending on what discount tier a user has subscribed to. Discount tier is TBD.

3.6. Liquidity Reserves

The Zenswap pricing algorithm showcases a built-in liquidity mechanism. It clearly shows that it doesn't need for a buy and sell to be matched, contrary to a traditional exchange, as the conversion of an asset to native liquidity token happens mathematically in the background. It processes buys and sells automatically by using the ZLT as the mediator or bridge of value between to different asset. This automated market making characteristic is made possible by liquidity reserve provider connected to the network.

Every transaction in Zenswap platform interacts with the involve asset liquidity reserves. These reserves will be provided by token operators to provide liquidity on their cryptocurrency or digital assets. These operators can connect to the network by providing both their digital asset and a ZLT for bridging their asset in the network. The reserve's parameters like supply weight and price weight will be set up, configured and monitored by Zenswap operators according to specific conditions. And rebalancing of the assets inside the individual reserves is a responsibility of their respective operators. A small fraction (the exact number is TBD) of the fee in ZLT from the swap transaction is rewarded to the involved reserves to incentivize their participation on the network, these incentives are given to cover their expenses for rebalancing their reserve and support the value of their reserve. In the future, we may introduce a tokenized reserve to allow anyone to participate in the network.

3.7. Price Balancing through Arbitrage

In some instance, the price of any asset in the Zenswap Network could go slightly higher or lower than the external market price. This phenomenon happens when an asset experiencing heavy pressure (selling or buying) in another market providers or in Zenswap platform itself. The pricing algorithm functions independently and does not observe the external market fluctuations directly. This situation opens an arbitrage [8] opportunity for anyone. For example, if an asset price in an external market moves higher than the price quoted in Zenswap Network, anyone can buy that asset in Zenswap platform and sell it to that external market until the prices are the same.

4. Advantages of Zenswap

Zenswap Network offers smart crypto experience with trustless, automated price determination, dynamic price sensitivity, exemplary liquidity mechanism that uses supply and demand model. This constitutes a lot of advantage over traditional order book based exchanges:

Continuous Asset Availability. Due to the nature of inverse functions, a user can't mathematically and technically deplete an asset on its own reserve. The formula earlier demonstrates that it increases its price dramatically when there is an attempt to buy a large amount of an asset. Even if all ZLT in circulation is used to buy an asset, there are still available asset left after the transaction. And even the program itself will technically decline any attempt to zero out the supply of a particular asset. When the price of an asset in a reserve gets out of its normal pricing parameters, it will be rebalanced by the operator or possibly by the smart contract itself to synchronize it back to average levels. This happens sometimes when an asset value goes up to more than 10,000% or goes down by more than -90% beyond normal price sensitivity range.

User-Friendly. The very concept of blockchain is very technical and complicated to the most average user. Using the technology alone could be daunting for newcomers and that is why simplicity is one key for mass adoption. There a lot of services that makes the use of blockchain applications easier and Zenswap platform will be built in the same manner to make exchanging or swapping an asset easier by having a simplistic user interface. It will also provide a guide for anyone who is new to using a decentralized swap or new to cryptocurrency and digital assets.

No spread. The Zenswap platform does not employ price spread in its pricing algorithm at the moment. When you sell an asset, you will get the same volume when buying it back. Although keep in mind the there is a low fee charged inclusively on every trade. Market spread may possibly be introduced in the future to promote growth and increase the benefits to the liquidity providers and users.

Low Fees. The power of Zenswap Network Tokens plays a huge role in getting different tiers of discount in transaction fees. The small fees collected by the platform will be used for operational and maintenance expenses, incentivizing liquidity reserve provider, the development budget for value-added services, burning tokens and donation to foundation and organization listed in Zenpathy. This small fee is implemented to discourage Sybil and DDOS attack that may compromise the performance of the platform and the blockchain platforms involve (e.g. Ethereum Network).

Diversified. The platform is designed to encourage both liquidity and adaptability by giving the opportunity to any blockchain-based projects and operators to build a liquidity reserve for their asset. And join the diverse number of utility coins and tokens on the network. This opens an access to an asset to diversified communities and gives users the ability to swap his/her asset to any asset connected to the network.

Fast. You don't have to wait for order book to be matched, its instant. The liquidity reserve and pricing algorithm already provided the ability to swap your asset conveniently. No withdrawal and deposit wait time needed. Scaling solutions for Ethereum is coming, bringing a faster transaction confirmation to the entire network.

Blockchain-Based. The platform will be built over a number of blockchain based platforms and protocols. Ethereum for smart contracts; DADI, 0chain, and iExec for cloud computing, and storage; ChainLink and Oraclize for access to external API; DEX and relayers for rebalancing provider; Polkadot, Cosmos, and Wanchain for cross-chains and relay protocols.

Transparent. The transactions are executed on-chain and are publicly viewable and verifiable. No manipulation and fraud due to the immutable nature of blockchain.

5. Zenswap Tokenomics

5.1. Specifications

```
pragma solidity ^0.4.24;

contract ZenswapNetworkToken {
    string public name = "Zenswap Network Token";
    string public symbol = "ZNT";
    uint8 public decimals = 18;

function transfer(address _to, uint256 _value) public {
        _transfer(msg.sender, _to, _value);
    }

    mapping (address => uint256) public balanceOf;
    mapping (address => mapping (address => uint256)) public allowance;

    function approve(address _spender, uint256 _value) public
        returns (bool success) {
        allowance[msg.sender][_spender] = _value;
```

Zenswap Network Token (Symbol: **ZNT** Decimal: 18) is an ERC20 utility token that will be used to avail discount subscription for swap transactions fee, premium access to value-added services and for casting reputation score/karma. In the future, there will be an increase of utility for this token as more value-added service joins the cryptosphere.

Zenswap Liquidity Token (Symbol: **ZLT** Decimal: 18) is an ERC20 utility token that will intermediate and bridges the exchange of value between blockchains' digital assets or cryptocurrencies. It will be used inclusively as a fee during the transaction process. The ZLT can be used to redeem an asset in a reserve connected to the Zenswap platform. It is also required for the participation in the liquidity reserve to bridge the reserve operator's cryptocurrency or digital asset within the network. It will be used to reward the liquidity reserve provider and various parties that helps generate trading activities in the platform. ZLT will have few additional functions in its smart contract inspired by ERC223 [9].

For every subscription, membership, and transaction on the Zenswap cryptosphere, a portion of the involved token will be scheduled for burning and remove it from circulation.

5.2. Token Allocations
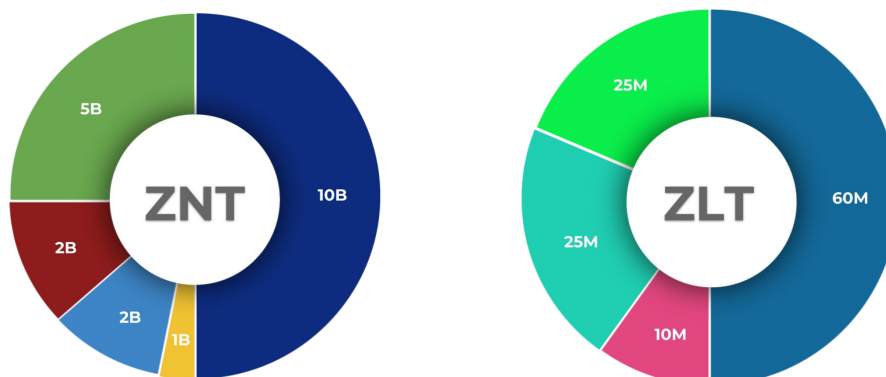
ZNT - Total Supply : 20,000,000,000
10B - ZNT & ZLT Distribution Event
5B - Airdrop and Selfdrop Campaigns
2B - Development and Marketing
2B - Team and Volunteers
1B - Zenchain Technologies Foundation and Liquidity Reserve

ZLT - Total Supply: 120,000,000
60M - ZNT & ZLT Distribution Event
25M - Liquidity Partnership, Grants and Liquidity Reserve
25M - Long-term Zenchain Technologies Foundation Budget
10M - Team, including Volunteers and Early Contributor

5.3. Distribution

Initial ZNT Distribution was held last June and July called selfdrop campaign. The Ether collected from this campaign was considered a donation for the seed funding of this project. Airdrop was also conducted to gather initial community base who helped us with initial awareness of the project. We airdropped ZNT tokens to initial 5,000 community participants.

The next phase of distribution is the ZNT & ZLT distribution event. This campaign will run for 20 months or until all the allocated token for this event is distributed. All undistributed ZNT token during the ZNT & ZLT distribution event will be sent to development and marketing for the platform and value-added services. All undistributed ZLT will be sent to its reserve.

The 20% of ZNT team tokens is unlocked at the very beginning for come-and-go volunteers and early project contributor. The 10% of ZNT and 30% of ZLT and the team tokens, including volunteers and early project contributor, will be unlocked one quarter after main platform launch. The rest of the 70% of both tokens will be unlocked by 2% every month, for 35 months.

The 20% of Zenswap Foundation tokens are unlocked one quarter after main platform launch. The rest of the 80% of tokens will be unlocked by 8% every quarter, for 10 quarters.

5.4 Use of Collected Donation/Contribution

Very Important Reminder:

For interested backers and supporters in this campaign, please keep in mind that 30% of the Ether you committed is considered a donation and the 70% Ether is considered a contribution. If the project is unsuccessful or unable to launch the platform due to unforeseen circumstances, 70% of the Ether contribution (allocated for liquidity reserve and other after launch expenses) plus the liquidated assets on its current value (physical or digital and tangible or intangible) acquired by Zenswap will be returned to all Zenswap Liquidity Token (ZLT) holders.

The Ether donated/contributed to the ZNT & ZLT distribution event has been allocated for specific uses as outlined below:

60% of ETH is for initial liquidity reserve for ZNT and ZLT and few established and operational blockchain project ERC20 tokens.

20% is allocated to software development the Zenswap platform, including interfaces, testing, and implementing smart contracts, acquisition of development technologies and licenses, quality and security audits, utilities, and allowances.

10% for marketing, promotion and development Budget for Value-Added Services.

10% designated for operating expenses, legal expenses, overhead and other unexpected expenses.

6. Roadmap

6.1. Stage Zero - Zenchain Technologies Foundation

The launch of the Zenswap Network project; start accepting donation and contribution; distribution of ZNT and ZLT tokens; community engagement and education campaign. Q3 2018.

6.2. Stage One - Testnet Deployment

Deployment of Zenswap protocol Test Network testnet environment (local RPC, Rinkeby or Kovan) launch of its smart contract using dummy tokens (similar to their original smart contract source codes) and Test Network main-chain launch of its smart contract using dummy tokens and application interfaces. Q4 2019.

6.3. Stage Two - Basic MainNet Deployment

Deployment of the first version of Zenswap platform. Basic swap functionalities are operational. The initial batch of liquidity reserves is connected. Q3 2020.

6.4. Stage Three - Value-Added Services Development

After the main platform stabilizes, the development of value-added services will begin to increase the utility and improve the experience of users in the network. Q1 2021.

6.4. Stage Four - Support Cross-Chain Swap

Cross-chains, relayers and parallel blockchain are expected to be fully functional in 2020. Zenswap Network will support the integration of cross-chain swap by using the most functional available cross-chain and relayer protocol or platform. Q3 2021.

7. Message to the Community

Zenswap Network with all the surrounding V.A.S. is a community-driven and community-supported project of Zenchain Technologies Foundation. An online-based foundation leveraging blockchain and related technologies on creating practical, beneficial and intuitive applications and real-world solution. Zenswap Network is our very first project and will be followed by a lot more community-driven platform that will create an entire cryptosphere. We wanted to take small steps at a time, making sure we deliver the progress and the following steps ahead clearly. We also wanted to tell the community that this project was intended for a community member like you, to use it and utilize it. That is why the tokens being distributed does not constitute an investment and will never will, but an encouragement to use the platform someday. The Zenswap tokens were only intended for use in the platform. The ether you contributed will be split into two purposes, the 30% is considered a donation to the Zenswap Technologies Foundation for building the core project and 70% is a contribution to the reserve and initial operation cost for it. Most projects that failed are unable to return the value you have contributed to them. We took a different approach because we don't want to hurt the community badly. That is why when the core platform is unable to launch or failed to launch due to unforeseen circumstances (e.g. changes in consumer and technological trend; regulatory difficulty and pressure), we will have to return the 70% of those contributions to all ZLT token holders. And the ZNT will still exist because we will have to continue to other platforms that don't require a huge amount of financing to operate. We don't want this project to fail, but it is better to deploy plans for the worst-case scenario. We also encourage everyone to help us build this platform. If you are willing to contribute your talent or skill, please, come and help us build this project and make this stronger and true to its philosophy. We would like to thank you for supporting us and staying with us. This won't be an easy task and there will be a long road ahead. So we also ask for your patience.

Thank you. Asante. 謝謝。Salamat. 고맙습니다. Obrigado. ありがとうございました . Terima kasih. شكرا لكم. Merci. Спасибо. Gracias. ਧੰਨਵਾਦ। Danke. ਤੁਹਾਡਾ ਧੰਨਵਾਦ. Matur suwun. ขอขอบคุณ. Cảm ơn bạn. Teşekkür ederim. Grazie. Дякую. Çox sağ ol. Dank je. Ευχαριστώ. Takk skal du ha.

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