THE HORECA COIN (HRC)

The Global Trading Cryptocurrentcy

GENERALITY

Introductions

We design and build HORECA Coins as a series of protocols that allow instantaneous transfer of digital assets (eg, crypto tokens) and cryptocurrentcies (eg, Bitcoin, Ether, Lite ...) with high liquidity. HORECA Coin will be the first system that implements several ideal operating features of a transaction such as decentralize execution, instant transaction and payment for utility services: hotels, restaurants, bars, cafes all over the world. In addition, HORECA Coin also provides APIs that allow Ethereum accounts to the easily perform payments from any crypto tokens. Anyone uses the HORECA Coin API's can also make a payments by using the crypto tokens, but HORECA Coin owners will be given priority payments by using HORECA Coin (HRC), Bitcoin (BTC), and Ether (ETH).

Running on the Ethereum network, HORECA Coin's roadmap supports cross-chain trades between different cryptocurrentcies using future relays and protocols such as Polkadot and Cosmos. The HORECA Coin accounts can be paid safely by Bitcoin, Ethereum through our payment APIs. Derivatives will be introduced to mitigate the exposure to the risk of volatilities for the users of HORECA Coin users (HRC) and selected cryptocurrencies. This will allow users to participate in the price fluctuations of the market.

1. Basic about HORECA Coin (HRC)

Bitcoin, Ethereum as well as hundreds of types of cryptocurrencies are released and exciting trading allow owners to manage their assets in a decentralized and independent manner without relying on a third party like the Central bank or any other organization of any State. It is more interesting that the Ethereum network, with sophisticated cryptographic protocols managed by the owner itself, is well-documented, intelligent and reliable, making it easy to manage and digitize accounts private. At present, the total market capitalization of the cryptocurrencies

market is about 180 billion dollars. The total market cap has increased steadily over the past 6 months and continues to increase.

1.1. Shortcomings:

Risks

As the Blockchain market develops and more cryptocurrencies are being borned, demand conversion and transaction between these currencies is increasing. Total capital the market is worth hundreds of millions of dollars a day in transactions between Ethreum and Bitcoin or between Ethreum and other cryptocurrencies in its network, most are new coins that are issued less than 2 years, this number also has a market capitalization of millions of dollars.

Despite the high security of Blockchain technology, the operation exchange is still vulnerable to internal fraud or attacked by the hacker. This is an ongoing concern and in the history there also has some trouble about Hackers are reported at different trading floors causing damage to the thousands of investors and disappeared hundreds of millions of dollars.

There are restrictions on the instant exchanges

Existing exchanges, including centralized and decentralized ones, often require user to wait for several minutes before allowing them to withdraw their funds.

The mechannism decentralized exchanges

Building a decentralized exchange platform is an urgent task that is initiated by some stakeholders in the Ethereum.

Although these parties build decentralized and trustless exchanges, they are still vulnerable to external manipulation since there is a delay when an order is created and when it is accepted in a block. There are other possible reasons make the current decentralized exchange less popular as expected though has better security features. These exchanges keep an orderbook of users on the chain. Therefore, adjustment or cancellation of bid orders can be expensive to the common users. Repeated revisions of orders will compound the issues as the cost will escalate until a match between buy and sell order is found.

Some exchanges hope to resolve this issue by making the price discovery. A trade is done on-chain only after the two parties have agreed on the rate. This raises the issues of trust in the role

of the intermediate party in finding the best counterparty for the trade. We also note that no-fees orders are susceptible to adversarial sybil or denial-of- service attacks.

The problem of having many digital assets

As the number of ICOs increases, so does the introduction of new crypto tokens. It is logical to assume that investors will acquire a variety of desired crypto tokens as part of their investment strategy. The convertibility of one crypto token to another represents a new challenge for both investors and operators alike. For example, it may be a challenge for any party to allow an already deployed contract to accept new crypto tokens as a form of payment.

It also introduces more room for implementation bugs and security flaws. As an example, recently, in the ICAO DAO Token, there was a major bug that distributed more tokens to SNGLS contributors than to ETH contributors, although they contributed the same amount. Therefor, there is a need to simplify the payment procedure for both token holders, merchants and users in the network.

1.2 About Horeca Coin

We introduce about HORECA Coin, a decentralized exchange on the supply chain, provides a number of useful applications, including the construction of a practical exchange mode and provide payment APIs to merchants and users instantly code conversion is easy and "trustless". There is no orderbook. Users will know the conversion rate before sending the transaction and receive the corresponding amount. Users don’t pay any extra fees (other than the gas fees for the transaction). HORECA Coin benefits through pricing a reasonable spread in the conversion rate.

Our users can also send their existing token A, by converting to a different type of token B and sending it to another user, who only accepts payment in B all in one transaction. More interestingly, HORECA Coin introduces a new standard contract wallet to allow existing contracts, which only accepts few tokens, to receive payments from any future tokens without any modification to the contract code. This allows contracts or merchants to access to a wider class of users, receives payments and contributions in any tokens that HORECA Coin supports. HORECA Coin’s design has several novel constructions to support all these applications.

● Instead of maintaining a global order book, we maintain a reserve warehouse which holds an appropriate amount of crypto tokens for purposes of maintaining exchange liquidity. The reserve

is directly controlled by the HORECA Coin contract, and the contract has a conversion rate for each exchange pair of tokens by fetching from all the reserves. The rates are frequently updated by the reserve managers, and HORECA Coin contract will select the best rate for the users. When a request to convert from token A to token B arrives, the HORECA Coin contract checks if the correct amount of token A has been credited to the contract, then sends the corresponding amount of token B to the sender's specified address. The amount of token A, after the fees, is credited to the reserve that provides the token B.

● We introduce a new standard contract wallet to enable some of our interesting applications. Specifically, our new standard contract wallet allows the HORECA Coin contract to send a user's newly converted tokens to his/ her destination address on the user's behalf. The destination address will receive the converted tokens as if the tokens were sent from the sender, not the HORECA Coin contract.

● We introduce Horeca Coin as a payment method for services at the hotels, restaurants, cafes all over the world without using the other types of cash are easy to devaluation and still make a profit double and increase the scarcity of cryptocurrentcies.

● Our long-term plan also includes employing future features of the EVM language to build an efficient ZCash-Relay on Ethereum. A ZCash-Relay on Ethereum will allow us to support cross-chain trades between ETH and ZEC. We also leverage future platforms like Polkadot and Cosmos to enable more cross-chain trading and payments.

● The HORECA Coin contract is designed with extensibility-focus which has well modularized components. Specifically, we allow dynamically adding any new tokens or delisting existing tokens. Thus, we are able to work with any tokens or digital assets in the future.

2. HORECA Coin's design

There are 5 roles for members in the network:

1. The user sends and receives the token 5 to and from the network. Users in Horeca Coin includes individual users, smart accounts and merchants.

2. A reserve entity(ies) provides liquidity to the platform. This can be our own reserve or other third party reserves that are registered by other market makers. Reserves can also be classified into public and private reserves which do and do not take contributions from the public.

3. Reserve contributors who provide capital to the reserve entity and share the platform profit. This actor only exists in public reserves which accept contributions from public to build up the reserve.

4. Reserve manager who maintains the reserve, determines exchange rates and feeds the rates to the HORECA Coin.

5. HORECA Coin operator who is responsible to add and remove reserve entities, list/delist pairs of tokens in the network. Initially the HORECA team will act as the HORECA Coin operators to bootstrap the platform in the early phases. Later on, a proper decentralized governance will be set up to take over the task.

Each of the actors interacts with the smart contract independently in a different way. The users send and receive tokens within a single transaction, without waiting for any response from the reserve or the HORECA Coin operator. The HORECA Coin operator is responsible for adding and removing reserves, while the reserve manager determines and feeds the exchange rates to the contract for a fixed period (several seconds basis). The main contract relies on the reserve entity to guarantee high liquidity.

Dynamic Reserve Pool

HORECA Coin guarantees high liquidity by leveraging the existing reserves in the network. Different reserves are directly managed by different reserve managers, which may and may not be associated to HORECA Coin operator. HORECA Coin allows multiple reserves to co-exist to enable better prices (by eliminating monopoly of reserve), guarantee better liquidity (by utilizing other sources). Furthermore, allowing different people, apart from HORECA Coin operator, to manage their own reserves permits HORECA Coin to support low-trading- volume tokens by off-loading the management efforts of those tokens to corresponding reserve managers. Therefor, different parties who wish to take the risk of trading/ converting low-trading- volume tokens can create their own reserve of those tokens and register with HORECA Coin. Note that HORECA

Coin does not hold any funds of the reserves that register with it. Their funds are stored on their reserve contracts which will follow HORECA Coin ground principles.

When a trade/ conversion request arrives, HORECA Coin will fetch the conversion rates from all reserves that can process the request. HORECA Coin then selects the best rates and executes the request. We guarantee that both the reserves and the users are safe, namely we do not keep any party's funds and all transactions are atomic.

We note that when we launch HORECA Coin, it is likely to have only a single reserve provided by us in the network. This reserve will be the main source of liquidity for the system before other reserves are registered.

Why other reserves should join HORECA Coin?

HORECA Coin creates a platform for reserve managers to monetize their otherwise idle assets. By serving trade requests from users, reserves earn profit from the spread, which they can decide on their own. Of course the reserves can always do the trading without joining HORECA Coin, however they will get higher volume due to network effects in HORECA Coin. We will bring more users to HORECA Coin by having collaborations with wallet providers and other token projects.

In addition, HORECA Coin also provides a reserve dashboard software to help reserve managers manage their reserve portfolio. The reserve dashboard will include standard and popular trading algorithms/ strategies to allow reserve managers to automatically make prices and rebalance their portfolio. Our reserve dashboard is flexible enough that reserve managers can always implement and deploy their own strategies when and where they see fit.

How to keep the reserves safe?

The security of reserves becomes a major concern in HORECA Coin, especially for public reserves that take contributions from other members in the network. One of the primary concerns is that a bad/unethical reserve manager may quote and trade bad prices to him/herself to drain all coins from the reserve.

Let us categorize the reserves into two types: (1) private reserves which do not accept contributions and (2) public reserves which take external contributions and share profits with

contributors. Whilst still a valid concern, if reserve managers of private reserves follow good security practices, the risk exposure of private reserves can be confined to an acceptable range, especially since the reserves are handled locally and other parties cannot interfere without permission. On the other hand, public reserves are subject to greater risk exposure due to its open nature. To mitigate the security risks of public reserves, we will employ a transparent fund management model, for example MelonFund (developed by MelonPort), so that contributors of the reserve can track all trading activities done by reserve managers. On top of that, we also plan to introduce restrictions to protect open reserves. For example, the funds of the reserves can only be transferred to predefined addresses in the contracts, such as the reserve contract itself, and other exchanges that the reserves interact with. Hence, the risk of unwarranted extraction of funds out of the system is removed. Also, to prevent reserve managers from deliberately setting up false and unreasonable exchange rates, e.g. one million Golem Network Token (GNT) per Ether when the spot rate is only five hundred GNT to one Ether, just so that the manager can buy GNTs at a cheap price, we employ both on-chain mechanisms (e.g., prevent unreasonable changes in price without special authorization) and by off-chain mechanisms. For example, a background monitor that will halt transactions when the system detects dubious activities that undermine the integrity of the network can watch and flag out suspicious behaviours from any reserve manager in the network.

Main System Components

HORECA Coin consists of the following major components in its system.

● Smart contracts: HORECA Coin contains several contracts, including the main contract which serves as the main entrance to the system for users and reserve managers. We also have different contracts to maintain the reserves, and a contract wallet which provides convenient interface to all features that HORECA Coin supports.

● User’s wallet: Wallet apps with friendly interfaces to support users. Integrations with existing wallet apps like Status, Token, Metamask and so on will help improve the adoption of HORECA Coin.

● Reserve manager portal: aids the management of the reserve by displaying their performance, network stats, supporting different strategies and algorithms to make prices/ rebalance. Reserve managers interact with the network (or the HORECA Coin contract) via this portal.

● Operator dashboard: Helps HORECA Coin operator manage the entire system. Operator can add and remove new reserves, change network parameters via this dashboard.

A minimum-viable- product has been released in December 2017. The readers can find more details in our release blog post.

HORECA Coin APIs

HORECA Coin supports different API commands for users, reserve and reserve contributors.

User API

User API can be called by any Ethereum account, including normal account and contract ones.

Transfer(amount, source tokens, destination token name, destination address).

Transfer function converts amount of source tokens (token A) to destination tokens (token B) and sends type B tokens to destination address.

Returns the conversion rate between token A and token B. In the future we can support different exchange rates for different trade volumes.

Reserve Contributor API

Reserve Contributor APIs can be called by any account in the Ethereum network, though some API only works if the account already contributed. There will be two different reserve types in HORECA Coin: private ones which do not take public contributions and public ones which allow others to contribute funds. The APIs for public reserves highly resemble ones from MelonFund (decentralized hedge fund platform built by MelonPort). Here we just list the main ones.

ContributeReserve(token type, amount)

Contribute some amount of tokens of a certain token type to the reserve. For every contribution, the contributor will receive some amount of reserve tokens/ shares to represent their contribution to the platform. We refer the readers to Melonport's greenpaper for more technical details.

Withdraw Profits

Profits are distributed proportionally to the contributions of the contributors. The exact formula to distribute the platform profits will depend on the implementation of the reserve.

WithdrawContribution (KNC amount, token type)

An existing contributor can withdraw their contribution from the reserve. The contributor can specify in which token type that he wishes to receive for his withdrawn contribution, we do the conversion in the background.

Reserve Manager API

Set rate(token A , token B, rate)

To set a conversion rate between an existing pair of token A and token B. In the real deployment, this API will be replaced by a different API which updates the rates of all existing pairs in one transaction. The purpose of batch-update is mainly to reduce the gas cost.

HORECA Coin Operator API

ListPair (token A, token B, initial rate)

To introduce a new pair of tokens that HORECA Coin supports.

DelistPair (token A, token B)

To stop accepting trade between a pair of tokens.

AddReserve (reserveAddress)

Add a new reserve to the network. The reserve is managed by its own manager.

RemoveReserve (reserveAddress)

Remove an existing reserve from HORECA Coin. The removal is due to low liquidity, bad price and other reasons.

Support trustless trading cross-chain

Chain relays, e.g. BTCRlay, enables communication between different blockchains. The launches of protocols like Polkadot and Cosmos will make cross-chain interactions even easier. HORECA Coin will leverage these technologies to allow Ethereum accounts to receive payments from different cryptocurrencies.

3. System Properties

Trustless and secure

The HORECA Coin operator does not hold the tokens of the users. Hence, by design, user's tokens are secured from theft losses. Users need not trust the intentions of the reserve entity and the KNC token holders, as the integrity of the operator is enforced/ensured by the smart contract.

Instant trade

An exchange or convert request is executed immediately within a single transaction. Users get their exchanged token at the exact moment they transferred their original token. No deposit or confirmation or waiting time is needed. This efficient and user friendly feature distinguishes HORECA Coin from most other existing and future exchanges.

On-chain exchange

The exchange runs on chain and is accessible for all accounts, including normal accounts and smart contracts. That allows smart contracts to directly interact with the exchange without a third party intervention to receive funds/ payments from different tokens that they do not support originally. This feature enables us HORECA Coin to be an on-chain proxy payment platform for all accounts, including normal accounts and smart contracts.

Compatibility

HORECA Coin does not require any modification in the underlying protocol of Ethereum and existing smart contracts to function. Our payment API can communicate with existing contracts without any change on their side. That said, we also introduce a new contract wallet that holds all user Ether and tokens. The wallet allows the user to pay with token A to a contract that expects token B, where the conversion from A to B is seamlessly done by the HORECA Coin. The receiver will receive the payment as if it was sent by the original user.

Comparison to existing systems

We compare HORECA Coin to existing systems in the table below. We left out Bancor intentionally as they claim (from our private conversation) to be a platform that focus on community tokens, rather than general purpose exchange.

4. Applications

Instant and secure exchange

First and foremost, HORECA Coin is an exchange. Unlike most exchanges, however, HORECA Coin performs trade requests instantly. Moreover, HORECA Coin does not hold users' tokens, thus any theft or loss of tokens is prevented by design. This contrasts sharply to most exchanges where confirmation time of several minutes is typically needed. Any malfunction during that period could potentially result in inconvenience or in the worst case scenario, loss of funds.

Generic payment APIs with any token

Conducting an exchange over a smart contract allows user to pay for any service or product with any crypto token they prefer. The contract will provide instant conversion to Ether and securely pay on behalf of the user to any contract he wishes. The figure below describes how a user could participate in an ICO that accepts only Ether with any token. The entire process occurs within a single transaction, and the HORECA Coin never has a possession on the user tokens (neither token A nor token B).

Trusted on-chain source for rate quotes

HORECA Coin exchange rates are visible to other smart contracts. Hence, it enables the implementation of advanced financial instruments such as swap contracts. The quotes provided by HORECA Coin are secure as they reflect the real rates which are being used to trade between pairs of tokens.

Mitigate the risks of price fluctuations

Due to the illiquidity of crypto assets, the exchange rates often seem too volatile due to irregular demand and supply. This issue is aggravated further due to lack of parties that are willing to warehouse crypto-assets. The lack of options means now that it is almost impossible for users of crypto assets to hedge themselves for future requirements. The HORECA Coin will be addressing this challenge by introducing derivatives in the forms of forwards and options to provide more alternatives to users.

Forwards

A forward is a contract whereby parties agree to trade an asset at a later date at a price specified in the present. One of the common problems as ICOs become mainstream is the need for some

users to convert between tokens, such as from Melon to ETH, in preparation to participate in an upcoming ICO. The user could either acquire ETH at current market rate or commit to a forward contract to negate the risk of the price fluctuations in the ETH as an viable alternative.

Options

Options contracts allow users to hedge against adverse price movement for a fee called premium. A call option gives the owner of the contract the right to purchase the crypto asset at an agreed price. A put option is an opposite. The premium is calculated using the implied volatility of the underlying crypto asset. The user of crypto assets that need to prepare for a future purchase or sale commitments can pay a premium to buy a call or put option. As an example, holders of iced tokens are able to write call options to earn premiums while forgoing the upside of the price.

5. Road map

The road map of HORECA Coin includes several phases.

Phase 0: Testnet deployment

Phase 1: Basic mainnet deployment

Phase 2: Supporting arbitrary pairs of tokens

Phase 3: Trading advanced financial instruments

Phase 4: Support cross-border transactions, customer service liquidity hotels, restaurants, cafes all over the world.

6. Crowdsale and the HORECA Coin Crystal

A fixed number of HORECA Coin Crystal tokens (HRC) will be distributed to the public in exchange for Ether contribution. The details of how many HRC are distributed, and how the sale is conducted will be publicly available in our blog posts and website.

Use of tokens

HORECA Coin Crystal (HRC) tokens are required for reserves to participate in the network and to reward various parties who will help generate more trading activities in the platform.

HORECA Coin will rely on various partners, including both software and hardware wallets, blockchain explorers, and on-chain smart contracts to direct users to the platform. These partners will be paid in HRC for every trade that they introduce to HORECA Coin.

Before operating, HORECA Coin reserves need to pre-purchase and store HRC tokens. In every trade, a small fraction (exact numbers are TBD) of the trade volume will be paid by the reserve to HORECA Coin platform in HRC. This small fee represents the reserves payment in return for the right to be able to operate and earn profits from trading activities in HORECA Coin. The collected HRC tokens from the fees, after paying for the operation expenses and to the supporting partners, will be burned, i.e. taken out of circulation. The burning of tokens could potentially increase the appreciation of the remaining HRC tokens as the total supply in circulation reduces. In order to determine the network fees, the conversion rate between HRC and ETH will be updated frequently to the HORECA Coin contract by HRC operators, based on the trading rates on various exchanges.

As an example, for a trade volume of 10 ETH with a 0.01% fee, a corresponding 0.001 ETH worth of HRC will be paid by the chosen reserve to HORECA Coin as a fee for the use of the reserve dashboard and access to network users. Suppose the rate of HRC at the trading time is 1 HRC for 0.1 ETH, the reserve needs to pay 0.01 HRC to the HORECA Coinr platform. The wallet/ website that helped the user initiate the trade will get, supposedly, 5% of the fees, or 0.0005 HRC. The remaining 95% of the fees, or 0.0095 HRC will be burned forever.

This approach would increase the demand of existing HRC tokens as the trading volume happening on HORECA Coin increases. The approach also properly rewards all participants who help grow the ecosystem. HRC token holders can easily track the total supply by reading from the contract, without relying on any off-chain accounting firm.

Thank you for your interest and choice !