Network of Network
Liquidity Provider

White Paper_en
Rough Draft
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1. INTRODUCTION

1.1. VISION: NEXT GENERATION, BLOCKCHAIN

Futurist Alvin Toffler proposed sea changes in society based around adaption of new technologies. The 1st wave is the agricultural revolution; the 2nd wave is the industrial revolution; and the 3rd wave is the information revolution. We are currently seeing the culmination of the 3rd wave, perhaps even a 4th wave, as distributed networks fundamentally alter the way people earn a living, learn about the world, and form social bonds.

One of these distributed networks reshaping the world of finance and financial technology fields is the 'Blockchain'. Blockchain technology is the underpinning of 'Bitcoin', a crypto-currency developed by unknown programmer Satoshi Nakamoto. The revolutionary feature of crypto-currencies is that they are not controlled by any governments or centralizing organizations.

The crypto-currency is decentralized currency; therefore, the radical problem of fiat-currency which centralized by the government has been removed.

Before the epidemic of 'Bitcoin Fever', related technology developers attempted to build and to commercialize crypto-currencies, but commercializing the crypto-currency was unsuccessful. To be acknowledged as a currency, the developed currency must be used by a vast number of people, but crypto-currency could not obtain enough attention from the public. Meanwhile the fiat-currency values have faltered by the sequence of adverse events. The public shifted their interest toward the 'decentralized currency'. Bitcoin distinguishes from the fiat currency with three features: decentralized currency, high transparency, and safe from hacking.

The implementation of the blockchain in Bitcoin achieved decentralization with safety and transparency. The rapid adoption of Bitcoin, even to the point of a 'Bitcoin fever', has shown the global appetite for a decentralized currency, and the new launched ICOs show the robustness of both the business models and technologies in a blockchain.

Since the first blockchain is created by Satoshi Nakamoto in August of 2014, Bitcoin creates a new block every ten minutes. The blockchain has distinguishing features such as P2P (peer-to-peer) network, consensus algorithm, hash function, etc. At its heart the blockchain is a ledger kept up-to-date by the community who use it. Every time new transactions are recorded they are appended to the end of the blockchain, and the ledger continues to grow. Through these features the blockchain technology has been acknowledged to be the most innovative technology which will lead us to another stage of future technology.

The decentralized ledger structure of the blockchain: 1) is safe from counterfeiting; 2) is

transparent, since transaction time cannot be manipulated; 3) requires no third party to manage; 4) drastically decreased the transaction fee since no third-party is involved; 5) is not limited geographically; and 6) is scalable. These features are necessary for a successful crypto-currency, and it is only with their implementation in the blockchain were These features integrated into single currency.

Recently, a variety of ICO projects have been launched based on the blockchain technology to achieve an idealistic network ecosystem. . Expansion of innovative ICO projects will lead us to another level of revolution comparing to revolutions mentioned earlier. The blockchain, crypto-currency, and ICOs will change our daily life.

Each new ICO is attempting to create a decentralized ecosystem that implements the promise of crypto-currencies, but the thousands of ICOs fragmenting the marketplace ironically undermine that. Linker Project solves this ironic problem of ICOs. Every race and generation can see the promise of a safe stable currency unfettered by the constraints of a centralized authority.

1.2. BACKGROUND

1.2.1. RISE OF CRYPTO-CURRENCY

There are three key characteristics which distinguishes a crypto currency from the existing fiat currencies such as dollars, euros, won, etc.

First, there is no central authority managing the currency. Existing fiat-currencies are mostly managed by governments, or governmental organizations, through the delegated authority of a central bank. If the government fails as a manager the currency can destabilize to devastating effect as seen in Weimer Germany, Zimbabwe in the 200s, or Venezuela currently. Since crypto currencies are managed by their users, no single government misstep can destabilize the currency.

Second, crypto-currencies are highly transparent, creating trust. Many mistakenly believe that the anonymity in crypto-currencies prevents transparency of transactions, but all the ledgers are opened to all users since all the ledgers are stored by every user. There is a degree of anonymity in that transaction records are connected to a currency address, not a personal profile, which can allow criminal uses, as seen with Bitcoin. However well-run exchanges can discourage criminal activity. Furthermore, most countries require KYC protocol to verify the users' identity during a withdrawal from an exchange.

Third, crypto-currency is safe from the hackers' attack. Crypto-currency is built on the blockchain; therefore, hacker's manipulation of crypto-currency is realistically impossible. Since all the ledgers are processed under the proving procedure of all the users on the network, the hacker needs the super computer which can calculate faster than the sum of all the user's computers. In the past, the press announced that the crypto-currency exchange was hacked, but this event occurred not by the breach of crypto-currency, but by the breach of the exchange. Since the genesis block of crypto-currency was issued, crypto-currency built on the blockchain has not fallen by the attack of the hackers.

1.2.2. COMPONENTS OF BLOCKCHAIN

Every block is composed of <block number>, <previous hash number>, <Nonce>, <List of Transactions> ,and different hash numbers are assigned to each block.

TRANSACTION

Using Bitcoin as an example, the encrypted information of transferring a Bitcoin is recorded is called a transaction. A transaction only includes the 'sender's address', the 'receiver's address', and the 'amount transferred'; therefore, the anonymity is assured. All transactions occurring during a ten minute period are recorded together in a 'block'.

HASH

In the virtual platform, 'block address' functions as chain. Each block contains a unique address; and the most recently issued block contains the address information of previous block. Therefore, the user can track the transaction all the way to the first block (genesis block). Official terminology of 'address' is 'Hash', and hash takes one of the most important roles in the blockchain technology.

Hash is a string of random characters with a given length. This string of characters changes into totally different hash if a single character in the block is changed by the external factor. Number of hash character is defined by the size of hash: the size of bit. Two hash digits can be expressed with one bit. So on, ten bits produce ten to the two digits of hash; which means 1024 different hash can be produced, and with ten bits, 1025th data can be cashed.

Bitcoin uses hash function called SHA-256 which bit size is 256bits; which means 10^77 different hash can be produced. Since 10^77 is an astronomical figure, collision of hash can barely occur.

Hash is also called 'digital fingerprint'. Different fingerprints commonly mean different people. In fact, hash is used as fingerprint in the blockchain system since hash changes into totally different hash if a single character in the block changes. As result, if malicious user attempts to manipulate transactions in the block, other users can identify that immediately; therefore, hash is a key of Bitcoin security system.

NONCE

As gold is pulled from the earth by the miners, Bitcoin contains is pulled from the computational ether in an analogues manner. Bitcoin mining is a data computing competition of the participants; the answer in this competition is called 'Nonce'.

The problem given for bitcoin mining is closely related to the hash. For example, the problem asks to find the nonce which makes first four digits of the hash into '0000'. As mentioned earlier, each block is composed of nonce, list of transaction, and previous hash, and change of a single character produces totally different hash.

Therefore, bitcoin miners must enter all the possible values to find the nonce which produces given the hash condition. This process takes ten minutes, and as number of nodes increases the system designs the mining problem becomes more complicated.

1.2.3. PRINCIPLE OF BITCOIN FUNCTION

CREATING BLOCK

As mentioned earlier, the blockchain is a decentralized network connecting worldwide. As a new miner installs the Bitcoin program, all the blockchain information copied to the user's computer; which means that each user has identical blockchain.

After ten minutes, each miner's computer executes the task to find the correct nonce to the new hash number formed by transactions occurred in ten minutes. The first successful miner announces the result on the network; this process is called 'Broadcasting'. After confirmation of results from the most miners, a new block connects to the blockchain, and the first successful miner receives a certain amount of Bitcoin as a reward.

REWARD SYSTEM

Reward system of Bitcoin is called PoW (Proof of Work). Consensus protocol bases on the amount of calculation. The first successful miner obtains the right to issue the block and receive a certain amount of bitcoin as reward.

Even though the centralizing organization does not exist, users participate to mining because of the Bitcoin reward. Furthermore, mining itself is done by complicated computational problem, and block is issued after the proof of the most miners; therefore, changing information within the block is barely possible.

The other reward system proposed is PoS (Proof of Stake). This reward system provides priority of mining to the user who possesses the largest volume of Bitcoin. PoS can be successful under a conjecture: the users who possess the large volume of Bitcoin are not willing the value of Bitcoin faltered. Complexity of the computational problem depreciates as a miner's volume of Bitcoin possession increases.

ATTEMPT OF CHANGING BLOCK INFORMATION

Comprehending the result of changing block information helps to understand how the blockchain maximizes the security level of Bitcoin.

As mentioned earlier, even a single character in the block change results to totally different hash code. For example, the malicious user attempts to change the information in the 10th block; 10th block's hash code changes; and the user must find nonce which matches with the altered hash. Even though the correct nonce is found, 10th block hash registered in 11th block does not match; therefore, the malicious user must find the nonce for the 11th block, too. Since number of block extends every ten minutes, finding all the nonce which fits to the new hash ahead of all the miners around world is barely possible. (If two blocks are produced at the same time, short chain will be discarded.)

1.3. RECENT LEGAL ISSUES

1.3.1. REPUBLIC OF KOREA

In the Republic of Korea, trading volume of Bitcoin has drastically increased. Meanwhile trading volume of Bitcoin overtook the trading volume of KOSDAQ (Korean Securities Dealers Automated Quotation). In August 19th, crypto-currency exchange, Bithumb announced that one-day trading volume reached approximately 2.6 trillion KRW which is larger than KOSDAQ trading volume of 2.4 trillion KRW (August 18th).

Number of issued crypto-currencies is more than 1,100 worldwide, and 108 out of 1,100 coins are tradeable in the exchange; and the total market value had exceeded 170 billion USD (approx. 190 trillion KRW).

Crypto-currencies are not considered legal tender by the government, and crypto-currency balances in account are not protected by the KDIC (Korea Deposit Insurance Corporation); further crypto-currencies are not even classified as electronic prepayment means.

According to the governmental announcement in August 1st, congressman Yong-Jin Park plans to propose the bill <Amendment of Law on Electronic Financial Transaction to Protect Crypto-currency Users> which will create a crypto-currency trader approval system to prevent the illegal methods of crypto-currency trading. Capital gain tax is not applied to crypto-currency like gold or stocks.

On September 3rd, the government proposed a real name authentication for trading crypto-currency. Going through a bank, a prospective trader in crypto-currencies must provide their real name to create an account. In fact, the trader must have a virtual account connected to the user's bank account. This amendment will be effective in December, and if the crypto-currency exchange does not submit the users' information for the real name authentication, connected bank immediately stops the virtual account trading.

1.3.2. CHINA

Since 23% of crypto-currency trading volume is in China, its policies have a huge effect globally.

On August 30th, Chinese government announced that ICOs will be prohibited until the regulation to protect investor is established; Chinese government prohibited ICOs on September 4th.

On September 15, Chinese crypto-currency exchange, BTC China was closed by the government, the first such closure in China. According the BTC China representative, "This act is reflection of the ICO prohibition to prevent investment risks, but OTC is still open."

1.3.3. JAPAN

In 2017 the Japanese government has passed laws: accepting crypto-currencies as legal tender and exempting crypto-currency purchases from consumption taxes. The National Tax Services is reviewing taxes on profits from crypto-currency trading, with results expected in March of 2018.

1.3.4. RUSSIA

On September 9, 2017 the Russian Minister of Finance, Anton Siluanov stated that he is willing to restrict the supply of crypto-currencies. While he stated that there is no reason to prohibit crypto-currencies, the government regulation must be reviewed. Finalized regulations are expected near the end of 2017. It is expected that the government will model crypto-currency regulations after current bond market regulations.

1.3.5. UNITED STATES

In July 2017, U.S. Securities and Exchange Commission warned about investing in crypto-currency. On August 28th, SEC also stated not to invest in a company aiming to raise fund by selling crypto-currencies.

1.3.6. MARKET ANALYSIS

The Russian government's position mirrors that of the broader crypto currency markets where increased regulations are expected as a trade of for acceptance by authorities. While regulations are somewhat inimical to the spirit of crypto-currencies and their decentralized structure, they can bring benefits, such as greater acceptance and a stronger legal framework.

2. LINKER COIN

2.1. NETWORK OF NETWORK

In the past, the invention of the internet drastically expanded our radius of action. Term 'Internet' was invented in 1973 by the inventors of internet protocol TCP/IP (Transmission Control Protocol/Internet Protocol) fundamental concepts, Vinton Gray Cerf and Robert E. "Bob" Kahn. Vint and Bob aims the concept called 'Network of Network' and tried to develop the 'Inter Network' which connects all the computers around the world. Later, the concept of 'Inter Network' became an origin of 'Internet'.

As smartphone is distributed worldwide, the internet has become an essential in our life. Information was delivered through TV, radio, or newspaper, but now information flourishes through the internet and the smartphone. Mobile banking system is now more convenient than offline bank, and without ATM, money can be transferred through mobile banking. In fact, financial instruments can be purchased through the internet. As a result, number of offline store is rapidly decreasing.

The internet is now a part of our daily life, but the original purpose of the internet as a ' Network of Networks' has to be reconsidered especially in regards to financial transactions. On the internet, the user can cross the border of countries, but their activities are restricted by the governmental organization.

For example in South Korea, when the user signs in a certain commercial website, the real name authentication requires the resident registration number (the same with the social security number in the United States), and phone verification. Even though foreigner service for those who do not have the resident registration number exists, foreigner service itself is the proof of the separation and the restriction.

Typically in the banking system, when a person wants to use a foreign banking system, the person should already have the account of the foreign banking, or need to request the Foreign Service at domestic bank; therefore, the internet expanded the radius of act, but was not able to establish 'Network of Network'.

Using the blockchain technology, various ICO projects aim for the decentralization of finance from the government and also aim the creation of an unconstrained network of network. Current crypto-currencies, ongoing ICOs, or as yet unrealized projects will create a new ecosystem on the blockchain system. These proposals could create the world largest online casino, online job market, online game platform, healthcare platform, financial and industrial platform, etc. In short, their proposal is that they will create coins, which can be used worldwide in every existing on/offline service.

As attention toward the crypto-currency has drastically increased, the investment volume of ICO has already overtaken the investment volume of venture capital worldwide. This interests as spawned tens of thousands of different coins, but all these ICOs are hard to keep track of. The exponential increase in crypto-currencies threatens to separate this nascent network again into fractions: dividing the digital world into Bitcoin, Ethereum, Altcoin, etc, just as the physical world is divided into countries.

In the midst this crisis of crypto-currencies, Linker Coin is launching. The ultimate vision of Linker Coin is to link the various disparate networks to achieve the true 'Network of Network'. If the internet attempted to connect geographically separated countries, the Linker Coin links all the coin-centered networks into one unified ecosystem.

Linker Coin is a medium for trading crypto-currencies, which otherwise would not be exchangeable with other crypto-currencies and also with fiat-currencies. As a facilitator of inter-currency exchange, Linker Coin will act as a catalyst in the market. Linker Coin can act as a substitute coin within an ICO projects; meaning an investor in that ICO can participate via Linker Coin without being forced into a specific ICO project coin.

Linker Coin also can be traded with the coins which are not built on ERC20 , and can be exchanged with fiat-currency through the crypto-currency exchange operating under the Linker Project. Rather than promoting the low commission from the exchange like other crypto-currency exchanges, Linker Project targets the liquidity provision of crypto-currencies. As Liquidity of crypto-currencies is assured, demand of Linker Coin will increase, Linker Coin value will be set by the supply and demand law.

Linker Coin's essence differs from the other ICO projects, which propose complicated and incomprehensible future. Linker Coin develops based on the reality of crypto-currency market; and this project is to satisfy the investors' needs. Therefore, Linker Project prepared a special ICO to allow objective evaluations from the users, and to adopt the evaluation.

2.2. ERC223 PROTOCOL

Linker Coin is design on the ERC223, which is the enhanced version of the common ERC20 protocol. ERC223 revised several problems with ERC20. ERC223 includes all the features of, and is fully backwards compatible with, ERC20. Four Revisions applied to ERC223

First, ERC223 Protocol Fixed the system error of losing the Ethereum token due to an address error. Second, a receiver can block the transaction from the malicious senders such as hacker and terrorist, and obtain more control of Ethereum transactions. Third, in ERC20[1], token transaction is processed in 2-steps: this is reduced to a single step in ERC223 increasing speeds and lowering computational costs. The most important revision is that in ERC223 additional approval is not always required. This is important key feature to achieve lower computational cost in the decentralized exchange. The importance of escrow to the linker project is explored in Chapter 4.

1) ERC20: Ethereum's blockchain model which is a program added blockchain model

2.3. COMPLIANCE

Linker Coin complies with AML, KYC regulations as specified by governments. The Linker Coin is entitled to review AML, KYC, and to forcefully refund Linker Coin when refusing AML, KYC process.

3. LINKER TO VARIOUS INDUSTRIES

Linker Coin will unify the Coins issued by other ICO Projects, using Linker Coin as a transaction medium. In this chapter, ICO projects in various industries will be discussed, and the benefits of connecting them to the Linker Project explored.

3.1. LINKER TO SOCIAL NETWORK

Social networks, like Facebook, Instagram, and Twitter, allow users to share their thoughts, knowledge, and information in real time. While social networks have expanded across the globe, existing social networks are vulnerable to security breaches.

Indorse Pte. Ltd. has launched a blockchain based social network system, which improves security. Indorse's innovated social network protects users from hackers, and their voting system malicious users from the network. Their voting system is based around their IND and SCR coins.

Coins issued by the Indorse can only be purchased in Ethereum, and cannot be traded freely. Their coins are restricted to the Indorse platform, limiting their utility, and value. IND[1] and SCR[2] coins are based on ERC20 and thus are fully compatible with Linker Coins (LNC). LNC could be used as a medium of exchanging increasing liquidity in the Indorse network and connecting it to other coins.

3.2. LINKER TO HEALTHCARE

Healthcare systems are increasing being digitized to provide better access to patient data. However, this increased the threat of security breaches exposing this incredibly sensitive personal information. Just as in social networks, blockchains can improve the security of healthcare data systems. Healthcare systems developer Bowhead Health has issued AHT coin with the goal of improving security of medical data systems via the blockchain. Of particular interest is the 'Smart Contract' feature of ERC20, which validates limited access of organization or individual to only the appropriate data.

AHT coin issued by Bowhead Health can only be purchased by Ethereum, but cannot be traded freely. To improve liquidity LNC can be traded for AHT coins, all the while maintaining the highest level of security of sensitive medical data.

1) IND: Indorse Token
2) SCR: Indorse Score

3.3. LINKER TO eSPORTS

In the Republic of Korea (South Korea), eSports have developed as one of the most popular spectacles. In January 2017, the first augmented reality (AR) game "Pokemon Go" launched in South Korea. Reality Gaming Group Ltd issues RCCoin Gold and Silver, which can used in the game to make purchases. RCCoin are also based ERC20 protocol for the security and protection the player's digital assets.

RCCoin are only available on Ethereum, and can only be traded on RGG's exchanged. By linking these gaming coins to LNC the value and stability of these coins can be secured.

3.4. LINKER TO ENTERTAINMENT

The global music industry as embraced digitization and is reached the total revenue of 15.7 billion USD in 2017 Up to 50% of that revenue is expected to be from digital sales and subscriptions.

While digital music services have been a boon for music lovers, it can deprive artist of revenue, and deprive them of royalties due to copyright infringement.

Blockchain based digital music market Vibrate, based in Slovenia, uses its VIB Coin to protect the intellectual assets of the musicians and provide them with a revenue stream directly. VIB Coin can be used in various ways such as purchasing premium contents, buying event tickets etc.

The Linker project would allow music lovers to easily transfer other coins into VIB to get the latest song, or purchase tickets for the hottest concerts.

3.5. LINKER TO JOB MARKET

People are increasingly participating in the gig economy, where they take short term employment for specific tasks, maximizing both their income and their work like balance.
bitJob is ERC20 based job market platform run by smart contract. Employers and applicants are rated by each other and co-workers on the platform. Tokens are distributed for active participating in the market.

Payments are processed with the escrow function of the smart contract. Employer set the settlement amount and conditions using tokens and via a contract with the applicant. ,

bitJob envisions a large business networking platform like LinkedIn, but with added transparency, security, and integrated payments all through its implementation the

blockchain. The largest risk of this project is that the supply and demand of both employers and applicants is mismatched. As the supply and demand mismatches, coins issued by bitJob may be constrained in the bitJob. Linker Project addresses this need by linking the job market platform like bitJob to the wider market. As a result, Linker Project creates the network which links to Job market network to provide more opportunities to both employers and applicants.

3.6. LINKER TO GAMBLING

One of the most active ICO fields is the gambling. Most of governments place restrictions on gambling, but the public still widely participate in games of chance such as lotteries, casino games, horse racing, and sports betting depending on legal boundaries.

Crypto-currencies in gambling allows for liquidity, and are less constrained by the geography of government regulations; therefore, the better can participate in gambling anywhere in the world.

Unikoin, an eSports betting platform, is just one example of the blockchain applied to the gambling industry. Unikrn was established in 2014, and is based in Washington, United States. Their currency, Unikoin is constrained within the platform, but through a new ICO, Unikoin Gold, it issued a coin which is tradable on exchanges and freely withdrawable.

Linker Project could drastically simply the issuance of a parallel currency like Unikoin Gold. By linking a platform constrained coin to LNC, the gambling platform manager gets all the benefits of a freely convertible crypto-currency without having the complications of a new ICO potentially disrupting, diluting, or confusing their original market.

4. LINKER COIN ARCHITECTURE

4.1. INTRODUCTION

Current networks for crypto-currency exchange are not flexible. Each coin issued through an ICO creates its own unique network. Social networks, healthcare service networks, payment networks, e-sports networks, and gambling all exist solid and isolated around their proprietary coin. While each of these coins can function well within its limited network, they lack the flexibility, liquidity, and the breath which comes from being convertible to each other (and to other coins). It's like a country whose national currency cannot be exchanged; that nation's economy, citizens, and foreign visitors all suffer.

Linker Coin is like an exchange bureau allowing travelers and citizens alike to freely exchange currencies to suit their needs. Earnings from gambling networks can purchase game items; job seekers can provide references and referrals through their social networks, and healthcare networks can be underwritten by the latest hit single to top the charts. Linker Coin is designed as a medium of exchange connecting all these segregated virtual ecosystems into one true network of network.

4.2. NETWORK OF NETWORK

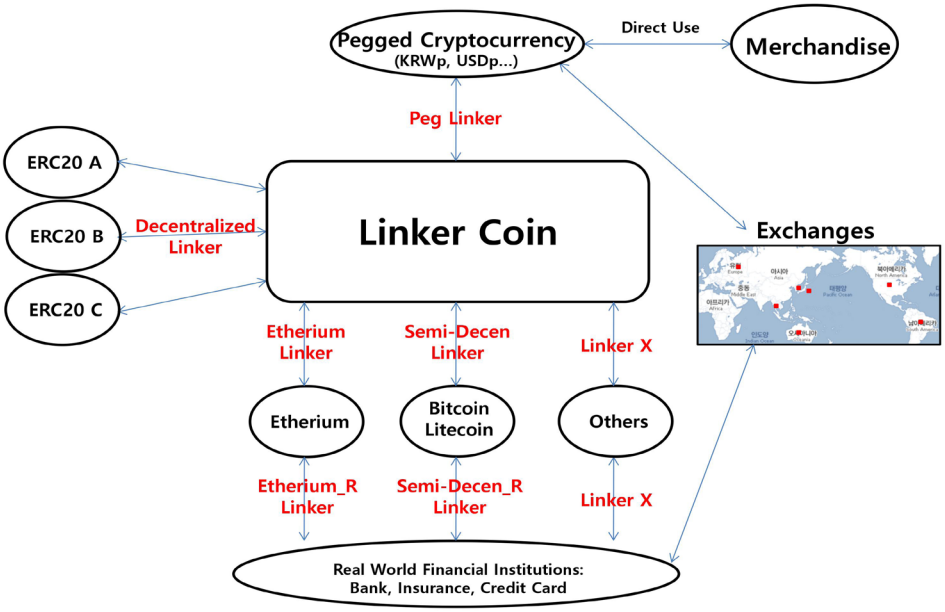

FIGURE 1) LINKER PROJECT OVERVIEW

Figure 1 shows a schematic of how Linker Coin will integrate these various virtual networks and the real world. Networks are linked to the Decentralized Exchange (also known as 'Linker'). Each 'Linker' is then further connected to the real world through a Centralized Exchange. This means coins from disparate blockchain networks convertible to each other through Linker Coin and are then further convertible into fiat-currencies the Centralized Exchange.

Linker Coins are also convertible to Coins pegged to fiat-currency such as KRWp, USDp, EURp, and JPYp. The Linker Coin Foundation endeavors to keep the value of Pegged Coin matched to their respective fiat currency. Value of Pegged Coin will be promising if Pegged Coin are owned and managed by the Linker Coin Foundation or partner corporate to maintain the asking price; KRWp will maintain a similar value with KRW. Pegged Coins can be also be used in the E-commerce platform directly as their value is fixed to fiat-currencies.

4.3. LINKER TO CRYPTO-CURRENCY NETWORK

Each individual Linker will connect to a specific network and collectively they make up the Decentralized Exchange (DEX).

We will create 6 individual Linker varieties depending on the network to which they connect. We will develop these sequentially as funds become available during the ICO: Ethereum Linker to Ethereum, ERC Linker to ERC20, Peg Linker to Pegged Coins, Semi-Decen Linker to Bitcoin, Semi-Decen_R Linkerfrom Bitcoin to real world financial institutions, Ethereum_R Linker from Ethereum to real world institutions, and finally Linker X to other coin projects and to real world

4.3.1. ETHEREUM LINKER

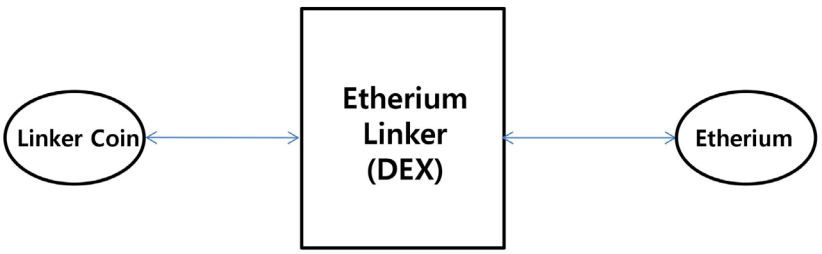

FIGURE 2) ETHEREUM LINKER

Ethereum Linker is an exchange system between Linker Coin and Ethereum. Linker Coin is designed on a smart contract validating the exchange with Ethereum. Furthermore, this system is a decentralized exchange built on ERC223 unlike current crypto-currency exchanges which are centralized exchange. A Decentralized Exchange rectifies many of the failings of existing centralized coin exchanges such as security breach, hacking, server manipulation, and even compensation of questionable legality.

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(Data feed reference : https://github.com/ethereum/wiki/wiki/Standardized_Contract_APIs#data-feeds)

```
uint256 public sellPrice;
uint256 public buyPrice;

function setPrices(uint256 newSellPrice, uint256 newBuyPrice) onlyOwner {
sellPrice = newSellPrice;
buyPrice = newBuyPrice;
}

function buy() payable returns (uint amount){
amount = msg.value / buyPrice;                  // calculates the amount
require(balanceOf[this] >= amount);             // checks if it has enough to sell
balanceOf[msg.sender] += amount;                // adds the amount to buyer's balance
balanceOf[this] -= amount;                      // subtracts amount from seller's balance
Transfer(this, msg.sender, amount);             // execute an event reflecting the change
return amount;                                  // ends function and returns
}

function sell(uint amount) returns (uint revenue){
require(balanceOf[msg.sender] >= amount);       // checks if the sender has enough to sell
balanceOf[this] += amount;                      // adds the amount to owner's balance
balanceOf[msg.sender] -= amount;                // subtracts the amount from seller's balance
revenue = amount * sellPrice;
require(msg.sender.send(revenue));              // sends ether to the seller: it's important to do
this last to prevent recursion attacks
Transfer(msg.sender, this, amount);             // executes an event reflecting on the change
return revenue;                                 // ends function and returns
}
```

4.3.2. DECENTRALIZED LINKER

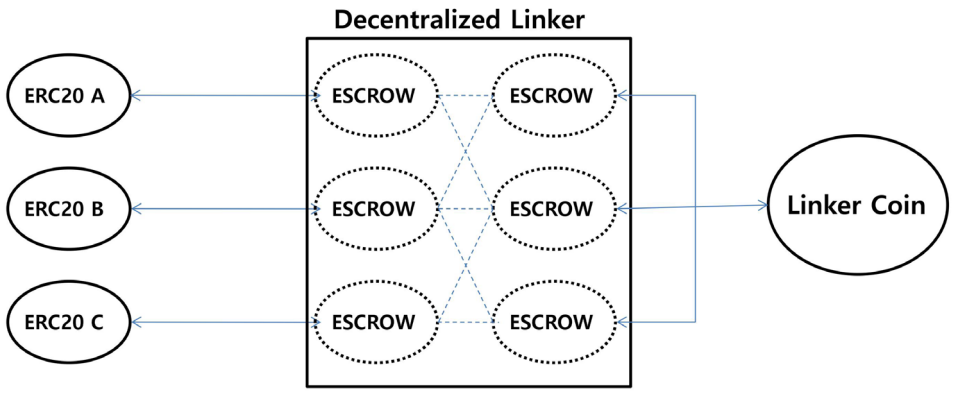

FIGURE 3) DECENTRALIZED LINKER 1

Decentralized Linker is the system which exchanges most ERC20 based tokens to Linker Coin. While many ERC20 based tokens have been issued through various ICO, most of these tokens are not listed on the broader crypto-currency exchange, which means investor's funds are fixed. The investors should wait until their tokens to be listed, though this is rarely the case. Even very successful tokens may not be listed, due to national regulations, technical difficulties, or management concerns. With the Decentralized Linker these coins can be converted into Linker Coin, and then further exchanged into other coin or fiat-currency.

The Linker system, which is built on ERC223, includes an 'Escrow' feature; it is this feature that enables ERC Linker to exchange tokens issued with the ERC20 protocol into Linker Coin.
For example, an investor participates in an ICO project issuing an ERC20 token, we'll call Token A. Now, the investor can neither exit the project nor withdraw Token A. That investor would have to wait until the platform decides to list Token A on an exchange. This is entirely left to the whims of the project manager subject to restrictions of the national government where the project is based. With the implementation of Linker Coin that investor can choose an amount of Token A, and send a request via the Linker system using Escrow feature. If another investor wants to purchase Token A, and their price and conditions match the Decentralized Linker will execute the exchange converting Linker Coin to Token A, within its matching engine

Unlike Centralized Exchange system which required lodging all the coins in the exchange to participate in a trade, the Escrow feature only requires lodging the amount that the user wants to exchange, and after a certain time (e.g. 50 blocks = 10minutes with Ethereum), the deposit is refunded back to the users if a match is not found; minimizing risk. In fact, every step is automatically processed by the smart contract; therefore, the additional risks in existing Centralized Exchanges such as credibility, bankruptcy, and external interference are minimized.

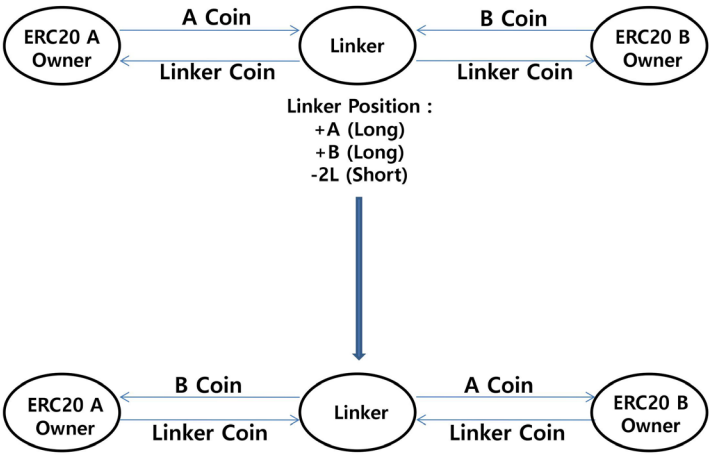

FIGURE 4) DECENTRALIZED LINKER 2

The matching engine running the linker system removes the time-delay problem of PoW[1] and PoS[2] methods. Since the exchange does not interface with the buyer and seller during a matching transaction the anonymity of the users can be guaranteed, and the trading is not restricted by any certain country's crypto-currency regulation

The system charges a processing fee to 'Taker' and rewards a Linker Coin to the 'Seller' or

1) PoW: Proof of Work
2) PoS: Proof of Stake

'Maker'. In this way the Linker system motivates users to participate in Linker Coin Network creating liquidity. Linker Coin Network participants are categorized into three types: Speculator, Arbitrager, and Liquidity Provider.

Speculator is the investor holding coins from the other networks; Speculators are exchanging coins to Linker Coin to exit those networks. Arbitragers are those who are trading between coins on the Linker system, endeavoring to make a profit. Arbitrager compares the conversion price indices and their appetite for risk. The Liquidity Provider takes the role of Maker during the process of exchanging other coins into Linker Coin to take advantage of the reward system.

These three types of users participate in the Linker system to achieve their purpose; through the course of a day a single user can act as all three according to their needs. The multiple roles a user can inhabit further strength the Linker Coin Network. A certain percentage of transaction fees will be reverted to the Linker Coin Foundation. Currently, more than one thousand coins are issued in the blockchain network. Linker Coin will satisfy the needs of the investors who are willing to 'Exit' the network even before the supply and demand meet the equilibrium. During this process, demand of Linker Coin, a medium of trading, will rise.

4.3.3. SEMI-DECENTRALIZED LINKER

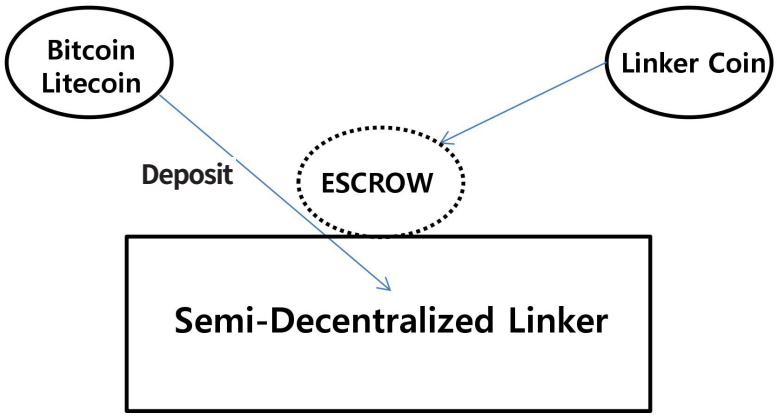

FIGURE 5) SEMI-DECENTRALIZED LINKER

Semi-Decentralized Linker connects to coins, like Bitcoin and Litecoin, which do not allow smart contracts. The Linker Matching Machine built on smart contract with an escrow feature and will still connect Bitcoin and Litecoin through a Semi-Decentralized system which is a joint exchange composed of centralized crypto-currency exchange and the escrow is built into the Linker project.

An investor who wants to exchange Bitcoin into Linker Coin lodges a Bitcoin to the centralized crypto-currency exchange. On the other side, an investor who wants to exchange Linker Coin into Bitcoin, lodges those Linker Coins Escrow. The Matching Engine finds the Linker Coin in the Escrow and if the price and conditions match the engine will deliver the Escrowed Linker Coins to the initial Bitcoin owner, and return the lodge Bitcoin the original Linker Coin owner. For the safely lodged Bitcoins need to be withdrawn from the Centralized Exchange upon completion of the transaction.

Compared to the Decentralized Linker explained in 4.3.2, the investor is still exposed to the Exchange Risk since one side of the transaction is still in the Centralized System. Also, the investors are exposed to operation risk due to human error as the semi Semi-Decentralized Linker is not fully executed by the smart contract. The system may be restricted by the regulations of the government overseeing the intermediary Centralized Exchange; similarly the trading participants' transaction history could be exposed.

The Semi-Decentralized Linker system is the most efficient method to validate the exchange of Linker coin and coins, which do not embed smart contract. The Linker Coin Foundation will continue to work on developing a fully decentralized system which can be embraced by all coins.

4.3.4. PEG LINKER

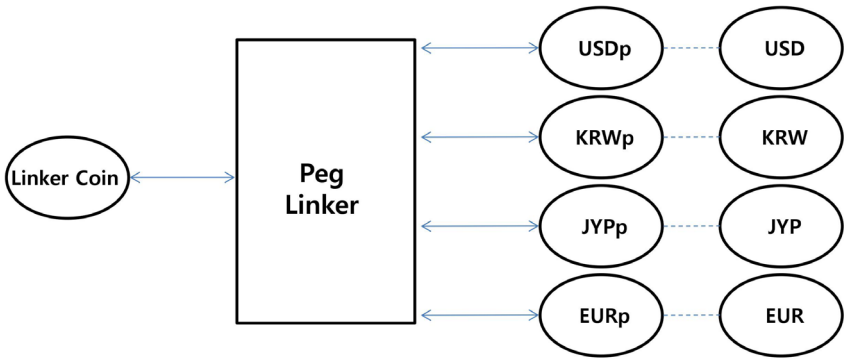

FIGURE 6) PEG LINKER

Pegged Crypto-currency are fixed to the value of their respective fiat-currency. For example, crypto-currency development company, Tether designed USD Tether (USDT) which is synchronized with the value of USD. Tether actively manages their exchange such that one USDT always equals USD.

Pegged crypto-currencies are especially useful to e-commerce retailers, as they do not want to be exposed to the high fluctuations of currently listed crypto-currencies. For example the Bitcoins used to buy a sweater online may increase or decrease far beyond the value of the sweater by the time the reltailer can convert them. USDT crypto-currency pegged to USD can be used just like a fiat currency in a store.

Linker Coin is exchageable to Pegged Crypto-currency through Linker. Linker Coin Foundation takes the role of maintating the value of the Pegged Crypto-currency and provides the necessary liquidity.

Since a Pegged Crypto-currency's value is stable, it could be practically used to buy or sell products. However, the existing system is not usable because of the low transaction speed due to indefinite finality of PoW and PoS.

The existing system are built on PoW and PoS consensus systems; requiring enough time to prove the transaction. On average this process takes six blocks, which means that a Bitcoin purchase takes an hour to prove and an Ethereum purchase takes a full minute. Furthermore, there is uncertainty if the block were the transaction is recorded will be included larger, complete, blockchain. To alleviate this problem, PBFT (Practical Byzantine Fault Tolerance) consensus algorithm solves the indefinite finality problem, and validates the transaction almost instantly.

4.3.5. LINKER X

If a yet ot be issued coin is created on a new network, that network can be linked to the Linker Network in two ways; if the network embeds the smart contract, the network links to the Linker Coin through the Decentralized Linker system, otherwise the network links through the Semi-Decentralized Linker system.

4.4. LINKER TO REAL NETWORK

4.4.1. SEMI-DECEN_R LINKER

In each country, financial institution and the governmental organizations have started to accpet Bitcoin, but Bitcoin is built on PoW, which delays the confirmation time. Furthermore, if the blockchain separates due to repeated proofs of work, the transaction may be reversed; Therefore, while the time for creating a block is ten minutes, but the whole process to validate a transaction takes an hour. This is too slow for financial institutions and government organization and a new substitute technology is required.

Lightning Network is an example of one of these new substitute technologies. It processes the transaction data in an external network and calls the final results of the transaction when ready; this drastically enhances transaction speeds. It also uses HTCLs(Hashed Time-Lock Contracts) to prevent the abuse of the system.

Linker Coin Foundation will provide the system embeds the Lightning Network or other enhanced networks to validate the transaction between users and financial institution or governmental organization. We propose to call the system ‘Semi-Decen_R Linker’ which means the Linker connecting the Linker Coin and the Real World (e.g. fianacial institution) through a Semi-Decentralized Linker.

4.4.2. ETHEREUM_R LINKER

As Semi-Decen_R Linker is the transaction network connecting Bitcoin to financial institutions for Linker Coin users; Ethereum_R Linker is the transaction network connecting Ethereum and financial institutions. Just as Bitcoin transaction speed is enhanced by the Lightning Network, Ethereum transaction speed is enhanced by the network such as Raven Network. The Linker Coin Foundation will provide a system applying the newest technology to connect the Linker Coin users with their financial institutions. Proposed system will be called ‘Ethereum_R Linker’.

4.5. CENTRALIZED EXCHANGES FOR LINKER COIN

Currently, Linker Coin Foundation confirmed the establishment of the crypto-currency exchange with BTC trader in the Republic of Korea, and Linker Coin Foundation manages the exchange through joint operation protocol with BTC Trader. Furthermore, Linker Coin Foundation will launch the crypto-currency exchanges in major markets around the world including Europe, Southeast Asia, Africa, South America, etc. Linker Coin Foundation provides the liquidity and also maintains the value of the Pegged Crypto-currency.

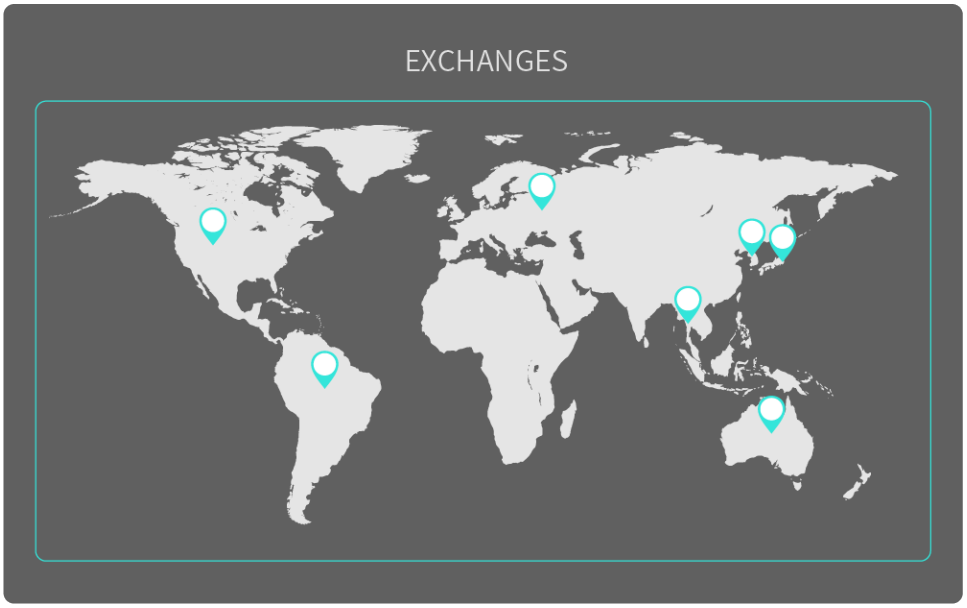

FIGURE 7) CENTRALIZED EXCHANGES FOR LINKER COIN

5. ROADMAP

2017 10/16 Open Source and Key Features of Ethereum Linker: Decentralized Exchange built on ERC223 protocol

2017 10/29 Present Detailed Information of the Crypto-currency Exchange Launching on December in the Republic of Korea

2017 11/05 Open Source and Key Features of Decentralized Linker: Decentralized Exchange between Linked Coin and ERC20 Tokens.

2017 11/19 Present Foreign Crypto-currency Exchange Establishment Plan

2017 12/01 Launch Crypto-currency Exchange CoinX in the Republic of Korea (Coinx.co.kr)
* The schedule can be delayed.

2017 12/31 List Linker Coin in CoinX: Cryptocurrency Exchange
* The schedule can be delayed.

2018 3/31 Execute Decentralized Exchange with Existing ERC20 Tokens

2018 6/30 Develop Crypto-currency Index and Exchange Rate Index

2018 9/30 List Pegged Coin in CoinX and Develop Trading Platform Connecting Linker Coin to Pegged Coin

2018 12/31 Develop the E-commerce Crypto-currency Exchange Platform Validating E-commerce Use of Pegged Coin

2019 3/1 Launch Additional Foreign Cryptocurrency Exchange and Establish the International E-commerce Network

2019 6/1 Develop Semi-Decentralized Linker: Decentralized Exchange between Bitcoin/Litecoin and Linker Coin

2019 9/1 Develop Ethereum_R Linker - High Speed Transaction Platform: Transaction between Ethereum and Financial Institution

2019 12/1 Develop Semi-Decentralized_R Linker – High Speed Transaction Platform: Transaction between Bitcoin/Litecoin and Financial Institution

6. LNC TOKEN INFORMATION

6.1. TOKEN DISTRIBUTION

Total Token supply: 50,000,000 (100%)
ICO Token Supply (Including Pre-Sales): 20,000,000 (40%)
Team: 5,000,000 (10%)
Annual maximum number of distribution per person or entity : 10,000 LNC
Founder: 2,500,000 (5%)
Annual maximum number of distribution per person or entity : 20,000 LNC
Advisor & Partner: 2,500,000 (5%)
Annual maximum number of distribution per person or entity : 10,000 LNC

6.2. SAFE DEPOSIT OF COIN

Subject: Token distributed to Founder & Advisor & Partner & Team
Date of Clearance: One year after the distribution

6.3. EXPENSE DISTRIBUTION

Tech Development: 20-25%
Marketing: 15-20%
Operation: 10-15%
Partnership/Consulting: 10-15%
Administration: 10-15%
Legal Expenses: 5-10%

6.4. ICO SCHEDULE

Funding Coin: ETH
Minimum Amount of Funding: 1 ETH
Starting Time of Pre-Sales and Crowd-Sales: 9pm in the Republic of Korea

6.4.1. 1st PRE-SALE

Token Supply: 200,000 LNC (1% of ICO Token Supply)
Date: 2017/10/21 9pm ~ 2017/10/28 9pm
Method: Dutch Auction
Starting Dutch Auction Price: 0.003 ETH
* As soon as number of order exceeds the token supplied in 1st Pre-Sale, next order transfers to 2nd Pre-Sale order.
* Among the 1st Pre-Sale participants, lottery winner will be rewarded with 1,000 LNC (Winning rate is proportional to the amount of token purchased, and the winner will be announced in 10 days after the 1st Pre-Sale)
* Unsold tokens will be sold at price with depreciation rate of 10 percent per day.
* Below the fourth decimal place will be dropped after calculating the price.

6.4.2. 2nd PRE-SALE

Token Supply: 800,000 LNC (4% of ICO Token Supply)
Date: 2017/10/29 9pm ~ 2017/11/17 9pm
Starting Price: 5% raised price from final price of previous auction
* As soon as number of order exceeds the token supplied in 2nd Pre-Sale, next order transfers to 3rd Pre-Sale order.
* Among the 2nd Pre-Sale participants, lottery winner will be rewarded with 2,000 LNC (Winning rate is proportional to the amount of token purchased, and the winner will be announced in 10 days after the 2nd Pre-Sale)
* Below the fourth decimal place will be dropped after calculating the price.

6.4.3. 3rd PRE-SALE

Token Supply: 1,000,000 LNC (5% of ICO Token Supply)
Date: 2017/11/18 9pm ~ 2017/11/24 9pm
Starting Price: 5% raised price from the 2nd Pre-Sale
* As soon as number of order exceeds the token supplied in 3nd Pre-Sale, next order transfers to Crowd-Sales order.
* Among the 3rd Pre-Sale participants, lottery winner will be rewarded with 3,000 LNC (Winning rate is proportional to the amount of token purchased, and the winner will be announced in 10 days after the 3nd Pre-Sale)
* Below the fourth decimal place will be dropped after calculating the price.

6.4.4. Crowd-Sales

Token Supply: 18,000,000 LNC (90% of ICO Token Supply)
Date: 2017/11/25 9pm ~ 2017/12/31 9pm
Tier 1 Price (Before Sales of 5,000,000 LNC): 5% raised price from the 3rd Pre-Sale
Tier 2 Price (After Sales of 5,000,000 LNC): 10% raised price from the 3rd Pre-Sale
Tier 3 Price (After Sales of 10,000,000 LNC): 15% raised price from the 3rd Pre-Sale
* As soon as number of order exceeds the token supplied in Crowd-Sale, exceeded order will be refunded.
* Below the fourth decimal place will be dropped after calculating the price.

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6 HTTPS://UNIKRN.COM/
7 HTTPS://GITHUB.COM/ETHEREUM/WIKI/WIKI/STANDARDIZED_CONTRACT_APIS#DATA-FEEDS
8 PRACTICAL BYZANTINE FAULT TOLERANCE, MIGUEL CASTRO AND BARBARA LISKOV LABORATORY FOR COMPUTER SCIENCE, MASSACHUSETTS INSTITUTE OF TECHNOLOGY, 545 TECHNOLOGY SQUARE, CAMBRIDGE, MA 02139
9 THE BITCOIN LIGHTNING NETWORK: SCALABLE OFF-CHAIN INSTANT PAYMENTS, JOSEPH POON & THADDEUS DRYJA, JANUA