# LITEX

## *The First Decentralized Instant Cryptocurrency Payment Solution*

**2018**

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# LITEX – The First Decentralized Instant Cryptocurrency Payment Solution

## 1. Summary

The proliferation of cryptocurrencies and the associated high market capitalizations in recent years have drawn worldwide attention. However, practical usage is still very limited. Long confirmation time and high transaction fees are two prominent obstacles in making cryptocurrency micropayment a reality. Volatile prices in cryptocurrency markets (a 50% loss of value could happen in a matter of few days) also make it much less desirable a payment medium comparing to fiat money. On top of that, the high level of relevant background knowledge required to fully understand cryptocurrency has limited the number of potential merchants.

Currently, the only practical way to adopt cryptocurrency in micropayment is to settle instantly with merchants using fiat money to avoid high entry barrier and price volatility. The key, though, is to ensure decentralization of the crypto-to-fiat conversion for settlement, which otherwise could be easily achieved by a centralized solution.

We firmly believe in the core value of decentralization inherent in cryptocurrency and blockchain technology and think any centralization would significantly impact the crypto-ecosystem's healthy growth in the long run. Just as there's no official institution to run Bitcoin, there should not be a centralized organization to convert cryptocurrency to fiat money in the settlement process of any cryptocurrency micropayment solution.

The rapid increase in transaction volume has crowded the mainnets of the major cryptocurrencies and resulted in long transaction time with high transaction fees. An interim idea of branching out new chains with either larger blocks or shortened block generation time was proposed, but it cannot solve the problem fundamentally: First, to ensure there are enough independent miners that can afford storage and connection speed requirements, there must be limitations on block size and generation time. Otherwise, when only large conglomerates can satisfy these requirements, the decentralized architecture is undermined; Second, with the exponential growth in transaction volume, the limit of block size and generation time will soon be reached, which leaves no room for further change.

It is likely that most of the future transactions will be micropayments, which could not bear the high transaction fees and long confirmation time. If these micropayments could happen off-chain in a secure environment, using on-chain only for confirming the final results, the solution can adapt to the growing transaction volume and offer lower transaction fees.

Lightning Network is a technical solution, through RSMC and HTLC in BOLT protocol, that ensures the security of off-chain transactions are equivalent to those on-chain ones. Its design also guarantees faster speed and lower fees, which makes Lightning Network currently the most promising solution.

Following the activation of SegWit, Bitcoin's Lightning Network has been developing rapidly. There are several payment solution proposals, but few of them incorporates fiat money settlement. For those that do, they plan to use self-built capital pools to draw cash from the secondary market and settle with merchants through corporate accounts, essentially a centralized solution in the crypto-to-fiat exchange area. Both BitPay, the largest Bitcoin payment gateway, and TenX, the ex-partner of Visa, are in this category.

Let's take a closer look at these centralized solutions: First, the exchanges are vulnerable to single point of failure threat events such as attacks from hackers and accidental crashes. Solutions dependent on the exchanges will be negatively affected, and the assets in those exchanges are under the risk of complete loss upon these accidents; Second, the settlement with merchants through corporate accounts creates a single solid link between an organization and the payment solution, which exposes the exchange to single point of failure threat events brought by the solvency and reliability of the organization. Therefore, a stable and long-lasting cryptocurrency payment solution must provide decentralized solution in fiat money settlement process.

LITEX is a completely decentralized payment ecosystem for cryptocurrency. Built on the business model of YeePay's star product (the non-bankcard payment solution) along with the BOLT protocol, the LTXN (LITEX Network) enables crypto-purchasers to pay fiat money to merchants on behalf of customers for products and services, and the customers repay cryptocurrency to the purchasers. The whole process is insured by smart contracts, no centralized organization is involved.

There are two layers in LTXN's architecture. The first layer is an upper-layer decision-making network that matches the payment requests and the fiat money requests. The second layer is a lower-layer lightning network that builds highly efficient and secure payment channels to transfer the cryptocurrency. The merchants receive fiat money payments from cryptocurrency purchasers through the acquirers. LTXN also implements an incentive strategy in the upper-layer decision-making network to reduce the potential centralization in the lower-layer lightning network.

## Advantages:

- **Decentralized ecosystem**: With fiat money provided by crypto-purchasers, there is no capital pool for fiat money and official operator is not necessary at all, as a result, LITEX is not exposed to single point of failure risks.

- **High performance, low costs**: With the growth of nodes, LITEX can handle millions of payments per second which can meet the requirement of timeliness in every-day payment scenarios. Meanwhile

the mechanism of sharing the transaction fee by all participants in one transaction make it extremely low.

- **Stabilized settlement**: With deep payment industry experience by Litex Foundation and its partners, LITEX has the ability and social capital to sign up acquirers from all over the world via profit sharing so that the risks of cooperating with bankcard companies can be avoided.

- **Merchant accessibility**: With fiat money settlement, LITEX merchants do not need to make any changes in their current payment gateway. The process of using LITEX to collect money is exactly the same. There's no risk in bearing the volatility of cryptocurrency price.

- **Fund security**: With payment channels built on smart contract of pre-defined strict rules, balances on LITEX are stored in the payment channel. No capital loss would occur even if it is attacked.

Even though fiat money is still the dominant form of payment in today's economy, the age of cryptocurrency is on the horizon. With platforms such as Ethereum, people other than pure currency speculators have started to recognize the practical value of cryptocurrency and are willing to use cryptocurrencies like LITEX Tokens directly to purchase merchandises or services. In addition, the LITEX system has the potential to connect the vast population in the developing world (that are not able to participate in banking services or receive charity) to local merchants and international non-profit organizations.

LITEX provides a foundational payment structure for the future digital world.

# 2. Background

## 2.1. Current State of Cryptocurrency

It was merely 9 years ago, when Satoshi first came up with the concept of Bitcoin, yet according to multiple cryptocurrency tracking sites, the total number of cryptocurrencies listed on exchanges have exceeded 1600 as of April 2018. These cryptocurrencies include "currency" cryptocurrencies that compete with Bitcoins (e.g. Litecoin), "utility" cryptocurrencies that create an infrastructure to be leveraged to build on top of (e.g. Ethereum or Filecoin) , and various "Application/Platform" cryptocurrencies also called tokens that are intended to provide functionality to consumers (e.g. tokens generated by DApp on Ethereum). The proliferation of cryptocurrency reflects the high recognition and expectation of the blockchain technology from the tech industry and beyond.

However, practical application of cryptocurrency is still quite limited. With the exponential growth of market cap and number of cryptocurrencies, high price volatility becomes a norm. Circulation of cryptocurrencies is mainly from exchange transactions for trading purposes. Comparing to fiat money, cryptocurrency can only be treated as a type of asset that holds value, not in real life payment circulation. The overheated speculative crypto capital market does bring visibility to the blockchain technology, but at the end of the day, the true benefit of the technology and the maximum value of cryptocurrency can only be realized when the consumers s use cryptocurrency in daily payment scenarios. Merchants accept cryptocurrency for goods and services, and the whole society urns into cryptocurrency for myriad of functions other than speculative trading.

Though external factors such as lack of general understanding from the society and impediment from traditional interest groups contribute to limited applications of cryptocurrencies, internal factors are more to blame at this stage. The blockchain technology needs to be further refined, and the development community needs to reach consensus on major solution proposals. For example, Bitcoin, the starting point and cornerstone of global cryptocurrencies, due to its insufficient design capacity, slow processing speed and increasingly impairment of anonymity, still cannot be used as a circulation currency. As of now, 9 years after its inception, Bitcoin still has no not entered into our daily life.

## 2.2. Challenges in Micropayment – The Bitcoin Example

A qualified currency in circulation shall have the capability for micropayment and instant payment. By design, cryptocurrency has inherent advantages over fiat money. However, after 9 years, the mainstream cryptocurrencies are gradually losing their ability to process micropayment promptly. Bitcoin, for example, by implementation and evolution of an architecture design that sacrifices efficiency to guarantee consistency

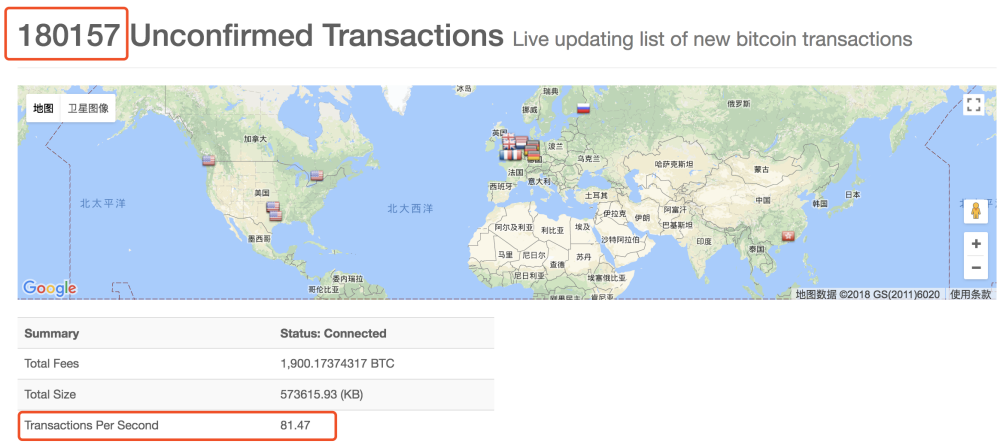
and stability of its distributed ledger system, becomes a type of value asset and a channel for transferring large value, just like gold in the past.

Originally, a distributed ledger system was designed to make sure the non-repudiation of the transaction and increase the attacking cost of evil nodes, the ledger system stores data in the chain structure after packing data, and it guarantees that all nodes in the net reach a consensus spontaneously at all time via a POW (Proof of Work) system. An asymmetric cryptographic algorithm is adopted for each data package called 'Block' to make sure transactions recorded cannot be modified. This is known as the blockchain technology today.

Blockchain technology has become an advanced technology researched and developed by commercial giants and various sovereign governments. This technology contents immense potential value. But Bitcoin, intended by design to be used as a currency, is greatly limited by its own blockchain technology features. Firstly, to guarantee the safety & stability and storage efficiency of the system, the upper limit of one block size is only 1MB. Secondly, to balance the earnings among miners, the system is equipped with a dynamic difficulty adjusting mechanism to keep a speed of verifying block at a 10-minute interval.

With the average transaction size being 226B, the constant processing speed of the BTC transactions is about 7 transactions per second. The resulting fact is that the actual transaction size often reaches to 500B and the processing capacity of BTC system reduces to 3 transactions per second. Furthermore, congestion of BTC mainnet is increasingly severe along with the increase in the number of BTC transactions. The following figure is a real-time data cited from blockchain.info on January 16th, 2018.

180157 Unconfirmed Transactions




It is observed that the average number of transactions generated by the mainnet per second reaches 81.47, nearly 11 times of processing speed. The total unconfirmed transactions reach 0.18 million. The system still needs 6 more hours to deal with those transactions even if all new transactions stop coming in immediately. All of the evidence shows that the BTC main net is indeed very crowded.

Congestion of Bitcoin mainnet delays the confirmation of micropayment even more. As the transaction fee offered by micropayment is not competitive comparing to payment involving large amount, miners will first verify the transaction with high transaction fee in order to gain higher profit. As a result, the priority of micropayment transactions is always lower. Currently, some micropayments may be ignored in the system for 24 hours, which means, if you want to buy a cup of latte in Starbucks with your Bitcoin directly, you may have to wait until the next day to get your coffee.

Besides, BTC system set limit for micropayment. In 2013, BTC's core team modified the system with 'Dedusting Patch' to forbid BTC transaction under certain amount in order to relieve mainnet's congestion. At present, the "dust threshold" is 5.46μBTC, which is 14 cents in USD. Transactions lower than the threshold will be ignored (won't be relayed, won't be mined). Transactions lower than 14 cents are actually not uncommon in some parts of the world. These transactions, however, are unsupported as 'uneconomic dust' in BTC system.

Even for the ones that are above the "dust threshold", high transaction fees of Bitcoin hindered micropayment as well. By rising to 1000μ/byte in December 2017, fee for one transaction reached up to 16 dollars (assuming transaction volume is 226 bytes and current price of 1 Bitcoin≈8000 USD.) Obviously, this is not what micro consumption could afford.

In conclusion, Bitcoin network cannot meet the instant and low transaction fee requirements for micropayments. Therefore, Bitcoin cannot expand its application to daily consumption, which severely restricts its potential as a currency.

## 2.3. The Dawn of Bitcoin - Lightning Network

Since the Bitcoin advocator Gavin Andresen voiced out the urgency of scaling up the mainnet in 2015, the Bitcoin core team and the entire community have been debating on where the future of Bitcoin is. One proposal is to directly expand the block size (2MB, 8MB or even no upper limit). This will be at the cost of sacrificing the stability of system, as the Bitcoin network will be inevitably weakened by a hard fork. Another proposal insisted that Block size should remain unchanged, meanwhile the capacity and malleability problems should be solved with off-chain methods in the long run through a soft fork. After a fierce debating process, the SegWit2x hard fork program, originally scheduled in November 2017 (block height 494,784), came to an end. While SegWit, featuring soft fork, successfully activated 3 months ago, was determined as a smooth and sustainable solution for Bitcoin eventually.

The principle of SegWit is to move the storage area of the witness information (about 40% of the transaction capacity, used to verify the transaction in the block). When verifying the block size, the nodes do not have to calculate this part of the data in a block. The effective block size subsequently scales up to about 2MB while the logical block scale is still under 1MB. Moreover, SegWit perfectly solved the

Transaction Malleability problem, where a transaction ID (TxID) is changeable by a third party before final confirmation. Although Transaction Malleability will not cause systemic consequence, its resolution paved the way for the most anticipated upgrade of Bitcoin – the Lightning Network.

The Lightning Network is a system of smart contracts (RSMC and HTLC) built on top of the base Bitcoin blockchain that is intended to allow for fast, cheap payments directly between two parties. instantaneously send/receive payments and reduce transaction fees by keeping them off the main network. These two contracts ensure off-chain transactions using bitcoin is as safe as the on-chain transactions.

The Lightning Network has the following advantages in solving the bitcoin challenges:

- **Funds security**: Users can close the trading channel at any time and apply for withdrawals. The process is protected by smart contracts.

- **Fast**: Both parties only need to submit one transaction request to main network when they open or close the channel. When the channel is open, all transactions are conducted off the mainnet. Each transaction can be completed in milliseconds regardless of the amount, the system processing speed can reach to several millions per second.

- **Low transaction fee**: While the mainnet relies on professional miners to record transactions via the time/resource consuming mining process, every node in the Lightning Network can function as a hub without the mining process, fully automated and guaranteed by smart contracts. This means that transactions can pass quickly in lightning network with a very tiny amount of transaction fee.

- **Privacy protection**: Since the transaction information in the channel is not recorded on the mainnet, each node on the main net can only obtain the data of its upstream and downstream nodes. The node cannot have the access to the details of the transactions conducted in the Lightning Network (such as payee, payer, total amount of transactions), which protects the privacy of both parties.

The Lightning Network still at the early stage of development, far away from deployment. Given the context of a successful micropayment system, the Lighting Network still needs to solve the following issues:

- **Cross-chain channe**l: Needs mainnets of the other major cryptocurrencies to join the effort and be compatible. The more compatible mainnets there are, the more influential the Lightning Network will be.

- **Smart routing**: The upper limit of the payment channel is determined by the smallest link in the channel. Each transaction needs to find a channel with a higher limit than the transaction amount.

- **Complete anonymity**: Needs additional encryption protocol to achieve complete anonymity.

- **Light node**: Each node on the Lightning Network must run a full bitcoin node, which will undoubtedly limit the applicability of lightning network. Hence, a light node which can run on the mobile device is required to meet day to day use requirement.

- **Centralization tendency**: Since the channel capacity varies in sizes, and It costs a certain amount of service fee to open and close the lightning network channels, there exists the risk of node centralization. Some mechanisms such as feedback regulation can be added by customizing the protocol to maintain a healthy and decentralized network topology by using adaptive algorithms. *(On this note, LITEX uses a two-layer network architecture that enables self-adjustment for complex routing and network health, minimizing the risk of centralization, which we will discuss in detail in a later section)*

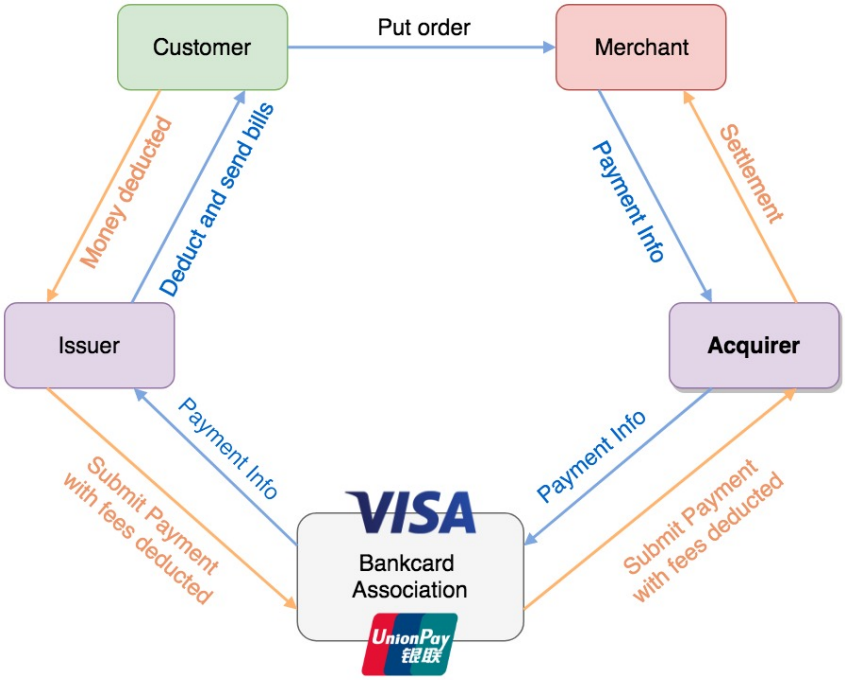
The Lightning Network is currently the most promising evolution of Bitcoin and usefully drew some investment in its R&D effort. Blockstream recently announced that the Lightning Network RC1 was successfully tested on the mainnet. We can expect more resources joining in this effort to improve the cryptocurrency eco-system.

## 3. A Deep Dive

Based on the current challenges, merchants will be unwilling to accept cryptocurrency directly as payment for quite some time. Not only do they need a deep understanding of the technology which is beyond their ability and willingness, the price volatility of cryptocurrencies also make the cryptocurrencies hard to be incorporated into the cost-benefit analysis in day-to-day business transactions. Therefore, the key issue in cryptocurrency payment solution is how to convert cryptocurrency into fiat money in real time and to settle with merchants efficiently with low risk.

The first necessary step is the cryptocurrency fiat money exchange process. Currently, cryptocurrency is converted to fiat money in an Exchange, a completely centralized institution. The risk of losing the fund along with the low effectiveness of transaction processing restricts the possibility of directly linking the Exchange's API as part of the payment solution. Some Exchange based solutions introduced a self-financing capital pool, but this approach also brought new problems, such as pool capacity and price volatility.

The secondly and more important step is the settlement process. Fiat money settlement requires coordination among many payment parties, while the merchants bear the full cost (the international average fee is 2% to 3% of the transaction amount). The figure below illustrates the collaboration flows of the participating parties :




In the payment industry, "Acquirer " represents an industrial ecosystem composed of an acquiring bank, a payment processor and a service provider. The acquiring bank refers to the bank where the merchant has an account to receive money. The payment processor refers to a company with a third-party payment license, such as YeePay, WeChat payment, Alipay, etc. They work directly with the banks process

transactions and execute other agreements as well as perform risk control. The service provider refers to the service company that assists the acquiring banks to equip the merchants with software and hardware systems, such as POS, which mainly involves interacting directly with consumers, merchants and maintaining merchant relationships.

As illustrated in the figure above, the easiest way to join this process is to cooperate with bankcard organizations directly to tap into their vast network of cooperating global issuing banks and acquiring banks. However, the cryptocurrency borderless payment solution is in direct competition with bankcard organization's cross-border settlement business which is their main income source. That means the bankcard organizations are unlikely to be supportive of cryptocurrency.

Recently, Visa formally announced the  any cryptocurrency co-branded cards, and publicly criticized Bitcoin, stating that they would neither recognize Bitcoin as a currency nor provide Bitcoin payment and exchange services. MasterCard followed suit. Since most of the existing cryptocurrency payment solutions relied on the services rendered by bankcard organizations, they now must find another way. The solutions purely relying on bankcard organizations to complete crypto-fiat settlement is not stable, sustainable or long term viable.

LITEX team, with deep background in the payment industry, is committed to independently cooperate with local payment processors all over the world, LITEX is also looking forward to competing with bankcard organizations, and dethrone them one day with the power of technology. LITEX will make the convenient, speedy, low cost and secure cryptocurrency micropayment solution a new norm on the world economic stage.

# 4. Evolution of Solutions

To make cryptocurrency micropayment a reality, a qualified solution shall be able to solve these basic problems:

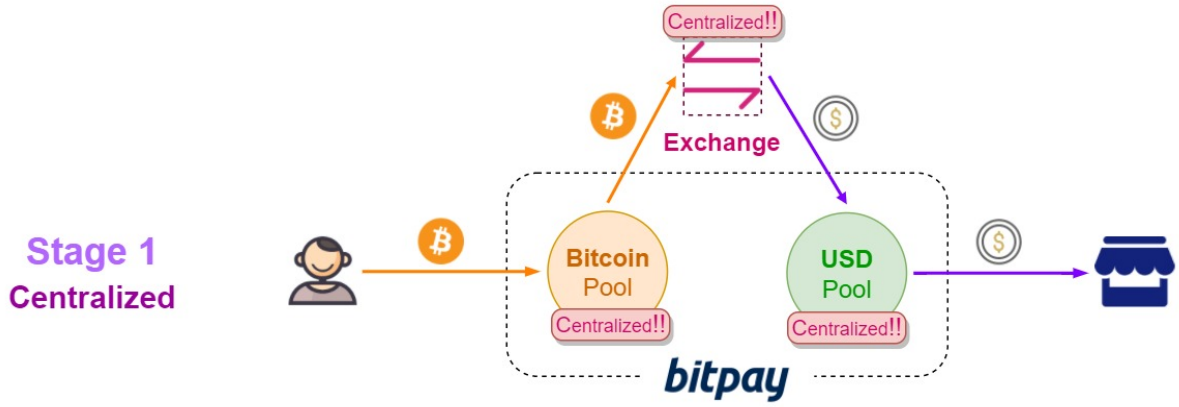
- Long confirmation time
- High transaction fees
- Low adoption from merchants

The best way to solve the first two problems is to avoid transactions in the main chain, which, inevitably, introduces the security issue. The last problem is solved if merchants can receive fiat currency directly.

However, not all solutions are the same, to what extent the solution upholds decentralization, the core value of cryptocurrency, determines its long term viability.

According to this standard, we define the current solutions into three categories: centralized, semi-centralized and decentralized. We will discuss each of them in detail, we will also discuss the ultimate solution when cryptocurrency is in day-to-day circulation without the help of fiat money.

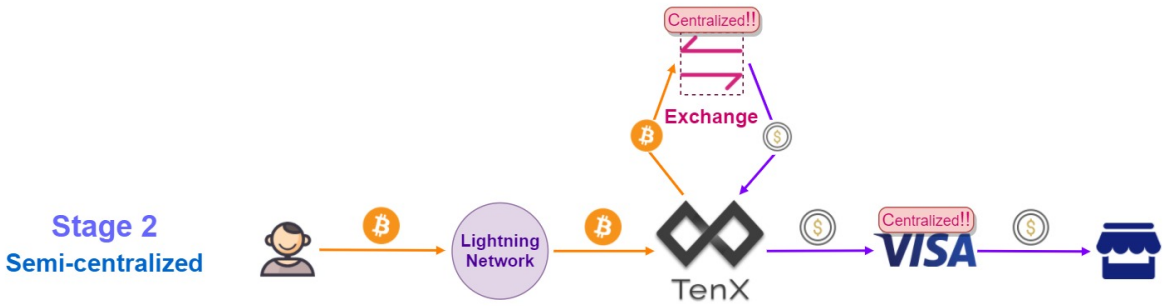
## 4.1. Stage 1: Centralization Solution – BitPay




Known as the PayPal in the crypto world, BitPay is currently world's largest cryptocurrency (mainly Bitcoin) payment solution. It encourages merchants to accept Bitcoin payment by providing a way for merchants to settle in fiat money. Since its inception in 2014, BitPay has already signed up tens of thousands of merchants worldwide.

The BitPay service model – "merchants transfer their Bitcoins to BitPay, BitPay then converts the Bitcoins received to fiat money", is out of date. The increasing high transaction fees have crowded out Bitcoin users, which forces BitPay raising the merchants' minimum withdrawal threshold to $100. In order to reduce service fees, users tend to transfer a large amount of Bitcoins to BitPay wallet, while merchants could only withdraw money over the threshold. Besides, BitPay's fully centralized model cannot protect the security of the funds. If BitPay is hacked, users and merchants will lose their assets.

## 4.2. Stage 2: Semi - Centralization Solution – TenX

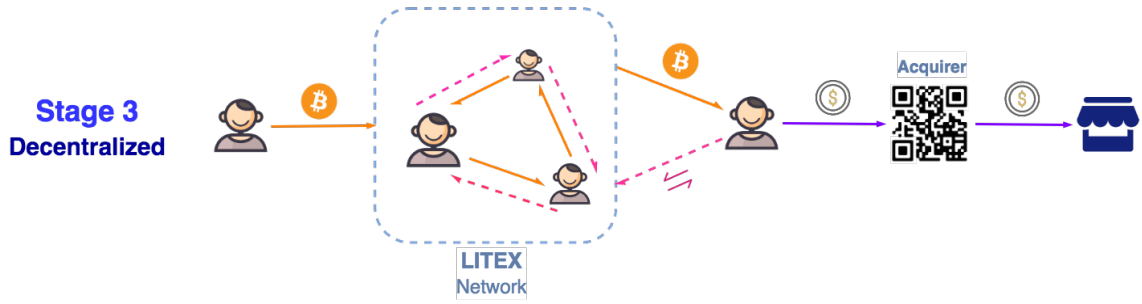



After the successful deployment of SegWit, many solutions are being built based on the Lightning Network, its prospect is growing brighter. TenX, an outstanding team, has raised 100,000 ETH within 36 hours of ICO, which reflected the industry's great expectations in the Lightning Network.

By leveraging the Lightning Network to transfer cryptocurrencies, TenX avoids the single point of failure risk caused by storing assets centrally in their official account - even when TenX is attacked, users can still withdraw their money back to their own wallet on the main chain guaranteed by the use of RSMC smart contract without worrying about losing them. But that is only half the equation in the full payment process, the cryptocurrency still needs to convert to fiat money for settlement. For this, TenX chooses to cooperate with Visa to issue a co-branded credit card. Since Visa has officially exited the crypto-fiat exchange business, the exchanges are executed by the issuer or its administrator through an encrypted program, which means Visa is just a settlement channel. Moreover, its so-called promotion of cryptocurrency consumption is very similar to a reward points system, it does not involve any crypto-fiat exchanges, so TenX can only finalize the transactions with the help of centralized exchange centers.

Besides, settling with merchants through bankcard organizations like Visa means entrusting half of its core business to its partner. As a cryptocurrency payment solution, TenX will grow into a competitor of Visa, which will lead to an unstable relationship. On January 6th 2018, Visa announced the ending of its cooperation with Wave Crest, a debit card supplier. Wave Crest has issued cryptocurrency co-branded cards with TenX, CryptoPay, Bitwala, Wirex, which leads to debit cards jointly issued by TenX and Visa cannot be used anymore.

## 4.3. Stage 3: Decentralization Solution – LITEX

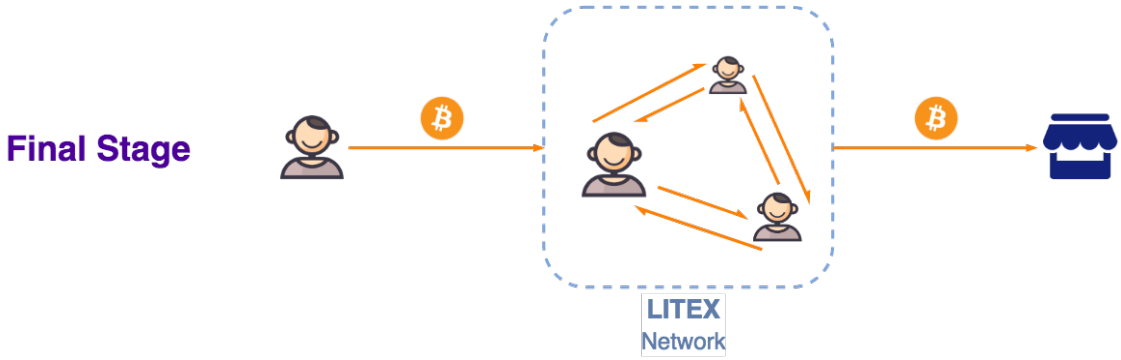



Both BitPay and TenX are highly dependent on either centralized bankcard organizations like Visa or centralized processes to exchange cryptocurrency to fiat money, which have brought potential risks to their business model. This problem can only be solved by a fully decentralized payment model, and LITEX is exactly such a solution.

The LITEX framework does not reply on any centralized partners or processes. Both the cryptocurrency transfer and the fiat money conversion and settlement are done independently and coordinated by LTXN independent user nodes, carried out by LITEX Network (LTXN) nodes via a complex matching model and a routing algorithm. During this process, customers complete payment with cryptocurrency immediately even if the amount is small; merchants receive the priced fiat money for the service/goods rendered, without being restricted by minimum withdrawal threshold; coin purchasers also get cryptocurrencies they need at low cost, which can be used for consumption or any other purpose.

On top of solving the long confirmation time and high cost problems in cryptocurrency payment, LITEX also guarantees security of the consumers' and merchants' funds. During the aforementioned transaction process , if any problem happen to a node, the transaction can be switched to another path to continue seamlessly; if most of the nodes are paralyzed and failed the transaction, the funds will be withdrawn automatically back to the account in the main chain or refunded to the fiat money account in accordance with RSMC protocol.

## 4.4. Final Stage: Cryptocurrency Circulation




Consumers pay with cryptocurrency, merchants settle with cryptocurrency, the demand of exchange between fiat money and cryptocurrency is greatly reduced or even vanished in the future, all of which is the new cryptocurrency payment ecosystem in our vision. LITEX will play a very important role on this journey towards this new ecosystem, and our value is beyond the current transition stage.

In a completely cryptocurrency trading scenario, the large-scale and fully-connected LITEX has gain advantages in this field and LITEX will still be the most efficient and economic payment channel to use with minimal to no adaptation. The first-mover advantage help to maintain users, making LITEX still consumers' first and best payment choice.

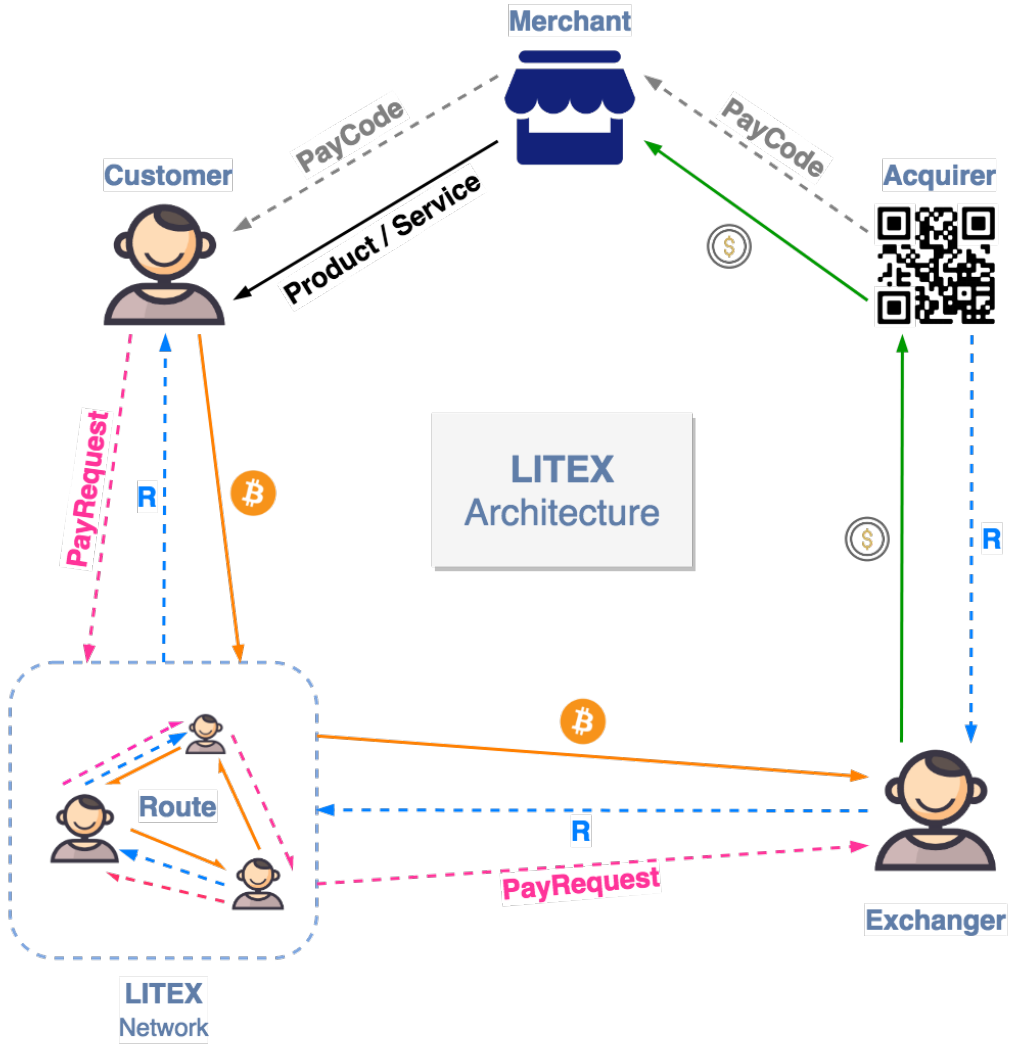
# 5. Decentralized Payment Solution - LITEX

## 5.1. Definition

- **LTXN (LITEX Network)**: The foundational network of LITEX ecosystem. Modified and improved based on BOLT protocol, LTXN can auto match payments and coin purchases via intelligent routing. Through a set of smart contracts, LTXN can achieve compound game theory with good throughput rate and high response speed, while reduce the tendency of nodes centralization. LTXN's network topology is more balanced and efficient.
- **Customer**: Users that pay with cryptocurrency.
- **Exchanger**: Users that exchange fiat money to cryptocurrency.
- **Nodes**: Professional user that provides connection service to other uses to gain profits
- **Acquirer**: An institution responsible of settlements between charging exchangers and paying merchants

## 5.2. The Design

### 5.2.1. LITEX Architecture




The diagram above illustrates the overall architecture of LITEX. The solid lines represent the flow of the tangible elements of transaction, like currency and products; the dotted lines represent the flow of transactional data and system information in LITEX. R is called preimage which is equivalent as a secret code. Users with this code can ask for cryptocurrency from their upstream party in the payment flow. The mechanism of HTLC smart contract can guarantee the automatic transactions in the whole flow.

The operation of LITEX consists mainly of two processes. The main process is the process that a consumer purchases goods/services using cryptocurrency, it flows counterclockwise in the diagram mentioned above. The sub-process is the process of an exchanger (coin purchaser) changes fiat money into cryptocurrency, it follows clockwise in the diagram above. Coordinated by LTXN, these two processes work collaboratively to meet the demand in different case scenarios.

In the main process, an acquirer set a QR code or NFC equipment like Apple Pay at the merchant's in advance, a consumer will send a pay request through an App Wallet that is compatible with LITEX. The request will be broadcasted to LTXN, and gets a pay route through the matching engine. The pay route will deliver the consumer's pay request to the best matched exchanger (into the sub-process), the exchanger will pay fiat money to the merchant. The acquirer will send a code R to the exchanger once it confirms that fiat money is received. The exchanger will get corresponding amount of cryptocurrency as soon as they send the R code to LXTN. In the end, R is sent back to the consumer through LTXN. Consumers then verify code R and then send the cryptocurrency to the matching downstream node in LXTN. The entire transaction process is then finished.

The system is designed with the following priorities:

**1. Fund security**

Ensuring the security of fund is the prerequisite of any off-chain transactions. An off-chain transaction solution is viable only if it can eliminate the single point of failure risk brought by centralization. Based on lightning network technology, LTXN ensures fund security through two types of smart contract: RSMC and HTLC. When LITEX's nodes are attacked, LTXN can automatically submit users' funds to the main chain for withdraw based on smart contracts after a certain period, the funds will return to users' digital wallets safe and sound.

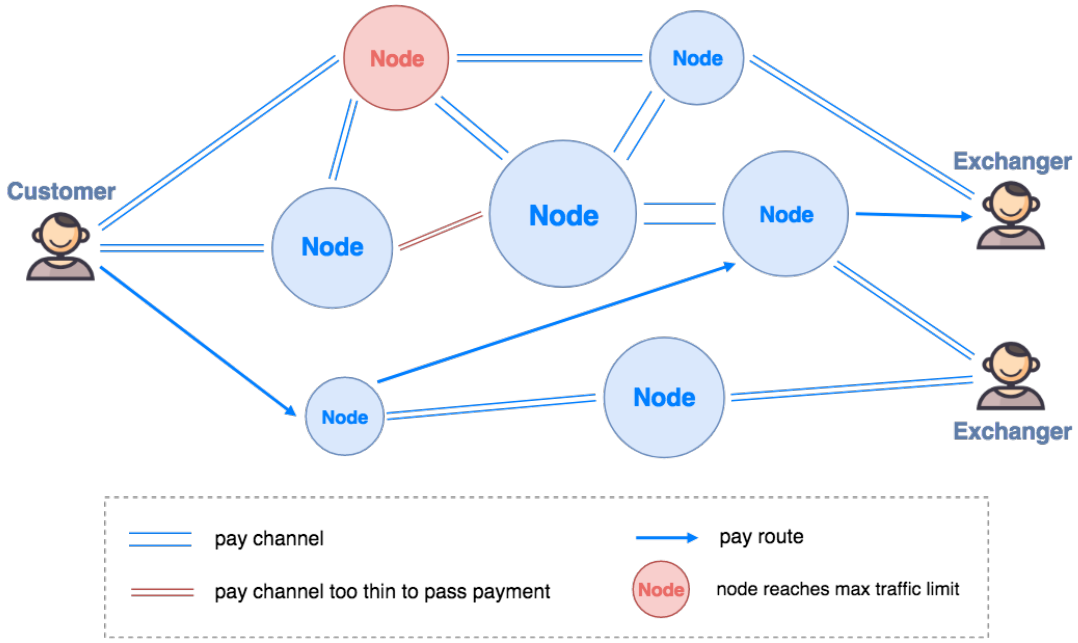
**2. Payment and settlement experience**

In micropayment case scenarios, consumers need the services/goods right away and the merchants need to get the settlements quickly and smoothly. Due to cryptocurrency's extremely high price volatility, if the product is priced at cryptocurrency, both consumers and merchants will suffer from high fluctuation of price. Users could input prices in fiat money on LITEX App, and determine the corresponding cryptocurrency price with the assistance of smart matching engine. Therefore, consumers only need to know that they have paid a fiat currency price using cryptocurrency. At the merchant's end, merchants can choose to settle with fiat money in real time. Therefore, their user experience is no different to other traditional payment gateways (such as Visa), may even be better for because of less time and transaction fee.

**3. Exchange efficiency**

The system provides corresponding product proposals to accommodate different exchange demands, exchangers can choose a different option every time to fit his/her needs. If an exchanger's demand for cryptocurrency exchange is not urgent (for example, they can wait for the cryptocurrency to arrive one day or even one week later, and bear the volatility risk), the system can meet this demand with relatively low service charge. If an exchanger has a very urgent demand, the system can also match the corresponding order at a higher priority through matching engine, but the exchanger may need to pay a slightly higher service fee.

## 5.2.2. LTXN Overview




The diagram above shows the routing of a transaction passing through LXTN between a consumer and an exchanger.

In the classic Lighting Network, each node by default maintains the records of a full node corresponding to a cryptocurrency. With HTLC's design, when a transaction passes through, all nodes in the payment channel must proactively sign for the transaction.

However, in the real world, ordinary users can neither maintain a full node for small payments nor do they have the bandwidth or will to manually sign each transaction that passes through their own channels. A more realistic approach is that the users sign their payment through a mobile application (on a smartphone, which cannot be a full node), and disconnect from the payment network until the next transaction is initiated.

Since it is unrealistic to rely on ordinary users for passing transactions. LTXN designs a professional user role – Node, it functions as the same as miners in other public chains, to relay transactions in a payment route. Bitcoin miners earn mining incentives and transaction fees by recording transactions. Similarly, Nodes in LTXN earn payment and exchange commissions by providing services such as maintaining full nodes, establishing transaction channels, auto-signing, and maintaining nodes-online-rate. The Price Oracle machine ensures that LXT commissions are lower than other local exchanges.

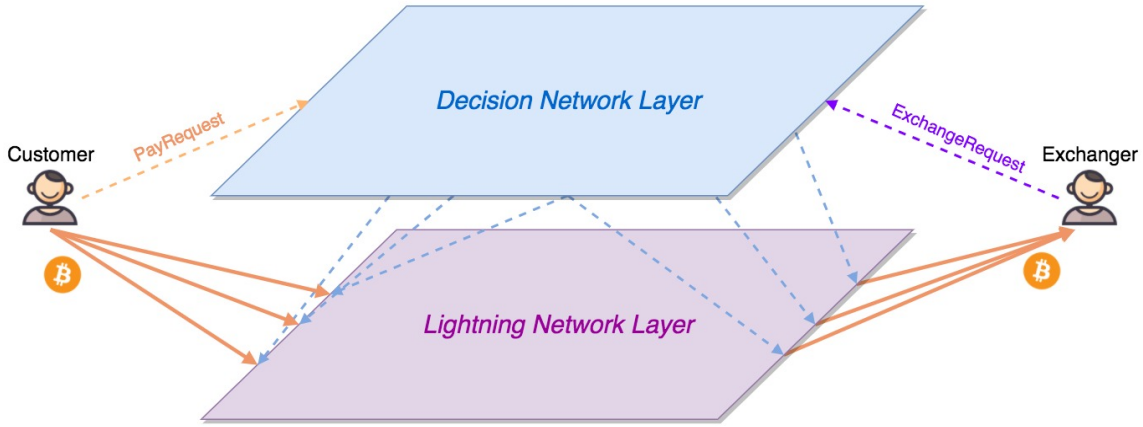
To ensure Nodes' stable service and reduce the centralization tendency, Nodes need to deposit a certain number of Tokens via smart contracts (Token design is explained in detail in section 7) to obtain the

corresponding amount of transaction processing rights. During the transaction process, tokens will continue to be consumed, and then automatically distributed to consumers, exchangers and other ecological parties by smart contracts. Since the number of Tokens pledged by Nodes are different, their ability to process transactions are different. In the diagram above, the red Node cannot carry the transaction because it reaches the upper limit of the transfer amount limited by the tokens it pledged, so it is bypassed by the smart routing algorithm.

Based on RSMC, the payment channels have different upper limit, the differences are shown by distance between the double-lines in the diagram. If the transaction amount exceeds the upper limit that can be transmitted by the current channel, the path will be abandoned (it won't become a route). In the diagram, the red double-line indicates the channel that the transaction cannot pass because the amount exceeds the limit.

To balance efficiency, stability, cost, and network topology, LTXN has many unique designs, the pledge system and game strategy are just two of them. To optimize the process, we also think there is a need to customize and optimize the BOLT protocol. We will articulate our detailed technical designs in the Yellow Book.

## 5.3. Technology Innovation




### 5.3.1. Compound Decision Lightning Network

Lightning Network is a common name of distributed network based on BOLT protocol. The classic lightning network can only accommodate off-chain point-to-point transaction and transfer of cryptocurrency, not any combination of crypto and fiat currency. LTXN designs and develops the "complex decision lightning network", it aims to merge a decision network layer and lightning network layer into the same distributed system, which can share the nodes and achieve more sophisticated routings. As a result, the lightning network will be more intelligent. Advanced routing functions such as matching the exchange requests and payment requests can be achieved. It also makes the whole network topology efficient and reduce the nodes centralization tendency by design.

### 5.3.2. Matching Engine

Matching engine is the collection of a series of distributed intelligent algorithms, which is the most complex core component of LTXN. The following example is based on a simple business case, it neither involves the specific data structure nor discusses how the core strategy - "non-bank card payment business logic" is applied to complex business processing to enhance system stability.

Suppose there are many payment requests and exchange requests in LTXN system at the same time. Payment requests have relatively small amount and high urgency, while the exchange requests vary. To enjoy lower exchange costs, some exchangers would accept an exchange to be done in a longer period of time, they can even just set an upper limit to end the exchange at a specific time. Other exchangers, who would like to obtain cryptocurrency immediately, can choose to pay a higher exchange service charge to complete the exchange in a very short time. In real time, most exchanges fall somewhere in between, thus, in the design, the time / cost ratio required by exchangers are somewhere between the ratios calculated in

the two situations mentioned above. We will find a way to quantify the preference of exchangers to serve as the reference data for the matching engine.

In addition to time / cost matching for exchangers, the matching of the consumer-exchanger amount is also very important. It is very common that the amount of an exchange request is much greater than that of a payment request. LTXN needs to match multiple requests in the whole network to meet the requirement so the Nodes form the optimal solution route. The factors that need to be considered include, but are not limited to, currency type, amount, channel open time cost, channel usage cost. If the payment demand is higher than the exchange demand, it could result in the amount of payment requests larger than that of the exchange requests. In this situation, in addition to the above-mentioned factors, the timeliness and cost of the mainnet should also be considered. If the amount is too big, consumers are advised to make the payment through the mainnet.

Finally, the matching strategy also needs to consider the cost of connectivity. If the two parties of payment and collection are in two separate disconnected networks (no known connected channels), the cost of establishing cross-network channels needs to be considered. That part is discussed in the smart routing section below.

### 5.3.3. Smart Routing

On-chain transaction is required for both the open and closure of a lightning network channel, which would result in higher cost and longer time, resulting in no direct channel between a consumer and an exchanger in most cases. The transaction is usually conducted through an intermediate node or multiple nodes that are directly interconnected according to the HTLC contract. To find the shortest path (or path with the lowest cost) quickly, each node of LTXN has a set of independent negotiation algorithm and the cache of last synchronized node information, together they help to find the path and complete the transaction as soon the demand is generated.

The payment channels must be closed for the withdraw operation in lightning network, which makes the topology of the whole network keep changing all the time. On one hand, since the channels may be closed or opened at any time, some transactions may be denied accidentally if the original channel is closed, a new channel needs to be found immediately. On the other hand, due to the different demands of payment, the channel capacity (like the diameter of a tube) between nodes could also be different. In addition to the consideration of the channel capacity in the initial routing phase, it may be necessary to split and merge payment in a new process. This business logic requires what's beyond the traditional routing algorithm, the strategy and algorithm need to be further developed.

### 5.3.4. Light Node

Base on BOLT protocol, the lightning network nodes are designed as complete Bitcoin network nodes, which means that users joining the network must maintain a complete data backup with a volume of dozens

of GB. But this is unrealistic in practice. LTXN nodes are designed based on Simplified Payment Verification (SPV), only some part of the data records needed by business are added. This way, LTXN nodes neither need to be a full node, nor to store all users' transactions in the whole network. It only needs to store the related transactions over the channels where this node is part of. Once the channel is closed and the transaction is confirmed in the main chain, the balance of the nodes at both ends of the channel would be submitted to the main chain, at this point, users can choose to delete the previous transaction data to optimize the storage space. The optimized LTXN nodes would not require too much storage space, which could fully function on a smartphone.

### 5.3.5. Further Plan

To realize the design of LTXN and meet the demand for instant cryptocurrency micropayment, LITEX Lab continues to dive deeper into the lightning network topology design to develop a more efficient routing mechanism by improving the BOLT protocol.

At present, LITEX Lab is working on the preparation of the LITEX Yellow Paper (Technical White Paper). With the continuous research and development, our technical solution will continue to improve, to ensure a stable yet rapid development of the LITEX ecosystem.

## 6. The Use Case

In the classic use case of Alice use cryptocurrency to purchase a cup of coffee from Bob, the café owner, let's see the difference between scenarios with and without LITEX.

First, let's discuss the use case scenario without LITEX.

Alice only has Bitcoin and wants to buy a cup of coffee from Bob, who, on the other hand, is just an ordinary businessman who does not know much about cryptocurrency technology and has no Bitcoins nor crypto wallets. This means that Alice won't be able to pay Bob unless she converts her Bitcoin into fiat money. In this case scenario, Alice logs in to a cryptocurrency exchange to sell her Bitcoin, to get the fiat money as soon as possible (Bob have started grinding coffee beans), she accepts a relatively lower price and pays a relatively high transaction charge, and. since the transaction amount is small, the settlement time could be as long as a few hours even if she sells her Bitcoin successfully. The coffee would be cold by then.

After the last failed try, Bob has learned something about Bitcoin. He starts to understand and appreciates the concept of Bitcoin, but he does not want to bear the risk of price volatility by accepting Bitcoin payment. To solve this problem, he signs up with a Bitcoin payment gateway, this way, when someone pays him Bitcoin, what he receives in the end is fiat money exchanged by the payment processor. Things look much more promising now. Meanwhile, Alice also learned a lesson (the mainnet transaction requires higher service charge and longer time). She charges in advance with the payment gateway. The Bitcoin payment experience is satisfactory, Alice gets her freshly made coffee. Bob logs in to the payment gateway application to withdraw the $5 he just received. But it turns out that the payment gateway has raised the withdrawal threshold to $100! Bob has to wait for the withdrawal when Alice buys 20 cups of coffee, which would take at least 20 days---providing that Alice comes every day. On the 19th day, Bob finds out that the payment gateway has lost a lot of Bitcoins and fiat currency because of a hacker attack and has declared bankruptcy (single point of failure risk due to centralization). Consequently, the $95 he fails to withdraw is gone. Alice also complains to Bob that the Bitcoins that she has not used is stolen by the hackers.

Now let us introduce LITEX into this use case, illustrate the smooth and secure payment experience brought by a decentralized payment network.

Bob suffered a loss, but he has not given up on Bitcoin. He was introduced to LITEX, a brand-new solution. The installation process is the same as other payment gateways (such as Visa), it has gone smoothly. Bob tells Alice that he can accept Bitcoin payment again. After another lesson learned, Alice has also become a LITEX user and sets up her own payment channel to avoid the risk brought by centralization. She opens LITEX's App and scans Bob's receipt QR code, and then directly inputs $5 in fiat money, clicks 'Pay', one second later, Bob's cashier App asks him to confirm a $5 of payment. After clicking the confirmation button, Bob finds that the $5 has entered directly in his account. Alice's phone also alerts her that the payment has completed and the Bitcoin equivalent to $5 has been deducted from the channel

balance with no service charge. With the help of LITEX, Alice buys a cup of coffee easily with Bitcoin and pays no service charge; Bob, on the other side, receives the fiat money converted from Bitcoin immediately. He finally can accept Bitcoin payments. Even if LITEX is attacked and some nodes are lost, other nodes via established LTXN can still fulfill Alice's payment demand; even if most nodes are damaged and the transaction fails to be executed, both Alice and Bob's existing funds are still intact.

# 7. Token Design

## 7.1. Name and Purpose

As an ecosystem built with many parties, LITEX needs a series of incentive strategies to redistribute the values generated by the ecosystem to all the participants to ensure a healthy operation and to stimulate rapid development. LITEX has designed an encrypted token, LITEX Token (LXT as symbol) to carry this function.

## 7.2. LXT System

### 7.2.1. Generation and Annihilation of LXT

LXT is generated based on ERC20 standard of Ethereum Smart Contract with the total number of 2 billion (2,000,000,000). It is configured by the system only once. There will never be additional issuance and LXT has no annihilation mechanism.

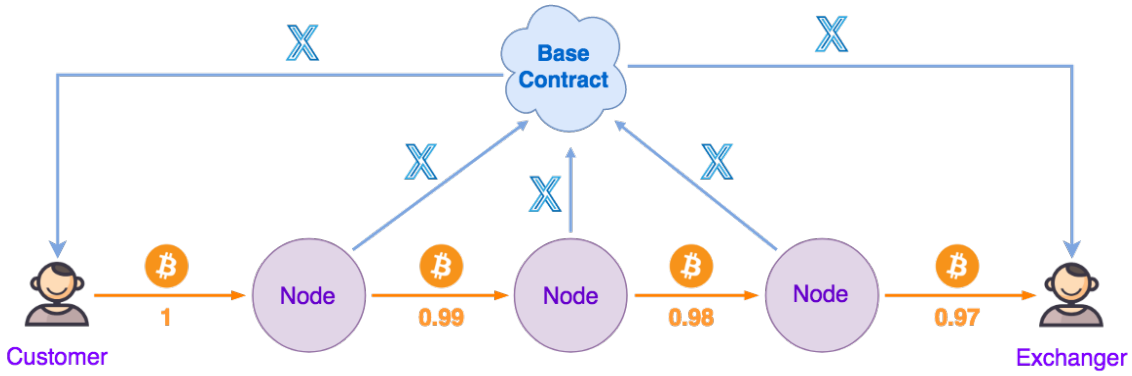
### 7.2.2. Supply and Demand

**Supply**: LXT is dropped to consumers, exchangers and other participating parties in the ecosystem according to the transaction amount.

**Demand**

- **Nodes** pledge certain amount of LXT to the LXN system to obtain the corresponding volume of management rights. The LXN system continuously supplements the consumption of LXT in the transaction process, and consumes part of it as a source of supply
- **Users** who uses LXT get discount ( transaction fee discount or free of charge)

The above diagram approximately illustrates the flow of LXT in the ecosystem. The data is for illustration




purposes only and does not represent actual values.

The transaction fees, LXT consumption and the proportion of drops will vary in each country and region due to the difference of local legislative and regulatory requirements (tax laws etc.) and other operational factors such as the parameters provided by the price oracle machine.

As an ERC20 Token, LXT is bound to incur costs in during the distribution process, however as a system with positive returns, LITEX can fully bear this cost, and further reduce costs through proper design.

## 7.3. LXT Distribution Plan

| Amount | Percentage | Purpose | Detail |
|---|---|---|---|
| 700,000,000 | 35% | Pre-sale | For institutional investors and future usage in LITEX project's research and development, recruitment, market promotion and so on.<br>The use of this part of fund will be disclosed periodically. |
| 300,000,000 | 15% | Ecosystem Development | For the launch of the ecosystem such as airdrops and node incentives. |
| 600,000,000 | 30% | Development Fund | For the development of team and partners.<br>The use of this part of the funds requires foundation resolutions and public announcements in advance. |
| 300,000,000 | 15% | Founding Team | For the research and development of the founding team in the field of cryptocurrency and the management and operating efforts of LITEX related products in the future.<br>This portion will be locked by a smart contract when the tokens are issued. It will be unlocked after 1 month, with 1/36 every subsequent month, and fully unlocked in 36 months. |
| 100,000,000 | 5% | Advisors and Collaborators | For various organizations and advisors that provide collaboration. |

## 8. Roadmap

| Stage | Time | Plan |
|---|---|---|
| Stage One | 2017Q4-2018Q1 | Design the system architecture;<br>Test basic functions of the BOLT protocol.<br>Consult with acquiring parties |
| Stage Two | 2018Q2-2018Q4 | Launch LITEX payment APP .<br>Complete the LTXN architecture and test the theories.<br>Connect the acquiring parties and service providers to test. |
| Stage Three | 2019Q1-2019Q3 | Launch the Alpha version of LTXN.<br>Launch the official LITEX payment APP.<br>Connect the merchants for testing.<br>Expand the network of acquiring parties<br>Transactions pilot |
| Stage Four | 2019Q4-2020Q2 | Launch the Beta version of LTXN.<br>Complete the safety test.<br>Rollout of LITEX's official payments Software Development Kit.<br>Expand the network of acquiring parties |
| Stage Five | 2020Q3-2020Q4 | APP, SDK and LTXN upgrade<br>increase real use cases<br>Merchants are connected in large scale;<br>Continuous expanding the network of acquiring parties, enhance service stability |

# 9. Organization Structure

## 9.1. Litex Foundation

Established in Singapore, Litex Foundation is the legal entity of the LITEX community, responsible for technology development, business operation and market promotion. It assumes all the legal liability of LITEX.

Executive departments:

- **Technical department**

Mainly responsible for the work related to technical strategy, use case selection, architecture design, project development and management, Github codebase update and maintenance of the open source project of the LITEX community.

- **Operation department**

Mainly responsible for operation and management of the LITEX user community, including community activity planning, activities execution and carrying out community incentive plan, etc.

- **Market department**

Mainly responsible for the brand communication and business expansion of the community, and improvement the community eco-system.

- **Human resources and financial department**

Mainly responsible for recruiting volunteers for the LITEX foundation, and daily managing finance affairs of the foundation members.

## 9.2. LITEX Lab

**XU, Guanghong**

Bachelor's degree, mathematics, Peking University, Master's Degree in cryptography, applied mathematics and computer science, Illinois Institute of Technology. Research interests include the PKI encryption system. Worked on digital certification at VeriSign. Served as a risk strategy and information security consultant at Deloitte. Participated in payment information encryption compliance certification for VISA's IPO in the United States and other top global projects such as information encryption and digital certification systems for companies such as Apple, Electronic Arts (EA), Broadcom, etc. Currently Kaiser's Director of Corporate Risk Strategy, she has extensive cryptography and commercial application experience.

**WANG, Shuobin**

Bachelor's (2003-2007) and master's (2007-2010) degrees in Computer Science of Peking University. Former product operation director of the star product "Non-bank card payment" of Yeepay. Serial entrepreneur. Executive director of CEO club in Peking University. Revivalist and practitioner of blockchain technology.

**ZHANG, Huaqiang**

Bachelor's degree (2003-2007) and master's degree (2007-2010) in Computer Science of Peking University, expert in blockchain and network security, full stack engineer, designer of the "Composite decision lightning network" model, previously worked as a senior research and development engineer in platforms such as IBM and Sina Weibo.

**LOU, Huanqing**

Bachelor's (2007-2011) and master's (2011-2014) degrees in computer science, Peking University. Expert in blockchain, project structure engineer, full stack engineer, with abundant project experience, good at designing solutions by combining product demands and cutting-edge technology.

**CHU, Tianshu**

Bachelor's and master's degrees in computer science and technology, Beijing University of Aeronautics and Astronautics. Founding partner and vice president of Duolabao (a leading domestic offline payment and marketing enterprise, one of the top three WeChat payment service providers, with payment transactions exceeding two million per day). Former product operation director of the non-bank card payment project of YeePay. Former product manager of the founding team of Baidu Shenbian

## 9.3. Key Investors & Advisors

**YU, Chen - Investor**

Bachelor's degree, computer science, Peking University; master's degree, computer science, Illinois Institute of Technology. Co-founder and the president of YeePay. Twenty years of experience in Internet, E-commerce and software. Awarded the "100 most influential people in the Mobile Phone Circle" in China and the "100 outstanding E-commerce marketers of 2013 in China". Additionally, he is the author of the best-selling book "Into the Future: Internet Makers and their World".

**CHANG, Dawei - Investor**

Bachelor's degree, physics, Beijing University; master's degree, computer engineering, Maryland University. Founder and CEO of Duolabao. Co-founder and former CTO of YeePay. Senior software engineer for Riverside Company in Silicon Valley. Member of the Association of Ethnic Chinese Engineers in the United States.

**CHEN, Bin - Counselor**

Former architect of PayPal. Master's degree, Jilin University, 1989. Director of integration for Hitachi U.S. system. Chief architect of Abacus. Chief engineer of the Nokia U.S. network application, with extensive oversea experiences including years of experience in architecture of payments industry. He has translated and published many works such as "The Architecture and Its Future", "Scripture of Architecture", and "Big Data Is the Future - Road of King". Practitioner and evangelist of cutting-edge network technology.

## 9.4. Key Investing Institutions

**Sparkling Star Capital**


**Node Capital**


**Double Spend Capital**

**JLAB**


**Lightning Capital**

# 10. Risk Statement

## 10.1. Risk Warning

Litex Foundation believes that there are many risks in the process of LITEX's development, maintenance and operation, most of which will exceed the control of Litex Foundation. Each LXT token participator shall read carefully, understand and consider the following risks, then determine prudently whether to participate in the token exchange program. Once involved in the program, participants will be deemed to have had full knowledge of the following risks and agreed to take them.

- **Risks of legal policy and regulation**

Encrypted tokens are being or may be supervised by competent authorities of different countries. In different countries, LXT is likely to be defined as virtual good, digital property, or even security and currency at any time. Therefore, in some countries, according to the local supervision requirements, Litex Foundation may be ordered to suspend or end all token exchange programs. If the competent authorities adopt relevant regulations, the development, marketing, advertising and other aspects of the LITEX are potentially badly affected, hindered and ended. For the regulatory policy is changeable at any time, existing regulatory approval and tolerance of LITEX or the open sell plans in any country are temporary. If this LXT public exchange program is canceled in advance, only part of the amount paid will be refunded to holders due to the fluctuation of the tokens price and the expenditure of Litex Foundation.

- **Risks of team and project**

Currently, there are many teams and projects in the field of blockchain technology, making the market competition rather intensified and the project operation pressured. Whether the LITEX project is capable of standing out among other excellent ones and widely recognized, it is not only related to its team capability and vision planning, but is also affected by the market competition, including the probable vicious one. Core members of the LITEX community has many years of technological accumulation in the insurance industry and blockchain, which can help to rally more talents in blockchain and insurance industry to join the community, but it can't rule out the possibility that the overall project will be negatively affected due to the leaving of core members and internal conflicts.

- **Risks of Technology**

Computer technology is keeping developing, and cryptography is in constantly progressing. There is no guarantee on absolute security at any time, which may lead to stolen, lost, destroyed, or devalued of LXT of the holders.

Although Litex Foundation will try to protect the security of the LITEX network, it does not guarantee that LITEX has no weakness or authority. While any person may intentionally or unintentionally take

weakness or defect into LITEX's core infrastructure factors, Litex Foundation cannot solve these weaknesses or defects by taking safety measures to prevent or make up.

This may eventually lead to the loss of participant's LITEX or other crypto tokens. In addition, LITEX's source code may have some flaws, errors, defects, and vulnerabilities, which may prevent users from using specific features, expose users' information or create other problems. If such a defect exists, it will damage LITEX's usability, stability and security, and thus adversely affect the value of LITEX. Transparency is the basis of the open source code, to promote the identification and problem solving of code in the community.

The LITEX foundation will work closely with the LITEX community for the continuous improvement, optimization and perfection of LITEX's source code. The rapid development of LITEX will be accompanied by sharp increase in transaction and demand for processing capacity. If the demand for processing capacity exceeds the load provided by the nodes in the network, the LITEX network may be paralyzed or stagnant, and may produce wrong transaction.

In the worst-case scenario, anyone's LXT may lose. This will damage LITEX's usability, stability and security, and the value of LXT. In addition, LITEX is still in the development stage. Due to the technical complexity of LITEX system, the Litex Foundation may sometimes face difficulties that cannot be predicted or overcome. Therefore, the development of LITEX may fail or be given up at any time for any reason (e.g., lack of funds). Failure to develop or waiving will cause LXT unable to deliver to the participants in this exchange plan.

- **Risks of Security**

The external attack may bring negative effects, stagnation, paralysis, and even calculation error to the LITEX system, thus leading to the delay of transaction and even temporary failure to perform, and it may also lead to the error, breakdown and missing of data, damage the availability, reliability and security of LITEX and the value of LXT. In addition, there may someone attempted to steal the funds from public sales of the LITEX foundation (including the parts that have been converted into legal currency). Such theft or attempt of theft might affect the LITEX foundation's ability to fund LXT's development. Although the LITEX foundation will take measures to protect the safety of crowdfunding, theft is still hard to stop.

- **Other possible risks.**
    - The risk of source code upgrade

LITEX's source code is open and may be updated, modified, or modified by any member of the LITEX community from time to time. No one can predict or guarantee the exact result of an upgrade, amendment, modification or change. Therefore, any updating, correction, modification, or change may result in unforeseen or unintended consequences, which will have a significant negative impact on the operation of LITEX or the value of LXT.

    - The risk of unauthorized claim of LXT

Any person who has access to registered email or registered account by decrypting or decrypting LXT holder's password will be able to maliciously obtain the LXT token of the LXT holder. Accordingly, holder's LXT token may be sent to the LXT address of someone else, which is irrevocable and irreversible. Each LXT holder shall take measures such as the following to properly maintain the security of his/her registered email or account: (i) use complex and high security password; (ii) do not open or reply to any fraudulent mail; (iii) strictly keep secret from personal information and other related security measures.

- Market risk

The value of LXT is largely determined by the market development and user's acceptance of the LITEX platform. LITEX is not expected to be popular or be widely used within a short period of time. In the worst-case scenario, LITEX may even be marginalized over a long term, attracting only a small number of users. In contrast, a large part of the LXT demand may be speculative. The lack of users may lead to the increase of price fluctuation in LXT market, which will affect the long-term development of LITEX. When such price fluctuation occurs, LITEX does not have the responsibility to stabilize or influence the market price of LXT.

- Liquidity risk

LXT is not a currency issued by any individual, entity, central bank or national organization, and it does not have any hard asset or gets support from other credit. LXT's circulation and trading in the market is not the responsibility or pursuit of the Litex Foundation. LXT transaction is based only on the consensus reached by relevant market participants on their value. No one is obligated to exchange any LXT from LXT holders, and no one can guarantee the liquidity or market price of LXT at any time. If LXT holders want to transfer LXT, they need to find one or several interested persons to exchange. The process can be costly, time-consuming and ultimately unsuccessful. In addition, there may be no encrypted token exchange or other market LXT for public transactions.

- Risk of price fluctuation

When trading in an open market, the price of encrypted tokens usually fluctuates wildly. Price shocks often occur in short term. The price is likely to be calculated in Bitcoins, ether, dollars, or other legal currencies. Such price fluctuation may be caused by market forces (including speculation), regulatory policy changes, technological innovation, availability of exchanges and other objective factors, which also reflects the changes in the balance between supply and demand. Whether there is a secondary market for the LXT transaction or not, the Litex Foundation does not take responsibility for LXT transaction of any secondary market and does not have the obligation to stabilize the price fluctuation of LXT, and it does not care about it. LXT traders shall bear the risk involved in the LXT transaction price.

- Competition risk

The underlying protocol of or LITEX is based on open source computer software. No one claims copyright or other intellectual property rights to the source code. Therefore, any person can legally copy, remake,

design, modify, upgrade and improve, recode, reprogram or use LITEX source or the underlying protocol in otherwise ways to develop competitive protocol, software, system, virtual platform, virtual machine or smart to compete with LITEX contract, or even surpass or replace LITEX, which cannot be controlled by the Litex Foundation. The Litex Foundation is unlikely to eliminate, prevent, limit or reduce such competitive efforts aimed at competing with LITEX or replacing LITEX under any circumstances.

- Risk of insufficient information disclosure

By the publication date of this white paper, LITEX is still in the development stage, whose technical details and parameters such as philosophy, consensus mechanism, algorithm and code may be updated and changed frequently. Although this white paper contains the latest key information of LITEX, it is not absolutely complete and will still be adjusted and updated from time to time by Litex Foundation for specific purposes. Litex Foundation has no ability no obligation at any time to inform participants of LITEX development in every detail (including its progress and expected milestone, whether delay or not), so it will make the holder fail to be timely and fully exposed to the new information of Litex Foundation. The sufficiency of information disclosure is avoidable and reasonable.

## 10.2. Disclaimer

This white paper is for informational transmission only, and the contents of this document are for reference only, which do not constitute any investment advice, solicitation or invitation to sell digital goods, shares or securities. Such invitations must be made in the form of confidential memo, and shall meet the relevant securities laws and other laws. The contents of this document may not be explained as compelled to participate in the exchange. No behavior related to this white paper may be considered as participation in the exchange, including the requirement to obtain a copy of this white paper or to share this white paper with others. Participation in the exchange means that the participants have reached the age criteria and have complete civil capacity, and the contract signed with Litex Foundation is true and valid. All participants voluntarily sign the contract and have a clear and necessary understanding of LITEX prior to signing the contract.

Litex Foundation will continue to make reasonable efforts to ensure that the information in this white paper is true and accurate. During the development process, the platform may be updated, including but not limited to platform mechanisms, tokens and their mechanisms, token distribution. Part of the document content may be adjusted as the project progress in the new white paper, and Litex Foundation will make the updates available n forms of announcements or new white papers on the website. Participant shall be sure to obtain the latest white paper, and make timely adjustments to their own decisions based on the updates. Litex Foundation disclaims all liability resulting from participants: (i) reliance on the contents of this document, (ii) inaccuracies of the information in this document, and (iii) any loss actions caused by any

action due to this document. Litex Foundation will spare no efforts to achieve the goals mentioned in the document, but cannot fully promise to complete due to the existence of force majeure.

LXT is an important tool for platform to function, not an investment product. Having LXT does not imply owner's ownership, control, or decision-making rights to LITEX platform. As an encrypted token LXT does not fall into the following categories: (a) currency of any kind; (b) securities; (c) shares of legal entities; (d) stocks, bonds, notes, warrants, certificates or other files granting any right.

Whether LXT appreciate or not depends on the laws of the market and the demand after application is implemented, which may not have any value. Litex Foundation does not promise its appreciation, and is not responsible for the consequences due to the increase or decrease of its value. To the maximum extent permitted by applicable law, Litex Foundation is not responsible for the damage and risk arising from the participation in the exchange, including but not limited to direct or indirect personal damage, loss of business profits, loss of business information, or any other economic loss. LITEX platform complies with any regulations and self-declaration of the industry conducive to the healthy development of industry. Participants' participation implies that they fully accept and abide by such inspection. At the same time, all information disclosed by participants to accomplish such inspection must be complete and accurate. LITEX platform expressly informs participants with the possible risks. Once participants participate in the exchange, it means that they acknowledge and understand the terms and conditions in the rules, accept the potential risks of this platform, and bear the consequences.