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Tokenization of Assets using Blockchain

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Abstract: ***In a continuous opportunity, Blockchain technology (BCT) was able to receive a great consideration outside the financial area. The chain concepts of blocks are more passed than the furniture and the rhythm of encryption. Block the universe chain Research of internal probabilities of assets several applications in BCT is frequently achieved. In this document, we participate in the two BCT prospects to add the future scope of these two points of view and future transactions in the tokenization of assets. This document is intended to investigate a part of the chain of blocks in the maintainable transaction with real money and dispersed through the network of block chains.***
Keywords: Blockchain Technology, Tokenization of Assets, Smart Contracts

I. INTRODUCTION

Asset tokenization refers to the liquidation of any real- world asset in tokens. This idea may not sound exciting at the moment, but the fact that we have the technology to convert any asset to tokens is astonishing. This will not only promote the market economy by increasing the flow of funds, but also other benefits such as faster and cheaper transactions, greater transparency (because the Blockchain is a public distributed ledger, fraud / failure occurs. possibilities to drastically decrease, and finally, due to the reduction of the minimum investment amount and maturity, tokenization can open up investment in assets to a wider audience.

Traditionally, real-world assets such as cars, houses, jewelry, etc., were settled in real currency The whole process can be considered flawed compared to the tokenization of the use of cryptocurrencies. Considering the traditional methods, a person usually has an intermediary who can make any transaction possible, and now this person has a commission. This is a flaw in the system. An example. Blockchain network will help to develop decentralized systems, Decentralization. Decentralization is the exchange of powers and obligations with respect to the public capacities of the central government to subordinate or semi-autonomous government associations and the private sector.Decentralized accounts, also known as DeFi, are a rapidly developing area in the cryptocurrency industry.Although digital currency constitutes a decentralized significant store of value separate from any management-sponsored fiat cash, DeFi separates decentralized monetary instruments from traditional centralized organizations.

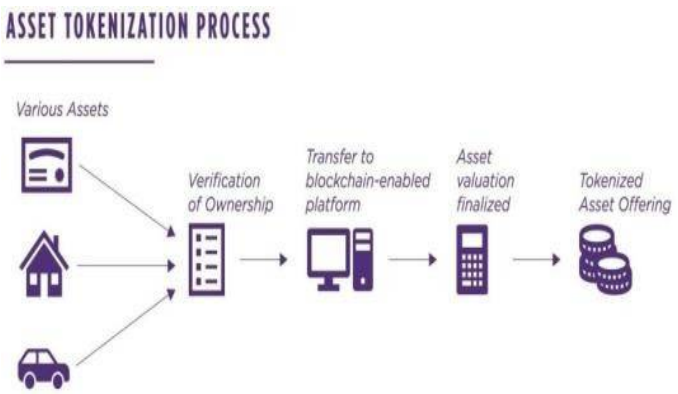

Fig.1 Traditional Supply Chain

II. BLOCKCHAIN TECHNOLOGY

Blockchain, an advanced record of decentralization and chaos, was named the Top 10 Emerging Innovations within the 2016 World Economic Forum. It is generally considered a sparse data set, during which data is often kept. The information base is communicated through all the centers of interest, which agree on specific rules and arrangements on the behaviors allowed within the organization and the structure of the information stored. Collectively, the Blockchain implies that all stored substances are permanent. This allows all centers to access the registration form as a permanent source of information.

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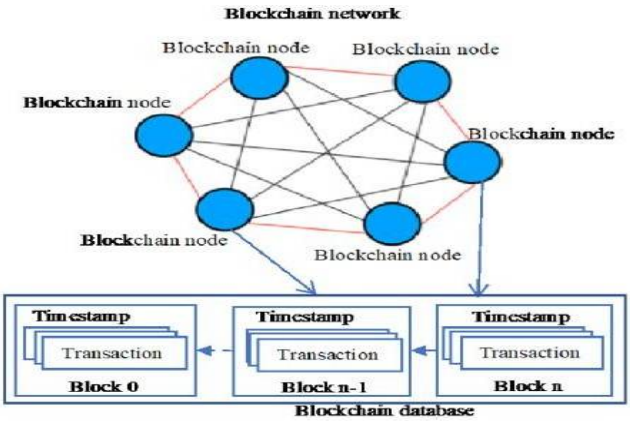
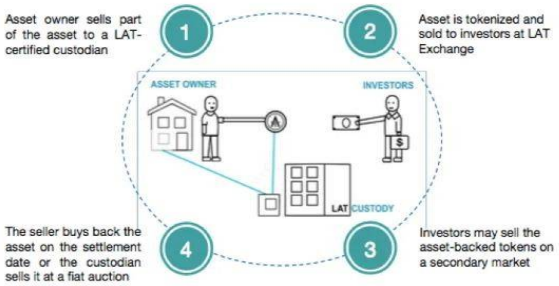


Fig. Architecture of Blockchain

Blockchain, as the name suggests, is composed of the words block and chain. It can be said that it is actually a Blockchain composed of data. Data is the information of the exchange, including the hash key and the subtleties of the exchange. Blockchain is usually a suitable shared open source registry, where each exchange has registered a computerized trademark. Considering that the circulating information database is stored on multiple PCs, whether or not there is a PC for bombing, the information database will be protected even now because it is stored on multiple PCs. The blockchain plays a role when transactions occur. The simple cycle is to first make a transaction, then submit, and then add the block to the chain. Every exchange that takes place on the blockchain is verified and approved by miners or nodes of the organization. Work verification is a protocol calculation used on the blockchain to verify exchanges on the blockchain. [2] Now the change check is like a puzzle: miners solve Pow's problem and the answer is hash. Miners use their computing power to solve this problem and receive compensation in the form of digital currency and other forms. When the exchange is marked, the block is added to the chain. Blockchain is a convention, it's open source, anyone can see it, and the exchange remains mysterious or pseudo-anonymous. A block usually contains about 500 transactions and consists of a block header and exchange information.



Satoshi Nakamoto, the maker of Bitcoin, has developed a computerized cash and protocol agreement to enable transactions on a peer-to-peer network even without a core middleman, which gives people confidence. The convention relies on three basic columns to gracefully establish this trust within the framework: decentralization, protocols, and encryption. [1]

III. SMART CONTRACTS

Smart contracts are automatically executed contracts that contain the terms and conditions of a peer-to-peer game plan. The terms and conditions of the plan are formed in code form. Smart contracts are running on the decentralized network of the Ethereum blockchain. The action plan makes it possible to exchange currency, quotations, property or any asset. Generally speaking, there are two programming languages that form Ethereum smart transactions: Solidity and Serpent. Heartiness is a high-level programming language that is used to implement wonderful protocols in the field of the Ethereum blockchain. It allows blockchain designers to check the program at run time instead of collecting time [3].

The middle layer and the absolute number of middle layers related to the performance of ordinary contracts will set the cycle back, usually requiring days or even weeks.

Smart contracts are very efficient because they only take a few minutes, because they are mechanized and programmable, and they run on a PC under predefined conditions. It does not include external entities.

Standard contract emphasizes insurance and security. Including so many powerful and engaging meetings, security can be

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undermined at any stage. When using smart contracts, security is maintained by cryptography, public keys, and private keys. Stay in a decentralized system, the data is really hard to change. The smart contract is deliberately marked with a private key and must be decoded by the public key shared by the referenced social event.

The terms and conditions of the smart contract are predetermined. When the conditions are met, settlement occurs and is posted. If any solution is related to a regular agreement, it is a manual cycle, including supporting work measures. Normally, openness is coordinated by the social issues, peripheral materials, and central individuals referred to. This is a faulty structure. However, the excellent deal is 100% direct and open 24 * 7 * 365 online. Anyone can review, research and support the reported transactions. The filing of customary agreements is problematic because they are paper-based and independent. Following the transaction is an obstacle. Smart protocol transactions can be traced directly from the motivation behind the origin, log subsequent events, and create a completely open history. [5]

When traditional contracts are different from smart contracts, they are too high, fundamentally considering that all intermediaries must pay fees. smart contracts have intermediate limits, and the basic business expenses come from the basic system of the blockchain network that executes smart contracts. [10]

IV. LITERATURE SURVEY

Resource tokenization involves a supply cycle of blockchain tokens (specifically, security tokens) that carefully refer to actual tradable resources, from many perspectives, like the usual securitization cycle, with advanced distortion. These security tokens will be interchangeable in the auxiliary market. These security tokens are made through an initial coin offering (ICO) / security token offering (STO). Furthermore, these tokens are produced and monitored through smart contracts, which makes these tokens out of control, and because the blockchain is a transmission record, the exchange will not continue until the records of transmission are coordinated. every meeting. [7]

Now comes the question: why should it be converted to tokens instead of real currency? Here are some of the benefits: The new "token economy" significantly reduces participation in creating, buying, and selling resources. Tokenization can accommodate two speculators and traders. There are four key points:

- The most significant liquidity: Through tokenized resources, especially privately protected or regularly illiquid resources, such as artworks, property, decorations, etc., these tokens can be exchanged on the auxiliary market determined by the sponsor. This access to a wider distributor base expands liquidity.
- Faster and cheaper transactions: Since the exchange of tokens is done through enthusiastic contracts (software calculations are embedded in the blockchain, activation activities depend on preset limits, and certain parts of the business cycle are mechanized. This mechanization can reduce the weight of supervisory efforts to open trades and require fewer mediators, thereby speeding up the execution of the agreement and reducing exchange costs.
- More transparent: Equipped with security tokens, the legal obligations and privileges of the token holders are directly embedded in the tokens, and at the same time they have unchanged holding records. These attributes ensure added simplicity to the exchange, letting you know who you are managing with, what your privileges and privileges are, and who has recently owned the token.
- Easier to obtain: It is worth noting that tokenization can open up resource investment to a wider audience due to reduced numbers and reduced speculation time. The tokens are very distinguishable, which means that speculators can buy tokens with the lowest cost from hidden resources. If every request is cheaper and easier to measure, it will open the way for greatly reducing the minimum sum of risks. In addition, the higher liquidity of securities tokens can also reduce speculation time, because financial experts can exchange their tokens in optional trading areas, which are assumed to be global, every minute of the day (as much as possible) Controlled).

Among the blockchain progress type game plans that are being established and implemented in various business areas, the following are the three most popular ones. Every blockchain has unquestionable explicit attributes that have aroused interest in application alternatives and core methods. For this case study, we will consider the characteristics of Hyperledger Fabric, Ethereum, and Corda blockchain options compared to the graphs, which are more important for applications that cleverly link boards.

V. ETHEREUM

Ethereum is a public open source distributed computing platform based on blockchain, with smart contract (script) function (xviii). All smart contracts are publicly stored on each node of the blockchain. The disadvantage is that each node calculates all smart contracts in real time, causing performance problems and lower speeds.

As of January 2016, the Ethereum protocol can handle 25 transactions per second (xviii).

Consensus: All participants must reach a consensus based on the proof-of-work scheme, regardless of whether they are involved in the transaction. This can have a negative impact on transaction speed, as all participants need to access all recorded entries

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and can be critical in high privacy situations.

EXAMPLE USE CASES

A. Case 1 - TheArtToken (TAT)

The owners of the works of art regularly sell prints of unique works of art produced by renowned experts. We should accept prints with around 1,000 canvases.These impressions can be tokenized by having a specific organization responsible for the impressions. The organization will then be able to provide a single copy of the recycling token to the wider society.After restoration, the actual transport vehicle can be transported to the designated location.

If the estimate of the recovered token does not match a specific border, the symbol holder may be responsible for part of the printing process according to its appraised value. For example, TheArtToken (TAT) provides tokens for dialogue with partial responsibilities and postwar art. The first batch of actual works of art is stored in a distribution center designated by the Swiss government. This tokenization of the craft makes it easier for buyers and external business departments to execute part of the artwork. [8]

B. Case 2 - JP Morgan

Although the market dealing with commodity transactions has turned to paperless transactions on a large scale, the administrative costs of these transactions are huge. Nevertheless, what identity can real resources be tokenized? How about we use gold as an example to better understand this idea? Suppose ABC asks for gold from the vault, and XYZ owns the vault itself. ABC can use part of the gold as a computerized token to provide the public with responsibility. They can keep the vault by trading with XYZ. Every time a token is sold, the responsibility for a large amount of gold is transferred to XYZ. Token holders can recover the gold by proving ownership with the help of tokens or computerized declarations. JPMorgan Chase, the monster of the Bank of America and currency management department, reported that they will introduce gold bars as a tokenized resource on their blockchain network Quorum.

C. CASE 3 : CargoX

The coordination of the business depends on the strategy that provides the verification of the property, the bill of lading. This strategy has brought several problems, such as the possibility of missing or missing replenishment orders that cause delays in the transport and recycling of products, etc. CargoX has developed a tokenized agreement to avoid the use of bills of lading (B / L) usual strategy. They are creating an open framework that is based on Ethereum, called Smart B / L.

Your smart bill of lading frame should be comparable to the symbol frame. For this, the carrier will draw up a smart bill of lading with the help of your request and send it to the exporter.

When the sender transfers cash to the exporter, the exporter transfers responsibility for the smart bill of lading tokens to the merchant. On the less-than-ideal end, shippers can ensure product liability by introducing smart bill of lading tokens to carriers.

VI. TRANSACTION IN ETHEREUM

Transactions that change the state of the EVM needs to be broadcast across the network. Any node can broadcast a request for a transaction running on the EVM. After this occurs, it performs a small transaction and propagates the resulting state change to the rest of the network. A transaction requires a fee, and the validity period must be mined. To make this explanation easier, we describe gas rates and mining in different places.

The sent transaction contains the following information:

A. To

To address (for externally owned accounts, the transaction sends the value. For contract accounts, the transaction executes the contract code)

B. Signature

Identifies the sender. It is created when the sender's private key signs the transaction and confirms that the sender has approved this transaction.

C. Data

Optional field to be added to the array.

D. GasLimit

The maximum amount of gas units a transaction can consume. A unit of gas represents a calculation step.

E. GasPrice

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The fee the sender pays per unit of gas

F. Gas is a reference to the calculation required by the miner to process the transaction. Users are responsible for paying a fee for this calculation. gas Limit and gas Price determine the maximum transaction fees paid in trivial.

VII. GAS IN ETHEREUM

A. Gas refers to a unit that measures the amount of computational work required to perform a specific operation on the Ethereum network.

B. Since every Ethereum transaction requires computing resources to run, every transaction requires a fee. Gas refers to the cost required for successful transactions on Ethereum.

C. Essentially, gas fees isare paid in Ethereum's native currency, Ethereum (ETH). The price of gas is expressed in gwei, which is itself the denomination of ETH; each gwei is equal to 0.000000001 ETH (10-9 ETH). For example, instead of saying that your gas costs 0.000000001 ether, you can say that your gas costs 1 gwei.

D. Suppose Alice must pay Bob 1ETH. In the transaction, the gas limit is 21,000 units and the gas price is 200 gwei. The total cost of is: Gas unit (limit) * Gas The price per unit is 21,000 200 = 4,200,000 gwei or 0.0042 ETH

E. Now when Alice sends money, 1.0042 ETH will be deducted from Alice's account. Bob will be credited 1.0000 ETH. The miner gets 0.0042 ETH.

VIII. GAS LIMIT

Gas limits indicate the maximum amount of gas consumed by a transaction. More complex transactions, including smart contracts, require higher gas limits than simple payments, as they require more calculations. Standard ETH transfer requires a gas limit of 21,000 units of gas.

IX. RESULTS

The system fabricated can be used to for tokenization of assets of any kind though for this project a coffee shop blockchain token system was created. There will be discrete dashboards for clients at each stage showing the data important to them and the administrator dashboard will approach all the data about tokens and some authority over who can see the data just as expansion and updation of clients just as tokens. Also users must complete the KYC process in order to verify their genuineness so they may start publishing items for sale and so will be the case when users have to buy tokens/purchase any items.

X. CONCLUSION

In this report, we explained the tokenization of assets using blockchain. We have explained the technology and methods behind it. The advantage of this system is transparency and security throughout the token purchase cycle to place items for tokenization. Unlike traditional systems, blockchain provides additional security. At present, the designed system is limited to a simple chain, but this system can be used as the basis for a more complex tokenized system on the blockchain. We are currently using ordinary tokens, which can also be replaced by minted tokens. Therefore, it is safe to assume that the market share of cryptocurrencies will increase and at those moments when the deadly virus spreads around the world. We realize. The importance of digital payment and currency and blockchain as a distributed ledger is to be as secure as possible, at least with our existing technology. Speaking of asset tokenization, it is expected that the "tokenization era" is coming soon, and the market size of this market is expected to reach approximately US$27 trillion by 2027.

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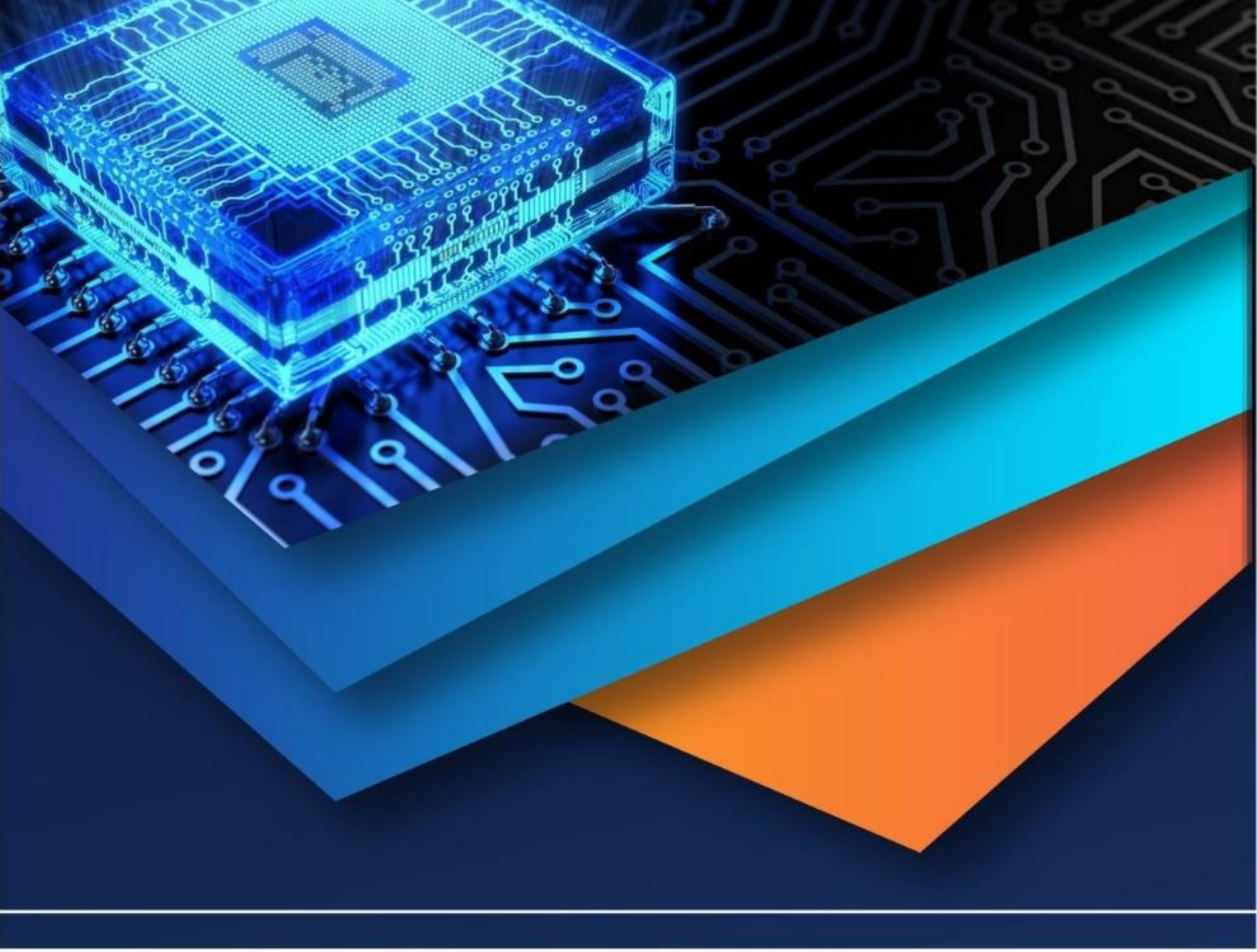

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