

Comparative Study of Bitcoin, Cryptocurrency and Traditional Banking Transaction - A Review

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Abstract: *Over the last few years, cryptocurrency has become a big topic, combining enormous technological potential and generating investments worth trillions of dollars on a global level. Cryptocurrency is a form of digital currency that is protected and uses encryption. Due to its unique architecture, the cryptocurrency technology is provided with many special feature, which have also define its worldwide efficiency and its adaptability. At the same time, with the development of cryptocurrenices, the concept of blockchain has also gained popularity. Blockchain is the technology that powers cryptocurrency and it is expected to give rise to a new economic system by changing how people interact over the internet transaction. This paper includes the connections between two significant concepts in the digitalized world, namely, blockchain and cryptocurrency.*

Keywords: Blockchain, Cryptocurrency, Currency, Block, Ledger, Transaction, Payment, Transfer, Money.

I. INTRODUCTION

The word “crypto” refers to the encryption or cryptography that the technology is built on and then added to a blockchain database. The “currency” here refers to the recognition as medium of exchange amongst its users [1]. Cryptography is simply a technique of using encryption to secure the data and transactions, so that only those for whom the information is intended can read and process it.

Digital cash and payment through electronic money has gained popularity after the computer system is adopted by mainstream banking industry [1]. However, this online money transactions depends on payment network and the infrastructure required to manage payments. And the all this payment transactions are managed by a centralized network by ensuring that funds that are transferred are used only once. A centralized network is where all the information is stored and managed at the single location. This would need a database capable of storing individual transactions with encryption levels that make them harder to modify, edit, or steal. Centralized network comes with many challenges like traffic management, accessibility, efficiency and much more. This has given rise to blockchain technology, which achieves all of these objectives and more by providing a platform for the acceptability of a digital medium of transaction or cryptocurrency that can be recorded and acknowledged in decentralized database.

Cryptocurrency is an internet-based means of exchange that conducts financial transactions using cryptographic processes. Blockchain technology is used by cryptocurrencies to provide decentralisation, transparency, and authenticity. The most major characteristic of a cryptocurrency is that it is not controlled by a single entity: the blockchain's decentralised nature makes cryptocurrencies technically strong. Before learning about cryptocurrency let's study blockchain technology in short.

II. BLOCKCHAIN

In today's world the data we handle and the transaction or operation we performed are stored or managed by the centralized system. In a centralized network, there is a central authority that governs and handles the network. Also we don't have any kind of access to that network. Hence, arguably we can say centralized databases are not accessible nor reliable. So, there must be decentralized database, that's how blockchain came into the picture. Blockchain is a

distributed ledger[2]. This was originally invented by a group of people in 1991. Later on, it was adopted by Satoshi Nakamoto in 2009 for crypto currencies like bitcoin. Blockchain is a decentralized ledger that anyone can access. Blockchain technology has received great attention in recent years. However the data volume of blockchain grows intensely due to the feature that data cannot be deleted once added [3]. Each block from blockchain contains following things.

2.1 Data

First thing that gets stored in the blockchain is the relevant information. In case of cryptocurrency the information will be transaction, sender's information, receiver's information and unique ID of that information

2.2 Hash

A hash is a unique identity link assigned to each block in the blockchain. It is very much unique like a fingerprint. Hash helps us to identify the any particular block from a blockchain and data stored in that block. Once we create a block it is assigned by a unique hash and changing anything in the block will cause in changing the hash.

2.3 Hash from Previous Block

The first block from the blockchain is known as genesis block and this will initialize the series of blocks in the blockchain. This is the element which makes a series of block linked together and makes a complete blockchain. So in each block there is a hash code of that block and the hash from the previous block so that they will be stay connected with each other and will make a chain of interconnected blocks.

Due to this interconnected nature of the blocks in the blockchain we can able to secure our data. As hash of each block is connected to the previous block, if anyone wanted to hack or change the data of any block it will cause in changing the hash of that block. Indirectly connection between all the blocks will break and the getting info from all the blocks become next to impossible

III. CRYPTOCURRENCY

A cryptocurrency is a digital or virtual money that is protected by encryption, making fraud transactions and to hack a network almost impossible. Many cryptocurrencies are built on blockchain technology, which is a decentralized platform enforced by a global network of computers. Cryptocurrencies are distinguished by the fact that they are not controlled by any central authority. They can be sent directly between two parties via the use of private and public keys. These transfers can be done with minimal processing fees, allowing users to avoid the steep fees charged by traditional financial institutions[6].

Over the duration, the cryptocurrency market has evolved in an unpredictable and unexpected manner. In the technological field, the decentralised virtual currency Bitcoin—and its underlying "blockchain" technology—has attracted a lot of interest nowadays. The cryptocurrency technology and its network have been endowed with many superior features due to its unique architecture, which also determined its worldwide efficiency, applicability and data intensive characteristics [4]. In recent years, developers, investors, and researchers have focused on cryptocurrency as an important study. Although the fact that the market is pretty unpredictable. In 2018, research shows that market value has reached hundreds of billions of US dollars with some experts suggesting it would hit a USD 1 trillion valuation this year [5]. And it's still growing due to its distributed network and many characteristics.

IV. TRANSACTION

To prevent interference with the ledger, blockchain uses cryptography. While all users have access to the ledger, only those with specific cryptographic keys have the option to request to add new record or data. Furthermore, other network users can check the new entry and decide whether it should be included to the ledger or not. This method makes faking or modifying records very impossible. The following concepts illustrate how blockchain technology is used by the Bitcoin network to ensure secure and transparent transactions without intervention of a financial intermediary. Everybody in the Bitcoin network has a Bitcoin wallet. Each Bitcoin owner has access to a pair of keys:

1. A public key is comparable to an e-mail address or a bank account number. This public key is the address of the user's Bitcoin wallet. He/she can share it with others whenever he/she wants another Bitcoin network user to send coins to his/her Bitcoin wallet.[7]
2. A private key allows a user to send bitcoins from his or her Bitcoin wallet to the wallets of other users on the network. A private key might be thought of as a password, and it must be kept hidden to avoid trouble.

V. NORMAL TRANSACTION VS. CRYPTOCURRENCY TRANSACTION

To understand cryptocurrency transaction in better way we must figure out how it is carried out differently from normal bank transaction, first let's see how bank transaction works.

1. A bank account number is assigned to a person.
2. They have a method for verifying ownership of the account number, such as a PIN code.
3. The bank, in turn, has a data record of how much money is associated with that account number, allowing it to keep track of the person's finances in a secure internal database
4. The user can then use an online banking system to verify their identity to their bank and request that the money linked with their account number be moved to someone else's account at a different bank.
5. This then spurs the bank to edit their ledger of accounts—changing the person's score—and to tell the recipient's bank to do the same. The process is a little more complex than this, but in effect the money moves via a series of private databases being edited
6. This enables the bank to make changes to their account balance, updating the person's balance, and informing the recipient's bank to do the same. The process is a little more complicated, but the money is moved through a series of private databases that are updated.

The Bitcoin system—like the normal bank payments system—is intended to move monetary tokens between people through the changing of account entries on databases, but it has two immediate differences. First, the database that is used to record payments between people is public, rather than the privately held account databases of the normal banking system. Second, the intermediaries that change that database are a decentralized network of people (“miners”) running special Bitcoin software, rather than banks running their own private software systems [8].

In the Cryptocurrency system:

1. An individual who wants to make transaction has a public address.
2. They have a private key that allows them to control that public address.
3. They then use the internet to establish themselves to the Bitcoin network and request that digital tokens connected with their public address can be transferred to the someone else's public key. This is accomplished by a group of people known as miners who makes a modification to the blockchain ledger
4. The two parties who control the public addresses can then see these changes, proving that the tokens have moved from one address to the other.

VI. CONCLUSION

With its efficiency, transparency, accuracy, and efficiency in terms of time and cost, blockchain is a revolutionary technology that has the potential to transform the world. The financial world has seen success with cryptocurrencies networked by blockchain technology, particularly in the management of payments and money transfers. There are many platforms which already adopted this cryptocurrencies as their mode of transfer. But every system comes with challenges so as blockchain and cryptocurrency. So there's a long way to see how these technologies evolves in coming years.

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