

What is Blockchain Technology, and its Uses

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Abstract— A common, real-time, encrypted, and decentralized electronic record system for processing and recording financial transactions, contracts, physical assets, supply chain information, etc. There is no single person or entity responsible for the entire chain, rather it is open and everyone in the chain can see the details of each record or block, and track information over a secure network that does not require third party verification. Blockchain technology helps maintain tamper-resistant lists of ever-growing data records, and enables the secure exchange of valuable materials such as money, shares or rights to data access. Contrary to traditional trading systems, there is no need for a middleman or a central registry system to follow up the exchange movement, but all parties deal directly with each other..

Keywords— Blockchain – Technology – High-tech – data

I. INTRODUCTION

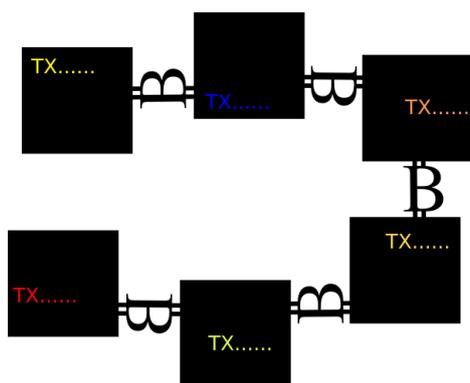
It is a distributed database, regardless of the quality of that data (ie, it is not limited to financial data only). This data is recorded in blocks or blocks. The interesting thing is that these databases are decentralized, unlike traditional databases. That is, there is no single place to store them, and their monitoring is not supervised by a central administration. Rather, these multiple copies - and identical - exist in many computers connected on the network, and these computers are referred to as “nodes”. Any computer can become a node in the network after installing certain

software. Suppose someone wanted to make a financial transaction, i.e. a money transfer. The person enters the financial transaction via blockchain technology, through the peer to peer system, and a block is created containing all the data related to that transaction, then the blocks are sent to the nodes or computers connected to the network. A string can be thought of as a distributed ledger, similar to a merchant's ledger, containing a set of data, the blocks. So when new data is added to the network, a new 'block' is added to the 'chain', and those transactions or data are validated by thousands of computers located in different parts of the world.

These transactions are secured by encryption, and here comes the role of the computers “contracts” in securing these transactions, as computers work on solving very complex mathematical equations with the aim of conducting and completing transactions, and ensuring their validity and reliability, and this is what is known as mining.

II. HOW IT OPERATES?

Blockchain technology records information related to Bitcoin transactions, such as the source of this money, the destination it was sent to, the timing of the transaction, its value, the fees paid in it, and all information related to this transaction. All this information is stored in a series of "blocks", which are somewhat similar to a bowl. In the case of Bitcoin, each block contains data stored for 2,000 transactions (at least until late 2017). Process blocks are connected with cipher auxiliary links.



Blockchain can store various types of data, such as: details of cryptocurrency operations, contents of land registry, insurance records, health history, car accident history, title

changes, and more. It can also act as a platform for other applications.

Blockchains, which function as distributed ledgers with specific timestamps of transactions, are stored (in most cases) through decentralized networks of computers, also called “nodes,” with each computer storing an entire Blockchain.

III. WHAT ARE THE BENEFITS OF BLOCKCHAIN TECHNOLOGY

Too many processes often result in wasted effort in keeping duplicate records and checks for permissions with third parties. Record-keeping systems can be vulnerable to fraud and electronic attacks. Limited transparency can also slow down the data validation process. Also, with the arrival of the Internet of Things (IoT), transaction volumes have ballooned. All of this slows down the work and drains the effort of saving and validating permissions - so we need a technology like Blockchain.

IV. HOW DOES BLOCKCHAIN TECHNOLOGY WORK?

When a transaction is completed, it is recorded as a block of data, whether this process is a tangible asset (product) or an intangible asset (intellectual). The data block can be recorded with information of your choice such as:

Identity, time, place, quantity and even status.

Each block of data is connected to the one before and after it, and these blocks form a chain of data when the asset moves from one place to another or changes ownership. The blocks confirm the exact time and sequence of transactions,

and the blocks are securely linked to each other to prevent a block from being changed or a block being inserted between two already existing blocks.

In this sense, the Blockchain technology groups transactions together in an inseparable chain where each additional block enhances the verification of the previous block and then strengthens the entire Blockchain unit. Which achieves the basic strength of the concept of stability and safety.

V. SPOTLIGHT

The Blockchain is not modifiable, as any change to it requires enormous computing power, and the Blockchain becomes more secure the more ancient it is.

The Blockchain is somewhat transparent, as anyone can see the data stored in the Blockchain (Bitcoin for example) around which all transactions stored can be viewed using the Blockchain browser. However, some blockchain technologies offer more anonymity.

Blockchain tends to be decentralized, as there is no central authority to control it unlike traditional databases that can be blocked and monitored by their owner. The blockchain can maintain its functionality 24/7 in the event of any malfunction in the network. However, there are trends for more centralized blockchain projects.

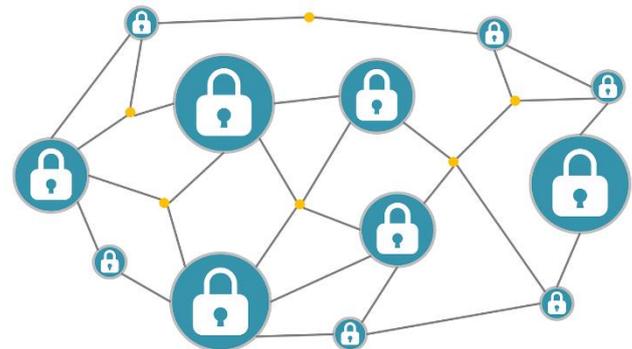
VI. THE BENEFITS AND ADVANTAGES OF BLOCKCHAIN

Blockchain technology has been able to gain business confidence and credibility thanks to its continuous development and strong advantages, starting with providing a high level of security, transparency and traceability of data recorded across the business network to its ability to save a

lot of costs while maintaining a high degree of efficiency, and in the following we mention five benefits Or key features of Blockchain technology:

Enhance the safety factor

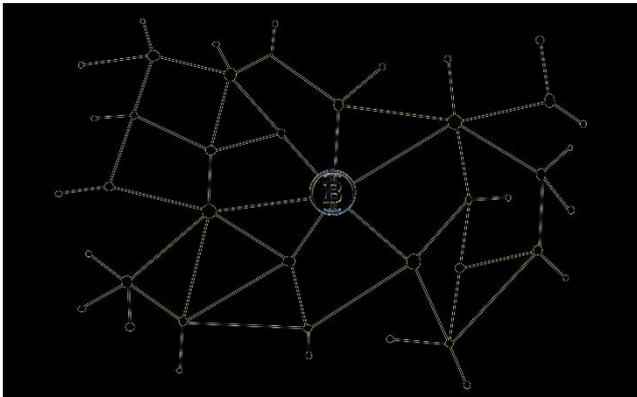
When data is sensitive and crucial, your financial data for example, blockchain technology can dramatically change the way critical information is presented by creating an end-to-end encrypted record that helps prevent fraud and unauthorized activities. Privacy issues can also be addressed by anonymizing personal data and using permissions to prevent access. Information is stored across a network of computers rather than on a single server, making it difficult for hackers or hackers to view or obtain data.



Transparency

Since the blockchain uses a distributed ledger or transaction log, transactions and data are recorded symmetrically at multiple locations. All network participants with authorized access see the same information at the same time, providing complete transparency to network contributors or operators. In addition, all transactions that are recorded in the blocks are immutable, and are stamped with a date and time stamp to document the time of their construction and recording. This allows members to view the complete history of the

transaction in exact chronological order and virtually eliminates any chance of fraud.



Instant Tracking

The Blockchain creates an audit trail that documents the provenance of the asset at every step of the registration and block formation journey. This makes sharing data about the source directly accessible and easy. Traceability data can also reveal vulnerabilities in the chain

Increase efficiency and speed

Traditional paper-based processes take a lot of time and effort, are prone to human error, and may require third-party mediation. By simplifying these processes using the blockchain, transactions can be completed faster and more efficiently. Documents can be stored on the blockchain along with transaction details, eliminating the need to exchange papers and documents. There is no need to reconcile multiple records, so review and reconciliation can be much faster.

Automation

Which is meant to make the system automated, where transactions can even be automated through smart contracts,

which increases your efficiency and speeds up the process even more. Once the predefined conditions are met, the next step in the transaction or process is automatically triggered. Smart contracts reduce human intervention as well as reliance on third parties to verify that contract terms are met. For example, once a customer submits all the documents needed to submit a claim, the claim can be settled and paid automatically.

VII. CONCLUSION

Business is conducted with information. The faster and more accurate the information is received, the better. Blockchain technology is ideal for delivering this information, as it provides instant, shared and crystal clear information that is stored in an immutable ledger and can only be accessed by authorized network members. The Blockchain network can keep track of orders, payments, accounts, production rate and much more. And because members share a single view of the truth, you can see every detail of transactions from one method to the other, giving you greater confidence, as well as new efficiencies and opportunities.

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