

Blockchain – Innovative Futuristic Prospect in Digital Information

By

Mrs. N.Supriya- supriyanari2015@gmail.com/ 9666995044

Faculty of Commerce, St. Ann's College for Women, Mehdipatnam, Hyderabad – 28

&

Ms. Asra Sultana- asrasultana79@gmail.com/ 9052392890

Faculty of Commerce, St. Ann's College for Women, Mehdipatnam, Hyderabad – 28

ABSTRACT

The world is going digital and soon our financial system will become digital. Blockchain is the most promising technologies of the future which facilitates to transfer data in its most transparent form. It offers industries a decentralized, democratic, proficient and secure system for recording and transferring data. The medium of transaction has additionally been advancing alongside the development of society and human awareness from bargain framework to item cash to fiat money and now to computerized money or cryptographic money. In any case, as the advancement is a type of error correction, the issue of twofold spending in computerized money was illuminated by an appropriated record framework called Blockchain. Blockchain innovation empowers the production of decentralized monetary forms, savvy contracts and clever resources that can be controlled over the Internet.

This paper focuses on future prospects of Blockchain technology resulting in reduction of errors.

Keywords:Blockchain, digital, decentralized, cryptographic money, transparent transaction.

INTRODUCTION

Blockchain technology or the distributed, secure ledger technology has gained much attention in recent years. This paper presents a detailed survey of blockchain technology literature and its prospects. The sources of blockchain literature examined for this survey include research papers, books and book chapters, journal papers, specific cryptocurrency sites and wikis, conference papers, published by various organizations implementing and experimenting in Blockchain. Blockchain being a much hyped and experimented technology a lot of literature is found in content hosted on proprietary forums such as company websites, web articles, etc. This survey is extensive and covers the various aspects of blockchain including consensus algorithms and their variations as well as currently implemented and possible future applications. This survey will not cover the details of technical aspects of blockchain, however, references that cover these aspects may be found in bibliography.

BLOCKCHAIN OVERVIEW

Blockchain technology is presently generating approximately energetic enthusiasm amongst banks, enterprises and public bodies. Fresh initiatives and various cooperation agreements on blockchain applications are being announced in the economic press on a near daily basis. This is not limited solely to banks and private enterprises, but also encompasses projects by governments and central banks. It is subsequently a decentralized framework against the current incorporated one. Along these lines, "blockchain is an open record of all Bitcoin exchanges that have ever been executed." It is always developing, as finished blocks are added to it with another arrangement of recordings. The blockchain used to broadcast 'bitcoins' needs to be significantly altered to make it suitable for financial transactions. Public key cryptography is likewise used to ensure the information is ethical.

Everyone is talking about blockchain, the new technology in the FinTech Industry. The concept of blockchain has energized the financial services industry globally.

Origin

The first blockchain was conceptualized by a person (or group of people) known as Satoshi Nakamoto in 2008. Nakamoto improved the design in an important way using a Hashcash-like method to add blocks to the chain without requiring them to be signed by a trusted party. The design was implemented the following year by Nakamoto as a core component of the cryptocurrency bitcoin, where it serves as the public ledger for all transactions on the network.

The words *block* and *chain* were used separately in Satoshi Nakamoto's original paper, but were eventually popularized as a single word, *blockchain*, by 2016.

What is blockchain?

Blockchain is a public ledger of all bitcoin transactions that have ever been executed. A block is the “current” part of a blockchain which records some or all of the recent transactions, and once completed, goes into the blockchain as permanent database. Each time a block gets completed, a new block is generated. Blocks are linked to each other (like a chain) in proper linear, chronological order with every block containing a hash of the previous block. To use conventional banking as an analogy, the blockchain is like a full history of banking transactions. Bitcoin transactions are entered chronologically in a blockchain just the way bank transactions are. Meanwhile, blocks, are like individual bank statements. The full copy of the blockchain has records of every bitcoin transaction ever executed. It can thus provide insight about facts like how much value belonged to a particular address at any point in the past. Some developers have begun looking at the creation of other different blockchains as they do not believe on depending on a single blockchain. Parallel blockchains and sidechains allow for tradeoffs and improved scalability using alternative, completely independent blockchains, thus, allowing for more innovation.

Types of Blockchain

Currently, there are three types of blockchain networks — public blockchains, private blockchains and consortium blockchains.

Public blockchains

A public blockchain has absolutely no access restrictions. Anyone with an internet connection can send transactions to it as well as become a validator (i.e., participate in the execution of a consensus protocol). Usually, such networks offer economic incentives for those who secure them and utilize some type of a Proof of Stake or Proof of Work algorithm.

Some of the largest, most known public blockchains are Bitcoin and Ethereum.

Private blockchains

A private blockchain is permissioned. One cannot join it unless invited by the network administrators. Participant and validator access is restricted.

This type of blockchains can be considered a middle-ground for companies that are interested in the blockchain technology in general but are not comfortable with a level of control offered by public networks. Typically, they seek to incorporate blockchain into their accounting and record-keeping procedures without sacrificing autonomy and running the risk of exposing sensitive data to the public internet.

Consortium blockchains

A consortium blockchain is often said to be semi-decentralized. It, too, is permissioned but instead of a single organization controlling it, a number of companies might each operate a node on such a network. The administrators of a consortium chain restrict users' reading rights as they see fit and only allow a limited set of trusted nodes to execute a consensus protocol.

How Does Blockchain Work?

When a block stores new data it is added to the blockchain. Blockchain, as its name suggests, consists of multiple blocks strung together. In order for a block to be added to the blockchain, however, four things must happen:

1. A transaction must occur. Let's continue with the example of your impulsive Amazon purchase. After hastily clicking through multiple checkout prompts, you go against your better judgment and make a purchase.

2. That transaction must be verified. After making that purchase, your transaction must be verified. With other public records of information, like the Securities Exchange Commission, Wikipedia, or your local library, there's someone in charge of vetting new data entries. With blockchain, however, that job is left up to a network of computers. These networks often consist of thousands (or in the case of Bitcoin, about 5 million) computers spread across the globe. When you make your purchase from Amazon, that network of computers rushes to check that your transaction happened in the way you said it did. That is, they confirm the details of the purchase, including the transaction's time, dollar amount, and participants. (More on how this happens in a second.)

3. That transaction must be stored in a block. After your transaction has been verified as accurate, it gets the green light. The transaction's dollar amount, your digital signature, and Amazon's digital signature are all stored in a block. There, the transaction will likely join hundreds, or thousands, of others like it.

4. That block must be given a hash. Not unlike an angel earning its wings, once all of a block's transactions have been verified, it must be given a unique, identifying code called a hash. The block is also given the hash of the most recent block added to the blockchain. Once hashed, the block can be added to the blockchain.

When that new block is added to the blockchain, it becomes publicly available for anyone to view — even you. If you take a look at Bitcoin's blockchain, you will see that you have access to transaction data, along with information about when (“Time”), where (“Height”), and by who (“Relayed By”) the block was added to the blockchain.

How Can Blockchain Be Used in the Real World?

Blocks on the blockchain store data about monetary transactions — we've got that out of the way. But it turns out that blockchain is actually a pretty reliable way of storing data about other types of transactions, as well. In fact, blockchain technology can be used to store data about property exchanges, stops in a supply chain, and even votes for a candidate.

Professional services network Deloitte recently surveyed 1,000 companies across seven countries about integrating blockchain into their business operations. Their survey found that 34% already had a blockchain system in production today, while another 41% expected to deploy a blockchain application within the next 12 months. In addition, nearly 40% of the surveyed companies reported they would invest \$5 million or more in blockchain in the coming year. Here are some of the most popular applications of blockchain being explored today.

Advantages of Blockchain Technology

• Disintermediation and trustless trade

Two social affairs can make an exchange without the oversight or intermediation of an outcast, solidly decreasing or despite massaging counterparty possibility.

• Empowered clients

Customers are accountable of every one of their information and trades. • High quality information Blockchain information is finished, reliable, convenient, exact, and generally accessible.

• Process respectability

Clients can assume that exchanges will be executed precisely as the convention summons expelling the requirement for a trusted outsider.

• Transparency and changelessness

Any sort of transactions whether modify or reversal can be shown to customers as all the transactions are permanent, which means they can't be adjusted or erased.

- **Faster Transactions**

Interbank Transactions can possibly take days for clearing the cheques and demand drafts, particularly outside of working hours. With the use of Blockchain all interbank transactions are carried out within short span of time. Customers can use E-Banking, M-Banking and UPI etc for any sort of transactions even at home.

- **Lower exchange costs**

By taking out outsider middle people and overhead expenses for trading resources, blockchains can possibly extraordinarily diminish exchange charges.

Opportunities of Blockchain Technology

There are numerous limitations in making the entire discretionary process web based attributable to our computerized hole yet the real one so far is the issue of security and secrecy. Utilizing the blockchain, a person on the electoral roll can watch that her vote was successfully transmitted while staying mysterious. In 2014, Liberal Alliance, a political gathering in Denmark, turned into the main association to utilize blockchain to vote. With India's voter turnout still shockingly low, appropriated computerized voting may speak to an approach to emancipate non-members. The vast majority of these applications are as yet immature and the future capability of the blockchain applications is as yet disentangling. The following couples of years will be tied in with testing and applying to all parts of society. All that really matters is, BlockChain is digging in for the long haul and is changing how our general public capacities.

Conclusion

Blockchain innovation runs the Bitcoin digital money. It is a decentralized domain for exchanges, where every one of the exchanges is recorded to an open record, obvious to everybody. The objective of Blockchain is to give secrecy, security, protection, and straightforwardness to every one of its clients. In any case, these traits set up a great deal of specialized difficulties and constraints that should be tended to. The blockchain additionally empowers the improvement of new frameworks with more popularity based or participatory

basic leadership, and decentralized associations that can work over a system of PCs with no human intercession. These applications have lead many to contrast the blockchain with the Internet, with going with expectations that this innovation will move the adjust of energy far from brought together experts in the field of correspondences, business. With the utilization of this innovation all the Banking exchanges can turn out to be all the more quick and shabby and the investment funds would then be able to be spent on social welfare or digital security. Notwithstanding these essential reservations, we trust that more blockchain applications will develop sooner rather than later in territories as different as craftsmanship, tourism and games. While still in their early stages, one ought not think little of the promising financial advantages of these unprecedented mechanical changes.

With many practical applications for the technology already being implemented and explored, blockchain is finally making a name for itself at age twenty-seven, in no small part because of bitcoin and cryptocurrency. As a buzzword on the tongue of every investor in the nation, blockchain stands to make business and government operations more accurate, efficient, and secure.

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