



BLOCKCHAIN TECHNOLOGY: FUTURE OF TRANSACTION

Vivek Gujar

PhD, BTech, MBA, DEM, cVa, CITRA, ISO 9001 LA, ISO 27001 LA, BS25999, Ex Director-
Management Institute.

ABSTRACT

A blockchain is a distributed database of records of any transactions/events or any digital activity executed among participating parties. Each transaction in the public ledger is verified by consensus of a majority of the participants in the system. And, once entered, information can never be erased. There are tremendous opportunities in this disruptive technology and revolution in this space has just begun. This article describes blockchain technology and some specific applications in both financial and nonfinancial sector.

Keywords: Blockchain, Crypto currency, Tokens, Bitcoin

Introduction

The blockchain concept, most known for being the technology for crypto-currencies, has generated a huge amount of interest within capital markets. The blockchain is the brainchild of a person or group of people known by the pseudonym, Satoshi Nakamoto. It is basically a giant ledger most popularly used to keep track of who owns coins/tokens or records. By allowing digital information to be distributed, and never be erased after verification, blockchain technology created the backbone of a new type of internet. Blockchain technology has been acknowledged as one of the most disruptive innovations since the advent of the Internet.

What is Blockchain Technology?

Blockchain Technology was first developed to provide an alternative approach to payments, by using cryptographic methods to provide an alternative trust mechanism between two transacting parties. Now it is being used as a solution for a wider variety of uses and transactions. Don & Alex Tapscott, authors of ‘Blockchain Revolution’ (2016) spearheading blockchain movement, says, “The blockchain is an incorruptible digital ledger of economic transactions that can be programmed to record not just financial transactions but virtually everything of value.”

It offers a new approach to data management, where all participants work from common datasets, in near real-time, and where supporting operations are either streamlined or made redundant. It is a spreadsheet to all, continually reconciled, located at each node of everyone in network so it’s a truly democratic, easily verifiable and beyond trust mechanism.

Blockchain technology, technically, is not a new technology rather it is a combination of proven technologies applied in a new way where three technologies viz; the Internet, private key cryptography and a protocol governing incentivization (that gave birth to bitcoin) are involved.

| Three Underlying Technology for Blockchain | | |
|--|-------------------|------------------------------------|
| 1. Private Key Cryptography | 2. P2P Network | 3. Blockchain protocol- program |
| Identity | System of Records | Platform |

The result is a system for digital interactions that does not need a trusted third party. The work of securing digital relationships is implicit — supplied by the elegant, simple, yet robust network architecture of blockchain technology itself.

In any business, trust is important; here in the digital world, determining trust often leads to proving identity (authentication) and proving permissions (authorization). So, private key is ownership which helps to remove barriers of sharing personal information.

Blockchain technology is often described as the backbone for a transaction layer for the Internet, the foundation of the Internet of Value. To use conventional banking as an analogy, the blockchain is like a full history of banking transactions.

The USP of blockchain is that it allows two parties to execute a transaction without any intermediary and human intervention. The electronic ledger of transactions is continuously maintained and verified in 'blocks' of records. With the help of cryptography, the tamper-proof ledger is shared between parties on computer servers. Experts believe that blockchain architecture can significantly bring down the costs and reduce inefficiencies in the financial sector.

Benefits of blockchain technology as specified by Forbes are:

1. As a public ledger system, blockchain records and validate each and every transaction made, which makes it secure and reliable.
2. All the transactions made are authorized by miners, which makes the transactions immutable and prevent it from the threat of hacking.
3. Blockchain technology discards the need of any third-party or central authority for peer-to-peer transactions.
4. Decentralization of the technology.

Uses & Applications

The financial industry has also started looking to leverage it to store and transfer its value to other financial instruments. Capital Markets is one such industry in the financial space where industry experts are optimistic about the use of blockchain technology.

Blockchain has promising future in several financial areas like banking, insurance, real estate, factoring, etc. Use of blockchain technology is not limited to the financial sector. For example, Honduras government has put all land records on a public ledger - the blockchain. The minute there is a change in ownership, it gets recorded publicly. India's Land Records Management department is looking forward to this system.

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The Australian Securities Exchange (ASX) announced this year that it would move Australia's equities clearing and settlement system on to blockchain. In October 2015, Nasdaq unveiled Linq, a solution enabling private companies to digitally represent share ownership using blockchain-based technology.

Central banks: Many central banks — including those in Canada, Singapore, and England — are studying and experimenting with blockchain technology and cryptocurrencies. The potential applications include lower settlement risk, more efficient taxation, faster cross-border payments, inter-bank payments, and novel approaches to quantitative easing.

Deutsche Bank: The bank has said that it has been exploring various use cases of blockchain in areas like payments and settlement of fiat currencies, asset registries, enforcement and clearing derivative contracts, regulatory reporting, KYC, AML registries, improving post-trade processing services, etc. It has been experimenting on these technologies at their innovation labs in London, Berlin and Silicon Valley (July 2015).

NASDAQ: The stock exchange firm initially revealed (May 2015) that they were planning to use blockchain as an enterprise-wide technology to enhance their capabilities on the NASDAQ Private Market Platform. The NASDAQ Private Market Platform is a new initiative launched in January 2014, to enable pre-IPO trading among private companies. It has also said that they would leverage the Open Assets Protocol, a colored coin concept, to build their private exchange platform. Later, in June 2015, it announced a partnership with Chain, a blockchain infrastructure provider for FIs and enterprises.

DBS Bank: The bank organized a blockchain hackathon in Singapore in partnership with Coin Republic, a Singapore-based bitcoin company & Startupbootcamp FinTech. (May 2015)

EBA: Euro Banking Association (EBA) has released a report (in May 2015) talking about the implications of crypto-technologies from the perspective of transaction banking and payment professionals in the coming one to three years. It has noted that these technologies could be leveraged by banks to reduce governance and audit costs, to provide better products and faster time to market.

US Federal Reserve: Federal Reserve is reportedly working with IBM on developing a new digital payment system tied to blockchain. (Mar 2015)

There have also been reports that derivatives companies CME Group, Deutsche Boerse, clearing houses DTCC (depository trust & clearing corporation) and EuroCCP are working on projects around the use of blockchain in areas such as clearing. In a post on LinkedIn, Prasad Dahapute, Director, Indian Clearing Corp Ltd and Member – Technology Committee- Bombay Stock Exchange, opined that blockchain is truly democratic technology, leveraged to cut costs and improve the transparency of financial transactions (Dec 2017). SEBI Chairman has encouraged financial sectors to use blockchain technology (Dec 2017). Also, there has been news that money transfer service provider Western Union could possibly look into Ripple technology to understand blockchain.

Other Applications

Digital assets

The first prominent application of blockchain included the creation of electronic currencies like Bitcoin/tokens. Other digital assets, such as stock and bonds or frequent flyer miles, can be created by adding protocols to crypto-currency implementations. Potentially, digital assets based on blockchain can be created separately from crypto-currencies currently in use. Similarly, blockchain could be used to enforce copyright and support the distribution of copyrighted materials, such as music or movies.

Identity and social networks

Digital identities can be treated as digital assets and can be created based on blockchain approaches. Social networks based on these identities and other group activities could be put together based on the same framework

Decentralized File Storage

The blockchain allows different entities, such as banks, governments and industrial players, to efficiently and securely reach consensus on the order of transactions and the correctness of data, lies in the construction of decentralized and authenticated storage systems. Authenticated storage refers to a storage system where each entity can prove to another that it had stored a given object.

Typical examples are court documents which need to be attested (e.g., that they are issued by a given entity or modifications/ updates to legal documents).

Smart contracts:

Developers can leverage multi-signature transactions in tokens in order to construct smart contracts which refer to binding contracts between two or more parties and are enforced in a decentralized manner by the blockchain without the need for a centralized enforcer.

Conclusion:

The distributed ledger is not a new to the financial world, however, its appeal has risen in the wake of increasing popularity and interest in cryptocurrencies and the blockchain.

There are varying views on use of this technology in the securities industry that it will lead to disruption to revolutionize the processes. And yes, its around the block! The technology has the potential to bring additional efficiencies and increased transparency to the industry bringing newer risks and hordes of compliances. Technology experts in Fintech start-ups, incumbent market infrastructure providers and banks are working on the underlying technology and its potential uses.

The technology would bring in standardised processes and services, shared reference data, standardised processing capabilities (such as reconciliations), near real-time data and improved understanding of counterparty worthiness. Alongwith, the challenges are Regulating this sector, Scalability of tech, Governance & Compliance and spectrum of Application eg Music, etc raising pertinent question that how can blockchain be used beyond currency

In order to work together to shape a new future, the industry needs to take a collective view on the potential of the technology. It must embrace this potential, show patience with its development and invest in various innovative solutions to bring it to bear.

It is up to major established players in the market to work with innovators to develop standards, while also preserving the existing strengths of the ecosystem, and navigating the complex worlds of regulation and legal oversight.

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