# BLOCKCHAIN THE NEW ERA OF TECHNOLOGY

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**Abstract -** *Blockchain technology was back introduced to the world in 2008 and came into existence in January 2009 as bitcoins i.e cryptocurrency by an individual or a group of individuals named as Satoshi Nakamoto.*

*The study purpose is how to use blockchain in the insurance sector to resolve the claim settlement problems using smart contracts in insurance and healthcare industry to help user for better healthcare facilcity.*

*A smart contract will help to bring multiple companies claim options together in which user has the policy and ease the claim settlement process.*

***Key Words***:  **smart contracts, authenticity factor, area of issues, solutions for claim problems via blockchain, health care solution via blockchain, etc**.

## 1. INTRODUCTION

### 1.1. Blockchain

From ancient period Ledgers are maintained to keep track of the trading i.e information about buying and selling goods and services. Ledger like clay tablets, papyrus, tally sticks, double entry bookkeeping, spreadsheets and now distributed ledgers (i.e, Blockchain).

The first work on a cryptographically secured chain of blocks as described in 1991 by Stuart Haber and W. Scott Stornetta.

In 1992, Bayer, Haber, and Stornetta incorporated Merkle trees (hash tree) to the blockchain as an efficiency improvement to be able to collect several documents into one block.

Blockchain was conceptualized in 2008 and was implemented the following year as digital currency bitcoin, by an anonymous person or group of individuals known as Satoshi Nakamoto.

The blockchain is a distributed ledger which can be either public or private. Blockchain consists of a block in the chain and each block contains data, hash, timestamp, and hash of the previous block. Hashing provides unique

Sample paragraph, The entire document should be in cambria font. Type 3 fonts must not be used.  Other font types may be used if needed for special purposes. The entire identification to each block thus hashing technique used is SHA256.

As Blockchain has a distributed ledger it uses Peer-to-Peer network where ledger can be seen by every another person in the network which reduces the possibility of attacking by hackers.

Use of  Blockchain is implemented in the global economy in the form of cryptocurrency, as blockchain has various inbuilt security and is less prone to attack we can use blockchain technology in various fields like governance, industries, medical, insurance, markets etc.

Blockchain technology uses hashing and timestamp to encrypt the data and then the block is created and chained to the previous blockchain and a ledger is maintained which can be public or private.

Blockchain mechanism minimises the issues of data theft as they maintain a block of a chain which if distributed publicly or privately maintains the same ledger throughout the nodes (an example of bitcoins miners) so chances of alteration of data are less.
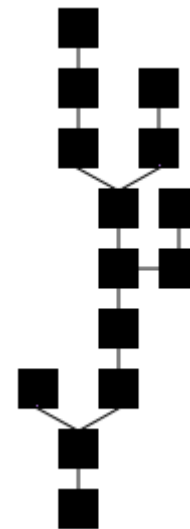


**Fig 1.** Blockchain are connected in hierarchy manner.

### 1.2. Why Blockchain

Blockchain provides security by hashing each block in the chaining and distributing copy of block to everyone connected to the blockchain. Each block consists of data (Merkle tree), timestamp, and hash of the previous block. Let's understand each term more precisely.
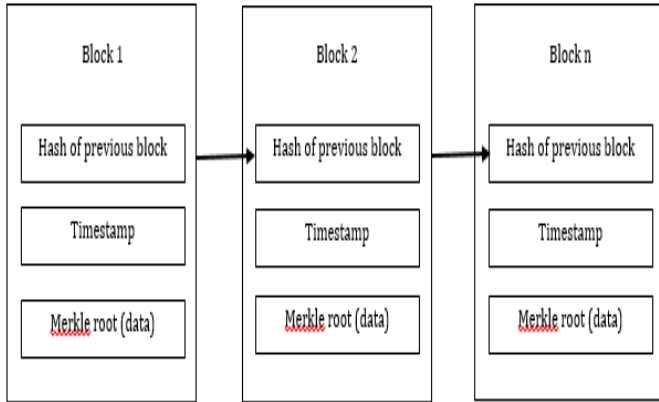
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**Fig 2.** Connection of one block to another.

### 1.3. Data

Contains information or detail data stored in a block example sender, receiver and amount.

### 1.4. Timestamp

It provides information regarding when the event took place example time and date of the transaction.

### 1.5. Hash

A unique identification of each block which is created using a SHA256 encryption technique, the hashing technique is done on the data, which means a change in data changes the hash of the block.
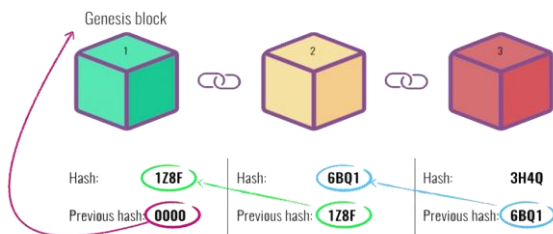


**Fig 3.** Hashing of block and relation with pervious block

### 1.6. Hash of Previous

To form a chain of blocks each block contains the hash of the previous block example block2 should have the hash of block 1 to make the chain of blocks example fig 2 and fig 3.

### 1.7. Smart Contracts

It is a type of computer protocol which has some conditions to verify, depending on the conditions the action is taken.

It can be used for an exchange of money, property or anything of value.
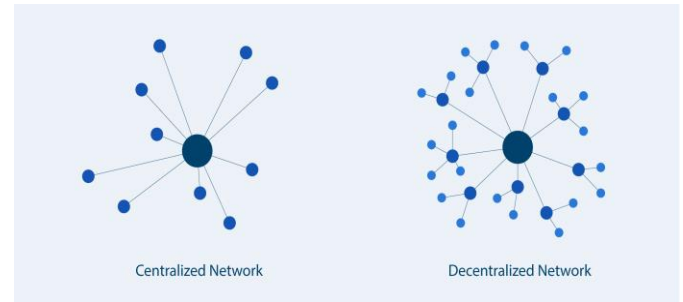
## 2. Types of Networks



**Fig 4.** Types of networks in blockchain

### 2.1. Centralized

This network consists of a central system/hub.

Each user is connected to the central system, whenever any message is passed between two user the message passes from central system. It is also known as private networks where only authorized persons can only use the network.

### 2.2. Decentralized

This network is same as centralized network the only difference is that centralized network has single network and is connected to the central system whereas in this network multiple centralized networks are connected to the network system and exchange messages finding the shortest network for sending the message.
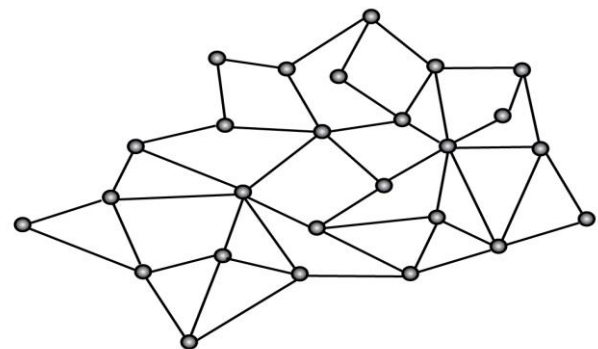


**Fig 5.** Distributed network in blockchain.

### 2.3. Distributed

This is a type of public network where each node can pass message to every other node in the network and once the message is success a block is created which is distributed publically throughout the network.

Every node in the network gets the copy of block and thus the blockchain is complete.

## 3. Use of Blockchain in various fields

### 3.1. HEALTH CARE

#### 3.1.1. Introduction

Health care industry is one of the most important and largest industry where uses can be benefited by providing facilities that would help in ease of medical facility.

#### 3.1.2. Problem Definition

- Lack of storage to keep the records.

- Users tend to lose their old medical records.

- Lack of support from government as there is no transparency in system.

- Hospital has their own individual systems to maintain records of patients.

#### 3.1.3. Problem Solving

- Hospital can make a blockchain network to maintain a common system for keeping records of patient.

- Using blockchain technology will bring transparency in network which would help in getting medical facility faster.

- Hospital and Health insurance industry are also connected to the network to share the insured patient's information and provide medical facility faster.

- Having a common system throughout the hospitals would help doctors to get the patient records easily and faster as it is shared among the network.

- If a patient visit's another doctor he doesn't has to carry all the records with him.

### 3.2. INSURANCE

#### 3.2.1. Introduction

Insurance is a necessity in current world. There are multiple companies providing various types of insurance like health, term, car, life, accidental etc. One takes such insurance to avoid burden and to facilitate self and family.

Considering the future and unhealthy lifestyle people take insurance, so that if anything happens to the insured the family could survive.

### 3.2.2. Problem Definition

#### Problems in Current Claim Process

- One has to visit different the company's website or the insurance company's for the claim form.

- Claim settlement processing officer ask for various documents for verification which takes a long either weeks or even months.

- Some officers even try to misguide by not providing the full information regarding documents or any other process to extend the period of claim.

- Some offices even ask for some shares to increase the claim amount which is to be sanction.

- Process of settlement is kept on extending by no reason, which causes long duration of extension to settle the claim.

- Sometime people even have file case against the insurance companies to get their claim settle.

#### 3.2.3. Problem Solving

Using blockchain technology insurance companies can make a distributed network together where all the insurance companies and users will be connected.

All the users and companies will have a same data in the network.

Whenever a transaction or claim is committed a block is created and copy of that block will be distributed throughout the network.

##### 3.2.3.1. Solution to Claim Process

- All companies will have a common claim form.

- Having a common claim form will help the person to fill the records easily without hassle.

- Having common form will save the requestor time and also the papers of the claim form.

- One has to select the company and has to enter the policy number and upload the said required documents.

- This documents will be common required documents by the insurance companies.

- Smart contracts will be implemented to remove the third person (middlemen) from the process.

- Smart contracts will have some terms which will be transparent in the network i.e what all is required to verify the claim settlement.

- Smart contract will verify the details and depending on the condition will accept or reject the claim.

## 5. CONCLUSION

We conclude that use of blockchain in various fields would help the users to get transparency in system and would remove third party involvement saving users time and money and would limit the fraudulence to certain limits.

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