ITC INFOTECH

Business-friendly Solutions

BLOCKCHAIN

A potential Game-changer for Insurance claim

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> When I saw what the fundamental principles of the blockchain provided, it was just patently obvious to me that it would make sense around reducing fraud related instances of valuables."
>
> - Leanne Kemp, CEO, Everledger

Introduction

History of insurance dates back to early human society. Granaries were the earliest form of insurance (risk-pooling) which over time adapted by merchants to transport their products on ships. And, in 1968, Lloyds was born in a coffee house.

Between 1968 and today, the insurance industry has been working on four fundamental principles of insurance and among them the most prominent is 'utmost good faith' or 'Uberrima fides'.

Although the insurance business runs on TRUST, but it has been breached by several times, due to which many insurance companies have paid the fraudulent claims, due to lack of evidences. Every year claims and underwriting fraud cost $80 billion and ~ $34 billion, specifically to Property and Casualty (P&C)Industry (per wnsdecisionpoint report).

Thus, a trust and efficiency engine like Blockchain technology has the potential to bring such fraudulent claims to stop, while improvising transparency and reduction to claim cost.

What is Blockchain technology?

Blockchain is undeniably an ingenious invention, which many people know as Bitcoin or cryptocurrency (developed by a pseudonym – Satoshi Nakamoto). But in today's technology world it has evolved in a far greater way and this concept now has implications to all businesses.

The blockchain is an immutable, distributed and mutualized digital ledger of economic transactions that can be programmed to record not just financial transactions but virtually everything of value.

Blockchain technology, in general runs on four basic characteristic:

Decentralized & Distributed: In blockchain, Distributed means computation is spread across multiple nodes instead of just one. Decentralized means no node is instructing any other node as to what to do, thus removing the central authority to control the data. Blockchain technology is both since, it is time-stamped public ledger, which resides on multiple computers and it's also decentralized because if one node fails, the network is still able to operate.

Encryption: Blockchain authenticates participants by using a mix of private and public keys. These keys are in form of hashes, which act as digital fingerprint as they allow us to prove that a file existed in a particular format at a given time without having to reveal the data in the file. While, a hash is a one-way function and encryption is a two-way function. You cannot derive the original data from a hash, only prove it existed. Encrypted data can be decrypted, revealing the information.

No intermediary: With blockchain, cryptology replaces third-party intermediaries as the keeper of trust, with all participants running complex algorithms to certify the integrity of the whole. It is this ability to replace middlemen with mathematics that makes this technology matter.

Immutable: Immutable means 'unable to be changed', but is blockchain data cannot be altered? The data can be changed, tampered and corrupted. It's more than just "tamper-resistant" (which implies intent), blockchain data also resists random changes that can happen without any intent, such as data corruption on a hard drive. Therefore, in the context of blockchain, the word "immutable" is often interpreted to mean practically immutable, for all intents and purposes.

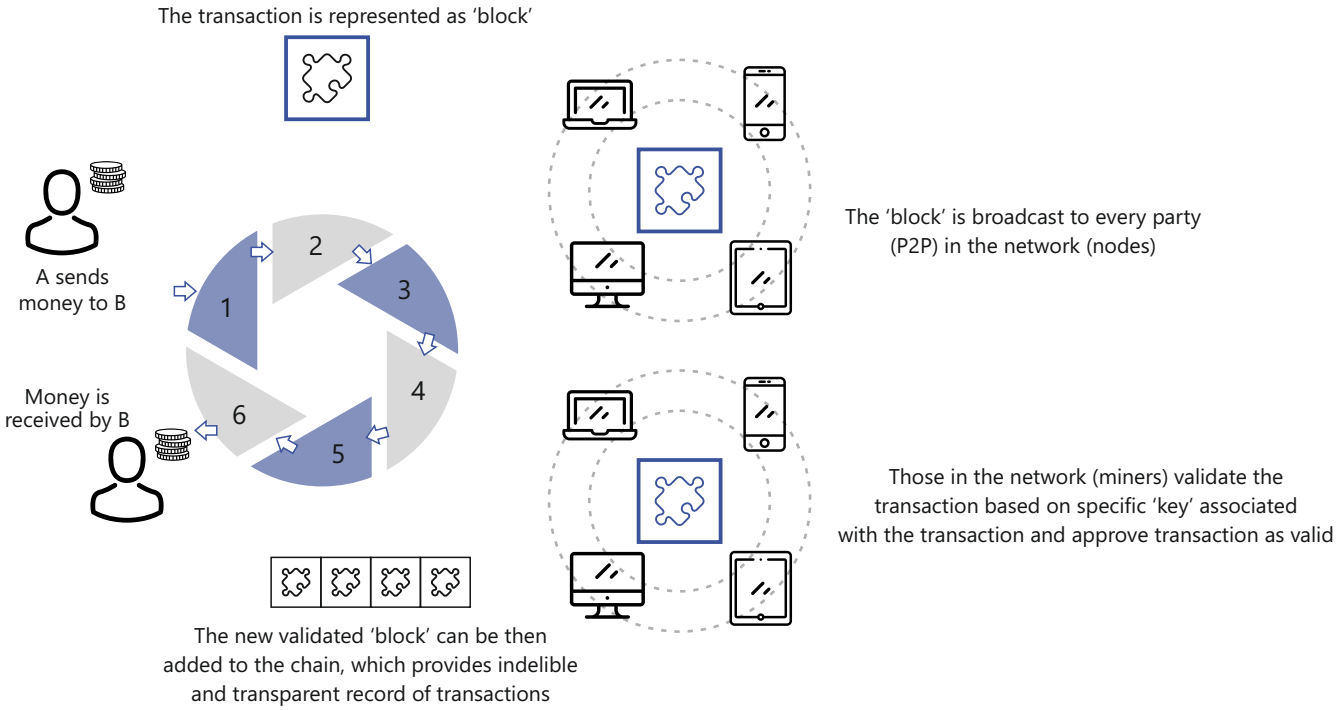


Fig.1. How blockchain works

Types of Blockchain

In 2013, public awareness of cryptocurrencies dramatically increased, and a number of more established organizations began to inspect Bitcoin and related technologies to see how they could be exploited. Many use cases facilitated by the technology was noted, but many organizational leaders concluded that using a public blockchain such as Bitcoin was ill-suited for regulated corporations for a variety of reasons. For instance, financial institutions seemed uncomfortable using a public infrastructure run by anonymous miners and powered by an unregulated, volatile currency. Legal and reputational issues also gave many organizations pause.

Many common myth started to take form of rumors which in turn changed to a common understanding which was a negative criticism to blockchain technology. Like, first, Bitcoin and Blockchain are same; second, Blockchain is distributed ledger which will remain open to everyone and hence all data is visible to everyone; third,blockchain applications are only going to impact B2B and not much implications would be there to retail businesses, and many more.

To answer all there queries blockchain has evolved a lot since 2013, and various types of blockchains with different kind of permissions. Blockchains can be distinguishing between different types of permission models. The permission model refers to the different types of permissions that are granted to participants of a blockchain network. There are three major types of permission that can be set when configuring a blockchain network: Read (who can access the ledger and see transactions), Write (who can generate transactions and send them to the network), and Commit (who can update the state of the ledger).

'Fig.2. Types of Blockchain with Permission' shows the four main blockchain network types segmented by their permission model.

Public permissionless: Anyone in the world can download the data and read the data. Anyone can participate in the consensus process to write the data or block into the public Blockchain. There are numerous public blockchains. Bitcoin which is a peer to peer currency exchange was the first public Blockchain. Some people think that since public blockchain is open source, it is not secured. On the contrary, it is highly secured using cryptography and consensus protocol.

Public Permissioned: Public permissioned blockchain provides public access for identity owners while permitting only known, trusted, vetted entities to serve as nodes. This provides the greater transparency — and higher comfort level — some applications and industries require, while still not relying on any intermediary or central authority.

Consortium:Consortium Blockchain as the name suggests is controlled by a consortium of members. It has pre-defined set of nodes, the users with access to write the data or block. For example in the case of Insurance use case, the consortium may be Insurance Company, customer, underwriter, Claim adjustor and third party vendors etc. Some of these participants will have write access and some or all will have read access. It is not fully decentralized as public blockchain.

Private Permissioned:In Private Blockchain, all permissions are kept centralized to an organization. One major criticism of Private Blockchain is that since it is not decentralized, it's just a distributed database. There are some points in favor of this approach. One it allows some organizations who have compliance and privacy requirements to implement Blockchain. Second, it adds the values like cryptographic auditing and known identities to the internal processes.

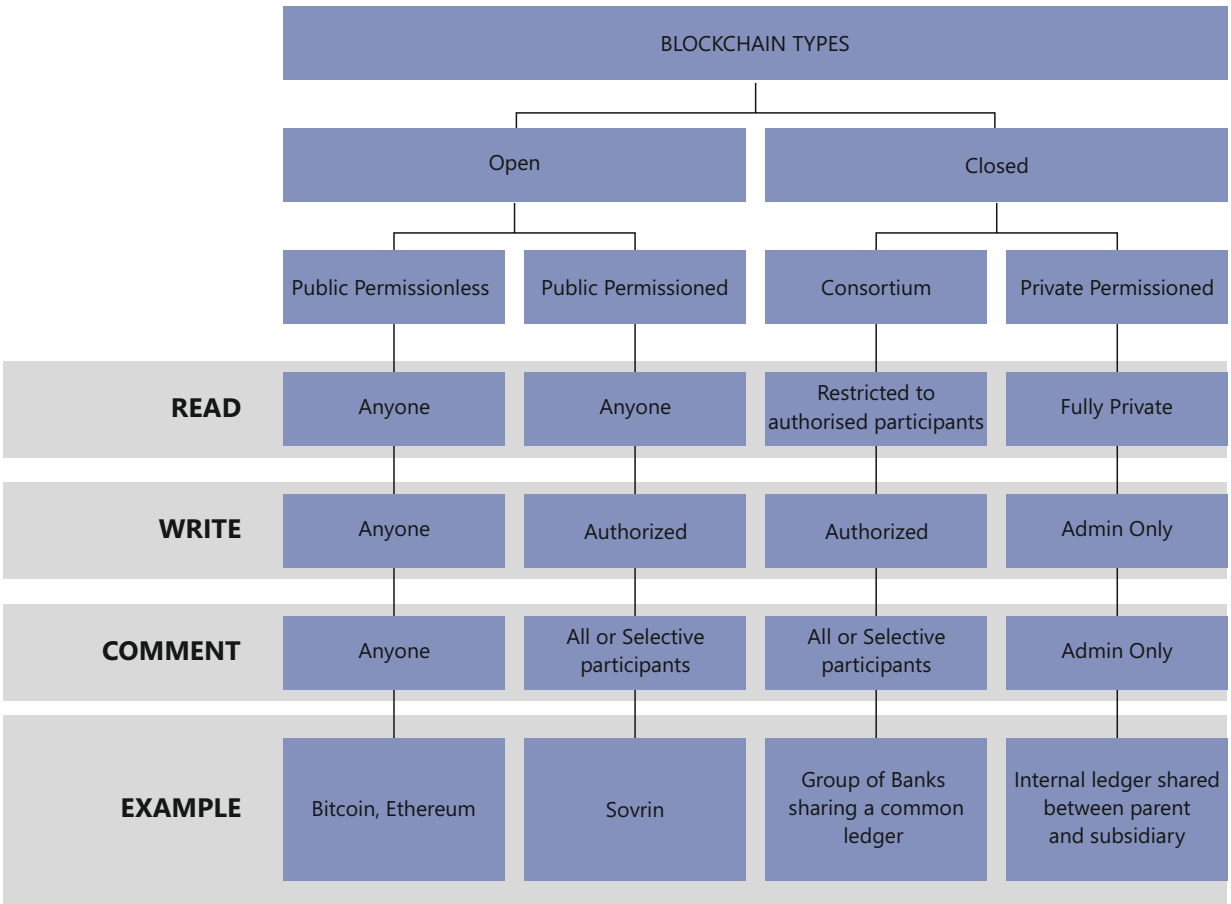


Fig.2. Types of Blockchain with Permission

Benefits of Blockchain

Encrypted and distributed database doesn't allow changes to the data (ledger) once it is written unless a consensus is achieved against it. Thus it reduces the possibility of security breaches by even its administrators. This makes blockchain invaluable for organizations trying to accomplish a secure system. Below are some of the important benefits associated with implementing blockchain technology:

Immutability: Nothing on the blockchain can be changed or saved without the consensus of the network. Any confirmed transactions on the blockchain cannot be changed.

Permanence: A public blockchain will act as a public ledger meaning that as long as the blockchain remains operative, the data on it will be accessible

Removal of Intermediaries: The Peer to peer (P2P) nature of the blockchain does away with the need of intermediaries and users interact directly with each other.

Automation: With the removal of intermediaries and the distributed ledger being updated in real-time by the miners, any data inputted on the blockchain is transmitted and stored automatically.

Decentralization of consensus: With no central authority acting as a clearing-house for transaction validation, the effort required to reach consensus is shared between the miners.

Speed: Blockchain results in a much faster process than a centrally-controlled ledger.

Lower costs: Blockchain results in much lower costs due to the removal of intermediaries.

Near-impossible loss of data: Since every miner has a full copy of the ledger on their system, it is virtually impossible to lose the data stored on a blockchain

Transparency: Public blockchains can offer full transparency of the transactions carried out on the network while safeguarding the privacy of its users through pseydonymity since only the transacting addresses are shown.

Solving the double-spend problem: The blockchain has solved a long-standing problem of virtual decentralized networks: how to ensure that a person cannot re-send the same data twice to different persons, also known as double-spending. Through P2P verification and the public ledger, double-spending is now a thing of the past.

Security: Neither the nodes nor anyone else except for the sender and the recipient can access the data sent across the blockchain. Nothing on the blockchain can be changed save with the consensus of the network. Any confirmed transactions on the blockchain cannot be changed.

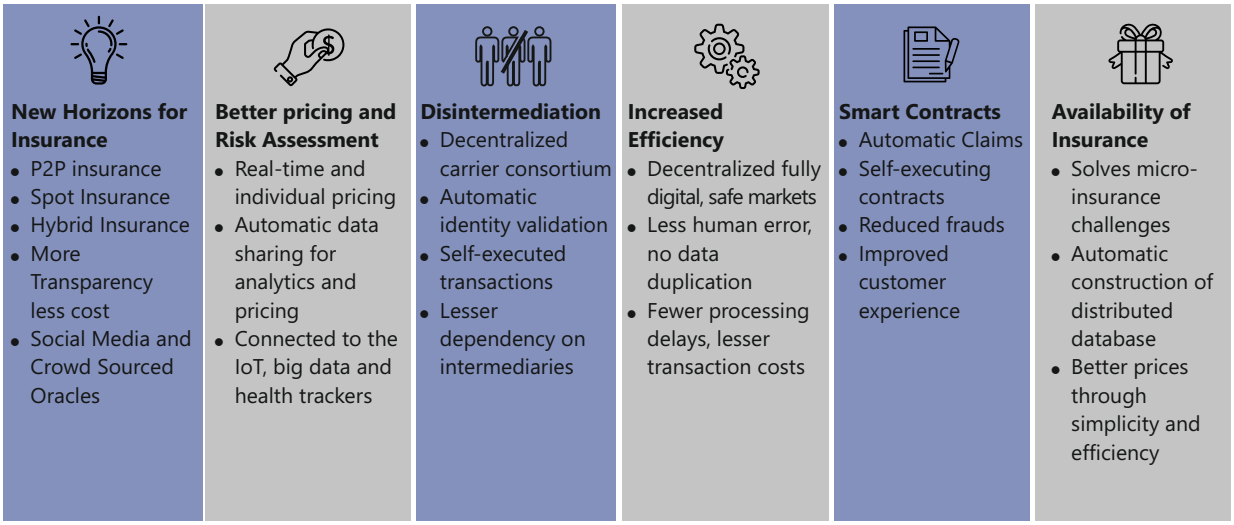


Fig.3. Impact of Blockchain to Insurance

Blockchain in Insurance

Blockchain technology is heralded as the biggest symbol of the fourth industrial revolution and the next big disruptor for many industries, including insurance. While still in its infancy, blockchain technology can streamline paperwork, increase data security and save businesses costs by cutting out time consuming claims processes.

So, how would blockchain impact the entire insurance business:

Building Trust: When we buy any kind of insurance policy, the only items sold are promises and few papers. With all kinds of insurance, the concept of utmost good faith is laid bare. Without this utmost good faith existence of insurance industry would be jeopardized.

Higher claim rejection ratio also erodes customers trust over an insurance company, which is not good for any insurance business. In cases of very high claim rejection ratio, a gap becomes visible between the customers (risk makers) and the underwriters (risk takers)

Removing Intermediaries: The gap between Insurers and Insureds are also widening due to trust brokers, who benefit from the insurance business opacity and complex operations. This is particularly troubling because we are in a time beset by complex risks, requiring greater trust, speed, and security in these relationships. In these types of complex 'trust but verify' transactions, blockchain can take up the trust role to itself. But this would not mean, that we will see insurance business running without brokers, but their role would be more focused towards customer servicing with a transparent business.

Preventing Identity Frauds: With fraud detection, the biggest problem is that it takes time to validate each applicant.A blockchain-based registry could help address this challengewhile retaining anonymity and improving security as a distributed public record.Once the data is digitally in, the platform would automatically validate authenticity of documentsand detect patterns of any fraudulent behavior related to specific identities. This would speed up processes and minimize human intervention, thereby cutting down corruption and dissuading future criminals.

Limiting cyber liability: As the data is decentralized and immutable, false billings and tampered documents are less likely to be overlooked. Insurers will be able to lower their loss-adjustment expenses and mitigate not just identity theft but cyber liability losses too.

Faster claim settlements: Through blockchain and smart contracts, both insured and insurer would benefit from managing claims in a responsive and transparent way. It would start by recording and verifying contracts on the blockchain. When a claim is submitted, the blockchain could ensure that only valid claims are paid. The network would know if there were multiple claims submitted for the same accident. When certain criteria are met, a blockchain could trigger payment of the claim without any human intervention, therefore improving the speed of resolution for claims.

'Fig.3. Impact of Blockchain to insurance' shows the ways entire insurance value chain can be transformed by adoption of blockchain.

Blockchain Use cases for Insurance Claims

To understand the applicability of Blockchain in insurance, we would have to understand blockchain based 'smart contracts'.

Smart Contracts: In Insurance business nothing tangible is sold, but a promise, that insured would keep paying the premiums to insurer, while insurer would pay for the claim, for the covered risk, in situation of loss to the insured for the named perils. Both are bounded by the contracts.

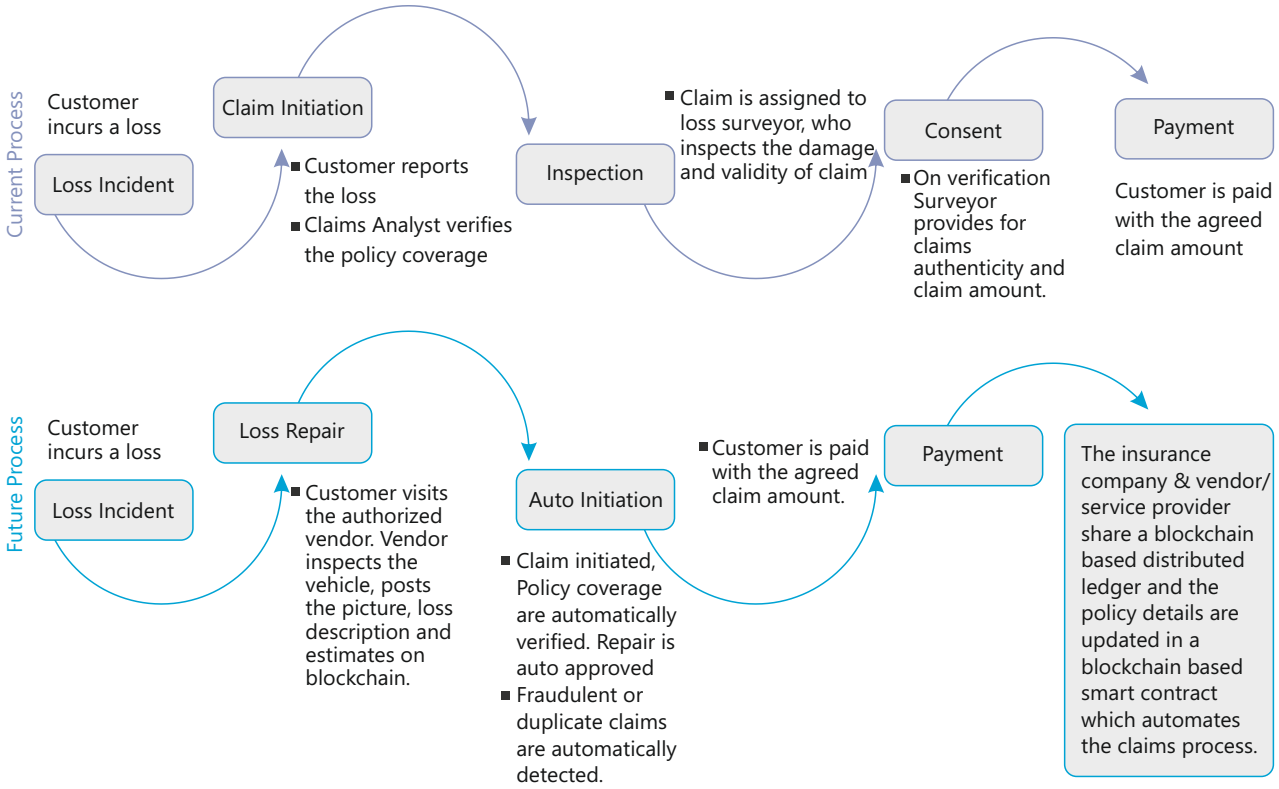
But as of now, the claims payment takes a long time since the loss, even with the straight through processing. This time of long wait can be shortened by blockchain based smart contracts.

Since the contract is digitally enabled, it can enable efficiency in the insurance value chain wherever time, effort or money is spent to confirm information before processing transactions. Insurance contracts are typically complex and difficult to understand because of the legal language used. In an industry facing consumer-friendly regulations such as Treating Customers Fairly, smart contracts may well lead to the management of claims in a highly transparent and responsive way. For example, insurance contracts (policies) and claims could be recorded onto a blockchain and validated by an approved party, ensuring that only valid claims are paid.

Now, when we have some background on 'smart contracts', let us see how the claims processes will be transformed by blockchain. Blockchain will have gigantic impact on below four areas for claims:

- Claims Payout
- Fraud Management
- Auto Claim initiation
- Accelerating Claims processing

That being said, 'Fig.4. Blockchain to Insurance Claims' shows how the claims process would change for insurance business from its current state.



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