

POV

Blockchain Opportunities in Healthcare

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Blockchain beyond business

Blockchain technology is causing a disruption in every industry while opening door of endless opportunities for businesses to innovate and operate efficiently. Today there are lot of thoughts exchanged on how blockchain can be used in the Healthcare industry. To identify these, it is important to first understand the technology, and advantages of using it in certain business processes.

Blockchain technology does not have a centralized server as it is a distributed, decentralized ledger with information stored in blocks. Each block contains transactional data, owner details with date-time and hash key linking to next block. These hash keys are cryptographic codes created by special algorithms. After authentication, a block is available on a peer-to-peer connected computer network known as node.

Benefits of using this technology in healthcare

Blockchain technology can be implemented on private or public network. Considering the following key benefits of using this technology, blockchain on private network opens a lot of opportunities in healthcare:



Accessibility

Zero downtime while accessing data on a blockchain. If a node is down, data from that block is rendered from a different node thereby ensuring 100% availability. There is no risk of an outage in blockchain technology as other nodes serve the purpose.



Immutability

The hash key generation algorithm is based on the transaction data. If the data is tampered in a block, the hash key gets altered, which disconnects that block from the chain on that node. Changing hash key for similar blocks within the network is impossible making it immutable or irreversible.



Security

Data stored in blocks are hashed to link them together. Access to such data is through use of a key only.

The healthcare industry is most impacted by regulatory reforms, growing expectations and rising costs and hence, always exploring new technologies that can deliver better outcomes. Today the most prominent discussion is about implementing Electronic Health Records on blockchain, but then the PHI (Protected Health Information) puts everything on backfoot due to data security concerns.

Blockchain is not a database but a technology for decentralized environment as mentioned. Hence the relational data structure or a NoSQL database is more efficient for managing and accessing Electronic Health Records, rather using the blockchain technology which can impact data retrieval. Blockchain technology being a distributed ledger, is best for trades and smart contracts, but characterizing the property of immutability, accessibility and security, it has lot of benefits in healthcare industry.

Listed below are few benefits of implementing blockchain for improved benefits and increased cost savings for health insurance industry.



Overcoming the challenges in the wearable industry

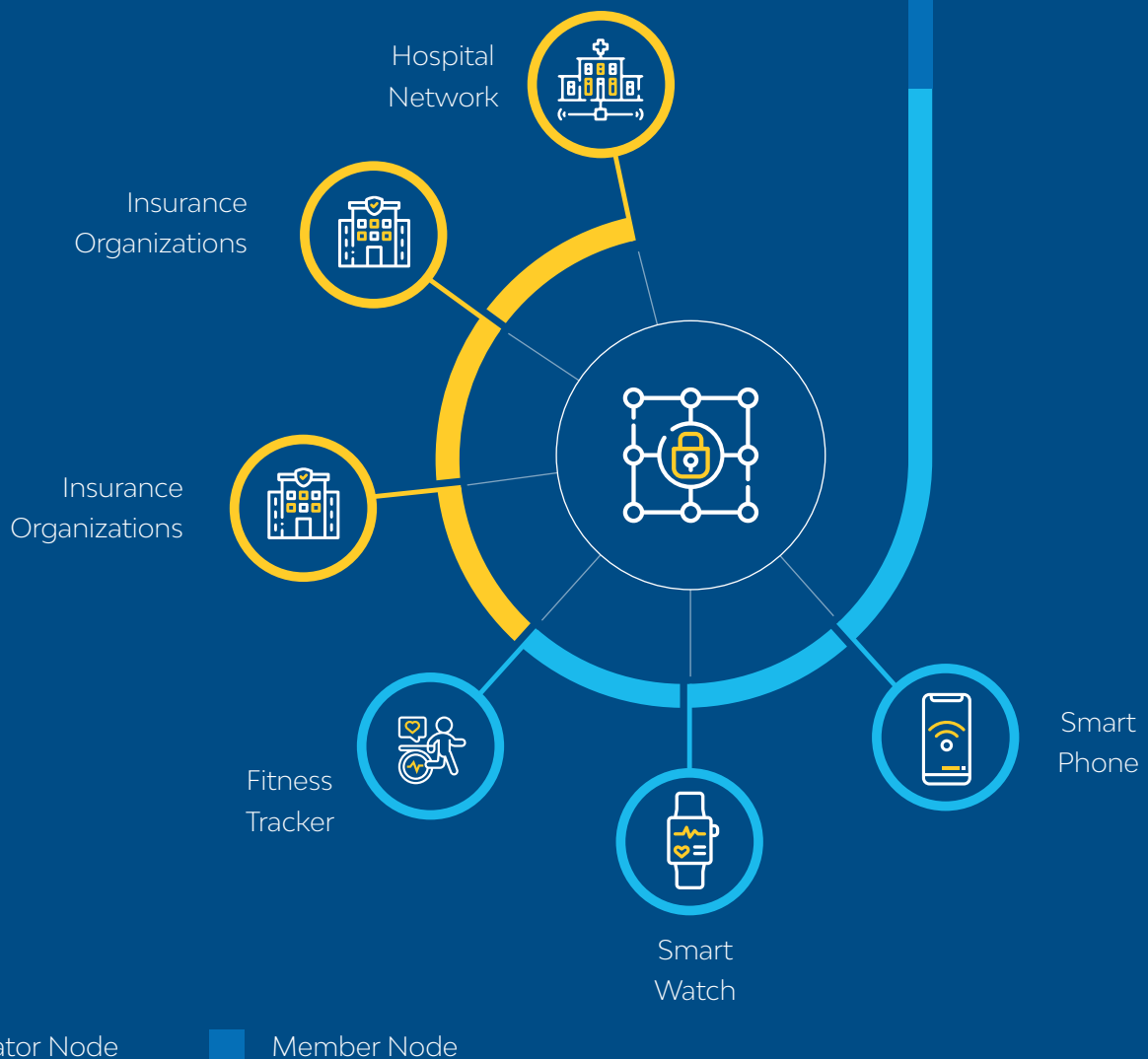
The global market has witnessed growth in the wearable technology, which collects health and wellness data like human vitals, calories burnt, sleep patterns and more. Today, the wearable market is valued at roughly USD 20,000 million, growing at CAGR 16-17% and expected to hit close to USD 60,000 million by 2025.

Manufacturers of wearables adopt specific techniques to capture and store data on a private cloud. Currently there is no interoperability standard to capture data from a wearable device to a mobile application for pushing vital data to the cloud storage.

While data privacy is also a concern in the entire data capturing and storage process, the accessibility to this vital data is a bigger challenge. Anytime, anywhere access to vital data by healthcare professionals like doctors, wellness coaches and others will result in better patient outcomes.

Private blockchain

A network of registered and trusted group like hospitals, medical centres, insurance companies and wearable device manufacturer can overcome the challenges of accessibility and data privacy concerns. In such a private network consortium, few contribute to transaction (Member Node) while others can contribute and authenticate the transaction (Validator Node), as shown below;

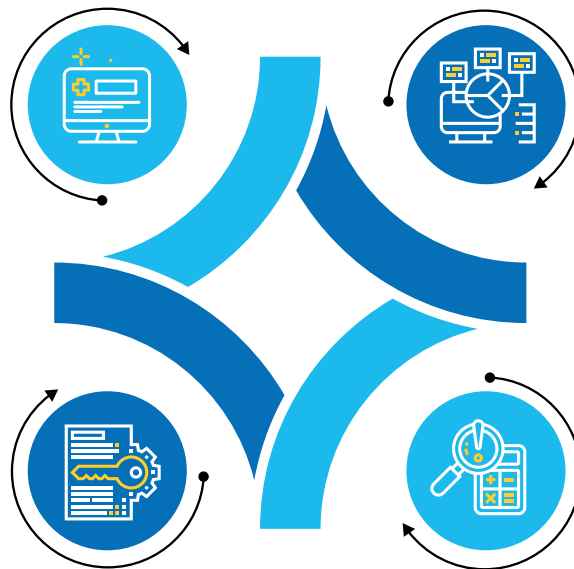


(Figure: Health vitals on a private blockchain network)

Apart from benefits listed below, wearables and home healthcare device manufacturers can contribute to a private blockchain as a member node which will help in delivering efficient care and increased patient outcomes.

The data on the private network can be integrated into a Wellness portal to track wellness activities as suggested by the Physician or Wellness coach.

The historical data from a previously owned wearable can be accessed by individuals to generate insights on lifestyle changes using pattern analysis.



Data stored in a block cannot be easily tampered and cannot be accessed without the private key and consent of patient thereby ensuring privacy.

Underwriters from Health and Life Insurance companies can make use of this data for risk assessment and profitable underwriting.

A boon to health insurance companies

Health insurance companies are continuously looking to grow YOY revenues through better plans, good provider networks, and improved quality of care, while lowering cost of operations. However, this has been a challenge with technology changes, growing market expectations and changing regulations.

Operational costs rise if data is incorrectly processed or there is no access to right data. Let's look at two major challenges health insurance industry is undergoing and how a blockchain implementation can help overcome these challenges.



Provider Data Management

Changes to provider attributes like business name, Federal Employer Identification Number (FEIN) or business address is not always updated with the insurance companies. This causes heavy losses in dollars due to returned postal service, lowered care with patients moving to out of network providers.

Provider credentialing is done periodically to update their license status. The status could be “inactive” for a deceased provider or “suspended” if a provider has been identified to be fraudulent or offender.

Such updates are received periodically from authorized sources but missing intermittent updates can cause a fraudulent claim to be paid.

Implementation of private blockchain network of insurance companies and regulatory entities can help maintain data of providers in blocks on multiple nodes. Accessibility of most current provider updates from any one trusted source will reduce the master provider data management efforts and eliminate losses to insurers.

Coordination of Benefits (COB)

Members covered under group plans from one insurance company may have health plan coverages through their spouse from another insurance company's plan. Under such conditions, one insurer must be primary and the other should be secondary. In another instance, a member is enrolled under Medicare Advantage plan and may have a group health plan coverage through employer.

Most of the time, the primary payer detail is not disclosed by the insured. With missing information of primary insurance, a claim could be adjudicated by a secondary insurer without the claim being submitted to primary first.

Insurance companies pay per transaction fee to third party entities that accept paid claim files from all

insurance companies to identify incorrectly paid claims. Since blockchain technology does not have an administrator and each node is responsible to authenticate the block before adding to network, paid claims can be added to the private blockchain network of insurers, eliminating the third-party entity to identify other payers on file.

Implementing private blockchain for certain use case as explained above will bring huge cost savings in operations to health insurance companies. Blockchain technology is today known for its success in cryptocurrency, but adaptability of this technology in healthcare industry is not far, looking at the benefits discussed.



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Pramod is an integral part of LTIMindtree's Insurance & Healthcare Consulting services. He has around 25 years of experience in IT Services Industry, working in techno-functional roles and managing government projects. His experience covers the entire healthcare spectrum, with specialization in Medicaid & Medicare projects.

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