



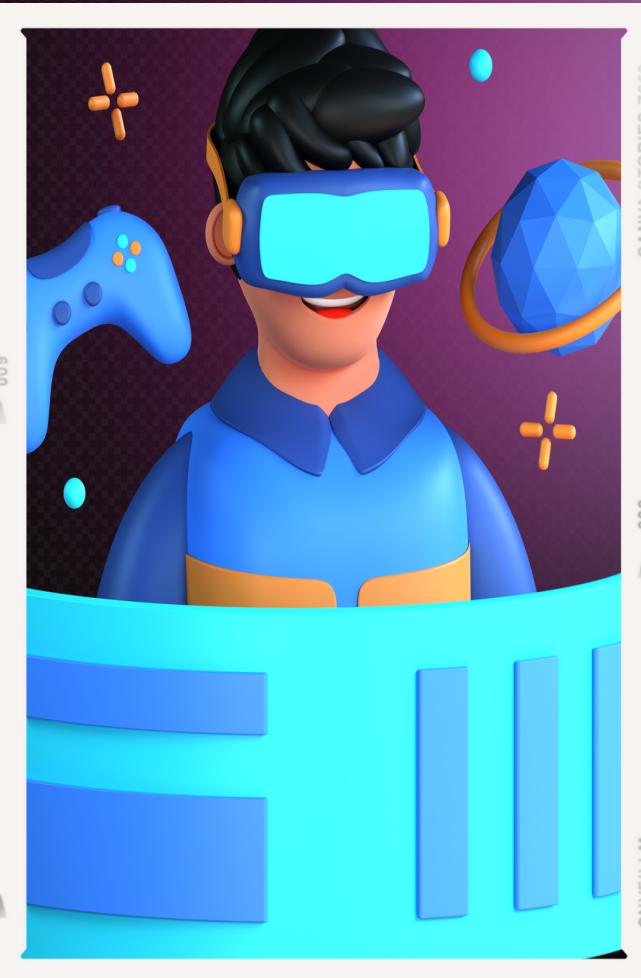
TITANS

HACKTOBERFEST 1.0



Problem statement *Blockchain-based healthcare record repository*

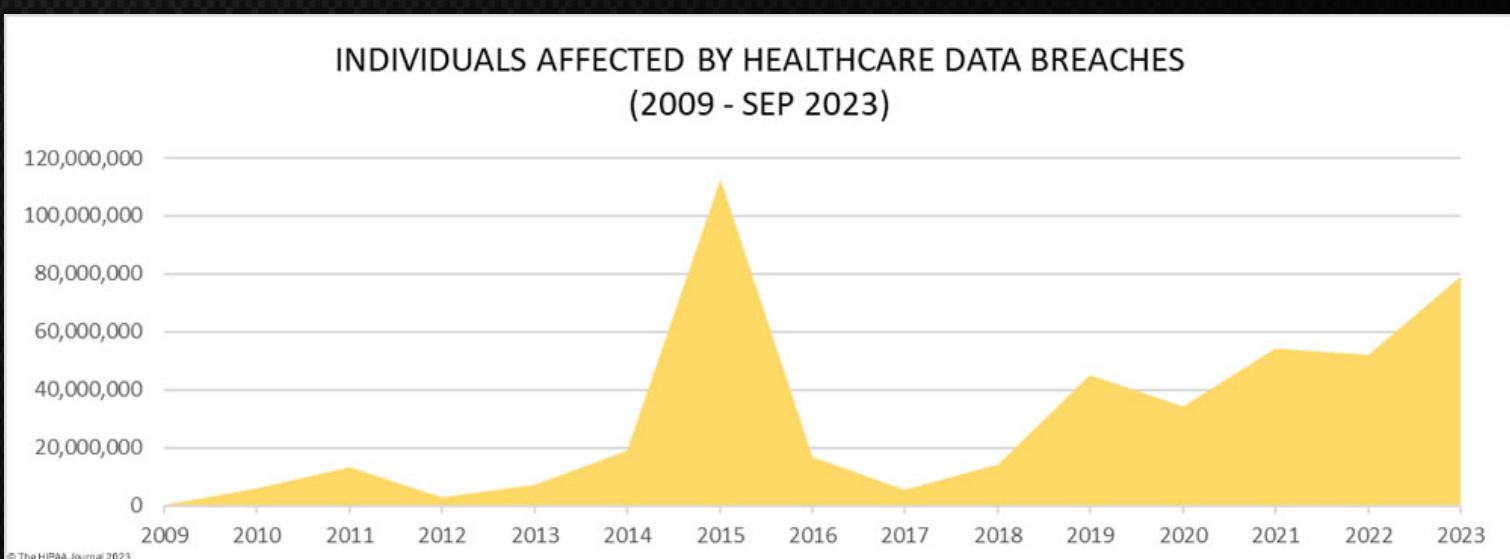
- In this modern digital world the data is stored online , which is not secure for the user and the management.
- The data can be easily misused as it contains very important info of the user including personal data and health data.
- So hospital managements are constantly looking for a solution to solve this problem.
- By using our product they can securely store the data by using Blockchain and Web3 which is efficient and secure.



PROVIDE STATISTICS OR DATA TO SUPPORT YOUR ARGUMENT.

Our healthcare data breach statistics clearly show there has been an upward trend in data breaches over the past 14 years, with 2015 seeing more data breaches reported than any other year since records first started.

There has been a general upward trend in the number of records exposed each year, with a massive increase in 2015. 2015 was the worst year in history for breached healthcare records with more than 112 million records exposed.



Source : The HIPAA Journal

Solution



By using the industry standard of storing medical data FHIR we collect the data and we encrypt the data.

Then we are storing the encrypted data on blockchain as a cryptographic hash.

As the data is now stored In blockchain only the authorised people can access it.

As this solution will prevent data breaches and it will ensure user privacy.

Our solution will be in great demand by hospitals which store data online.

Key Features and Functionality

- Firstly we store the data in the following format.
- Fast Healthcare Interoperability Resources – It is a next generation standards framework created by HL7.
- FHIR combines the best features of HL7's and product lines while leveraging the latest web standards and applying a tight focus on implementability.
- We will encrypt the data and perform hashing so that the data is stored in the blockchain.
- When the data is retrieving the same operation is performed to decrypt the data.
- Which makes the data more secure than just storing it in a database

```
<Patient xmlns="http://hl7.org/fhir">
  <id value="glossy"/>
  <meta>
    <lastUpdated value="2014-11-13T11:41:00+11:00"/>
  </meta>
  <text>
    <status value="generated"/>
    <div xmlns="http://www.w3.org/1999/xhtml">
      <p>Henry Levin the 7th</p>
      <p>MRN: 123456. Male, 24-Sept 1932</p>
    </div>
  </text>
  <extension url="http://example.org/StructureDefinition/trials">
    <valueCode value="renal"/>
  </extension>
  <identifier>
    <use value="usual"/>
    <type>
      <coding>
        <system value="http://hl7.org/fhir/v2/0203"/>
        <code value="MR"/>
      </coding>
    </type>
    <system value="http://www.goodhealth.org/identifiers/mrn"/>
    <value value="123456"/>
  </identifier>
  <active value="true"/>
  <name>
    <family value="Levin"/>
    <given value="Henry"/>
    <suffix value="The 7th"/>
  </name>
  <gender value="male"/>
  <birthDate value="1932-09-24"/>
  <careProvider>
    <reference value="Organization/2"/>
    <display value="Good Health Clinic"/>
  </careProvider>
</Patient>
```

Resource Identity & Metadata

Human Readable Summary

Extension with URL to definition

Standard Data:

- MRN
- Name
- Gender
- Birth Date
- Provider



Social impact

- We wish for a safe environment which respects the user privacy.
- We work to fight against data theft and possible mismanagement of vulnerable data of patients.
- We want to gain trust of our users so they trust in medical system so the medical system is able to digitalise so to be able to use modern efficient processes and tools
- As we saw how much data theft is prevalent in our statistics model, it really creates distrust with the consumers.
- If we truly want to digitalise the medical field, we need proper framework to be able to store and access the securely, this is where we come to provide that framework.
- Our model will have a remarkable social impact as it will reduce the data theft to zero.

Revenue Model

- Our model ensures the safety of the data so there is no room of data piracy. Our charges will be minimal as to support our data base and the cost of maintaining it.
- Our main focus of our model is to make an societal impact and so to be able to be help to everyone.
- We wish to revolutionise the medical system so that it is compatible to modern digital standards.
- We highly value the social values and ethics and our model will reflect that



Technologies Used



- **FHIR Standard**
- **Java Script (For hasing and encrypting)**
- **Node.js**
- **Ethereum Blockchain**
- **Ganache (for managing ethereum's smart contracts)**
- **GCP for storing the initial data.**
- **Github**
- **Git**

The Team

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Member 1

Ashish Kumar

Member 2

Swayam
Chaurasia

Member 3

N/A

ACTOR



Thank You

HACKTOBER FEST