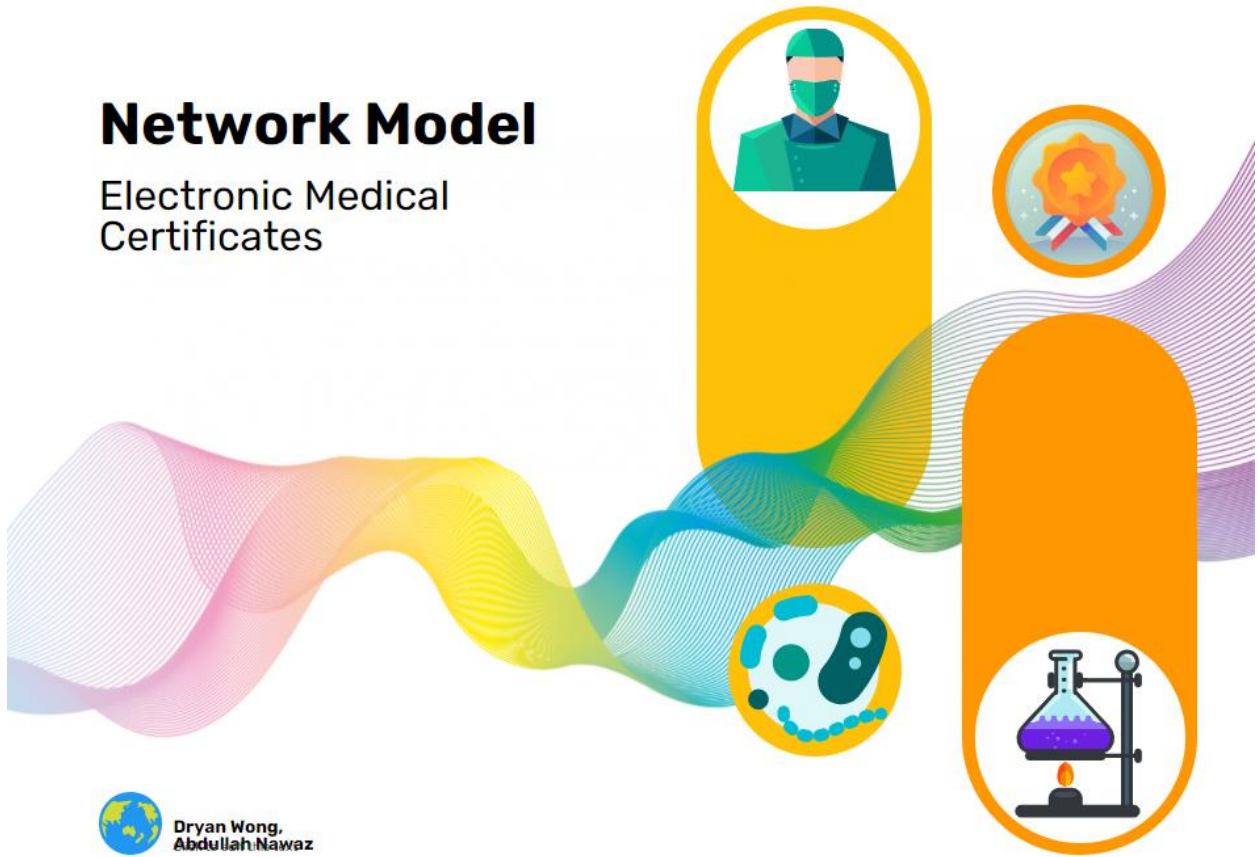


Network Model

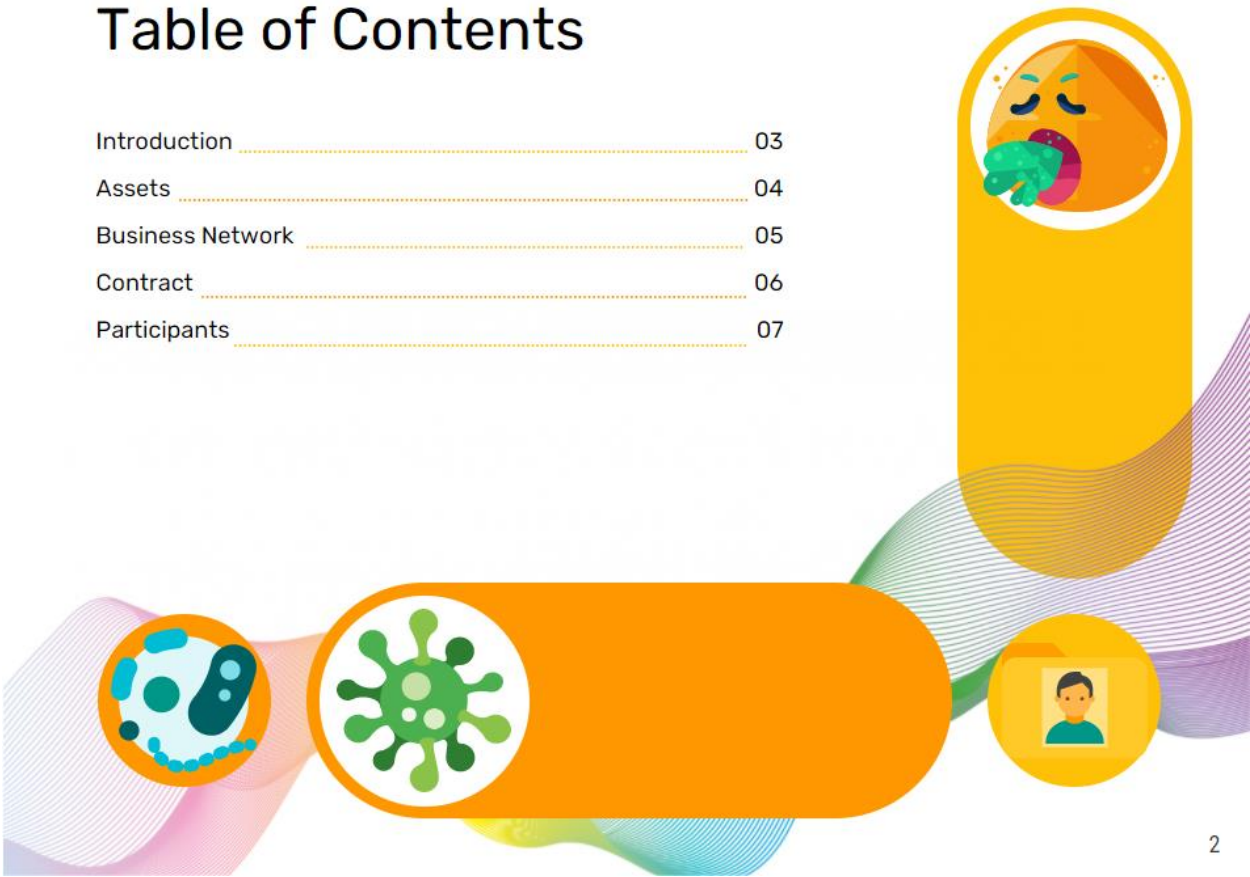
Electronic Medical
Certificates



Dryan Wong,
Abdullah Nawaz

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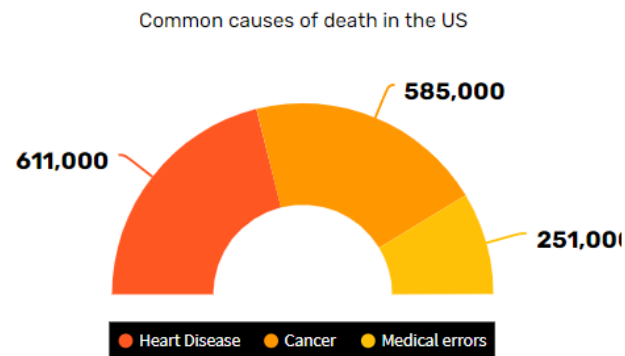
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Introduction

There exist many flaws with the current record-keeping systems in the medical industry, and remains a huge problem to be solved to this day. These networks can be prone to attacks, malfunctions, human errors, etc, and can even cause fatalities given the circumstances and medical errors are the third biggest cause of death in the US.

Today we look at an enterprise-level blockchain-based solution, which could possibly solve many flaws in existing, modern-day medical record keeping systems. This project is written and developed on the hyperledger fabric network.



Assets

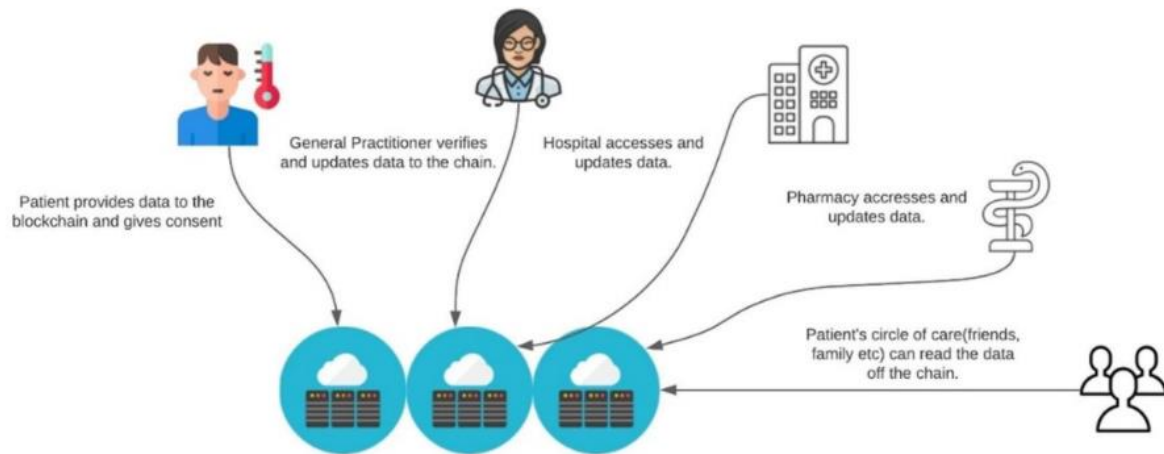
The main assets on the network are the profile of the patient containing the demographic data and authentication records for different entities including health data providers, family members and researchers.

Definition of the Asset



```
profile = {  
  'name': name,  
  'birthDate': birthDate,  
  'address': address,  
  'authorization': {},  
  'records': [{  
    'author': operatorID  
    'data': recordData  
  }]  
}
```

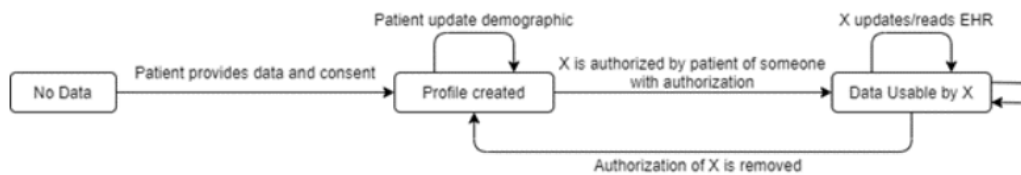
Business Network



Contract

Functions of the contract

- `createProfile(patientID, name, birthdate, address)`: Creates a profile for a new patient
- `isProfileExist(patientID)`: Check if a profile with the given patient ID exists
- `isAuthorized(patientID, operatorID)`: Check if the operator is authorized for accessing the profile of the patient
- `getRecordById(patientID, operatorID, recordID)`: Get a specific health record of a patient using record ID
- `getAllRecord(patientID, operatorID)`: Get all the health records in a patient's profile
- `updateAuthorization(patientID, operatorID, authorizingID, newRight)`: Change the authorization of a given ID for accessing the patient's profile
- `createRecord(patientID, operatorID, recordData)`: Add a new record for the patient
- `updateRecordById(patientID, operatorID, recordID, newRecordData)`: Update the record data of a particular record ID, only the author of that record can call this function
- `updatePersonalData(patientID, newName, newAddress)`: Update the personal data if needed, only the patient can call this function



Participants



Patient:

Provide the demographic for creating a profile and control the access of their health profile by authorizing other users on the channel.

.....



Enterprises:

Provide services for their users to join the channel and interact with the smart contract by building an API for them. They are also responsible for selecting the health data providers to work with on the channel.

.....



Patient's Circle:

The friends and family members of the patient will be able to view the patient's health profile once they are authorized by the patient through the platform provided by the enterprise.

.....



Health Data Providers:

The friends and family members of the patient will be able to view the patient's health profile once they are authorized by the patient through the platform provided by the enterprise.

.....