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A Survey on e-KYC Verifier Using Blockchain

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Abstract - *KYC is a way for verification of customers which stands for Know Your Customer. Know Your Customer also referred as KYC is used in various fields like Banking system, Healthcare system or any Financial Institutions which include identity verification of a customer. In order to reduce the loss of time and money present in current system of verification, proposed system is designed to be a one-time KYC for any industry. The proposed system is a Blockchain based decentralized system which uses Distributed Ledger Technology (DLT) to verify a customer once for all and be made available for various consortiums.*

***Key Words*: Blockchain Technology, KYC using blockchain, Distributed Ledger Technology, e-KYC verification.**

1. INTRODUCTION

On an average, Global financial institutions spend about USD 60 Million to USD 500 Million to verify their customers and Customer Due Diligence (CDD). Further, the cost of this KYC process is retrieved by fines lapsed that are concerned with anti-money laundering and KYC regulations. The blockchain FinTech market size is expected to reach around USD 6228.2 Million by year 2023, at a rate of 75.9% (CAGR i.e., Compound Annual Growth Rate) during the forecast period. The traditional KYC process is an essential tool to gather, verify, monitor, and screen the customer information to fight unauthorized illegal transactions. In the present digital era of Techno-Financial companies, KYC has gained a lot of attention. Many technology companies (Bigtechs) are invading banking markets like never. Many of these Bigtechs are collaborating with FIs (Financial Institutions) and are offering cost-effective KYC systems globally. There is a huge demand in transparent KYC along with consensus-based KYC data control, and access control increases in order avoid a single point of failure. The KYC system internally shares the data between different banking systems, financial institution, etc., to verify a customer. The Blockchain Technology strengthens storage of KYC data in a distributed way over a single version of records storage.

1.1 Existing System

A typical KYC process generally includes verification of customer in a repetitive manner which is redundant process that consumes high time, administrative overhead cost, and is inconsistent.

The KYC information when stored locally in Banks or FIs has following major challenges.

- The FIs spend an unwanted cost, effort, and abundant time during KYC process. This makes FIs focus less on their core business.
- Since the KYC related data lies locally in the FI's storage devices, other organizations cannot trust and access this data.
- Onboarding process of a customer is delayed due to repetitive submission if same documents to different organizations which might lead to agonizing experience for a customer.
- Typical KYC depository systems cannot adapt demands of changing regulatory requirements, and sometimes fail in providing efficient security assurance to the existing stored information/data.

1.2 Proposed System

Keeping in mind the major challenges specified under existing traditional system, the proposed system tries to implement Blockchain-based KYC regulatory system which helps customer verify their identity on a one-time basis. To kick start with the methodology, the process begins with deploying a smart contract and getting a Blockchain address. The Ethereum test network, ganache provides local blockchain addresses which can is used to register a Bank on the e-KYC verifier portal. Once the bank

is registered, customer's various information is stored using a registration form and is stored in a JSON format. To view customer details, the view operation must be performed, which sends a request to the customer for authentication and granting the access to his/her details. On the other hand, customer registers to the customer-portal and registers and logs in himself by providing the same username as given on the e-KYC portal. The customer can view his details on the portal and can allow/deny the request sent by the Bank/Financial Institution. If allowed, the bank will be able to access the details of the customer and use it for further processing. Else if denied, bank will not be able to access the details of the customer. All of these operations are possible only if proper steps are followed.

2. DESIGN AND DEVELOPMENT

2.1 Objectives

- To develop a KYC Blockchain system that safeguards transparency (by storing information in such a way that it cannot be altered without recording the changes made).
- To develop a system that enables immutability, which in turn, allows financial institutions to validate the trustworthiness of data present in the DLT platform.
- To deploy a KYC system that must overcome the challenges with the existing manual KYC Verification System.

2.2 Tools and Technologies

HTML5, CSS3, JavaScript, Bootstrap and node.js for developing the UI/UX.

Frontend: Allows Banks and Customers to register themselves onto the e-KYC regulator system by providing relevant details.

Ganache, Solidity compiler, node package manager (npm), Web3.js and Pinata API for developing the KYC regulator system.

Backend: Responsible for storing and managing the data along with sharing the data with bank and customer.

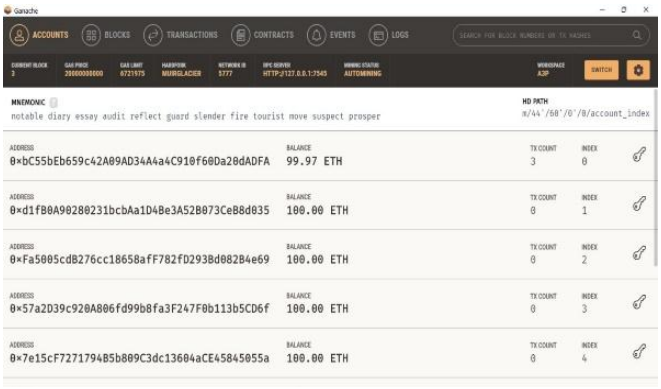

Fig-1: Ganache visual mnemonics and account info.

2.3 Methodology

Firstly an Ethereum test network like ganache is run and various account test nodes information are obtained. Parallelly a smart contract is deployed on the network and a blockchain address is obtained. The obtained blockchain address is updated in the relevant file which holds the address.

The bank is added to the network by the KYC Regulator, it is given a unique id and a user page for login. The bank user can request for a customer's documents by filling out the request form using the customer's id and the document id (CID given by Pinata Cloud).

The KYC Regulator receives the request, and it sends a prompt to the customer about the request received from the bank and for which details and documents. The customer replies to the KYC Regulator either to accept or reject the request; based on this reply the request is updated. If the request is rejected, then no details are shared to the requesting bank.

Customers are added to the network by providing their details to the KYC Regulator. The KYC Regulator verifies the customer details and adds the customer to the network. Each customer is given a unique id through which they can be accessed by the banks. For each document submitted after verification, a blockchain is created. After the blockchain is created, the cost of the customer is initialized to a standard value. This standard value remains the same for all the customers. It is usually the cost of performing the KYC.

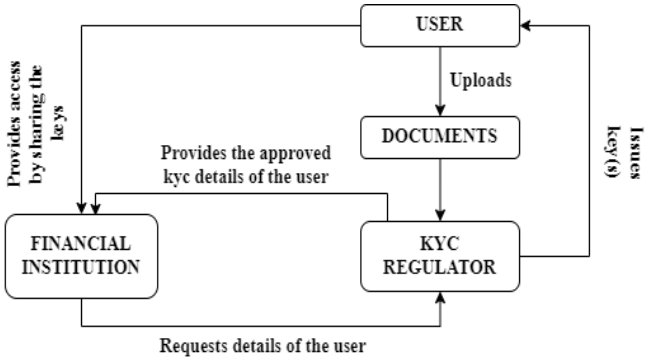

Fig-2: Data Flow Diagram of the system.

3. CONCLUSIONS

This Survey addresses the challenges faced by a customer in the traditional KYC system and an attempt to overcome it is made. Various operations are performed by the KYC regulator, FIs and Customer, to verify the customer by any organization using blockchain and other technologies.

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