Enhancing Regulatory Compliances and Efficiency of Decentralized Equity Investment Platforms Using DAG-based Blockchain Architecture

Team Troyrangers

Comprehensive Group Project - IN4910

Faculty of Information Technology
University of Moratuwa

GROUP MEMBERS

01	204047J	Dissanayake DMBM
02	204074M	Herath PAUD
03	204087F	Jayathilaka PHP
04	204096G	Karunaweera RL

SUPERVISORS

01 K.A. Dilini T Kulawansa

02 Dr. M.F.M. Firdhous

OVERVIEW

01 Introduction

02 Background and Motivation

03 Problem in Brief

04 Aim

05 Objectives

06 Proposed Solution

07 Resource Requirements

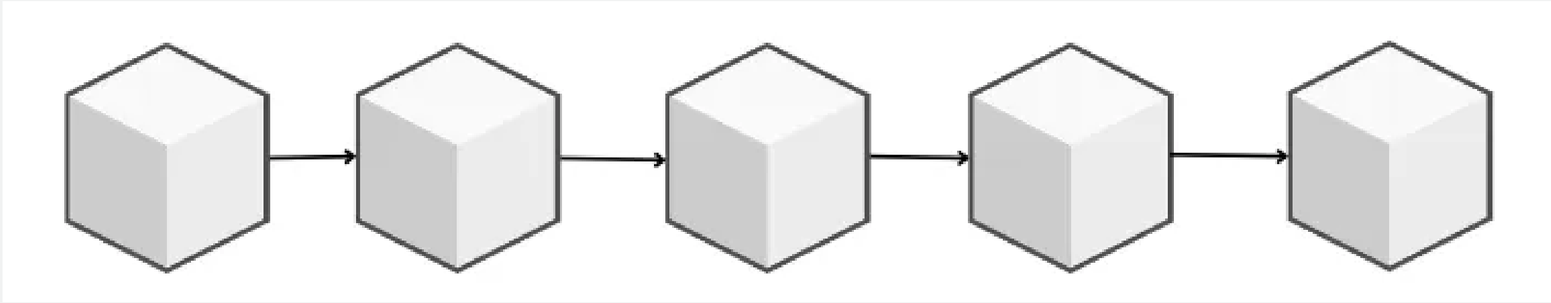
08 References

INTRODUCTION

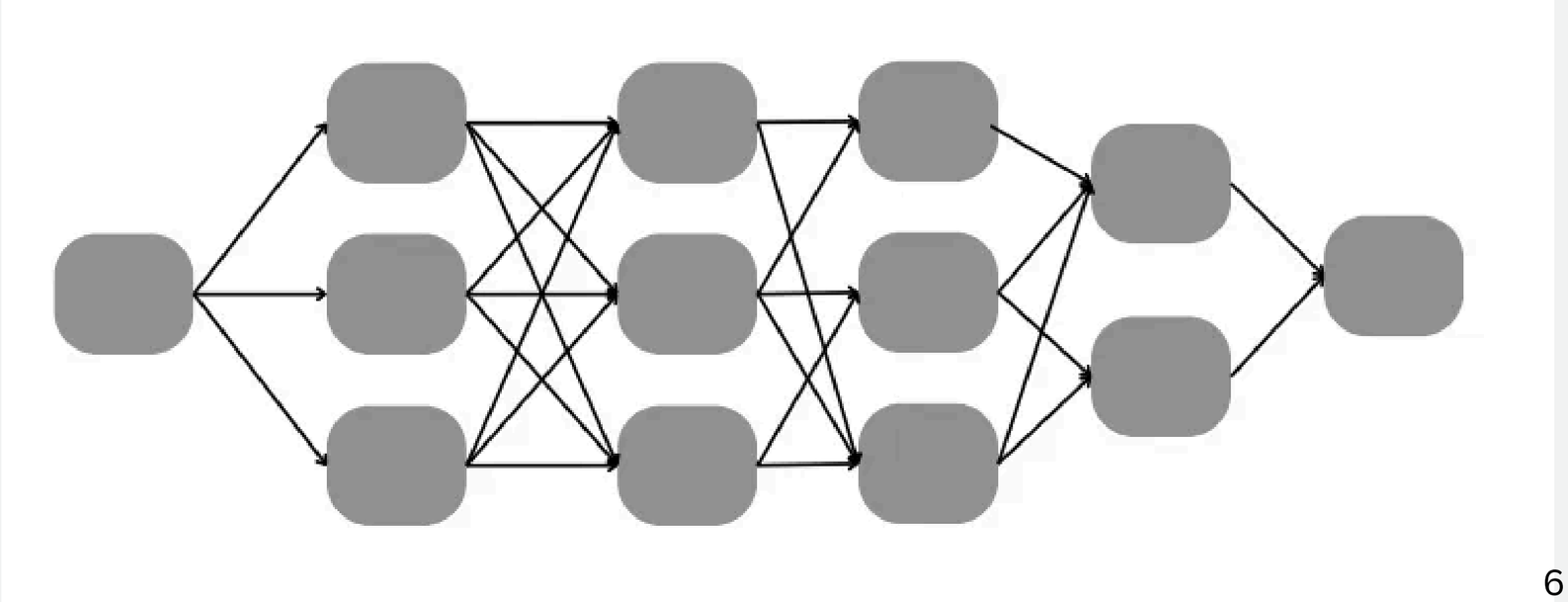
- Developing a decentralized equity investment platform using Directed Acyclic Graph (DAG)-based blockchain for enhanced scalability and efficiency.
- Focus areas include blockchain technology, decentralized finance (DeFi), equity investment, regulatory compliance, and decentralized governance.
- Current equity platforms are centralized, leading to high transaction costs, security risks, and limited transparency.
- Traditional blockchains struggle with high transaction volumes in equity markets, causing delays and high fees.
- A DAG-based blockchain platform that improves scalability, speed, security, and regulatory compliance through integrated regulatory compliance protocols.

ARCHITECTURAL DEFERENCE

Traditional Blockchain



DAG Blockchain



PROBLEM

- Centralized Control Issues
- Cost Inefficiencies
- Scalability Challenges
- Regulatory Compliance Gaps

EXISTING SOLUTIONS

- Consortium Blockchain-Based Decentralized Stock Exchange Platform
- An Ethereum-based implementation of the Bucharest Stock Exchange

AIM

To enhance regulatory compliances and efficiency of decentralized equity investment platforms by utilizing DAG-based blockchain architecture, ensuring scalability, security, and compliance with integrated identity management.

OBJECTIVES

01 To develop a decentralized equity investment platform using DAG-based blockchain architecture

02 To improve the scalability and transaction efficiency of equity investment platforms.

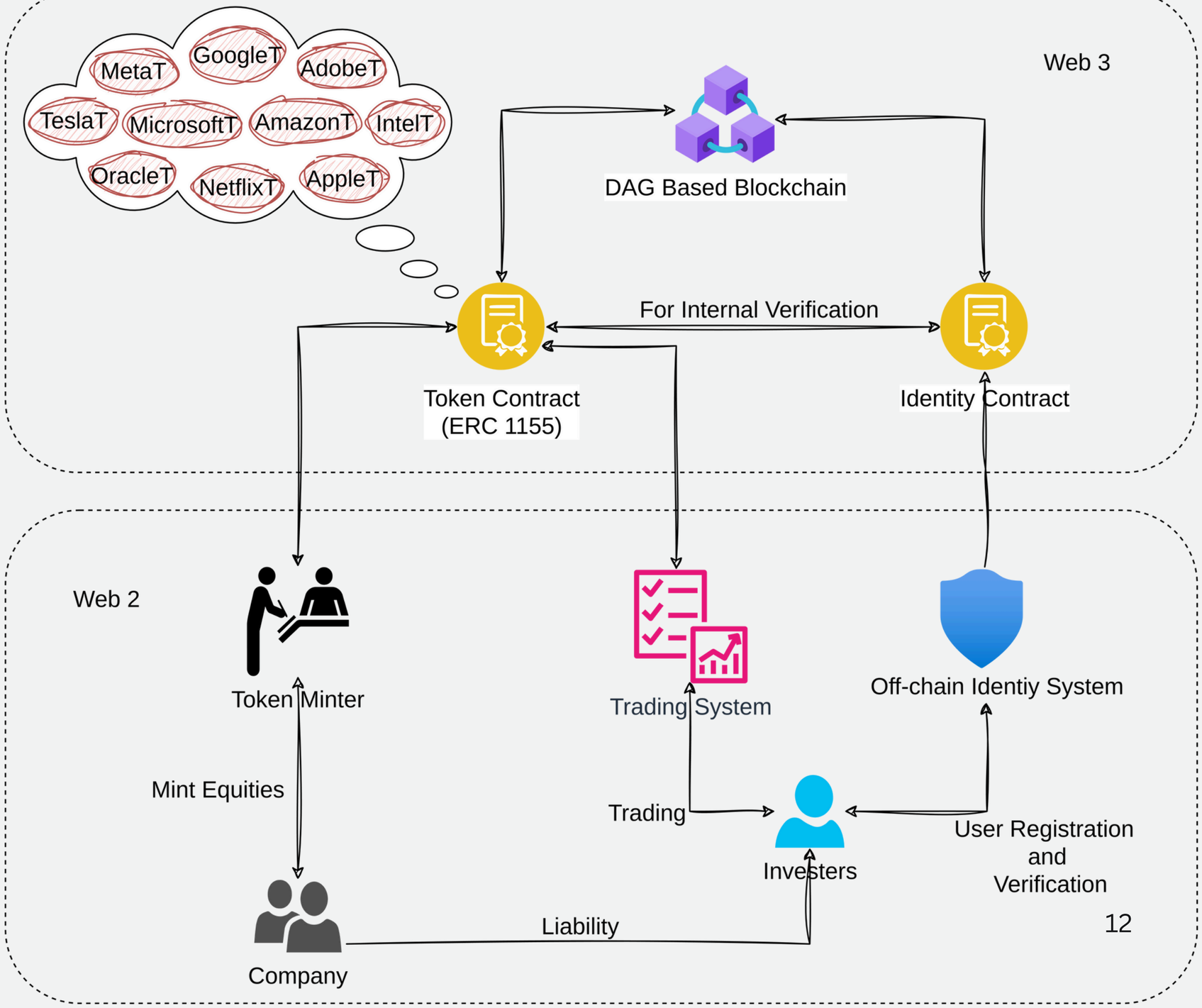
03 To implement decentralized identity management mechanisms that integrate regulatory compliance while preserving user privacy.

04 To provide an architecture that addresses the current limitations of decentralized equity investment platforms, balancing trust, compliance, security, and scalability.

PROPOSED SOLUTION

- Utilizes DAG to achieve faster, scalable transaction processing for high-volume equity markets.
- Removes intermediaries to reduce transaction costs and improve transparency in equity investments.
- Ensures regulatory compliance and user privacy through decentralized identity management.
- Combines trust, compliance, security, and scalability to overcome limitations in decentralized equity platforms.

HIGH LEVEL ARCHITECTURE



APPROACH

- **DAG-Based Blockchain Architecture**
- **Decentralized Identity Verification**
- **Smart Contracts - ERC1155 Token**
- **Frameworks and Platforms**
  - IOTA
  - Fantum

RESOURCE REQUIREMENTS

Server 1 - To Host Test Blockchain

- 2 core CPU
- 4 GB RAM
- 50 GB Storage

Server 2 - To Host the System

- 2 core CPU
- 4 GB RAM
- 50 GB Storage

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THANK YOU

RESEARCH GAPS

“As future improvements we propose to study the integration of state channel for providing the system with a scalability of millions of transactions per second, while at the same time reducing the fees close to zero. “

“finding innovative ways to eliminate the risks inherent in DeFi investing;”

“Addressing data protection and privacy requirements, such as the General Data Protection Regulation (GDPR) in the European Union, as well as anti-money laundering (AML) and know-your customer (KYC) obligations.”

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MODULE BREAKDOWN

- **Regulatory Compliances Improvement**
  - KYC Compliance
  - Double Spending
  - Bid Priorities
  - Demand handling
- **Efficiency Improvement**
  - Reduce transaction time
  - Reduce transaction cost
- **Security**
  - Anti-money Laundering
  - GDPR - General Data Protection Regulation
  - User Verification
- **Improve Scalability and Resilience**
  - Island Formation Issue
  - Fallback Recovery