Reaching Scientific Consensus, The Decentralised Opportunity for Trust and Access for All

Martin McConnell - 20088021

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Abstract

Introduction

Purpose, Intended Use and Audience

The purpose of this project is to create a system for the publication of scientific articles which can be reviewed publicly where every reviewer is in possession of a digital signature for verification. The digital signature will be provided utilising the Metamask wallet browser extension and app, In order to log in to the web app and to verify identity to be able to review a wallet must be used, this wallet will cryptographically secure each users contributions and will allow for a token to be created as a rewards system for all contributions, review, publication. The contents of the website are distributed between all members of via IPFS a decentralised system, this is where the website will be hosted/distributed.

According to **(Andrew et al., 2022)** There is an increased distrust in scientific research in many fields of study and the main purpose of this system is to remove the corportate structure of the current journal publication where in many cases corporations have been found to create and promote articles with bias towards certain priorities that suit the business opportunities of the corporation and not the actual scientific consensus. This feature should help restore and build trust.

Goals and Requirements

Goals

To build a successful prototype and articulate the justification for this project to a universal understanding as to why this needs to exist.

Requirements

Exploratory Analysis

The first half of this section is research and an exploration of tech, leading to the developmental approach to be taken i.e. Agile, TDD etc.

Decentralised

According to **(IPFS, 2022)** Decentralisation is the downloading of a file or files from many locations that are not managed by a single organisation. The fundamental ethos behind decentralisation is the creation of a resilient internet where for instance if a service is under attack on the current centralised internet through a denial of service or ransomware attack the service could be disrupted, the modern internet relies on services like Amazon

Web Services(AWS) to perform quick rerouting and load-balancing in such eventualities but again this is reliant on a single entity.

This property of having caches of content distributed globally allows for a protocol where the content can be addressed from anywhere including remotely with little to no internet access and from a location geographically closer to the device retrieving said content.

There have been many protocols proposed to achieve these fundamental goals.

Comparing technologies (IPFS, Zeronet, LBRY, BitTorrent)

peer 2 peer

Beaker Browser

dat protocol

Hyperdrive

Gun.js

end-to-end encryption

Distributed Hash Tables

Blockchain

Smart Contracts and Solidity

Ethers.js

What is a blockchain

Metamask

Interplanetary File System

Kubo (Golang on IPFS)

Methodology

Development cycle?

Use Case Diagram

An Agile Approach with Kanban

Using Trello, Sprints

Test-Driven-Development

Continuous Integration/Development

Build – We will compile the code in this stage.

Test – We will test the code in this stage. We can save both efforts as well as time can be saved by performing the techniques of automation.

Release – In this stage, we will release the application in our GitHub repository.

Deployment – We will deploy the application to the production environment.

Validation and compliance – Your organization's needs determine the steps to validate a build.

Results

Discussion

Conclusion

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