Universal Content Registry

It's not enough to build a canonical record - it needs to be easily shared, imported, and integrated into traditional systems.

1. Motivation

The web is full of duplicates. From re-posting on Reddit to blatant plagiarism by NFT creators, there is a significant need for a single registry and repository of all online content. Additionally, there is an ever-growing risk of content deletion and a general malaise with the transparency of large tech firms, who are currently the oligopolistic stewards for most of this information.

In this document, we propose a unified record store for all content, where each item receives a unique identifier and can also be imbued with a state object to support continuous updates and integrations over time.

2. System Overview

The Universal Content Registry is made up of three key components: Atomic Registration, Proofs of Real Traffic, and Custody Bridges. The first two components ensure that content and traffic can be verifiably registered and stored forever. The third makes it possible to migrate these assets to the correct networks to find appropriate liquidity, should the owner wish to sell or otherwise list the content that they own on a marketplace.

2.1 Atomic Registration

Content ownership is a contentious topic. Specifically, large tech firms feel the need to fully own and control all content on their networks, which runs the risk of suppression of speech, eventual link rot, and failures and or hacks of storage. Decentralized networks like blockchains have the potential to fix this problem by removing intermediaries and storing content on a wide and diversified network of participating computers.

In most situations where content is registered to a blockchain, the media or data itself is stored in a specified storage location, and a transaction is made to a blockchain to 'sign' the media locator and create a verifiable chain of ownership. Unfortunately, this often leads to similar problems as the traditional web2 model, since media files are often not stored permanently, meaning that the registration no longer holds much value once the media itself is no longer being hosted.

Atomic Registration via the Arweave Permaweb allows the content to be stored forever on a decentralized network of nodes, instead of filing a separate blockchain transaction for registration and 'signing', the Atomic standard combines the media assets and smart contracts into a single bundle, which is only able to be controlled by its original creator.

2.2 Proofs of Real Traffic (PoRT)

Some of the largest companies in the world earn their main source of revenue from the verification and observation of attention and traffic through the web. Ads and analytics networks such as Facebook and Google have developed extensive and complicated technologies to maintain single, common records of this information. However, as they've grown, their transparency has waned to the extent that many advertisers now express

reservations about the efficacy of these ad networks[1]. Further, content creators on platforms like YouTube frequently see their earnings reduced as compensation rules shift without warning.

All told, there is an enormous opportunity available to advertisers and content creators who embrace decentralized systems where all information is transparently shown publicly. Proofs of Real Traffic present a solution to this need by using verifiable proofs of work to track attention and viewership in a decentralized and completely transparent manner.
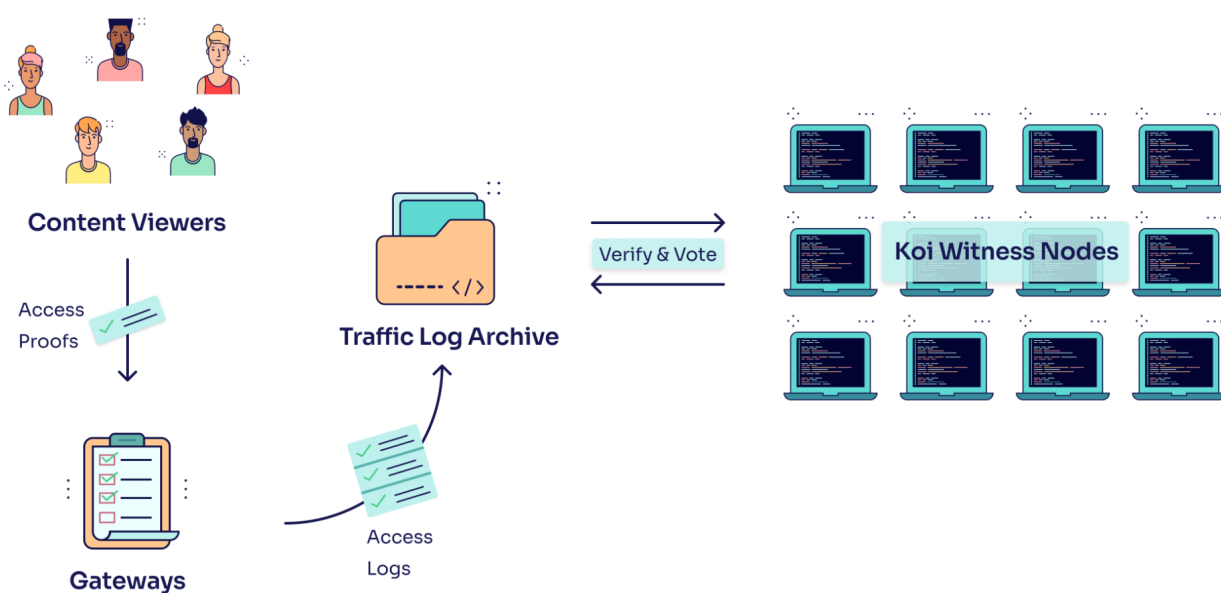
End-users submit Proofs of Real Traffic, which provide a spam prevention mechanism against falsified traffic in high volumes. Koii nodes parse this information and award tokens and track overall content attention along with the reputation of the viewers.

2.2.1 Atomic IDs

When content is Atomically Registered (see 2.1) it receives a unique ID associated with its contents. The unique ID then serves as a universal locator and allows participating viewers to submit PoRT and track attention for that content, no matter where it appears on the web.

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[1]https://thecorrespondent.com/100/the-new-dot-com-bubble-is-here-its-called-online-advertising/13228924500-22d5fd24

2.2.2 Generating PoRT

A PoRT is very similar to a Proof of Work, and uses a hashing function to create a verifiable effort required to post a result. Each PoRT also contains a signature from the sender, ensuring that a single user cannot submit duplicate traffic logs.

2.2.3 Submitting PoRT

When a participating viewer submits PoRT, they are passed to a Koii Node, and eventually will be part of a daily vote by all nodes to distribute KOII tokens. In addition, the Koii Task framework can provide a foundation for click-through tracking, impression tracking, and conversion pixels, which will build a foundation for a truly decentralized and transparent advertising network.

2.2.4 Earning KOII

KOII tokens are released each day based on the total network traffic and are distributed among registered participants based on the volume of traffic on content they own. Each day, nodes collect PoRT until the 24 hr window has expired, at which point they can trigger a vote via the Koii smart contract, and all nodes will begin to report the PoRT they have collected and vote on the validity eachother's PoRT. Finally, a 'distribution' is filed within the smart contract, and a final vote confirms the result via Gradual Consensus over the following 24 hrs.

2.3 Custody Bridges

Finally, it's important to understand that one blockchain is not like another. As a result, content registered to the Koii and Arweave networks is not easily accessible on other chains, or other online platforms. To simplify this, once an item is Atomically Registered, it can be exported and shared anywhere on the web using #PORT_XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX where XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX is the unique ID, and will continue to track attention.

Additionally, most content platforms and NFT marketplaces support listings via a URL to the original media, allowing Atomic NFTs to be listed anywhere, published anywhere, and still retain their link to their original.

3. Standard Locator Format

In a media system which contains many subsidiary networks and products, we foresee significant complications arising from lost content, cross-network compatibility, and general organization. In the below example, an NFT on Arweave is registered to the Koii.Rocks attention leaderboard contract. (See the actual content here.)

<div align="center">

AR : NwaSMGCdz6Yu5vNjlMtCNBmfEkjYfT-dfYkbQQDGn5s : -Ii3FaOhksf91E_1j_dCGMZZnAPZndF2DYwJLXIsvBM

network   application key   content id

</div>

Any piece of content managed by a Koii product exists on a specific "Network", under a specific "Application".

3.1 Network Types

A network type is denoted as the token ticker symbol of the blockchain that the content lives on. Current options include Arweave ("AR"), Ethereum ("ETH"), Filecoin, ("FIL"), and Polygon ("MATIC"). The Network Type (i.e. "KEY") should always match the token ticker in order to streamline fee management as Koii Nodes interact with other networks.

3.2 App Keys

Each Koii Application must use a task contract to correlate information and rewards among Koii Nodes. The "Application Key" should be the network-specific ID of that contract, and should match the address schema of the network defined in 3.1.

3.3 Media IDs

A media or "Content ID" refers to a specific piece of information stored on-chain. This descriptor is network specific, but generally follows the same format as the app key in 3.2.

4. Applications and Utility

4.1 Reliable Incentives for Community Growth

By providing the base layer for tracking human attention, we enable new kinds of incentive models which can be implemented as part of any network running on the Atomic registration and PoRT model.

4.2 Transparency in Ad Networks

While PoRT currently only works for impression tracking, we plan to extend this functionality to provide tracking for clickthrough events as well as conversions, which will feature a similar proof of work, combined with confirmation of payment in some form.

4.3 Censorship Prevention

Finally, Atomic Registration makes it next to impossible to prevent freedom of speech. Once registered, media is stored on hundreds or even thousands of computers around the world, and can only be removed from the network through a deliberate request by the creator.