Koii

Proofs of Real Traffic

Verifiable Proof of Attention

The Koii Network has developed an innovative, transparent, and peer–to–peer approach for traffic monitoring and ad verification.

Motivation

Public data incentivization has been attempted by dozens of projects over the past ~5 years since the creation of Ethereum. Unfortunately, they all had one thing in common: they were unable to track traffic in a reliable or consistent manner, and focused on incentivising node operators instead of end-users. Permanent archival storage now presents a solution to this issue, by providing a single canonical record. Koii expands this utility by tracking attention, and thereby the historical representation of the value of particular knowledge over time.

Goals

In conceiving of the best way to verify attention and traffic, we identified three key issues:

1. Spam and non-human agent filters are needed to remove illegitimate traffic from the rewards model.
2. Conspiracy between node operators and content creators can falsify traffic logs and monopolize rewards.
3. Deliberate falsified traffic by content creators can receive rewards unfairly (i.e., a sybil attack)

Solution

In order to make the network as reliable as possible, gateways can opt to provide additional security and verifiable logs to receive priority and a greater share of daily KOII rewards. The end-users who view this content can then opt into tracking themselves as 'bellwether' nodes, and submit verifiable proof of access as they browse. These proofs are submitted as headers on standard HTTP requests, allowing them to be easily packaged with existing front-end technologies.

Proofs of Real Traffic (PoRT)

Koii nodes collect PoRT headers for all content loaded from their cache. The header is submitted by Content Viewers as a standard HTTP call header when the browser requests certain content, and includes a low-difficulty hash of the requester's IP address, the resource URL, and other metadata.
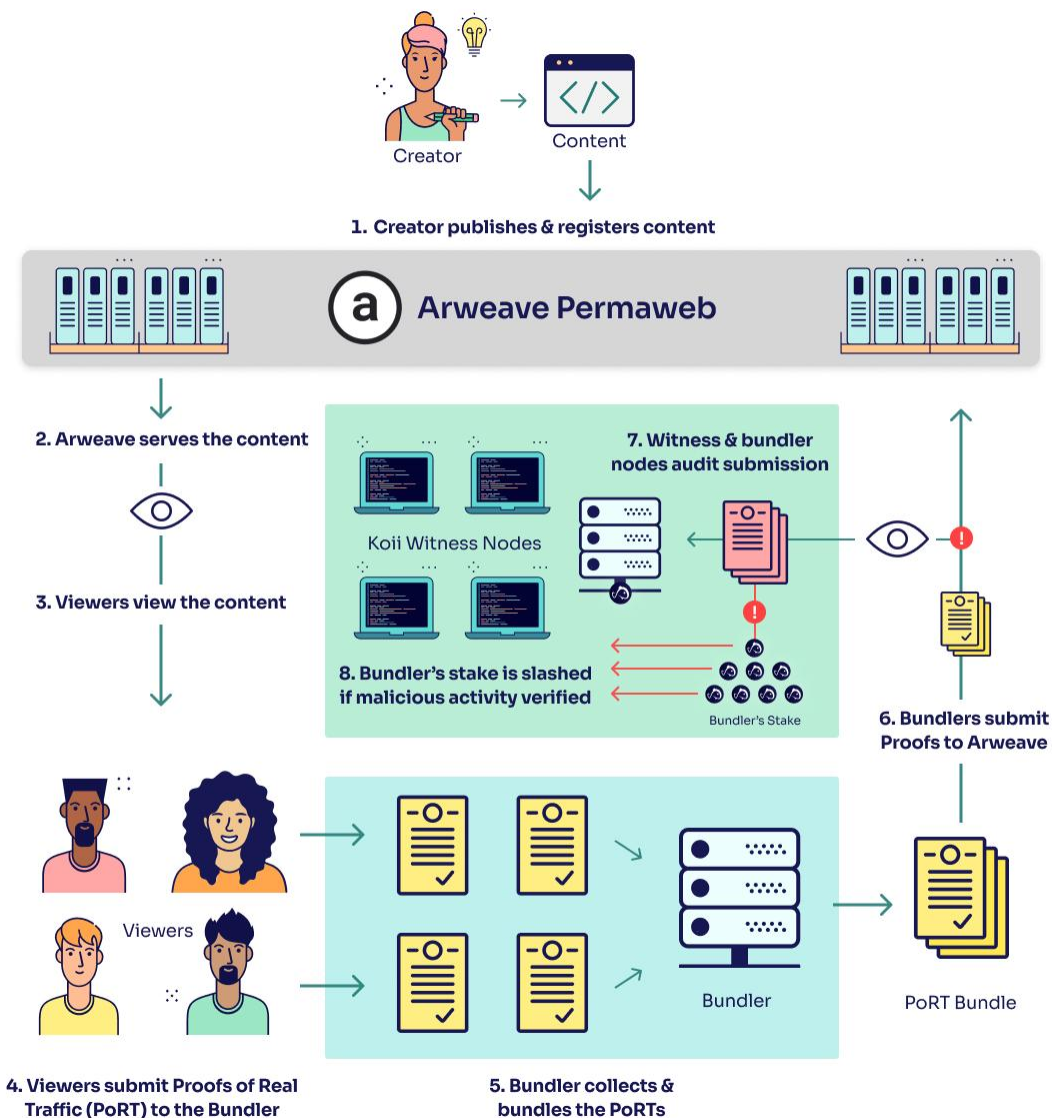
Koii dApps submit Proofs of Real Traffic to Koii Nodes, which are tallied each day and used as the primary metric to assign new tokens as they are minted.

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Tolerance and Optimization

Initially, the difficulty of this hash can be optimized to improve the reliability of the system, but as time progresses, the reliability (and reputation) of the individual 'bellwether' nodes will be sufficient that they do not need to submit proof hashes at all, and can simply sign their traffic requests. These signatures are equally difficult to falsify, and can eventually replace the proof of work model altogether.

Verification & Accountability

During the Koii attention rewards process, Koii Nodes fetch traffic logs from the Gateways and verify the hashes match the given metadata. Since hash verification is trivially simple compared to generation, this provides an efficient means of resolving any doubt about the authenticity of the traffic log data and ensures that Koii can reliably and fairly reward content creators.