Evaluating the State of Web Monetization Adoption
An Analysis of the 2024 WM Landscape

Sophia Lichterfeld

MIT PRIMES CS/Bio Research Track

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Overview

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   - Past Analyses

2 Methods
   - Web Scraping
   - Challenges

3 Results
   - Adoption Trends
   - Comparisons

4 Future Work

5 Conclusions
W3C’s Web Monetization API
Web Monetization (WM) API

A method for compensating online content creators; an alternative to ad-based or subscription models to pay for viewership.

The Best Soft Chocolate Chip Cookies

★★★★ 1684 REVIEWS / 4.6 AVERAGE

These are THE BEST soft chocolate chip cookies! No chilling required. Just ultra thick, soft, classic chocolate chip cookies!

Affiliate links will always be marked with an asterisk! ☝

↓ JUMP TO RECIPE

All the good cookie eaters of the world!

We were made for such a time as this.
Web Monetization (WM) API

Purpose

Establishing a decentralized, standardized, and accessible model to pay for online content direct micropayment streaming.

User-Side

- no ads distracting from the content or collecting user data (privacy)
- no paywalls
- no need to manage subscriptions

Owner-Side

- practical for small websites/businesses
- earn the same amount of revenue as with ads
- can incentivize higher rates with extra features
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Barriers to Adoption

- unfamiliarity with cryptocurrencies or online wallets; difficulty setting up and adding payment pointer
- cycle of adoption hesitance

Leveraging the Escrow-Holding Abilities of Ethereum Smart Contracts to Incentivize Account Creation for the Widespread Adoption of Web Monetization Schemes

Sophia Lichterfeld¹, Garima Rastogi², and Kyle Hogan³
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Requirements
1. WM Agent, WM Provider, and WM Receiver
2. Correctly formatted payment pointer in website HTML head; indicator of adoption
   `<link rel="monetization" href="https://wallet.example/alice" />`
Past Analyses

source: The HTTP Archive

adoption percentage

10/2019  10/2020  07/2021  04/2022  04/2023  04/2024
Web Scraping
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Purpose
The automated extraction of data or information from websites.

Link to GitHub: https://github.com/s-lichterfeld/PRIMES-2024
**Web Scraping**

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A Python system for web scraping spider development.

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2. searched for and selected the payment pointer from each website’s HTML based on the request for the meta tag,
3. saved the data by URL, date and time of scraping, exit status, whether it was monetized, the payment pointer, and the wallet provider.

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Web Scraping

Polite Web Scraping

Guidelines

- follow robots.txt
- identify the scraper and its purpose
- do not overload the server or a website
- do not retrieve personal or copyrighted data

```bash
# do not overload the server or a website
Allow: /ko-kr/lp
Allow: /pt-br/lp
Allow: /zh-cn/lp
Allow: /zh-tw/lp

User-agent: *

# pages testing
Disallow: pages.www.cloudflare.com/
Disallow: en-us.www.cloudflare.com/
Disallow: de-de.www.cloudflare.com/
Disallow: ja-jp.www.cloudflare.com/
Disallow: en-gb.www.cloudflare.cloudflare.com/
Disallow: en-ca.www.cloudflare.com/
```
Challenges
Scraped Results

- Scraped: 6000
- Error:
  - DNS lookup error
  - robots.txt error
Error Analysis

Observations

- of Cloudflare’s 100 most popular sites, only 38 were successful
- DNS and robots.txt forbidden errors most common
- sites with DNS lookup error were not user-facing
- sites with DNS error could also not be accessed when checked manually in browser
HTTP Archive
WM Adoption Trends
Observations

- checked whether our scraper agrees with HTTP Archive on the monetization status of sites
- many sites that had WM in 2021 have removed it from their sites
- recognized "good bots" access more sites than standard web scrapers
Wallet Providers

<table>
<thead>
<tr>
<th>Wallet Provider</th>
<th>2021</th>
<th>2024</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uphold</td>
<td>0.578035</td>
<td>0.720199</td>
</tr>
<tr>
<td>Stronghold</td>
<td>0.075145</td>
<td>0.067881</td>
</tr>
<tr>
<td>Coil</td>
<td>0.063584</td>
<td>0.046358</td>
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<tr>
<td>Twitter</td>
<td>0.057803</td>
<td>0.048013</td>
</tr>
<tr>
<td>GateHub</td>
<td>0.046243</td>
<td>0.043046</td>
</tr>
</tbody>
</table>
Future Work
Remaining Questions

Adoption Trend
Why was there a stark decrease in WM adoption from 2022 to 2023?
- How can we counteract that trend?
- https://github.com/s-lichterfeld/PRIMES-2023

Site Category
What types of sites implement WM most frequently?
- Cloudflare URL Scanner or Whois Query

Following Payment Pointers
- Monetization meta tags can only act as a proxy for WM adoption
- Do the provided payment pointers work, especially in sites with WM retention from 2021? Are the wallets still active?
Conclusions
Impact

Takeaways

- spot-checked results by running our scraper on the list of HTTP Archive monetized URLs
- importance of reputation of "good bots" for organizations such as HTTP Archive to increase efficacy and utility of scraping data
- unexpected WM adoption downturn is unexpected but not resolute
- what other alternatives could we employ to compensate content creators without ads

Link to GitHub: https://github.com/s-lichterfeld/PRIMES-2024
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