metarouter

# Measuring MetaRouter's Impact on Latency

Reducing latency has been proven to increase SEO, improve the user experience and—best of all—boost the bottom line.

# But does MetaRouter materially reduce latency?

One Fortune 100 Company**\*** with hundreds of online brands in dozens of countries wanted to find out. Before implementing MetaRouter across such a robust data ecosystem, it was important that they be certain of ROI.

*\* Because this client, like many organizations, don't want competitors to know any of their secrets to success, they have opted to remain anonymous.*

## The Test

To determine the value of MetaRouter, this organization tested MetaRouter's streamlined tag, which sends behavior and identity data to a server-side customer data infrastructure, vs. the third-party client-side tag system currently operating on their sites.

First, they set up MetaRouter on one domain. Then, using Lighthouse's Performance Audit, they tested several key metrics:

- **First Contentful Paint** - Once a user reaches a page, how long does it take the browser to render the first piece of content (images, non-white <canvas> elements, and SVGs)?

- **Time to Interactive** - How long does it take a page to show useful content, register visible page elements, and respond to user interactions?

- **Speed Index** - How long does it take visual content to load?

- **Total Blocking Time** - How long (beyond 50ms) does a page block user input (mouse clicks, screen taps, or keyboard presses)?

- **Largest Contentful Paint** - From the moment a page begins to load, how long does it take to render the largest image or text block?

- **Overall Score** - A weighted average of all metric scores

Lighthouse tests were run from an incognito Chrome browser, and accessed and downloaded via Chrome dev tools. Another common testing tool, pagespeed.web.dev, was also used and load times may be longer. However, the percent change remains consistent. Therefore, we are confident that the scores included here represent meaningful improvement while using MetaRouter's tag.

# Performance Outcome

## 1. Mobile Performance Score

| KPI | With MetaRouter | Without MetaRouter |
|---|---|---|
| Overall Score | 93 | 41 |
| First Contentful Paint (s) | 1.2 | 8.1 |
| Time to Interactive (s) | 7.0 | 11.9 |
| Speed Index (s) | 1.5 | 10.8 |
| Total Blocking Time (ms) | 150 | 310 |
| Largest Contentful Paint (s) | 1.8 | 14.1 |

## 2. Desktop Performance Score

| KPI | With MetaRouter | Without MetaRouter |
|---|---|---|
| Overall Score | 100 | 71 |
| First Contentful Paint (s) | 0.3 | 1.6 |
| Time to Interactive (s) | 0.3 | 1.7 |
| Speed Index (s) | 0.5 | 3.2 |
| Total Blocking Time (ms) | 0 | 10 |
| Largest Contentful Paint (s) | 0.6 | 3 |

# A Few Key Insights

## 99th Percentile of Performance

With MetaRouter, both desktop and mobile are in the 99th percentile of performance (Lighthouse standards).

This is likely because some third-party tracking libraries block page painting, which would also explain the improvement in LCP scores as well.

The MetaRouter tag loads entirely async, which allows for the quickest page paint possible before the MetaRouter library is activated.

## Javascript execution time

Javascript execution time is a key contributor to the Speed Index Score. On both mobile and desktop, this score is vastly improved, which is to be expected as MetaRouter entirely replaces third-party javascript from the page.

## Improved Time to Interactive

TTI is also heavily influenced by javascript execution time. Lighthouse specifically mentions that optimizing third-party javascript can affect this score, so we can assume that removing javascript entirely should help this score.

The MetaRouter tag significantly improves this metric on both desktop and mobile, but desktop appears to see the largest gain at **over 80% improvement compared to traditional tagging.**

## Improved Total Blocking Time

TBT impedes a user's ability to start clicking on and interacting with the page. The MetaRouter tag completely removed TBT on mobile and brought it within Lighthouse's classification of "fast" (sub-150ms) on desktop.

In full transparency, each run of the Lighthouse report resulted in slightly different metrics. Lighthouse explains how this variance occurs

# Conclusion

It's clear that most Lighthouse KPIs are in some way influenced by how efficiently third-party javascript can be executed. By removing third-party javascript entirely, we see widespread and significant impacts across all of the key metrics Lighthouse uses to assess latency.



Before



After

Single-Tenant Platform Deployment
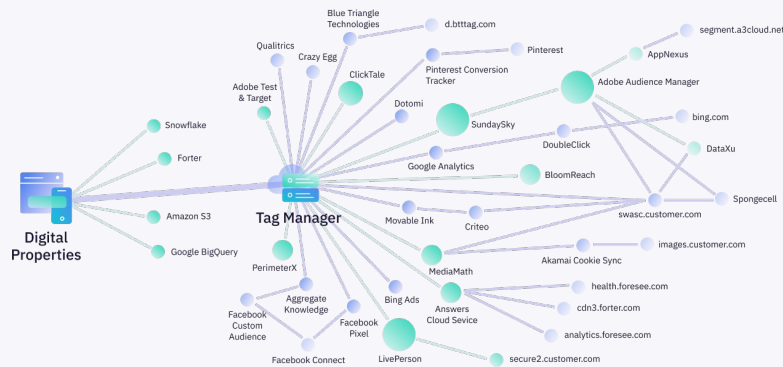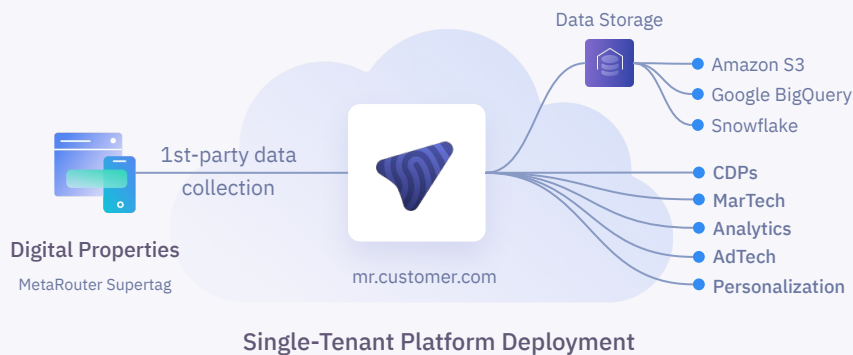
In short, results from a scan of one domain running both the MetaRouter tag and traditional tracking method reveal significant gains across desktop and mobile when data processing is moved server-side. All key metrics show significant improvement with server-side pipelines, with aggregate Lighthouse scores showing 127% and 41% improvement and desktop and mobile, respectively.

Implementing MetaRouter, therefore, will not only give the website a competitive advantage in terms of SEO, but also contribute to a vastly improved customer experience due to improved page performance.

This compelling outcome was all the proof the organization needed to make MetaRouter the server-side customer data infrastructure they count on.

To see if MetaRouter could impact your company's website performance, reach out anytime.

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