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Interaction to Next Paint

Measuring responsiveness on the web

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Responsiveness

INP measures how quickly a page responds to a user interaction

Responsiveness

Blocking Example

Input your username and submit the form. INP is logged to console.

| Username | Submit |

First Input Delay

- Measures the *first* interaction on a page.
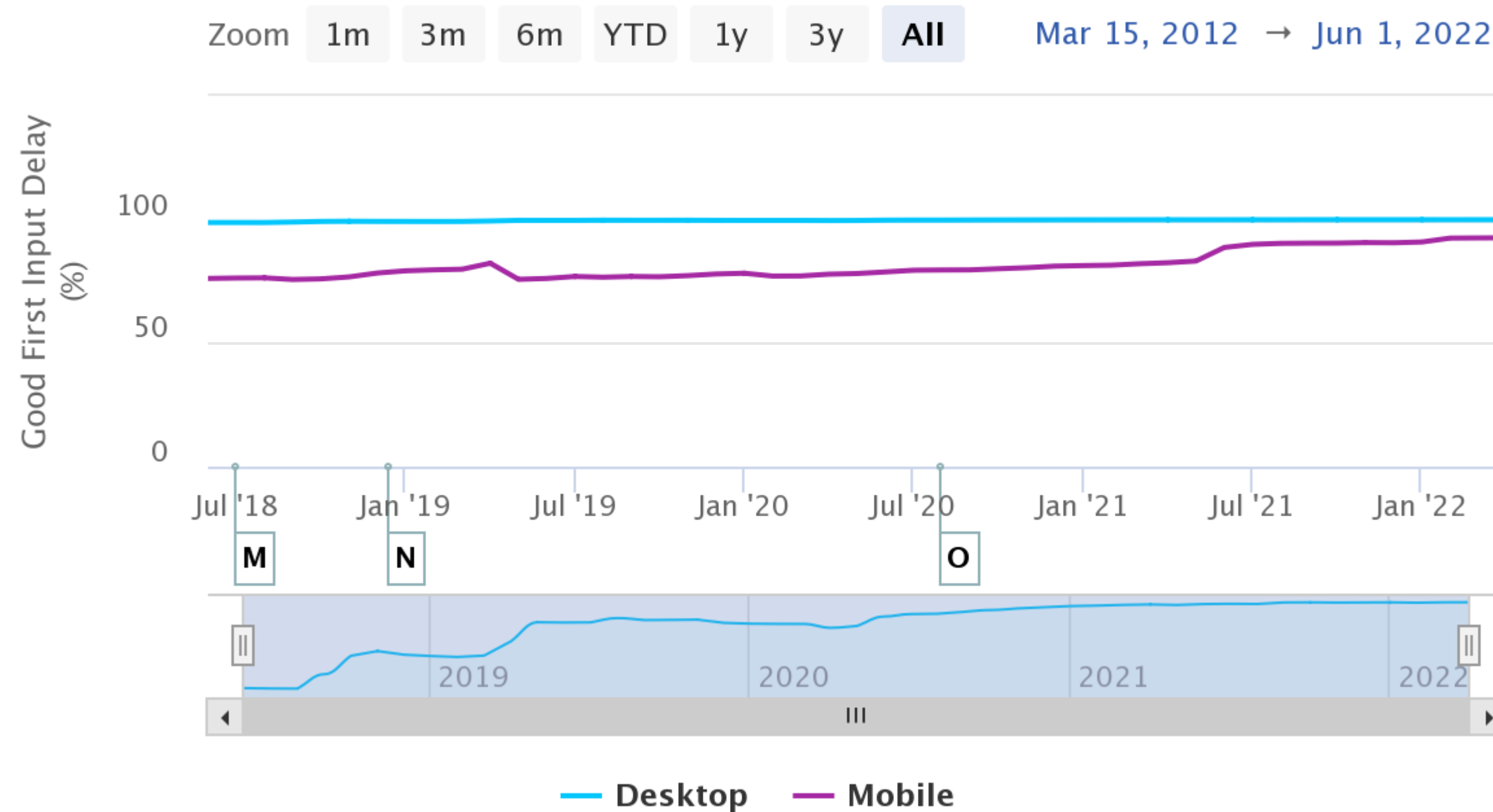- Only includes the *delay* in processing.

Good FID

Timeseries of Good First Input Delay

Source: httparchive.org

Zoom 1m 3m 6m YTD 1y 3y **All**   Mar 15, 2012 → Jun 1, 2022
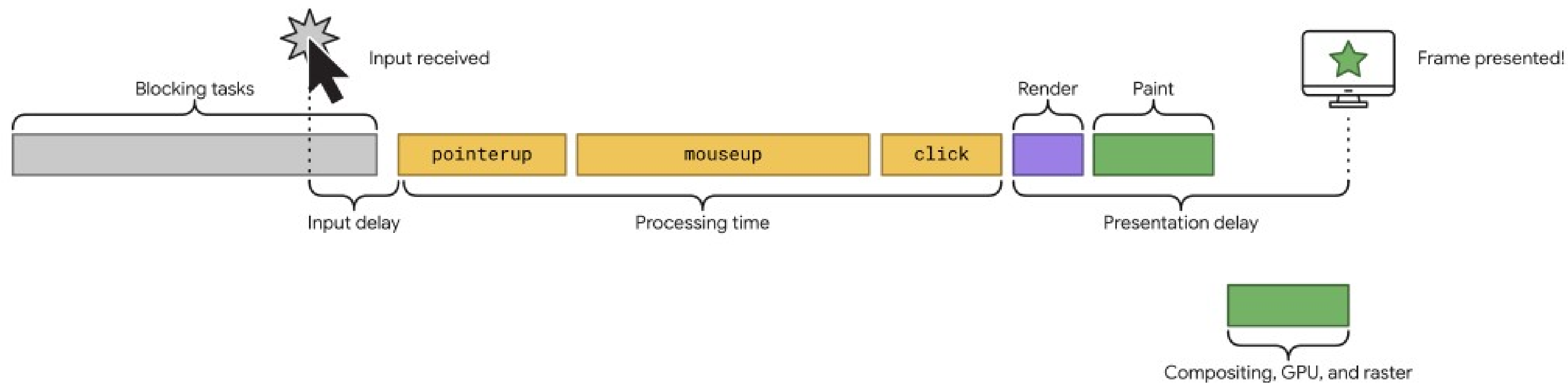

— Desktop — Mobile

The number of websites achieving a **good FID** score has increased from **72.1% of origins in 2018 to 92.5% of origins in May 2022.**

FID on desktop was always > 98%.

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- Considers *all* user interactions.
- Measures the time from the input until the frame is painted to screen.
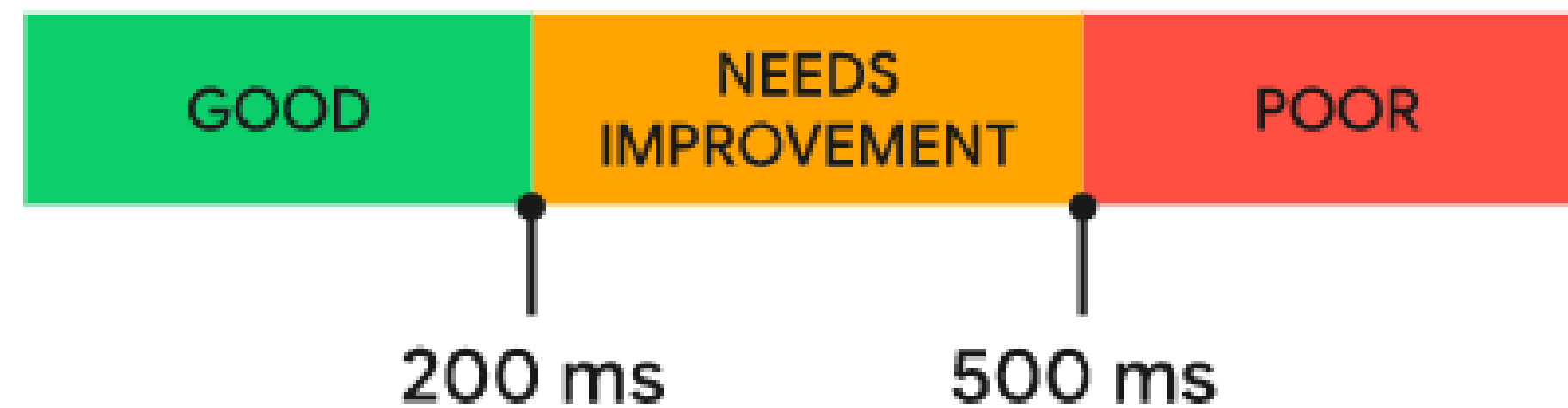

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The "worst" INP

● INP score is the worst interaction on your page.
● > 50 interactions, then 98th percentile.

INP

Interaction to Next Paint

GOOD	NEEDS IMPROVEMENT	POOR

200 ms   500 ms

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It's good for business!
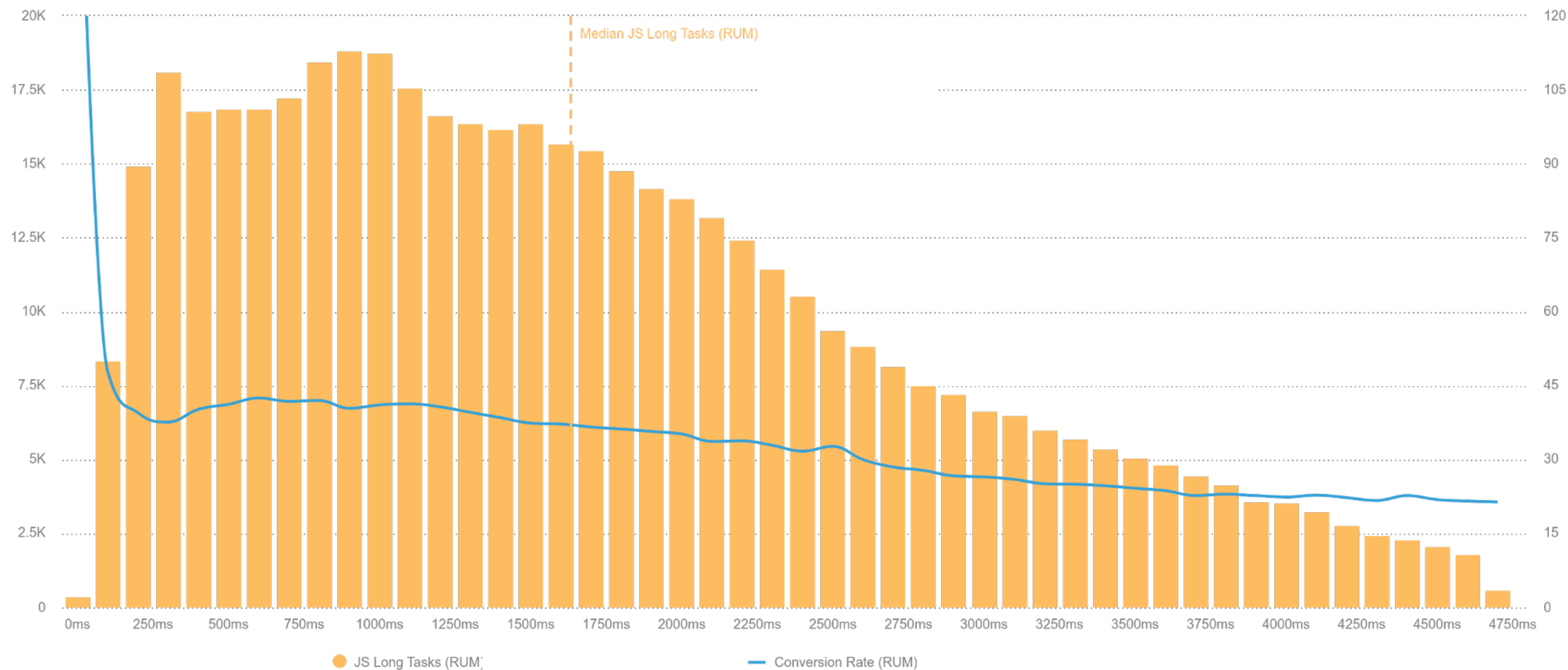
The more long tasks, the less likely a user is to convert.

The median conversion rate for users that experience < 500ms JS long tasks is 38.5%, while users that experience > 4000ms long tasks have a conversion rate of 11.8%.

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Optimizing INP

- Minimize main-thread work.
- Optimize JavaScript bundles.
- Audit your event handlers.
- Beware of hydration in Single Page Apps.

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Measuring INP

● CrUX dataset, including PageSpeed Insights.
● **web-vitals** library
● PerformanceObserver.

● Largest Contentful Paint (LCP)

1.9 s

● First Input Delay (FID)

14 ms

● Cumulative Layout Shift (CLS)

0

OTHER NOTABLE METRICS

● First Contentful Paint (FCP)

1.4 s

■ Interaction to Next Paint (INP)

286 ms

● Time to First Byte (TTFB)

0.8 s
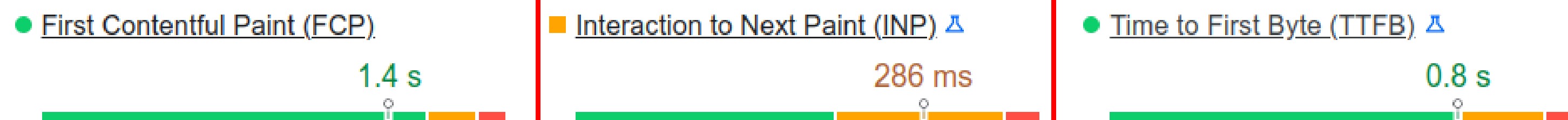
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INP in the real world

Technology	Origins	Good INP
ALL	6,754,899	55%
jQuery	5,591,806	57%
AngularJS	85,049	46%
Vue.js	211,468	42%
React	582,000	35%
Preact	183,771	35%
Svelte	8,062	33%

CWV technology report
INP data for May 2022

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Thank you

Recommended reading:

- [web.dev/inp](web.dev/inp)
- debugbear.com/docs/metrics/interaction-to-next-paint
- [Correlation between Total Blocking Time and Interaction to Next Paint on Mobile](#)
  (Annie Sullivan)
- imkev.dev/inp

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