

In 2015 Paul Irish and Paul Lewis from Google, proposed the RAIL performance model.

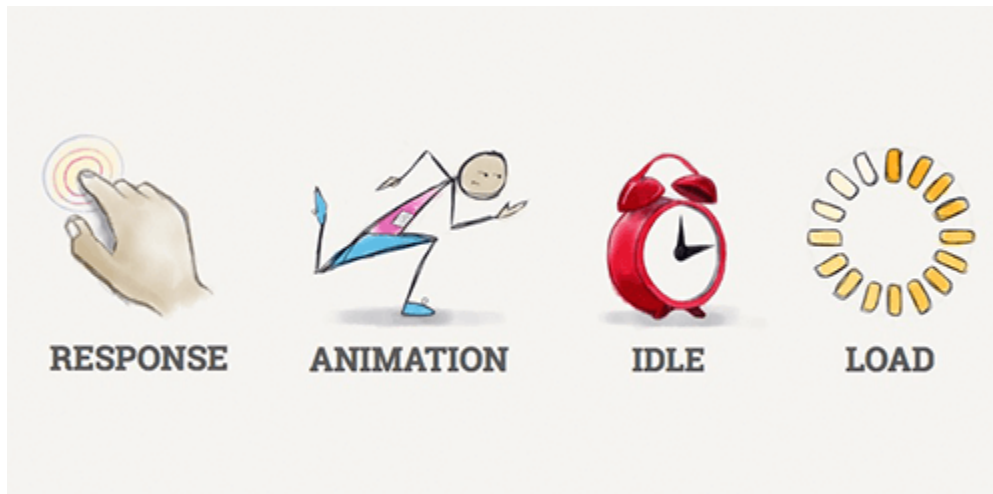


Figure 1: The four components of the rail model. Taken from [Smashing Magazine](https://www.smashingmagazine.com/2015/05/05/raill-performance-model/)

The performance picture has changed in the last 5 years, now Google is pushing a set of [Core Web Vitals](https://web.dev/core-web-vitals/) as a way to create a single set of signals we can use to

- [**Largest Contentful Paint \(LCP\)**](#): measures *loading* performance. To provide a good user experience, LCP should occur within **2.5 seconds** of when the page first starts loading.
- [**First Input Delay \(FID\)**](#): measures *interactivity*. To provide a good user experience, pages should have a FID of less than **100 milliseconds**.
- [**Cumulative Layout Shift \(CLS\)**](#): measures *visual stability*. To provide a good user experience, pages should maintain a CLS of less than **0.1**.