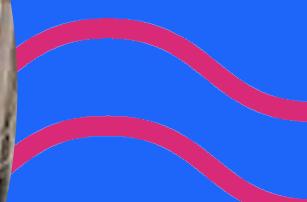
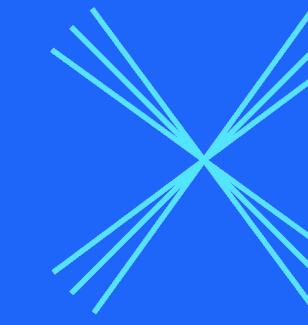
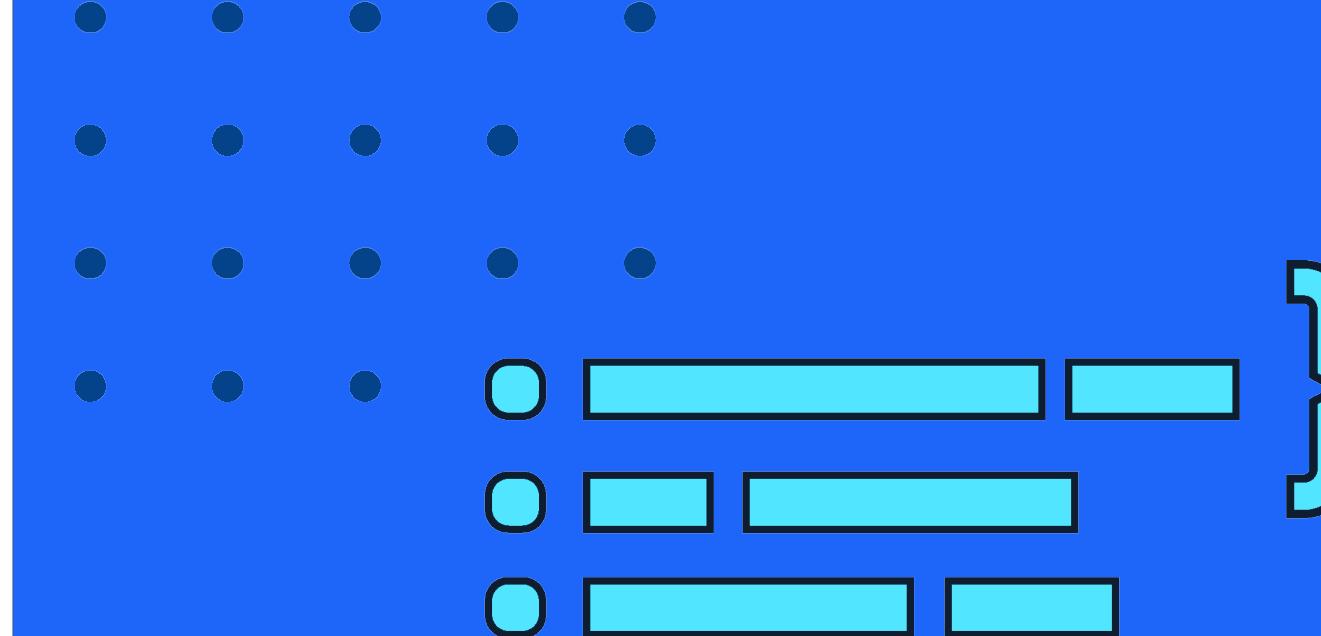




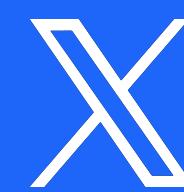
ARE THEY REALLY USING IT?

MONITORING DIGITAL EXPERIENCE TO DETERMINE FEATURE EFFECTIVENESS

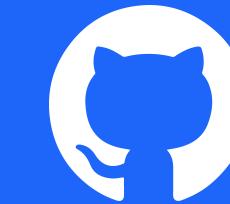
CARLY RICHMOND



Let's get in touch!



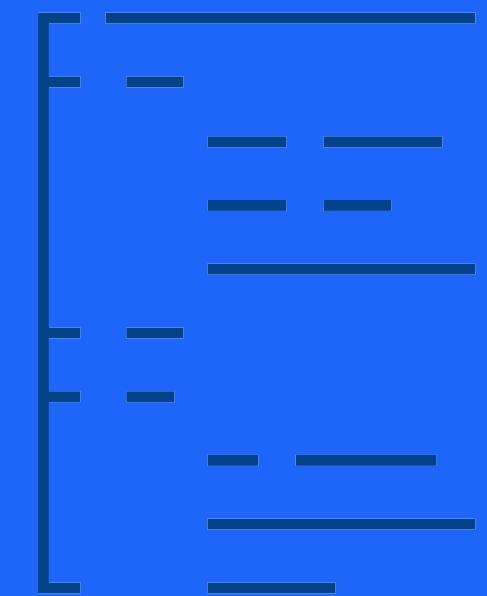
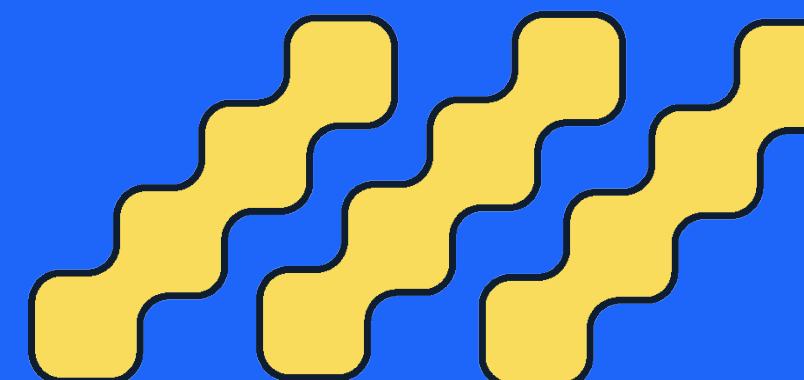
@CarlyLRichmond



@carlyrichmond



@carly-richmond







RED ALERT!

ONCE UPON A TIME...

ONCE

142 ■ THUNDER MOON

burned us, as the pup begged for a share in vain. We got strength from that meal.

Then I knew that with the spear Meri and I could eat better. I might be able to kill more swans as long as they were sitting on their nests, or to use the spear to drive them off their nests and take the eggs, or to kill fawns hidden at the edges of the plain. I might be able to throw the spear at something.

Very soon the hawks would be running, the eggs would be hatched, and the swans and cygnets would be swimming where I could never catch them. I knew I couldn't wait. Planning to kill the other swan the next night, while the moonlight lasted, I used the morning to look through the grass and low bushes for a hawk.

The thought that one of us should watch the lodge was the wolf's, not mine. Her pup might wander off but Meri wouldn't, and although the wolf might wait for me to get home before going hunting, I saw no reason to wait for her. Feeling much safer, much more dangerous, with the spear than with the size or the antler pcs, I went to the plain, hunting for young animals in every patch of long grass, in every clump of bushes.

In time I heard many hoofbeats and looked up. Two horses and a colt were running towards me, followed eagerly by a wolf - our own long-legged female. Now and then the horses would stop running to glare at the wolf, who held herself back at a distance so she wouldn't scatter them. She dash off again with the wolf alert tracks told clearly - I lay perfectly still, hardly daring to breathe. After a very long wait, during which the mare ran at the wolf several times and ravens set themselves down on the plain around us, the colt died and the mare gave up hope. Then both mares went away. Again I dared to peek, and saw the wolf taking big bites from the colt's hindquarters.

Then the horses would dash off again with the wolf alert behind them, not on their heels but far off, swinging out to the left or out to the right in a way that made the horses run towards me. A stallion driving them would not have moved them better, except that he would have been on their haunches, driving them with shoves and bites. I couldn't at first imagine why she was chasing horses to me. Then I

elastic

pompous, coupling her pronou
cars and safety with her insiste
driving up with Isaac. She speaks
insisting on minutiae like fish fo
know about. Over time Nina h
in her observance, so that wh
pervised restaurants when the
trusts such places entirely. And
home and sleep through service
set a good example for the child
morally, Nina is right to insist.
are going to be religious, you
holiday and law. They believed
do things by halves, which

Soviet delegation on the last
the Message. But south-central
in which they could talk unob-
quarters at the Argus facility.
about. Sometimes it seemed that,
hanging by a presidential thread.
vaguely aware, by more than that,
so they got around to him while load-
"The man is scared stiff," Ellie said.
He imagines the Message is going to be
egesis or something that shakes his fa-
ow a new scientific paradigm subsum-
ants to know what science has done to
posed to be the voice of reason. Chiliasm
Compared to the soul of moderation," deri-
Joss is the soul of moderation these days.
aven't explained the soul of moderation these days.
I worry about that a lot these days—
be sure that it isn't a message from—" "I Am
n God or the Devil? Ken, you can't be
how about advanced somebody like Joss?
I good or evil, who some day like Joss
shable from God or the Devil?"
oever those beings are in the Vega system.
create the universe. And they're nothing
od. Remember, Vega, the Sun, and a
ar neighborhood are in some backwater
n galaxy. Why should I Am That I Am
here must be more pressing things for him
a bind. You know Joss is very influen-
e presidents, including the pres-
inclined to make some
k she wants.

Records

wse our record selection today!

Elements Console Sources Network Performance Memory Application Security Lighthouse » 1 ⚙️ ⋮

+ | 15:24:33 - localhost:4200 ▾

Perform an audit... 4200/records?terms=

20/26 6/7

Performance Best Practices

20/26

Performance

▲ 0–49 ■ 50–89 ● 90–100

METRICS

▲ Total Blocking Time
400 ms
Sum of all time periods between FCP and Time to Interactive, when task length exceeded 50ms, expressed in milliseconds. [Learn more](#).

● Interaction to Next Paint
40 ms
Interaction to Next Paint measures page responsiveness, how long it takes the page to visibly respond to user input. [Learn more](#).

Collapse view

View Trace View Treemap

SIDE B (STEREO)
19975883381
33 1/3 RPM

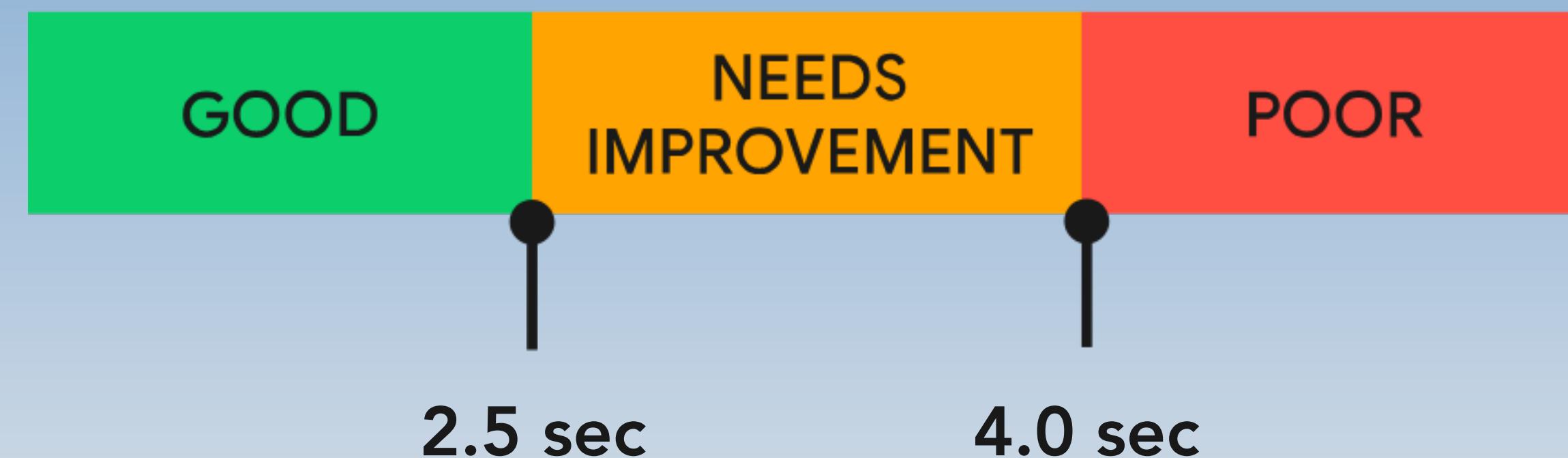
Show audits relevant to: All TBT CLS INP



LCP

LARGEST CONTENTFUL PAINT

The render time of the largest image or text block visible within the viewport

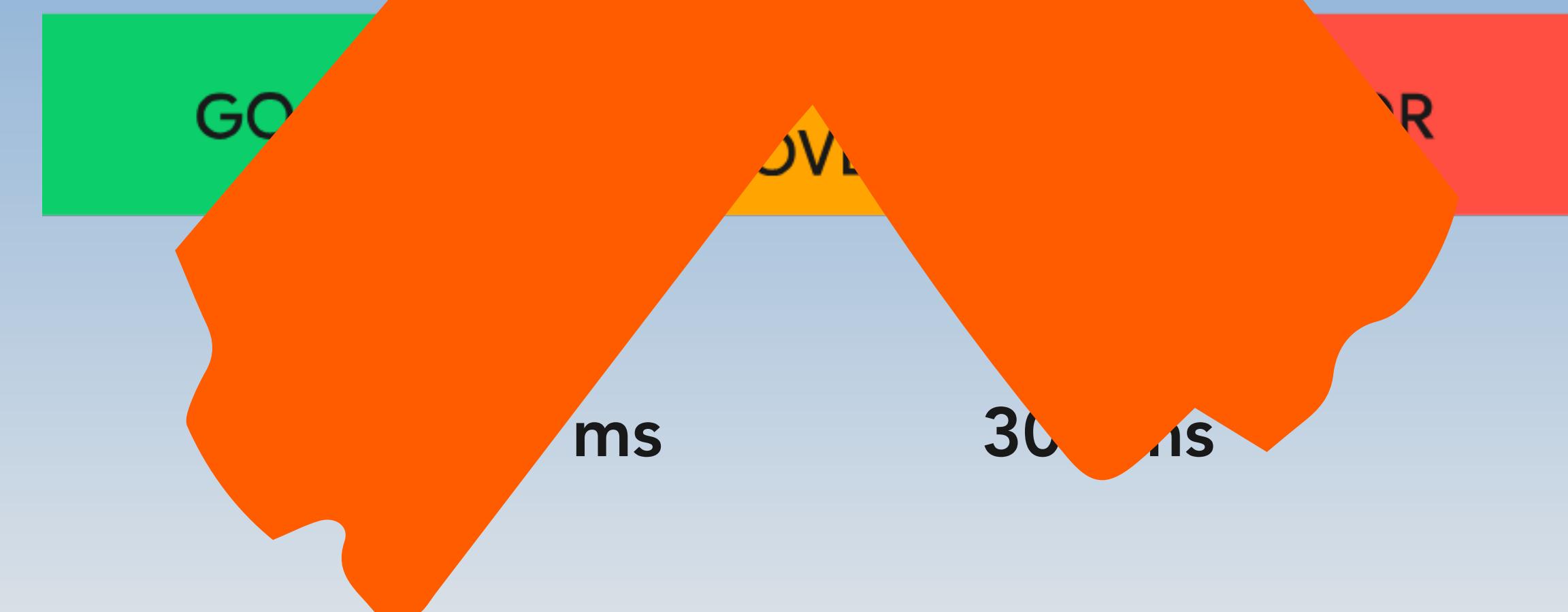


FID

FIRST INPUT DELAY

The time from when a user provides input and the page executes it

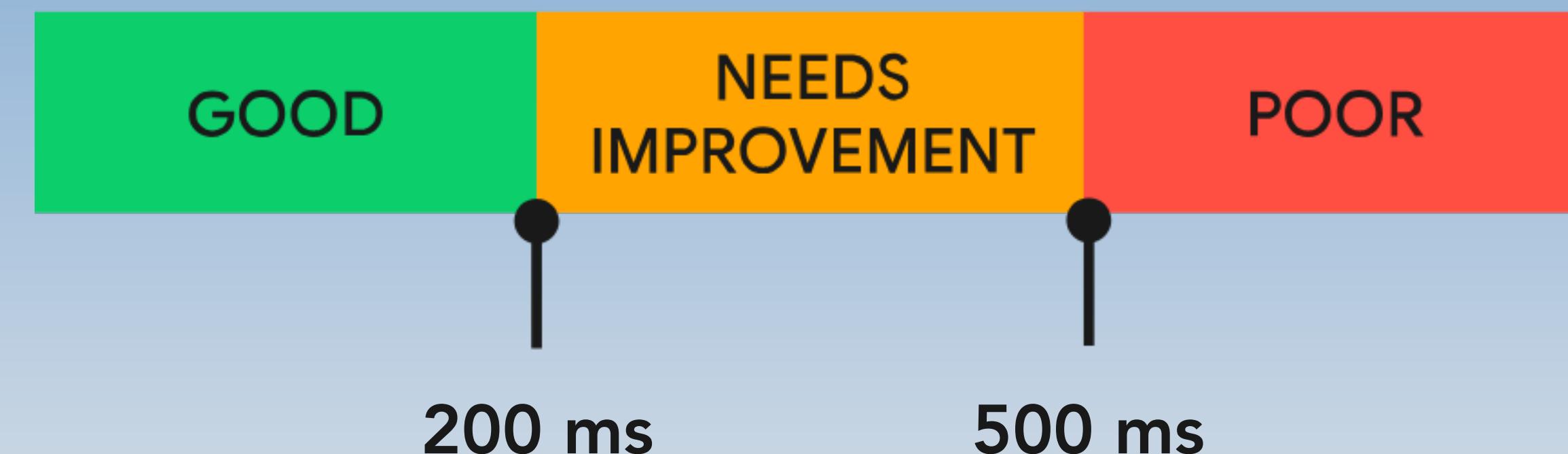
Time from when a user provides input or command



INP

INTERACTION TO NEXT PAINT

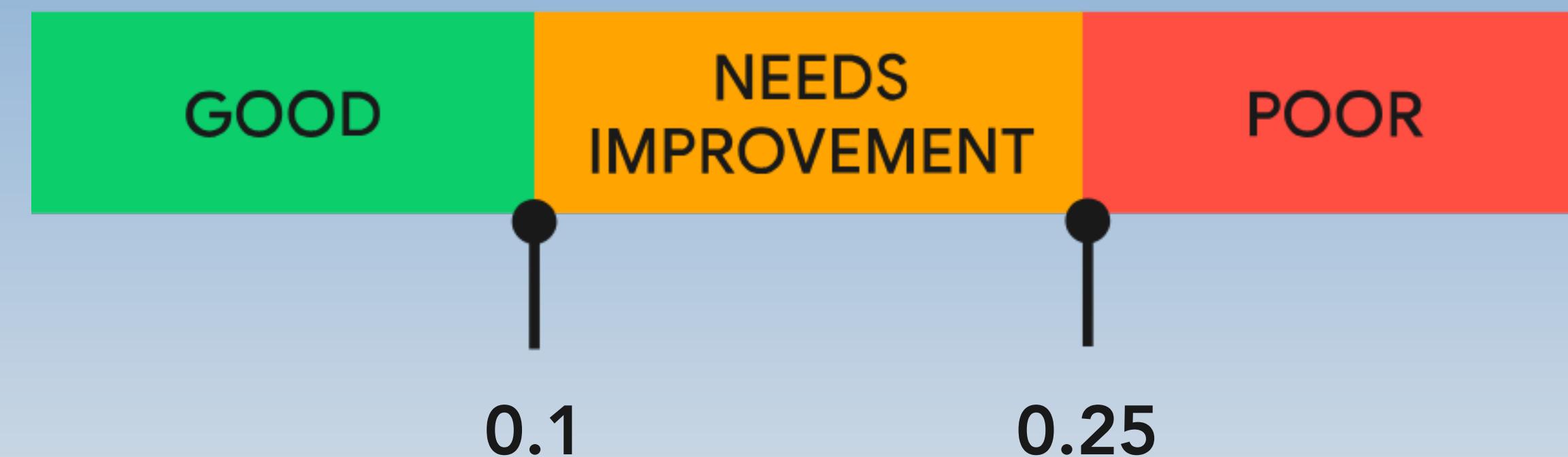
The longest duration of latency of all click, tap, and keyboard interactions with a page throughout its lifespan, excluding outliers



CLS

CUMULATIVE LAYOUT SHIFT

The largest burst of *layout shift scores* for every unexpected layout shift that occurs during the entire lifespan of a page



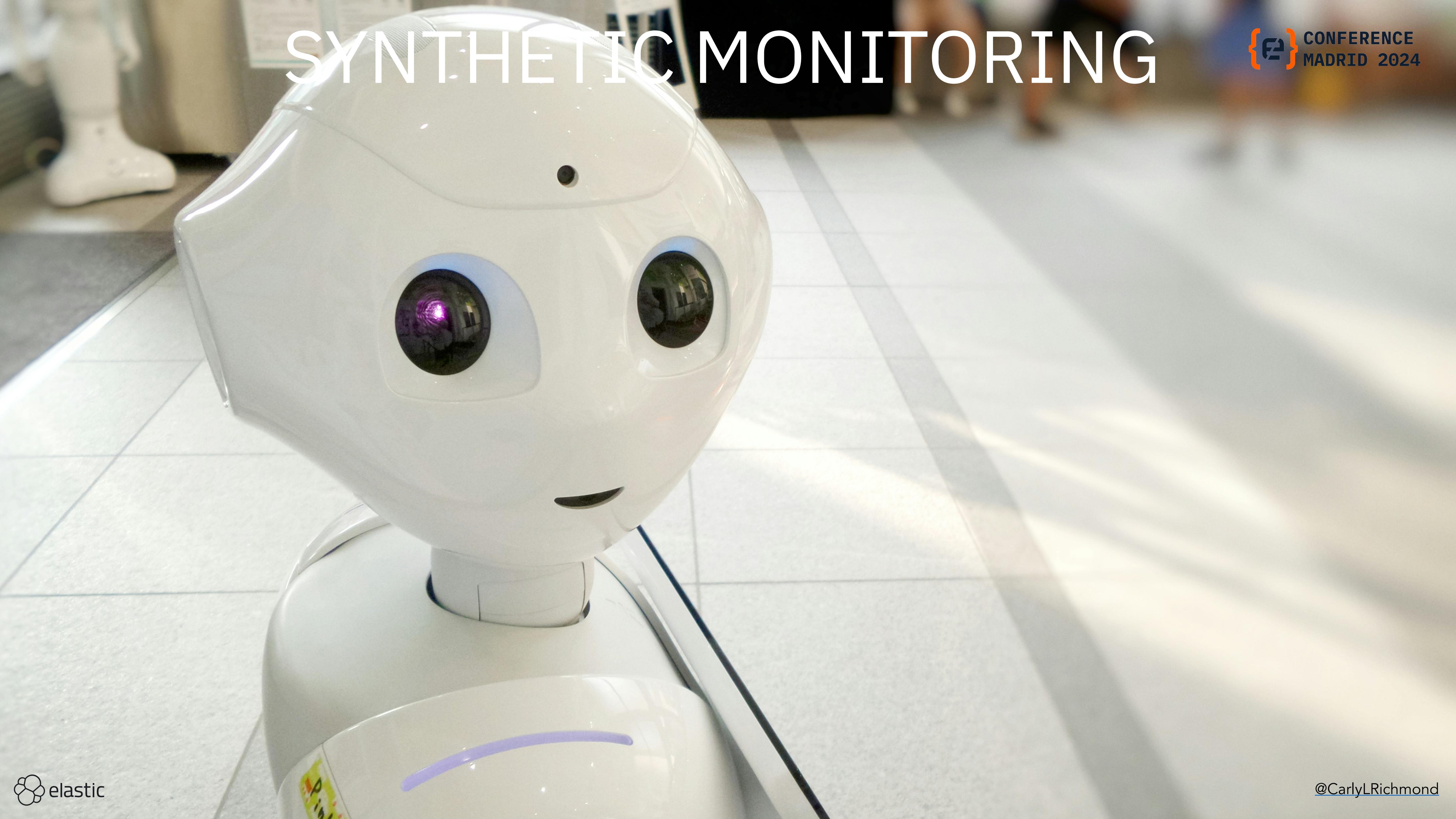
GOOGLE LIGHTHOUSE

{E2} CONFERENCE
MADRID 2024



SYNTHETIC MONITORING

{e} CONFERENCE
MADRID 2024



Observability

Overview

Alerts

SLOs

Cases

Logs

Explorer BETA

Stream

Anomalies

Categories

Infrastructure

Inventory

Metrics Explorer

Hosts BETA

APM

Services

Traces

Dependencies

Synthetics

Monitors

TLS Certificates

User Experience

Monitors

[+ Create Monitor](#)[⟳ Refresh](#)[Overview](#) [Management](#)

Search by name, URL, host,

Up

Down

Disabled

Type 2

Location 1

Tags 0

Frequency 2

Project 2

Current status

4 Up **0** Down **3** Disabled

Last 6 hours

0 Errors

Last 12 hours

0 Alerts

Showing 7 Monitors

Sort by Status ▾ Group by Project ▾

synthetics-replicator-tests

4 Monitors

Recorded Order journey

Europe - United Kingdom

Duration ⓘ
2 s

Replicator HTTP ping

Europe - United Kingdom

Duration ⓘ
256 ms

Replicator Login Journey

Europe - United Kingdom

Duration ⓘ
2 s

Replicator Order Journey

Europe - United Kingdom

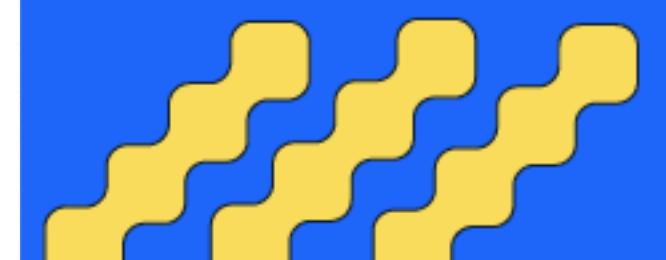
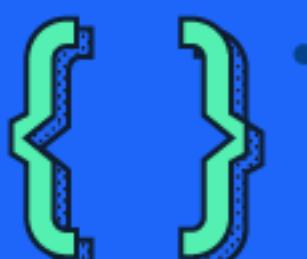
Duration ⓘ
2 s

Rows per page: 2 ▾

< 1 >

> synthetic-monitoring-authentication

3 Monitors



D Observabil... Syntheti... Monit... Replicator Order Jo... Erro... May 14, 2024 @ 11:14 ... Updated 50 seconds ago 1 m Alerts and rules Settings Explore data AI Assistant

Observability

- Overview
- Alerts
- SLOs
- Cases

Logs

- Explorer BETA
- Stream
- Anomalies
- Categories

Infrastructure

- Inventory
- Metrics Explorer
- Hosts BETA

APM

- Services
- Traces
- Dependencies

Synthetics

- Monitors
- TLS Certificates

User Experience

- Dashboard

Universal Profiling

- Stacktraces
- Flamegraphs
- Functions

Code executed

```
async () => {
  const header = await page.locator("h1");
  (0, import_synthetics.expect)(await header.textContent()).toBe("Replicatr");
}
```

Last test run

Failed May 14, 2024 @ 11:16 AM [View test run](#)

⚠️ error executing step: expect(received).toBeLessThan(expected)

#	Screenshot	Step name	Result	Last successful
1		assert home page loads	Complete after 140 ms	200 ms
2		assert move to order page	Failed after 365 ms	388 ms

Blocked 24 ms ↓

DNS 63 ms ↓

Connect 22.97 s ↑

TLS 1.28 s ↑

Wait 2.0 s ↓

Receive 1.0 ms ↓

Send 0.0 ms ↓

Monitor details

Enabled (all locations) ON

URL <https://synthetics-replicator.netlify.app/>

Last run May 14, 2024 @ 11:16 AM

Last modified May 14, 2024 @ 11:12 AM

Project ID synthetics-replicator-tests

Monitor ID synthetics-replicator-monitor-order-synthetics-replicator-tests-default

Monitor type Journey

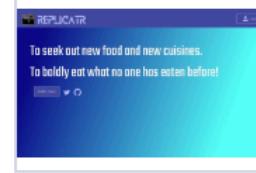
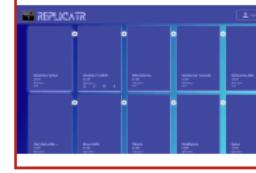
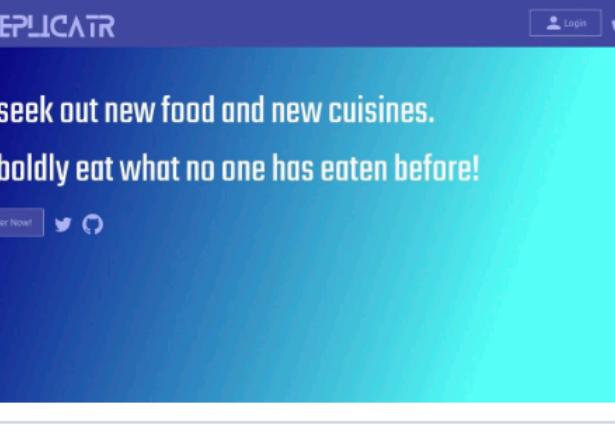
Frequency Every 10 minutes

Tags --

[Cases](#)[Logs](#)[Explorer BETA](#)[Stream](#)[Anomalies](#)[Categories](#)[Infrastructure](#)[Inventory](#)[Metrics Explorer](#)[Hosts BETA](#)[APM](#)[Services](#)[Traces](#)[Dependencies](#)[Synthetics](#)[Monitors](#)[TLS Certificates](#)[User Experience](#)[Dashboard](#)[Universal Profiling](#)[Stacktraces](#)[Flamegraphs](#)[Functions](#)

Last test run Failed May 14, 2024 @ 11:16 AM

[View test run](#)

#	Screenshot	Step name	Result	Last successful
1		assert home page loads	Complete after 140 ms	200 ms
2		assert move to order page	Failed after 365 ms	388 ms
				
		Blocked	-- ↓	Blocked 24 ms ↓
		DNS	-- ↑	DNS -- --
		Connect	-- ↑	Connect -- --
		TLS	-- --	TLS -- --
		Wait	63 ms ↓	Wait 22.97 s ↑
		Receive	-- ↓	Receive 1.28 s ↑
		Send	-- --	Send -- --
		Step duration	365 ms ↓	Step duration 388 ms ↓
		LCP	0 ms --	LCP 0 ms --
		FCP	0 ms --	FCP 0 ms --
		CLS	0 --	CLS 0 --
		DCL	0 ms --	DCL 0 ms --
		Transfer size	6 KB ↓	Transfer size 1 MB ↓

Monitor details

Enabled (all locations)

URL <https://synthetics-replicator.netlify.app/>

Last run May 14, 2024 @ 11:16 AM

Last modified May 14, 2024 @ 11:12 AM

Project ID synthetics-replicator-tests

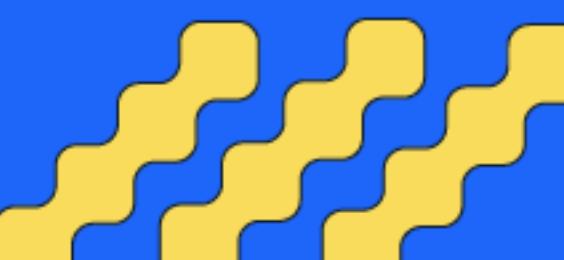
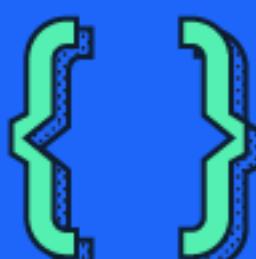
Monitor ID synthetics-replicator-monitor-order-synthetics-replicator-tests-default

Monitor type [Journey](#)

Frequency Every 10 minutes

Tags --

 CONFERENCE MADRID 2024

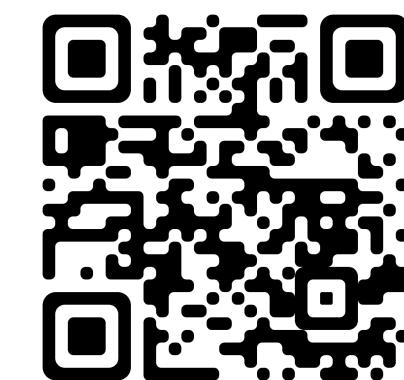
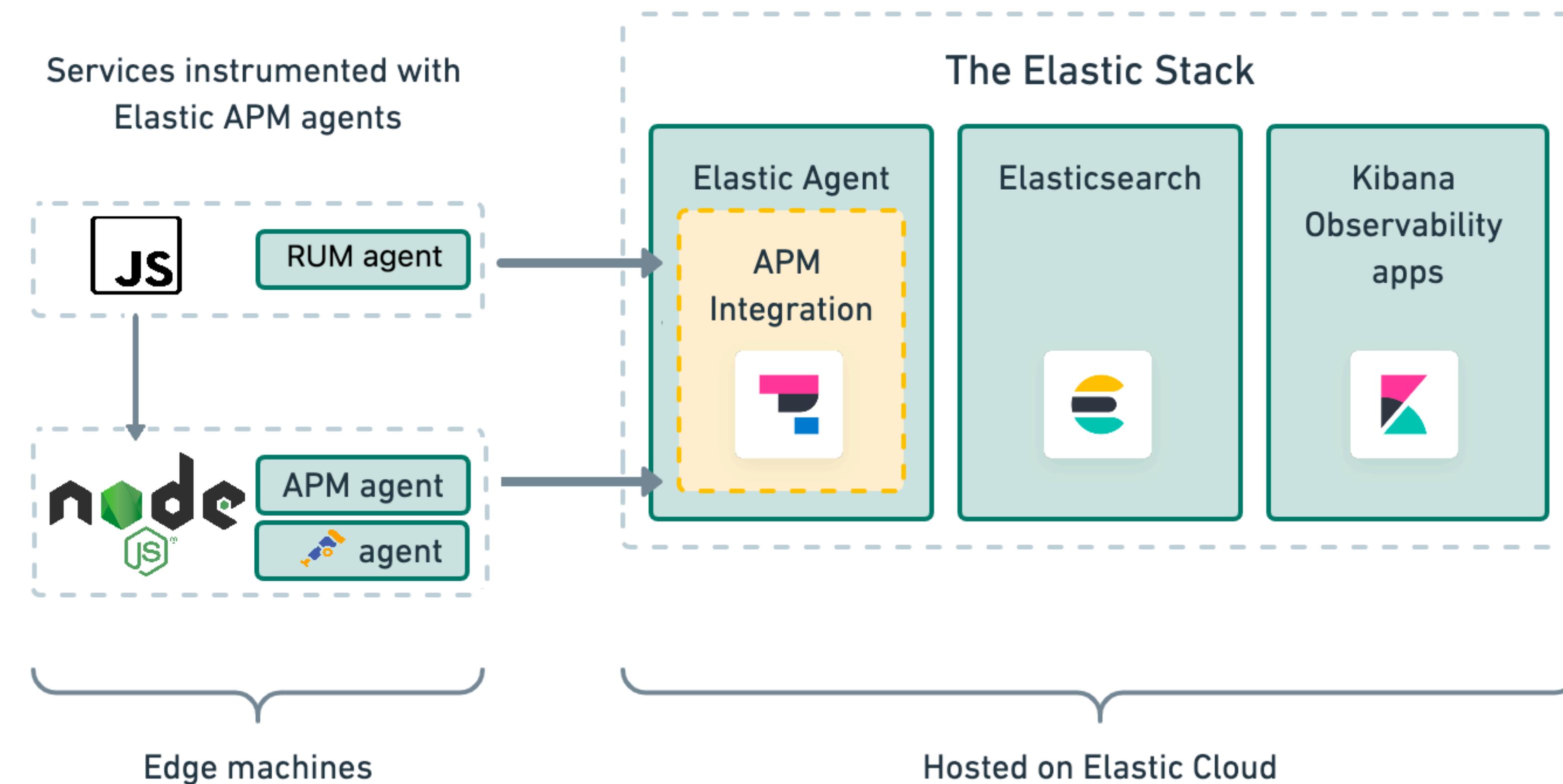


MORE REAL USER MONITORING

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SAMPLE RUM ARCHITECTURE





open-telemetry/community: C x +

github.com/open-telemetry/community?tab=readme-ov-file#implementation-sigs

README Code of conduct Apache-2.0 license Security

	GoLang: Automatic Instrumentation	Every other week on Tuesday at 9:30 PT	Google Doc	#otel-go-instrumentation	calendar-go	Juraci Paixão Kröhling
Java: SDK + Automatic Instrumentation	Every Thursday at 09:00 PT	Google Doc	#otel-java	calendar-java	Trask Stalnaker	
JavaScript: SDK	Every Wednesday at 09:00 PT	Google Doc	#otel-js and GitHub Discussions	calendar-js	Daniel Dyla	
PHP: SDK	Every Wednesday at 10:30 PT	Google Doc	#otel-php	calendar-php	Severin Neumann	
Python: SDK	Every Thursday at 09:00 PT	Google Doc	#otel-python	calendar-python	Daniel Gomez Blanco	
Ruby: SDK	Every Tuesday at 09:00 PT	Google Doc	#otel-ruby and GitHub Discussions	calendar-ruby	Ted Young	
Rust: SDK	Every Tuesday at 09:00 PT	Google Doc	#otel-rust and Gitter	calendar-rust	Ted Young	
Swift: SDK	Every Thursday at 09:00 PT	Google Doc	#otel-swift	calendar-swift	Alolita Sharma	
Communications (Website, Documentation, etc.)	Every other week on Monday at 10:00 PT	Google Doc	#otel-comms	calendar-comms	Severin Neumann	
End-User SIG	Every other week on Thursday at 10:00 PT	Google Doc	#otel-user-research	calendar-user-research	Daniel Gomez Blanco	
eBPF	Every week on Tuesday at 09:00 PT	Google Doc	#otel-ebpf	calendar-ebpf	Ted Young	
Client Instrumentation	Every Tuesday at 9:00 AM PT	Google Doc	#otel-client-side-telemetry	calendar-client-side	Daniel Gomez Blanco	
Kubernetes Operator	Every other week on Thursday at 09:00 PT	Google Doc	#otel-operator	calendar-k8s-operator	Juraci Paixão Kröhling	

< Cancel

Edit Elastic APM integration

Agent policy

Elastic Cloud agent policy

Modify integration settings and deploy changes to the selected agent policy.

[Settings](#) [APM Agents](#)

Integration settings

Choose a name and description to help identify how this integration will be used.

Integration name

Elastic APM

Description

Optional

> Advanced options

General

Settings for the APM integration.

Server configuration

Host defines the host and port the server is listening on. URL is the unchangeable, publicly reachable server URL for deployments on Elastic Cloud or ECK.

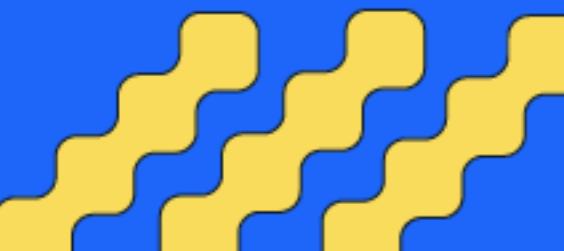
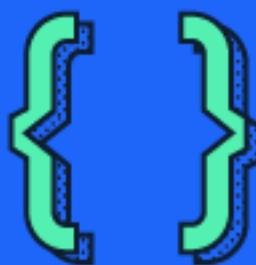
Host

Required

URL

Required

General

Settings for the APM integration.

Server configuration

Host defines the host and port the server is listening on. URL is the unchangeable, publicly reachable server URL for deployments on Elastic Cloud or ECK.

Host

Required



URL

Required


[Advanced options](#)

Real User Monitoring

Manage the configuration of the RUM JS agent.

Enable RUM

Enable Real User Monitoring (RUM)

 Enabled

Allowed Origins

Optional

"*"
X



Allowed Origin headers to be sent by User Agents.

Custom headers

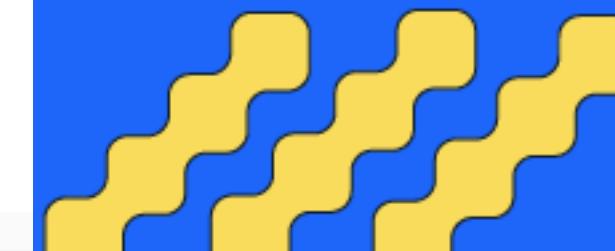
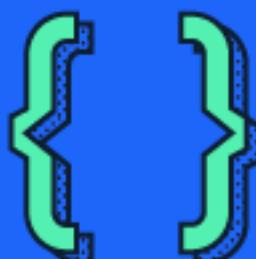
Configure authentication for the agent

Access-Control-Allow-Headers

Optional

Select or create options

Supported Access-Control-Allow-Headers in addition to "Content-Type", "Content-Encoding" and "Accept".





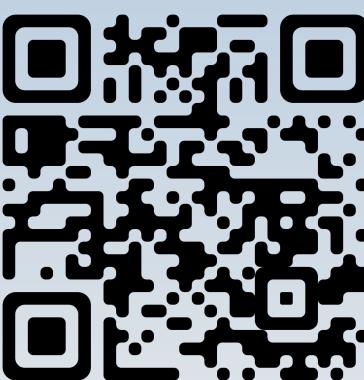
App.js

```
import { init as initApm } from '@elastic/apm-rum';
import { environment } from './environments/environment';

export function App() {
  initApm({
    serviceName: 'rum-records-react-ui',
    distributedTracingOrigins: ['http://localhost:3333'], // front to back instrumentation
    serverUrl: environment.elastic_deployment_url,
    serviceVersion: '1',
    environment: environment.production ? 'prod' : 'dev',
    // How to enable debug mode if needed
    logLevel: 'debug'
  });

  return (
    <>
      { /* Component view code omitted */ }
    </>
  );
}

export default App;
```



```
import { Link, Route, Outlet } from 'react-router-dom';
import { ApmRoutes } from '@elastic/apm-rum-react';

import { init as initApm } from '@elastic/apm-rum';
import { environment } from './environments/environment';

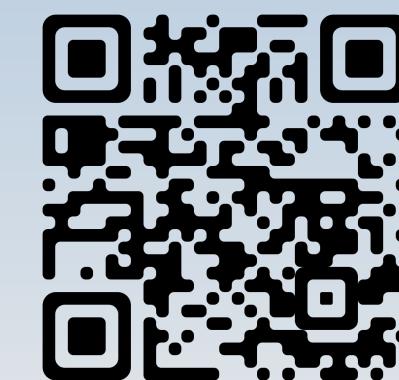
// Other useful imports omitted

export function App() {
  // RUM agent initialization omitted

  return (
    <>
      { /* Other useful view code omitted */}
      <section>
        <ApmRoutes>
          <Route path="/" element={<Layout />}>
            <Route index element={<MainSplashComponent />} />
            <Route path="/records" element={<SearchRecordsComponent />} />
            <Route path="/events" element={<EventListComponent />} />
            <Route path="/news" element={<NewsListComponent />} />
          </Route>
        </ApmRoutes>
      </section>
      { /* More useful view code omitted */}
    </>
  );
}

function Layout() {
  return (
    <Outlet />
  )
}

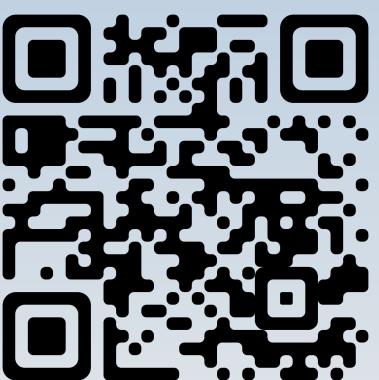
export default App;
```





start-with-otel.sh

```
1 # Env variables
2
3 export OTEL_SERVICE_NAME="record-store-server-node-js"
4 export OTEL_RESOURCE_ATTRIBUTES="service.version=1,deployment.environment=dev"
5 export OTEL_EXPORTER_OTLP_ENDPOINT="https://my-apm-server:port"
6 export OTEL_EXPORTER_OTLP_HEADERS="Authorization=Bearer My$3cr3t"
7 export OTEL_TRACES_EXPORTER="otlp"
8 export OTEL_METRICS_EXPORTER="otlp"
9 export OTEL_LOGS_EXPORTER="otlp"
10 export OTEL_NODE_RESOURCE_DETECTORS="all"
11 export NODE_OPTIONS="--require @opentelemetry/auto-instrumentations-node/register"
12
13 npm run start
```





IF I COULD TURN BACK TIME...

IT'S SO SLOW



Dashboard

Last 24 hours

Refresh

Web application rum-records-react-ui

Percentile 50th (Median)

Environment All

Filter by URL

Location 0

Device 0

OS 0

Browser 0

Page load (median)

Total ⚡

1.50 s

Backend ⚡

81 ms

Frontend ⚡

1.42 s

Total page views

33

Metrics (median)

First contentful paint ⚡

534 ms

Total blocking time ⚡

73 ms

No. of long tasks ⚡

2

Longest long task duration ⚡

107 ms

Total long tasks duration ⚡

171 ms

Core web vitals ⚡

Largest contentful paint ⚡

530 ms

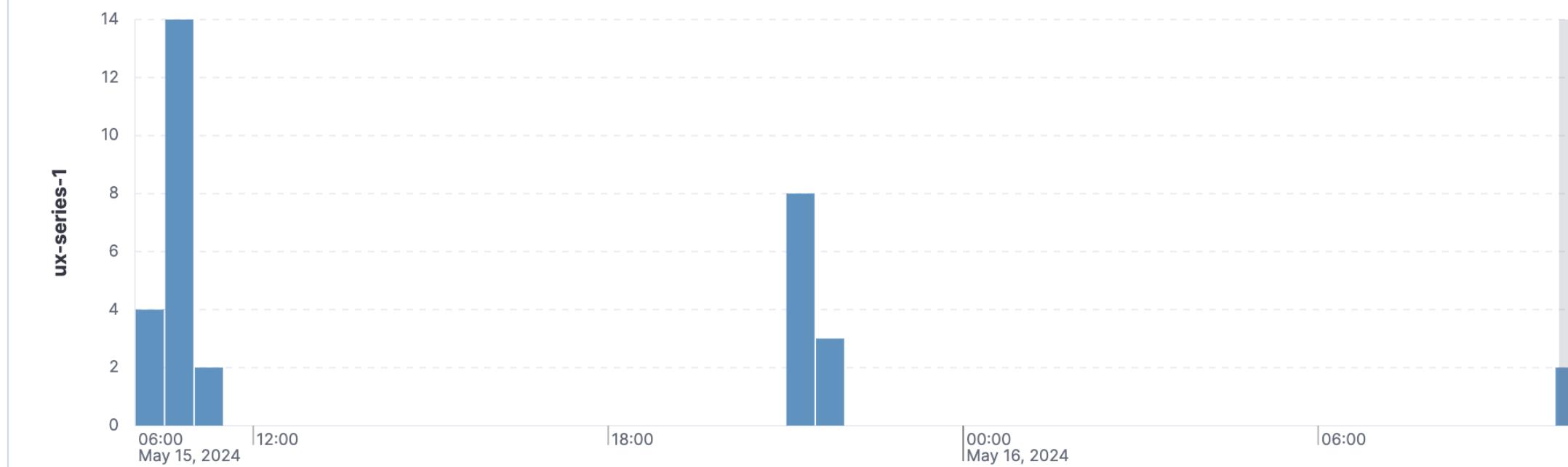
Page load distribution

No breakdown

transaction.duration.us

No breakdown

ux-series-1



Page load duration by region (avg.)

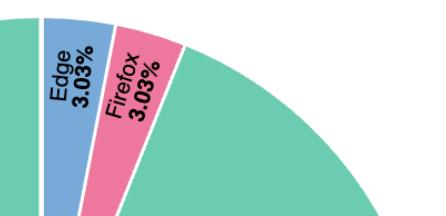
+

-

↻

Visitor breakdown

Browser



Operating system



@CarlyLRichmond



Trace sample K < 25 of 28 > |

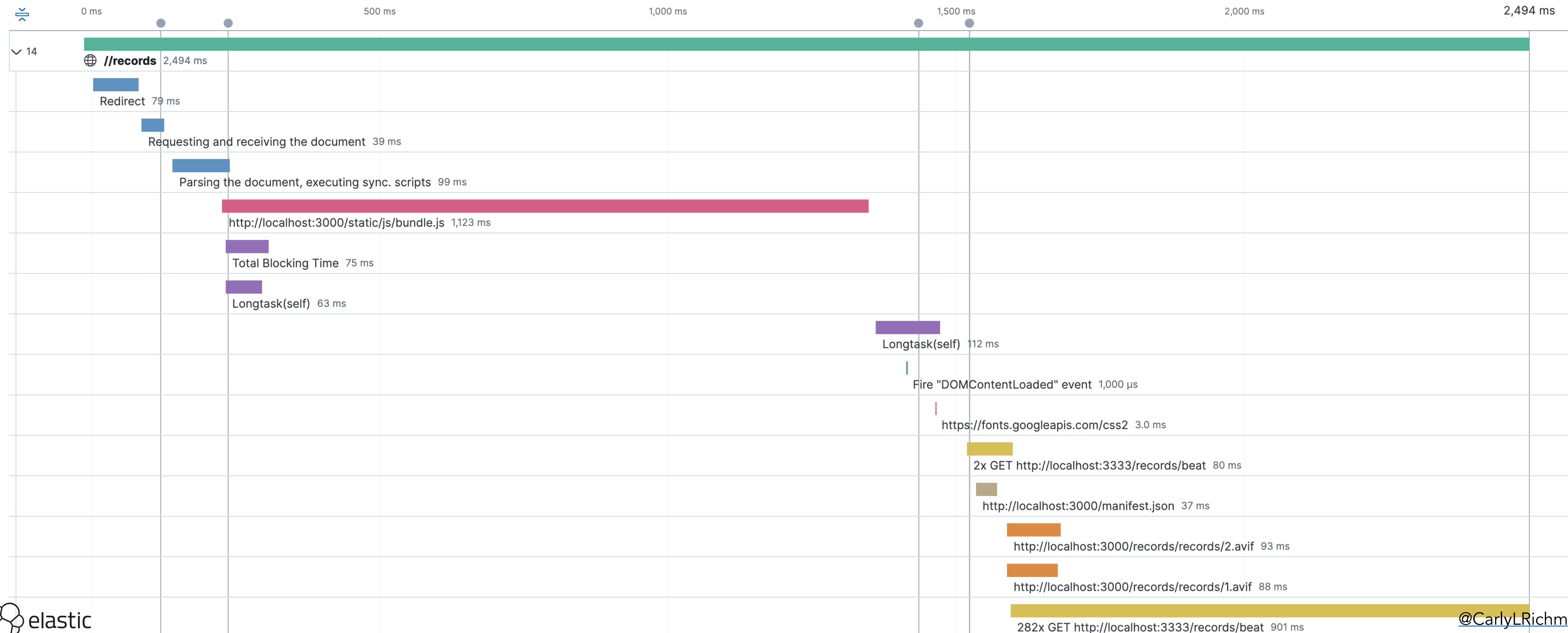
Investigate ▾

View full trace

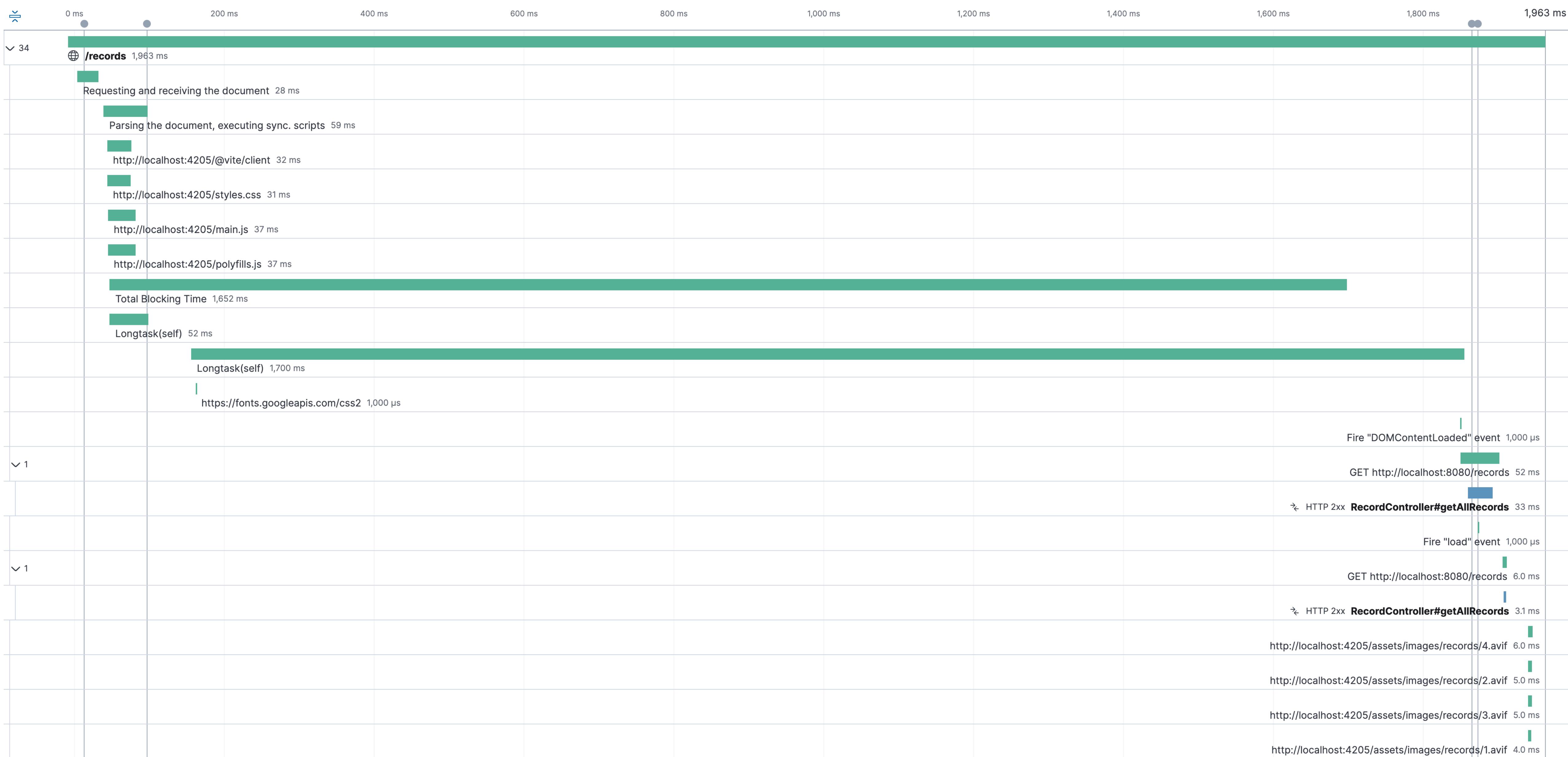
a day ago | 2,494 ms (100% of trace) | http://localhost:3000/records/?terms=beat | Chrome (124.0.0.0)

Timeline Metadata Logs

Type rum-records-react-ui browser-timing script longtask css http link img



2 days ago | 1,963 ms (100% of trace) | http://localhost:4205/records | Chrome (124.0.0.0)

Timeline **Metadata** **Logs****Services** ● rum-records-angular-ui ● record-store-server-java-elastic

CONFLICTING ACCOUNTS

Backend ⓘ

81 ms

Frontend ⓘ

1.42 s

Total page views

33

Total blocking time ⓘ

73 ms

No. of long tasks ⓘ

2

Longest long task duration ⓘ

107 ms

Total long tasks duration ⓘ

171 ms

97% of the traffic represented ⓘ

Interaction to next paint ⓘ

0 ms

● Good (100%) ● Needs improvement (0%) ● Poor (0%)

Cumulative layout shift ⓘ

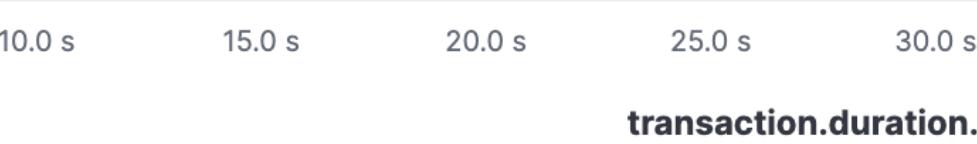
0.095

● Good (56%) ● Needs improvement (31%) ● Poor (13%)

Good (97%) Poor (0%)

Good (100%) Needs improvement (0%) Poor (0%)

Good (56%) Needs improvement (31%) Poor (13%)



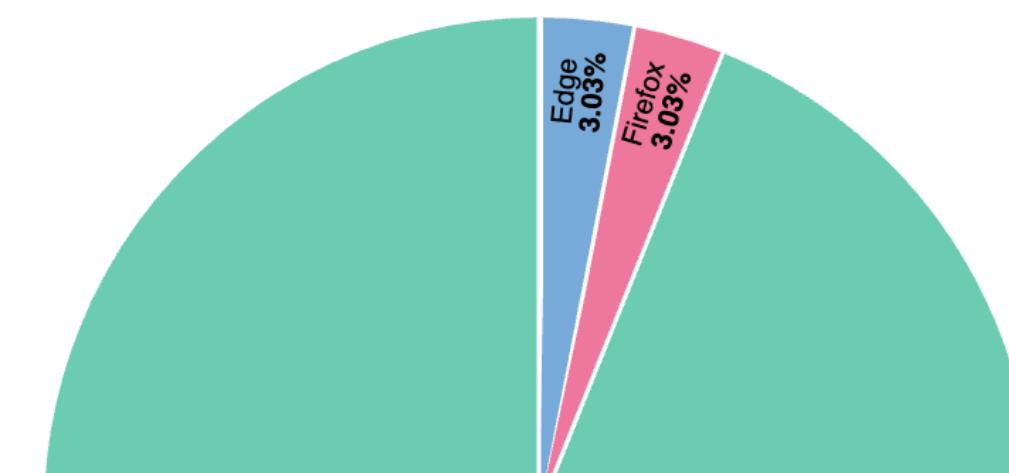
Total page views



in (avg.)

Visitor breakdown

Browser



Operating system



IT'S FROZEN! AAAAHHHHH

{e} CONFERENCE
MADRID 2024



Observability

Overview

Alerts

SLOs

Cases

AI Assistant

LogsExplorer BETA

Stream

Anomalies

Categories

Infrastructure

Inventory

Metrics Explorer

Hosts BETA**APM****Services**

Traces

Dependencies

Synthetics

Monitors

TLS Certificates

User Experience

Dashboard

Universal Profiling

Stacktraces

Flamegraphs

Functions

record-store-server-java-elastic



Tell us what you think!

Environment

All

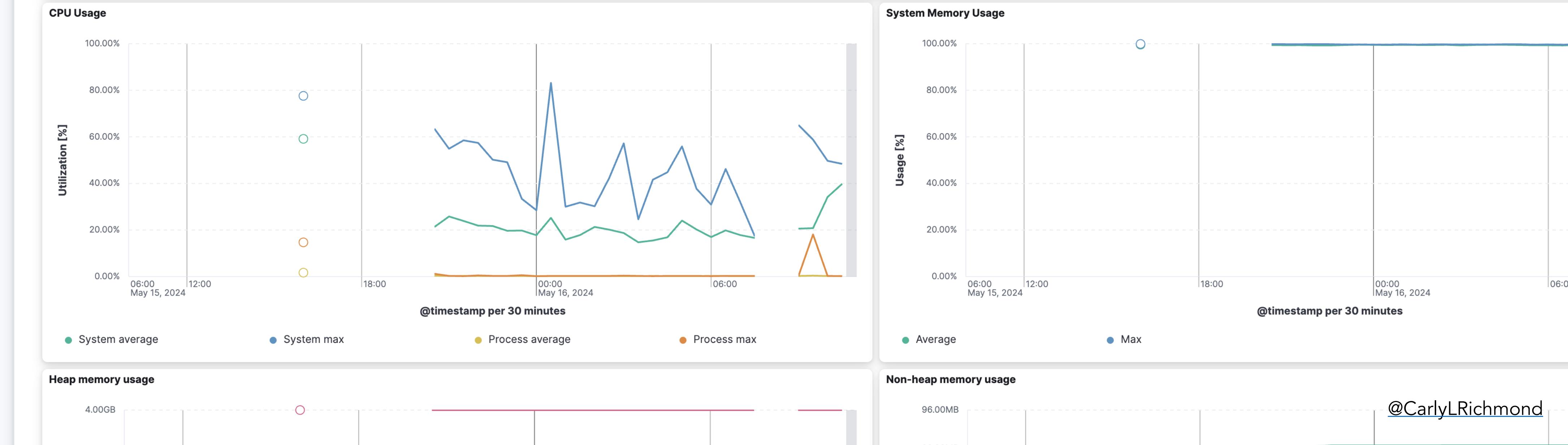
Overview Transactions Dependencies Errors Metrics Infrastructure BETA Service Map Logs Alerts Universal Profiling New Dashboards BETA

Search metrics (E.g. process.pid = "1234")

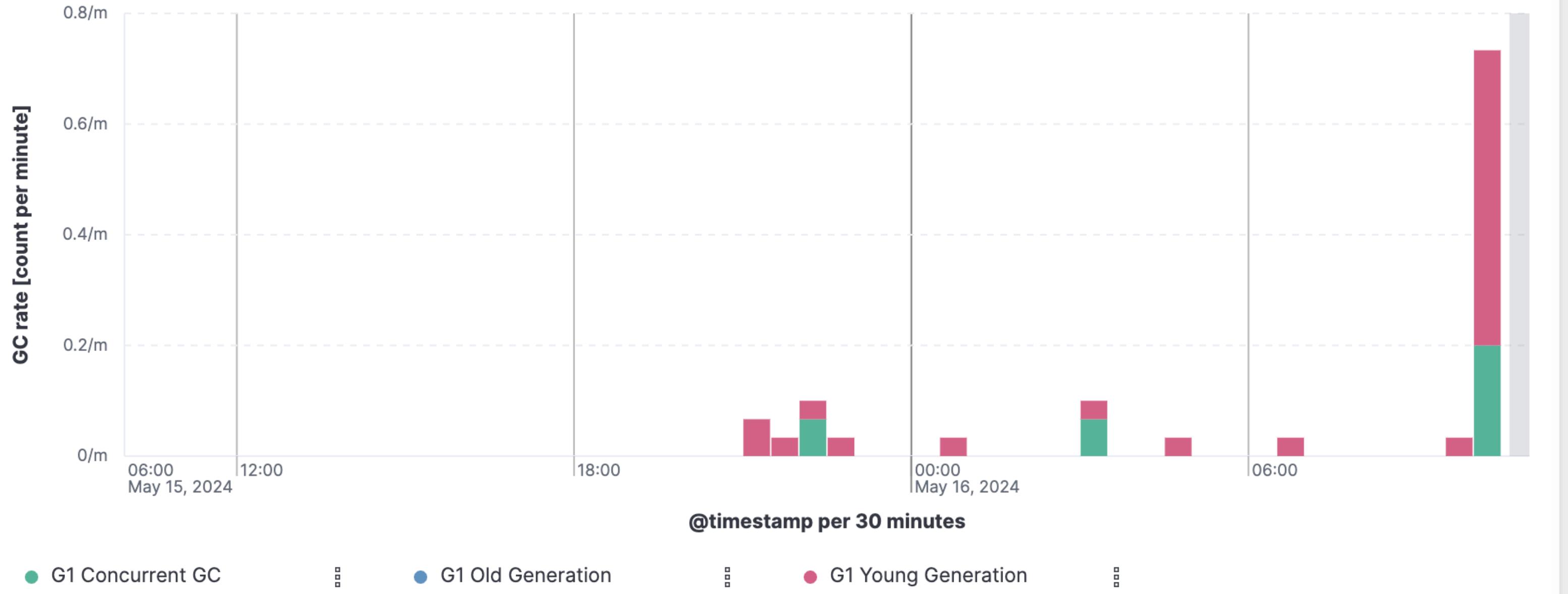
Last 24 hours

Node name Any

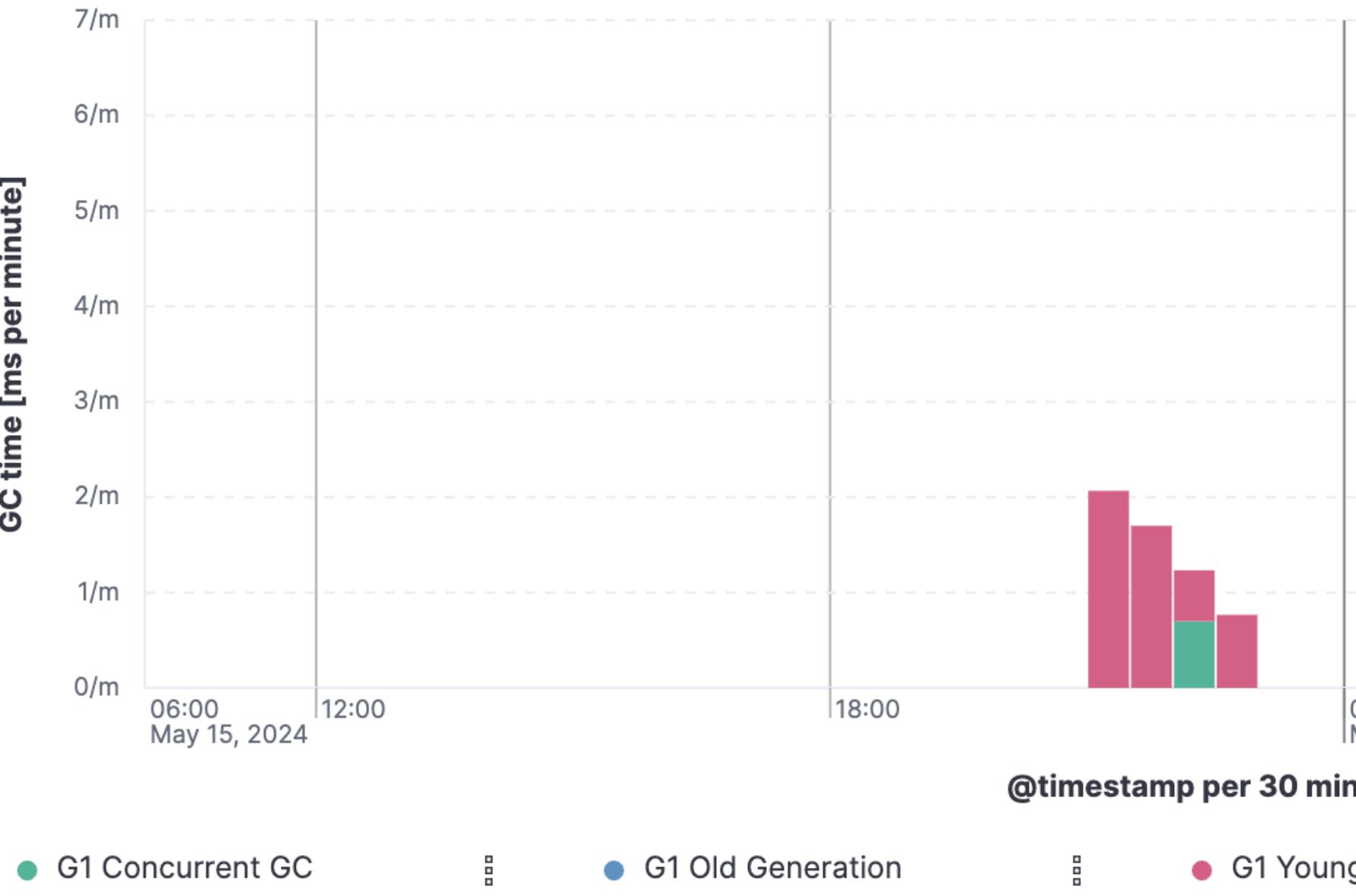
JVM (Top 10)	Host name	CPU avg	Heap usage avg [%]	Heap memory avg	Non-heap memory avg	Thread count max
carlys-mbp	carlys-mbp		36.3%	1.9%	78.4MB	76.8MB
carlys-mbp.cust.communityfibre.co.uk	carlys-mbp.cust.communityfibre.co.uk		21.2%	1.7%	69.3MB	78.1MB



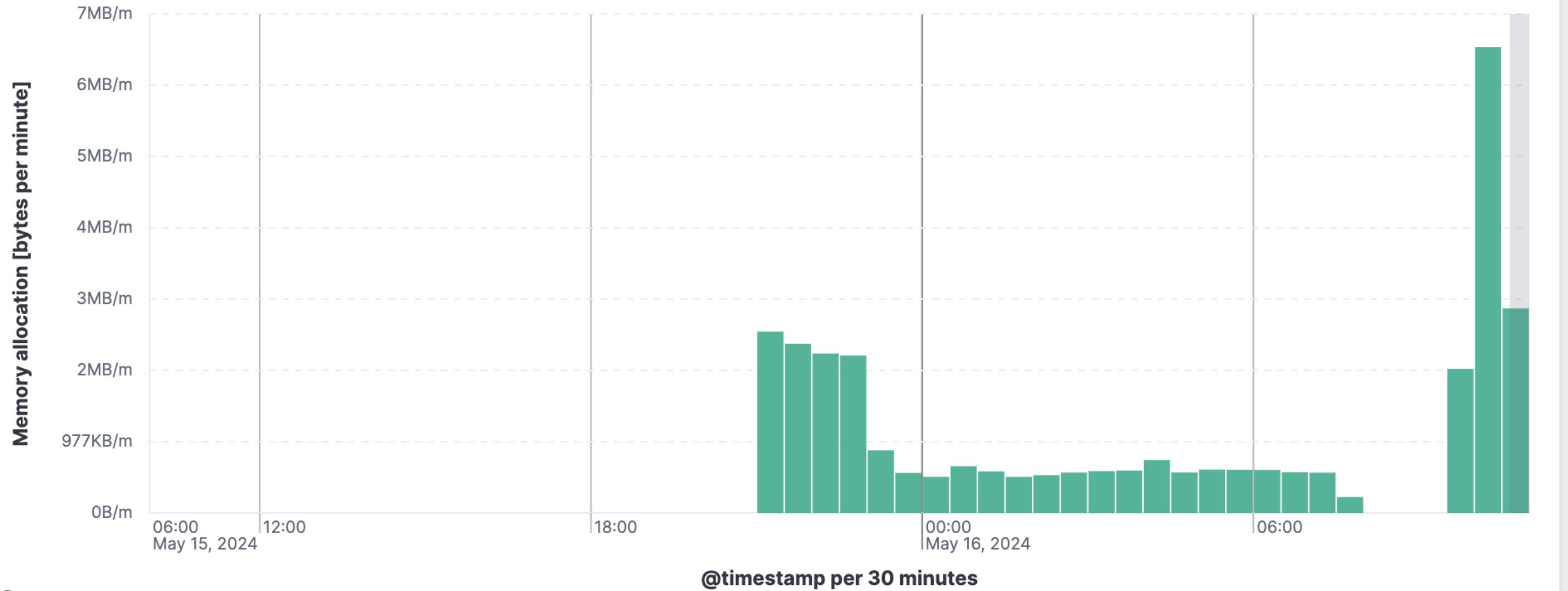
Garbage collection count per minute



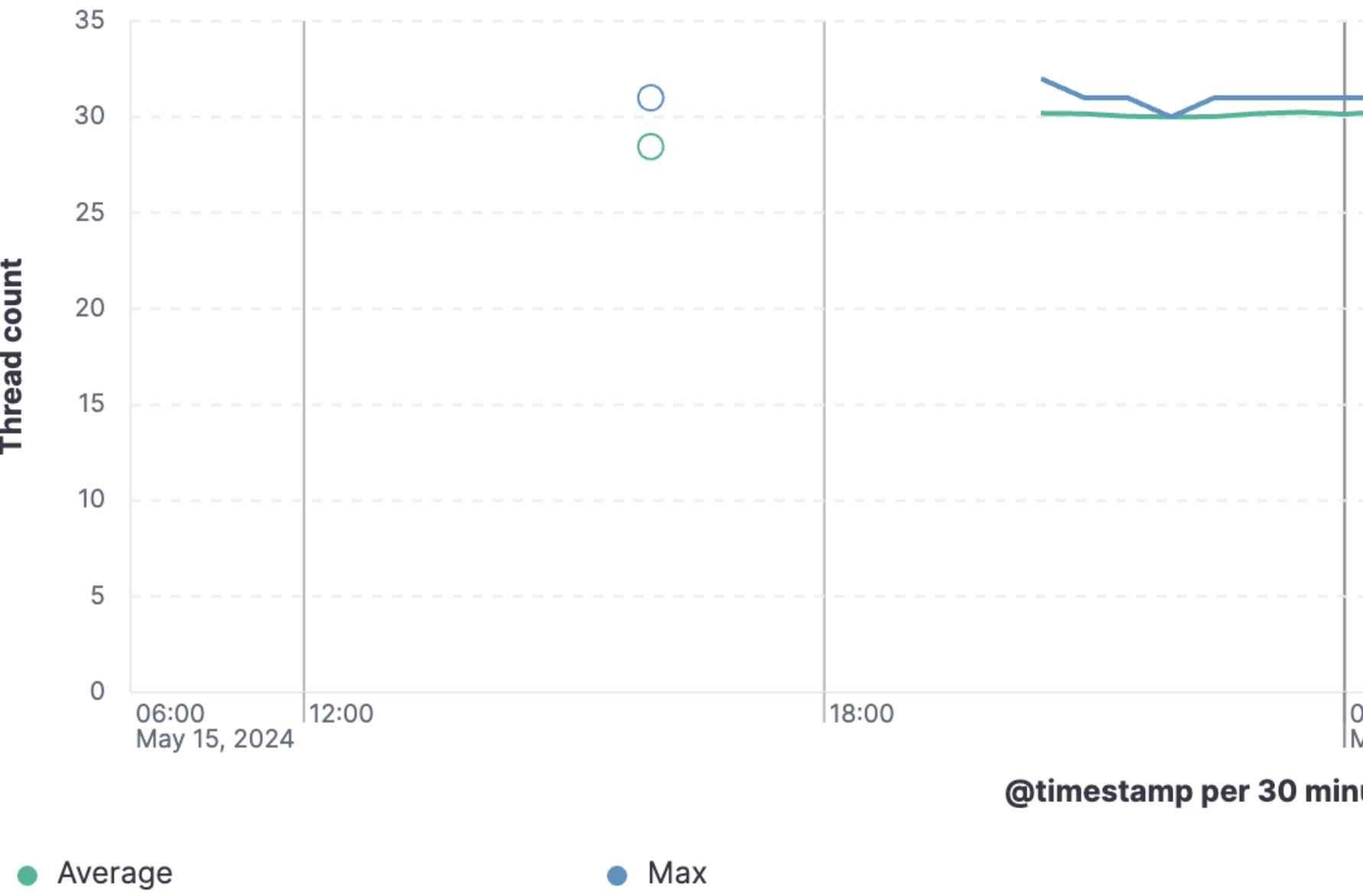
Garbage collection time spent per minute



Memory allocation

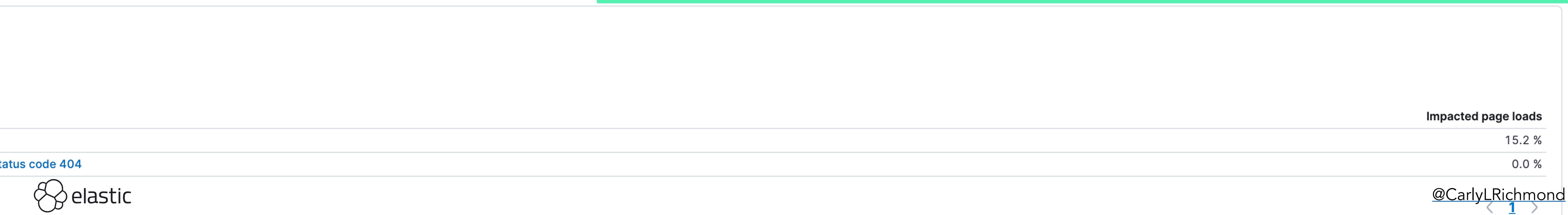
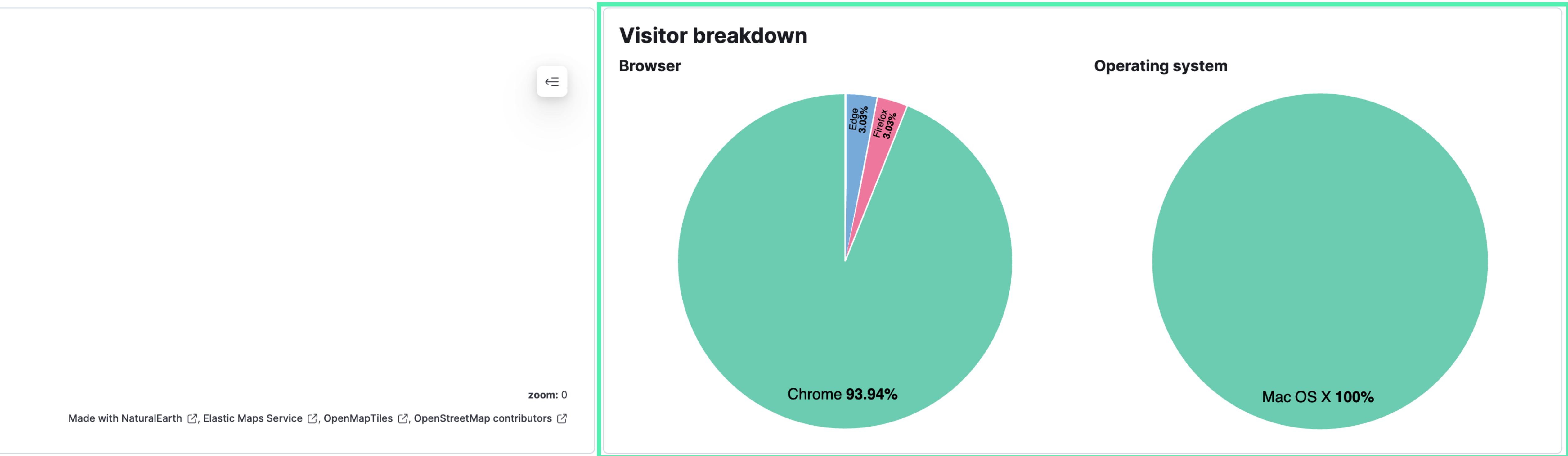
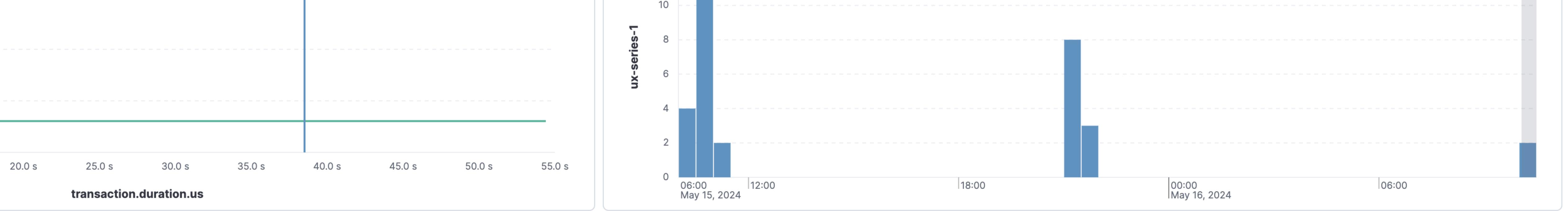


Thread count





NOT WORKING FOR A PARTICULAR USER



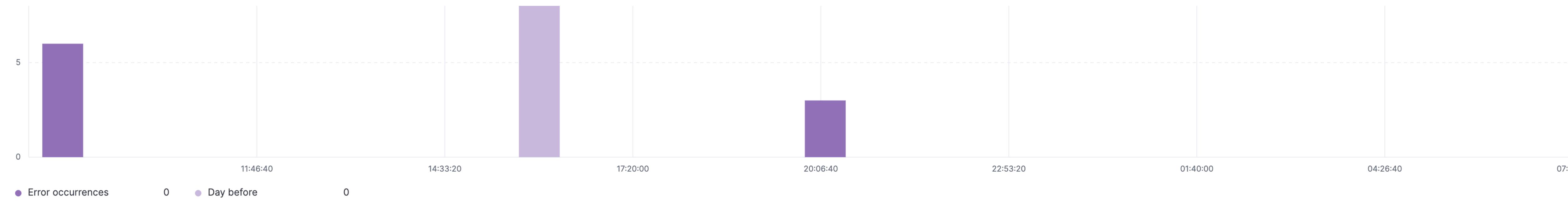
Last 24 hours

 Comparison Day before

Error group c6342

9 occ

Error occurrences



Error sample

< < 1 of 9 > >

[Explore traces with this error](#)

13 hours ago Chrome (124.0.0.0) ↗ //records dev 1

Exception message

Unhandled promise rejection: AxiosError: Network Error

Culprit

static/js/bundle.js

[What's this error?](#)

Get helpful insights from our Elastic AI Assistant.

[Exception stack trace](#) [Metadata](#)

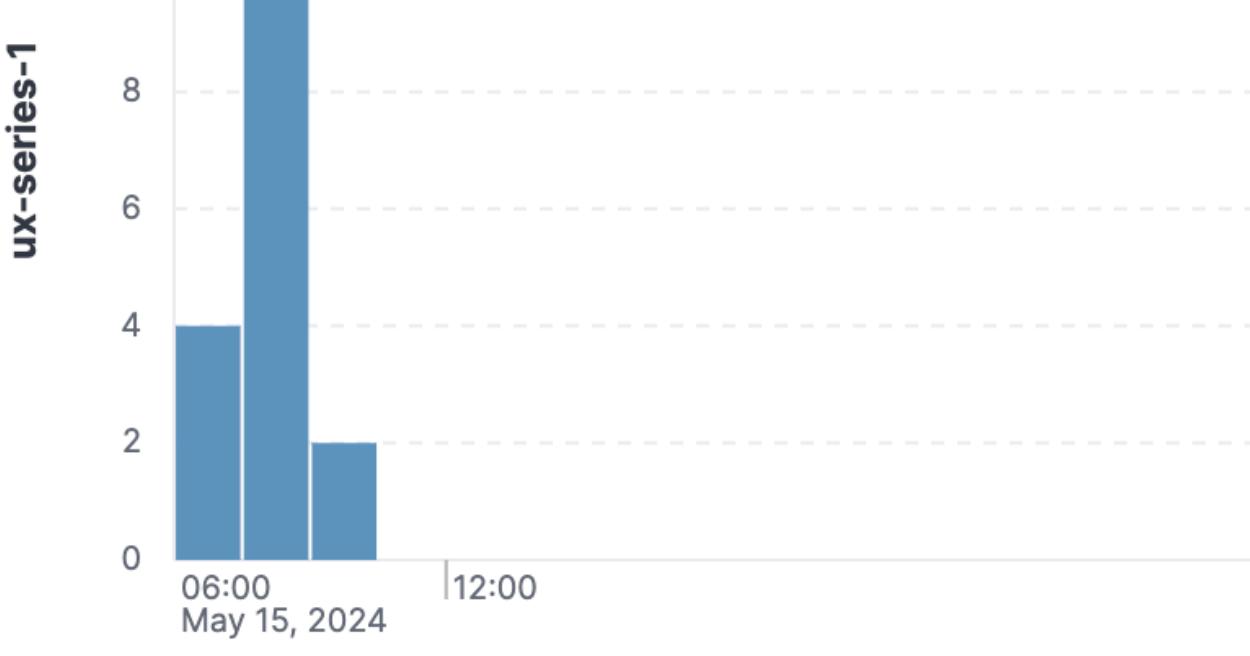
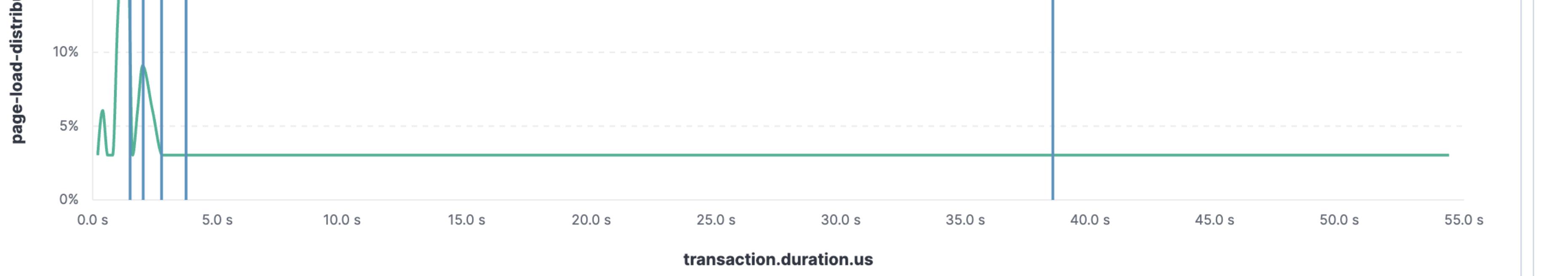
AxiosError: Unhandled promise rejection: AxiosError: Network Error

 at handleError (static/js/bundle.js:74297:14)
at request (static/js/bundle.js:74749:41)

@CarlyLRichmond



NO LONGER USING IT (PROMISE)

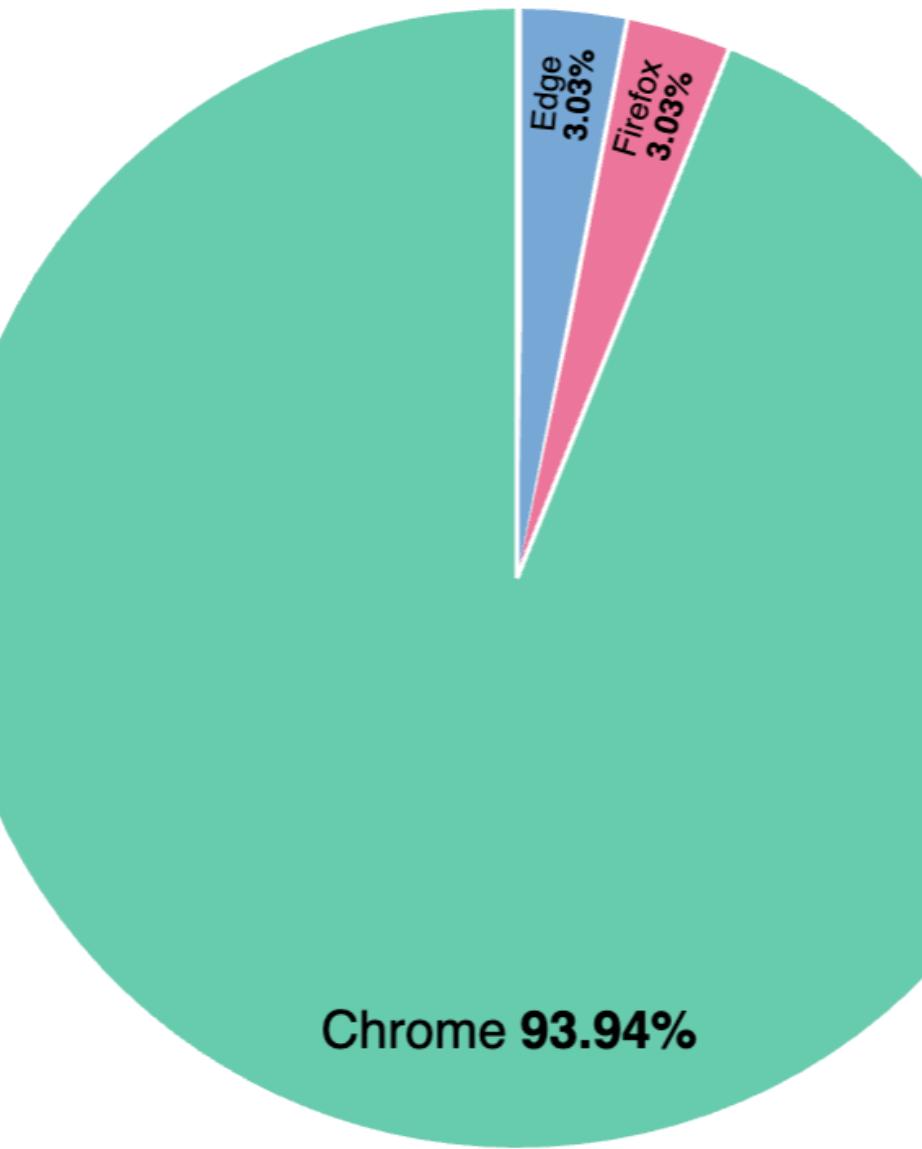


Page load duration by region (avg.)



Visitor breakdown

Browser



JavaScript errors

Total errors

12

Error message

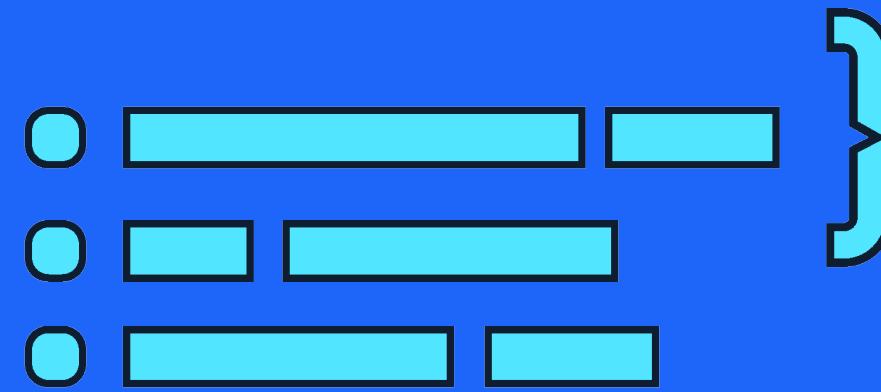
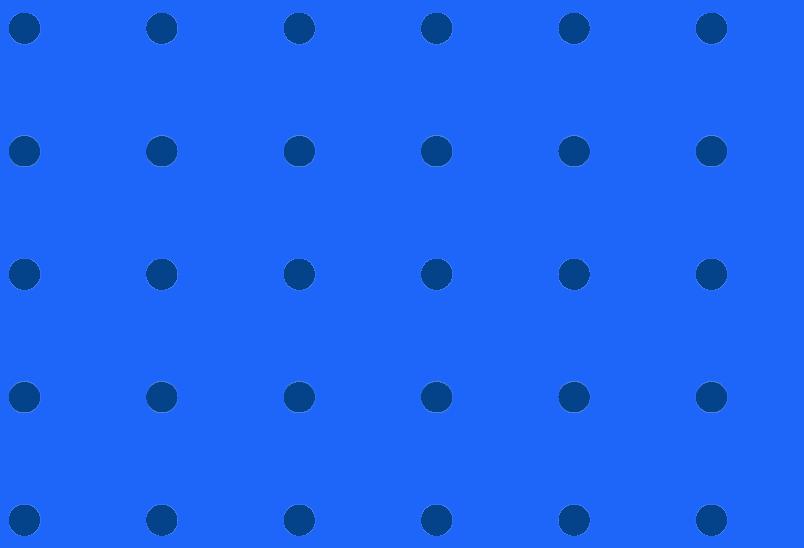
[Unhandled promise rejection: AxiosError: Network Error](#)

[Uncaught promise rejection: AxiosError: Request failed with status code 404](#)

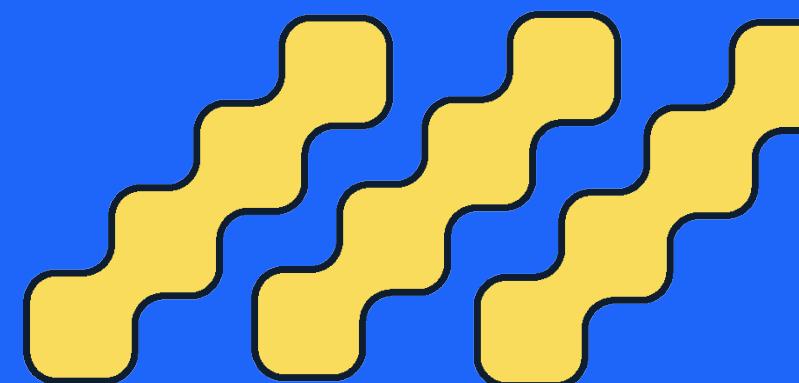
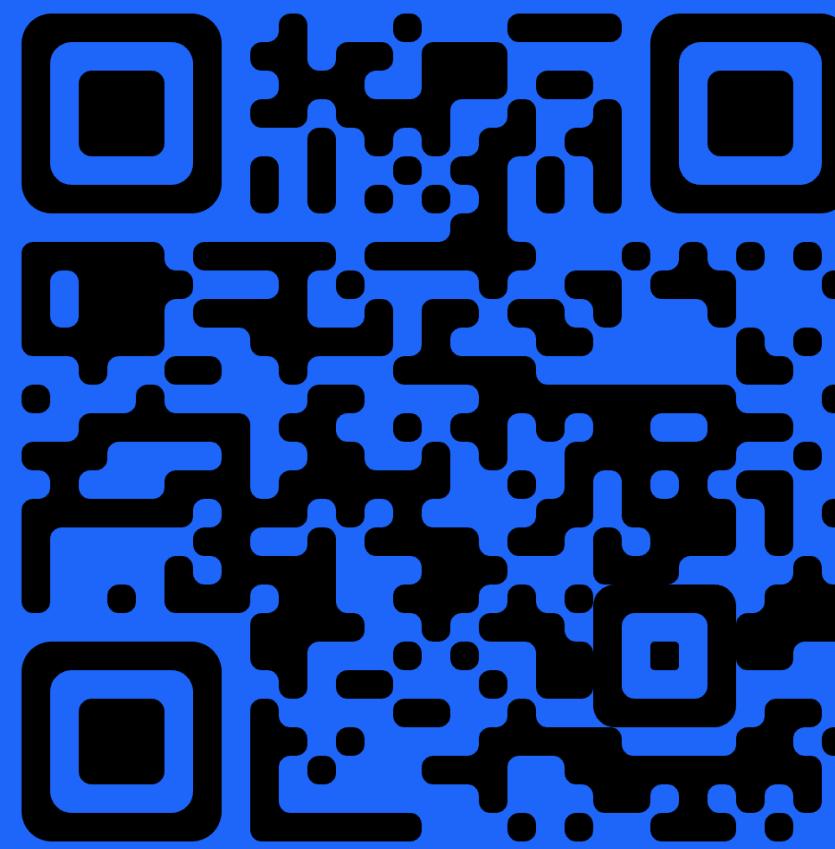
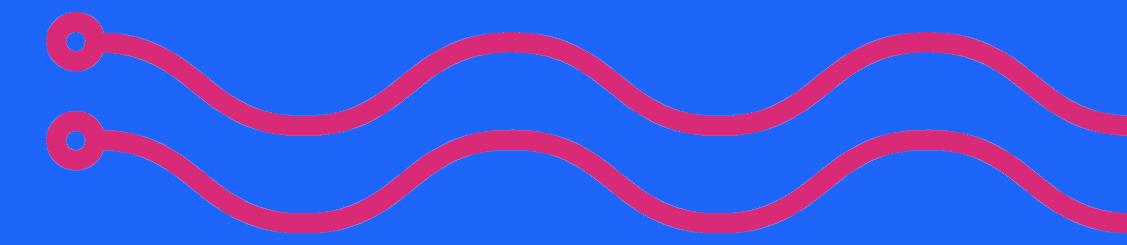
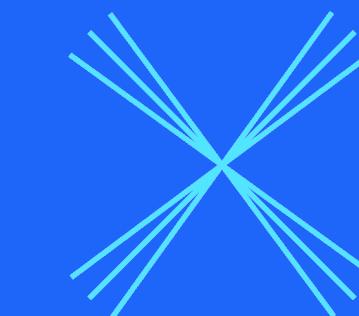


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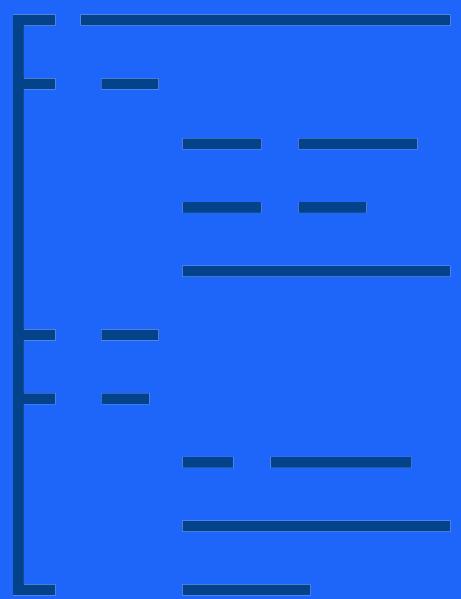




¡Gracias!



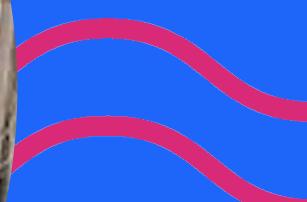
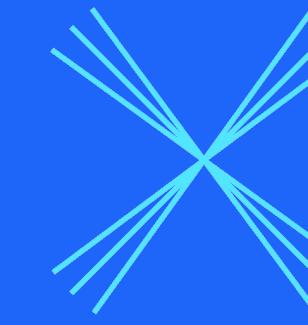
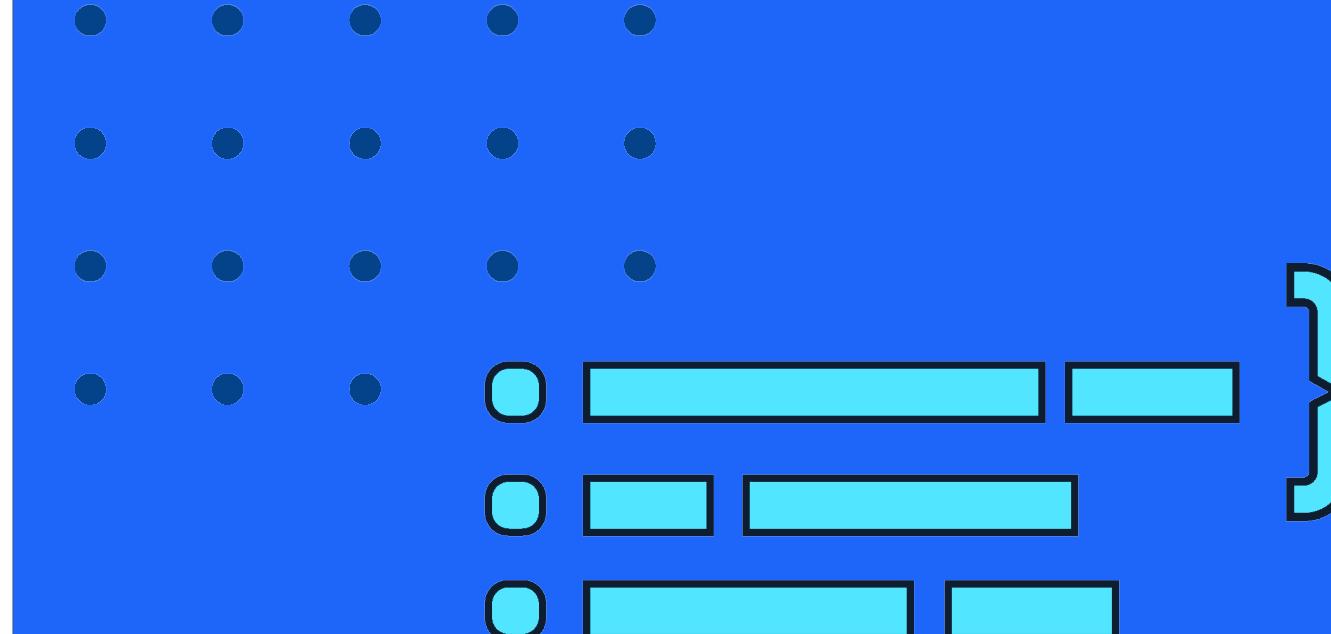
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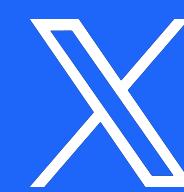


Don't forget to
rate the talk!

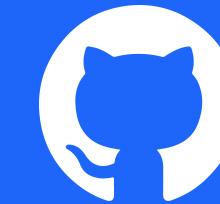




Let's get in touch!



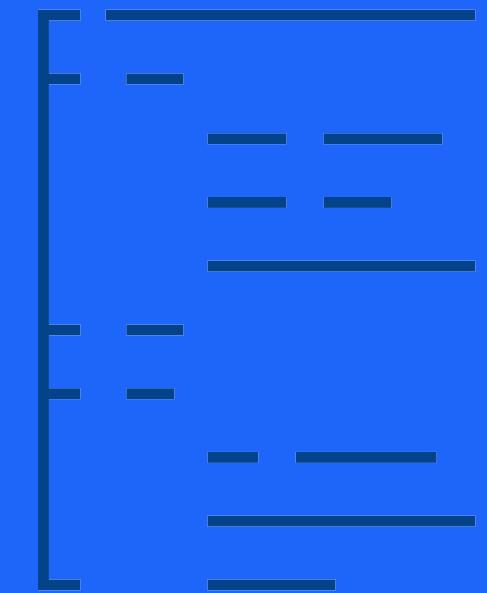
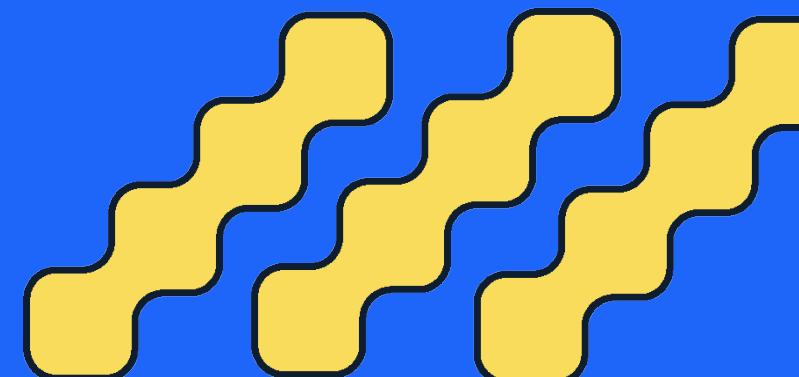
@CarlyLRichmond

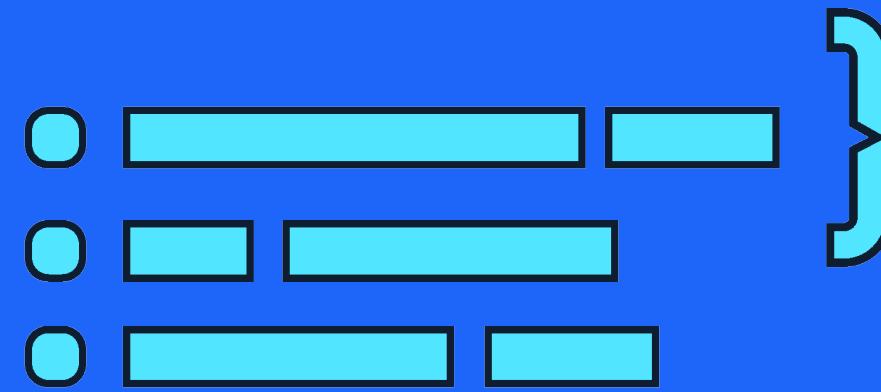


@carlyrichmond

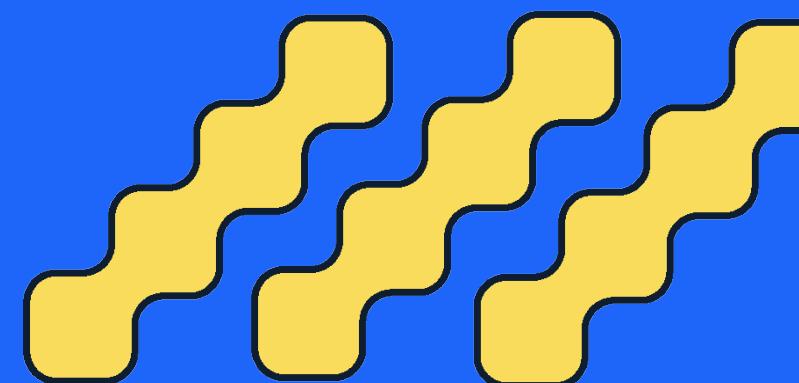
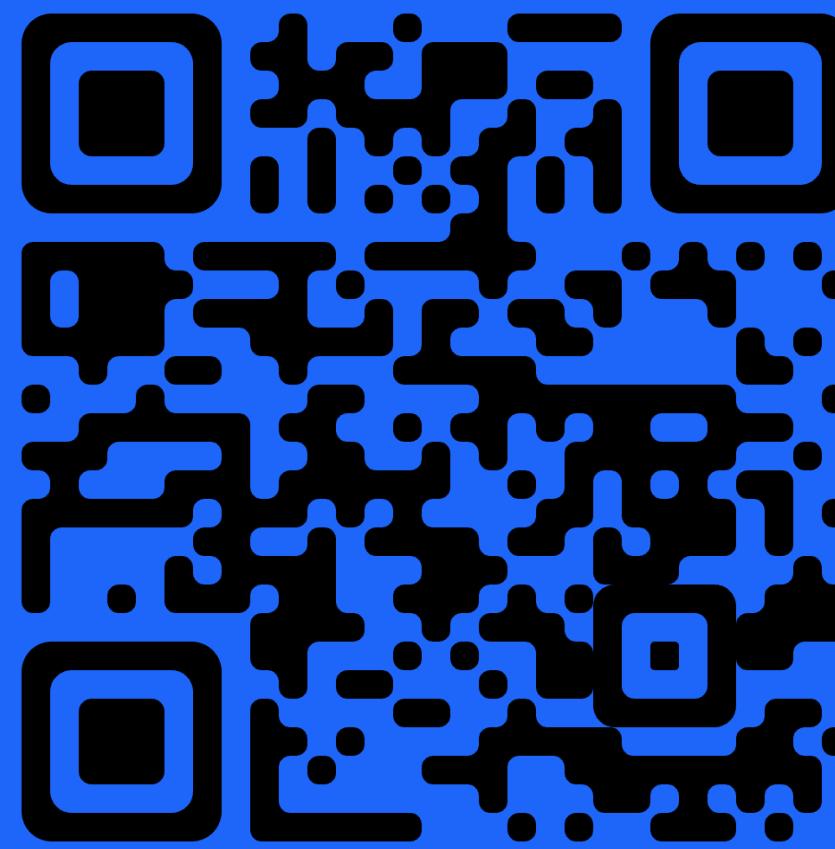
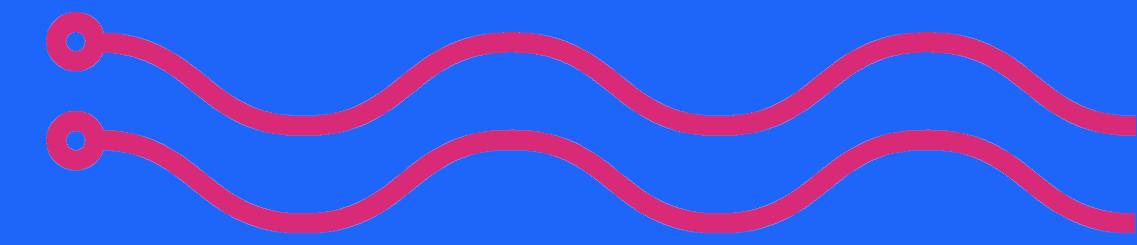
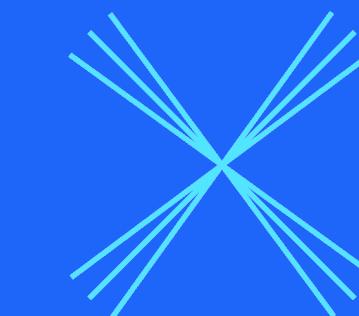


@carly-richmond





¡Gracias!



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