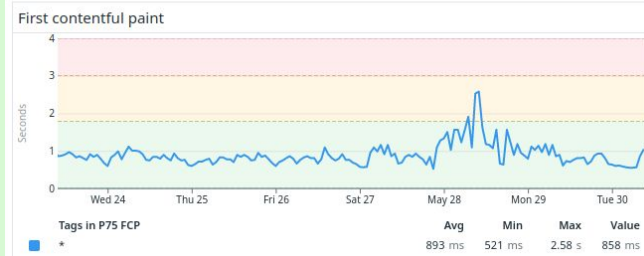
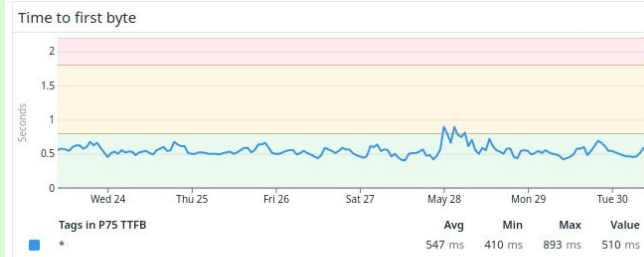
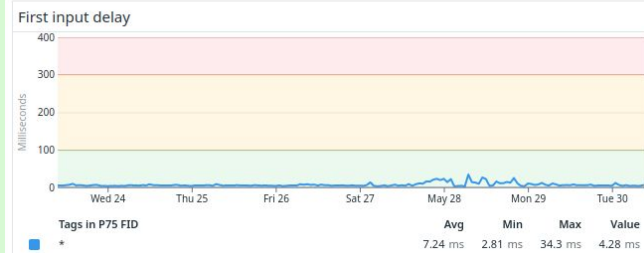
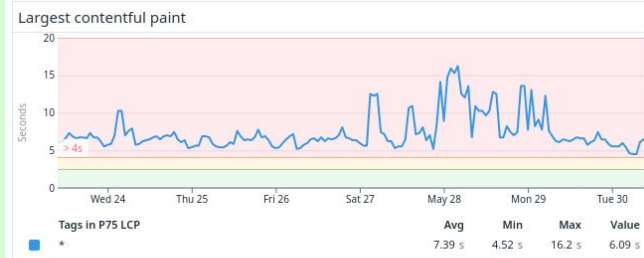


Front-end monitoring



Kryštof Matějka
Site Reliability Engineer

pipedrive



Topics

- 1 Front-end logging
- 2 Real user monitoring
- 3 Synthetic monitoring
- 4 Front-end debugging

Front-end logging

Usage in the browser



```
import logger from '@pipedrive/logger'  
  
logger.info(`this went well`)  
  
logger.error(`something went wrong, ${error}`)
```

LogQL



```
{env="live", level="error"}  
  |= "flogger"  
  |= "Cannot read properties of undefined"
```

Log line example

```
2023-05-22 17:33:19 Cannot read properties of null (reading 'ENV')

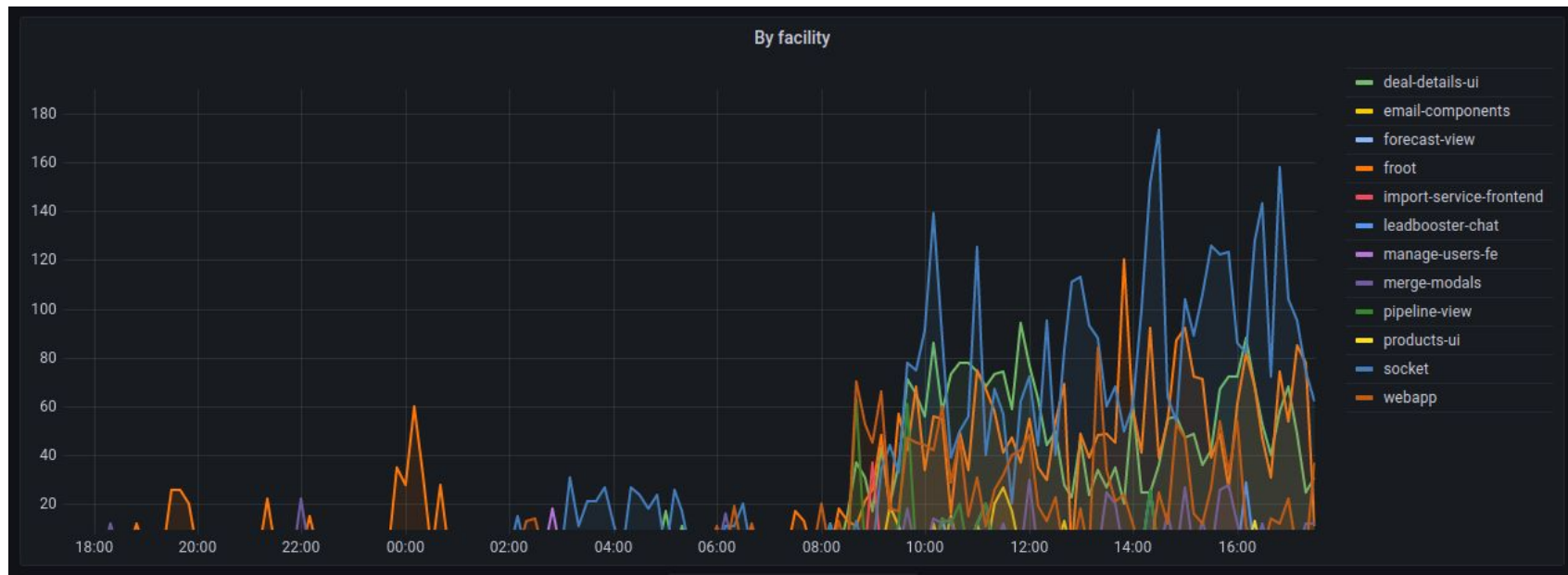
Log labels
┌─┐ ┌─┐ ┌─┐ company_id      11608875
┌─┐ ┌─┐ ┌─┐ env           live
┌─┐ ┌─┐ ┌─┐ env_extracted  live
┌─┐ ┌─┐ ┌─┐ facility      froot
┌─┐ ┌─┐ ┌─┐ kind          logger
┌─┐ ┌─┐ ┌─┐ level         error
┌─┐ ┌─┐ ┌─┐ message       Cannot read properties of null (reading 'ENV')
                                { "error_message": "Cannot read properties of null (reading 'ENV')", "browser": "chrome", "browser_version": 113
                                s1c.js?A=AP-3BTJMW1NDKH3-2\nhttps://www.googletagmanager.com/gtm.js?id=GTM-PS87N7&l=analytics\nhttps://cdn.segment.com/next-integrations/integrations/aptrinsic/1.2.0/aptrinsic.dynamic.js.gz\nhttps://cdn.segment.com/next-integrations/integrations/google-tag-manager/2.5.1/google-tag-manager.dynamic.js.gz\nhttps://cdn.segment.com/analytics.js/v
                                1bs/segment.min.js\nhttps://widget.intercom.io/widget/hqausqan\nhttps://cdn.us-east-1.pipedriveassets.com/webapp/8b8bf.js\nhttps://cdn.us-east-1.pipedriveassets.com/webapp/10.1b409af59c86a6c7e0a89b.js\nhttps://cdn.us-east-1.p
                                app/app-router.df1a5496aaaa6f1fe2b79.js\nhttps://cdn.us-east-1.pipedriveassets.com/webapp/views-shared.11a4f44d
                                s://cdn.us-east-1.pipedriveassets.com/webapp/page-lists-persons.7dbfd513b0c114d43b3e03.js\nhttps://cdn.us-east-1
                                "true", "subModule": "unhandledError", "log_tool": "flogger" }

┌─┐ ┌─┐ ┌─┐ metadata
┌─┐ ┌─┐ ┌─┐ node_name      k8s-2-worker731
┌─┐ ┌─┐ ┌─┐ region        us-east-1
┌─┐ ┌─┐ ┌─┐ region_domain  us-east-1.pipedrive.com
┌─┐ ┌─┐ ┌─┐ region_extracted us-east-1
┌─┐ ┌─┐ ┌─┐ source        flogger-7bf48f6b78-5hl2j
                                TypeError: Cannot read properties of null (reading 'ENV') at hs (https://cdn.us-east-1.pipedriveassets.com/froot
                                -dom16.f3dbc24960f4bee6268a.js:9:57926) at Ra (https://cdn.us-east-1.pipedriveassets.com/froot/react-dom16.f3dbc
                                960f4bee6268a.js:9:105384) at cu (https://cdn.us-east-1.pipedriveassets.com/froot/react-dom16.f3dbc24960f4bee626
                                a.js:9:96638) at Jo (https://cdn.us-east-1.pipedriveassets.com/froot/react-dom16.f3dbc24960f4bee6268a.js:9:93668
                                unstable_runWithPriority (https://cdn.us-east-1.pipedriveassets.com/froot/react-dom16.f3dbc24960f4bee6268a.js:22
                                010)

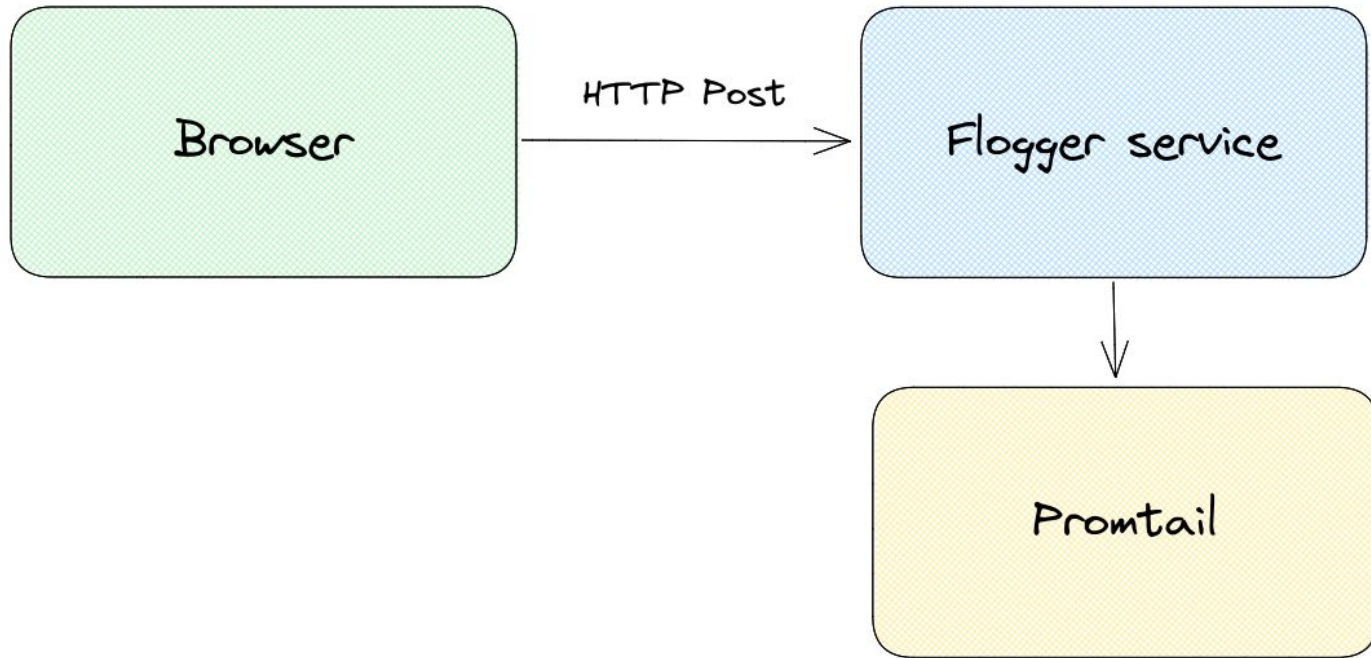
┌─┐ ┌─┐ ┌─┐ url           https://affordableanti-aging.pipedrive.com/persons/list
┌─┐ ┌─┐ ┌─┐ user_agent     Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/113.0.0.0 Safari/537.36
┌─┐ ┌─┐ ┌─┐ user_id       15419709

Detected fields
┌─┐ ┌─┐ ts                2023-05-22T15:33:19.888Z
┌─┐ ┌─┐ tsNs              168476959988800011
```

Metric example



Flogger architecture



Be aware

- Front-end logs are not for free
- Be prepared for data loss
- Be careful with rate limiting
- Outage means no logs

Global handler



```
window.addEventListener('error', (event) => {  
    //...  
})
```

```
window.addEventListener('unhandledrejection', (event) => {  
    //...  
})
```

Anything that can fail



```
try {  
    return localStorage.getItem('preferences')  
} catch (error) {  
    logger.error(`unable to get preferences, ${error}`)  
    return null  
}
```

When there is a direct impact




```
<ErrorBoundary
  fallback={
    <button onClick={resetBoundary}>Try again!</button>
  }
  onError={logger.error}
>
  <Component/>
</ErrorBoundary>
```

Real user monitoring

Load events

Document: DOMContentLoaded event


When the initial HTML document has been completely loaded and parsed



```
addEventListener("DOMContentLoaded", (event) => {})
```

Window: load event

When the whole page including all dependent resources such as stylesheets, iframes, images and synchronous scripts have been loaded



```
addEventListener("load", (event) => {})
```

Performance API

- Largest contentful paint
- Layout shift
- Element timing
- Event timing
- Long task timing
- Paint timing
- Resource timing
- Attribution timing

Resource timing

- TCP handshake
- DNS lookup time
- Redirection time
- Request time
- TLS negotiation time
- Time to fetch
- ServiceWorker processing time
- Checking if content was compressed
- Checking if local caches were hit
- And more...

Performance API - Resource Timing



```
const observer = new PerformanceObserver((list) => {  
  list.getEntries().forEach((entry) => {  
    console.log(entry)  
  })  
})  
  
observer.observe({ type: "resource", buffered: true })
```

Web vitals



```
import {onLCP} from 'web-vitals'  
  
onLCP(console.log)
```

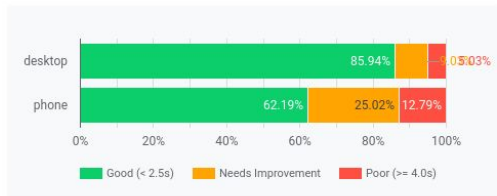
Chrome UX Report



Largest Contentful Paint (LCP)

LCP reports the render time of the largest content element that is visible within the viewport.

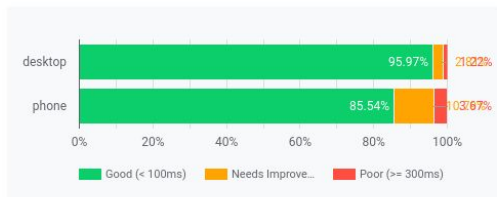
web.dev/lcp



First Input Delay (FID)

FID measures the time from when a user first interacts with a page (i.e. when they click a link, tap on a button, or use a custom, JavaScript-powered control) to the time when the browser is actually able to respond to that interaction.

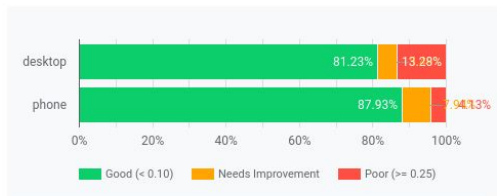
web.dev/fid



Cumulative Layout Shift (CLS)

CLS measures the sum total of all individual layout shift scores for every unexpected layout shift that occurs during the entire lifespan of the page.

web.dev/cls

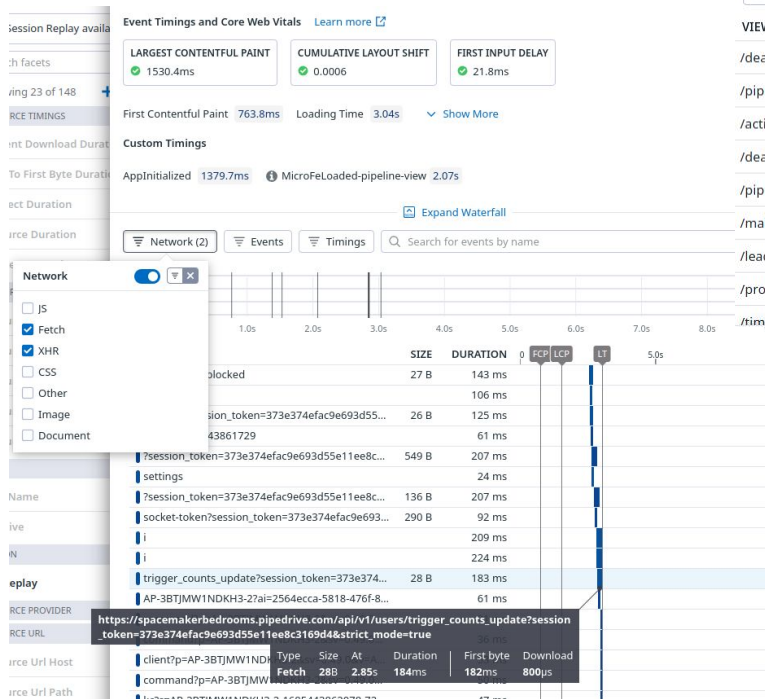


- Data from public websites
- Data collected from Google Chrome
- Api access
- developer.chrome.com/docs/crux

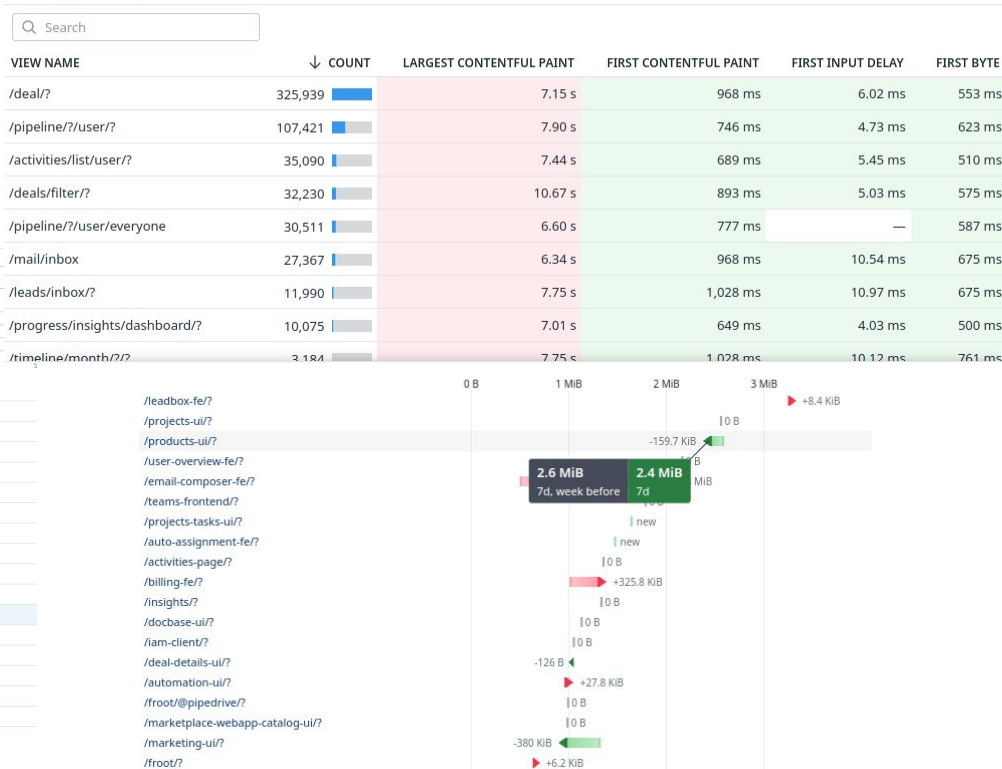
3rd party tools

- Datadog
- Grafana Faro
- New relic
- Sentry
- AppDynamics
- Raygun
- LogicMonitor
- LogRocket
- And more...

Datadog examples



P75 core web vitals



Synthetic monitoring

Synthetic monitoring

- Testing and monitoring in controlled environment
- Specific hw, predictable network, specific conditions
- No external interference like extensions or ads
- Also useful in the early stage when you don't have any users

Google lighthouse



```
apt-get install chromium
```

```
npm i -g lighthouse
```

```
lighthouse --chrome-flags="--headless" --output-path=./report.json --output json --preset=desktop  
https://www.pipedrive.com
```


3rd party tools

- Datadog synthetic monitoring
- New Relic synthetic monitoring
- And more...

Cypress

Downloaded assets by service		API requests	
froot	86	GET /api/v1/mailbox/m...	2
webapp	17	GET /api/v1/coach-mar...	2
marketplace-app-extensi...	5	PUT /api/v1/users/trigg...	1
filter-components	5	GET /api/v1/users/me	1
search-fe	3	GET /api/v1/ui-layout-se...	1
proactive-feed-ui	3	GET /api/v1/teams/	1
pipeline-view	3	GET /api/v1/pipelines:/n...	1
marketplace-webapp-e...	2	GET /api/v1/pipelines/n...	1

Front-end debugging

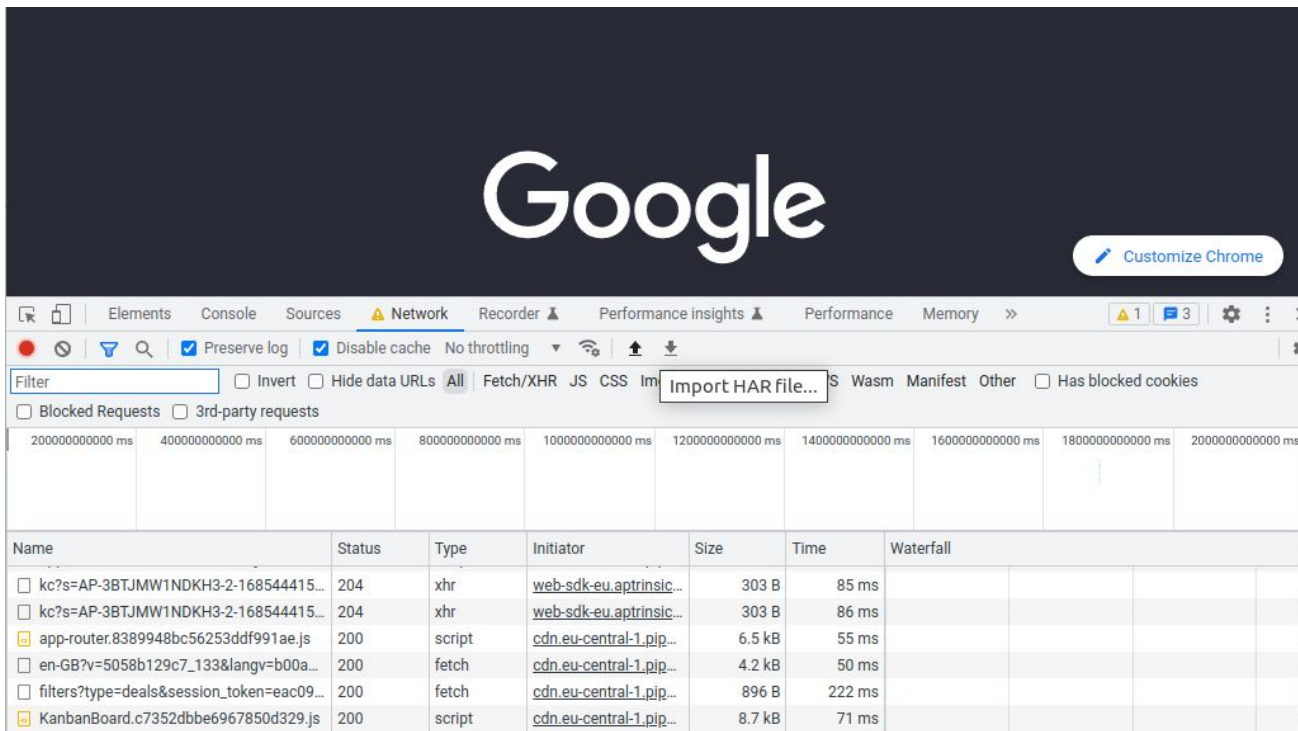
HAR - Export

The screenshot displays the Pipedrive CRM interface. At the top, there's a search bar labeled 'Search Pipedrive' and a '+ Deal' button. Below this, a pipeline view shows stages: 'Lead In', 'Contact made', 'In progress', 'Demo Schedul...', 'Proposal Made', and 'Negotiations S...'. Each stage has a count of '0 CZK' and '3 deals'. A deal named 'erve deal' is visible in the 'Lead In' stage.

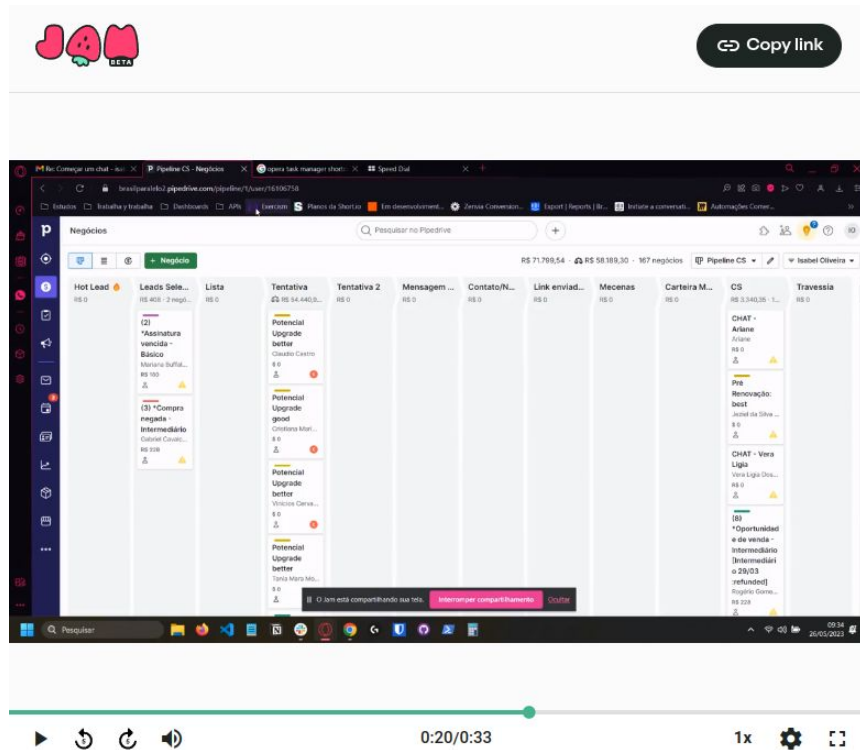
At the bottom, the Chrome DevTools Network tab is open. The 'Filter' dropdown is set to 'All'. The 'Export HAR...' button is highlighted in the top right of the network panel. Below the filter, there are checkboxes for 'Blocked Requests' and '3rd-party requests'. A timeline at the top of the network panel shows a duration from 2000 ms to 28000 ms.

Name	Status	Type	Initiator	Size	Time	Waterfall
kc?s=AP-3BTJMW1NDKH3-2-168544415...	204	xhr	aptrinsic.js?a=AP-3B...	303 B	86 ms	
backend.js	200	script	injectGlobalHook.js:1	14.2 kB	10 ms	
app-router.8389948bc56253ddf991ae.js	200	script	main.5542e5b...js:2	6.5 kB	55 ms	
en-GB?v=5058b129c7_133&langv=b00a...	200	fetch	fe.dab63b8...js:2	4.2 kB	50 ms	
filters?type=deals&session_token=eac09...	200	fetch	fetch.8c0ce6e...js:1	896 B	221 ms	

HAR - Import



Jam.dev



pipedrive

Isabel Claudino de Oliveira created 4d ago

Your name Add a comment

Info Console Network JamGPT ALPHA

Filter Errors only all xhr/fetch js css media font document other

	Tab	Name	Method	Status	Domain	Type	Frame	Size	Time
1		Pipeline CS pipeline	GET	200	brasilparalelo2.pipe	document	0		505 ms
2		Pipeline CS segment.min.js	GET	200	cdn.pdx-1.pipedrive	script	0	451 B	(Cache)
3		Pipeline CS hqausqan	GET	200	widget.intercom.io	script	0	2.6 KIB	51 ms
4		Pipeline CS email-decode.min.js	GET	200	brasilparalelo2.pipe	script	0	655 B	(Cache)
5		Pipeline CS system.8b8024d41c1dc2f1a1b3.js	GET	200	cdn.pdx-1.pipedrive	script	0	6.6 KIB	(Cache)
6		Pipeline CS frame-modern.2d3cdc0f.js	GET	200	js.intercomcdn.com	script	0	87 ms	
7		Pipeline CS vendor-modern.06243fd2.js	GET	200	js.intercomcdn.com	script	0		(Cache)
8		Pipeline CS main.943cb014b393a35ac935.js	GET	200	cdn.pdx-1.pipedrive	script	0	38.4 KIB	(Cache)
9		Pipeline CS logger-fe.f3e6e489327eccc7d7dc.js	GET	200	cdn.pdx-1.pipedrive	script	0	2.1 KIB	(Cache)
10		Pipeline CS backbone.096e60c27a6823c37f87.js	GET	200	cdn.pdx-1.pipedrive	script	0	8.3 KIB	(Cache)
11		Pipeline CS lodash.79da1f1092b39375c321.js	GET	200	cdn.pdx-1.pipedrive	script	0	26.1 KIB	(Cache)
12		Pipeline CS moment.963766f2dc4657d133d.js	GET	200	cdn.pdx-1.pipedrive	script	0	20.0 KIB	(Cache)
13		Pipeline CS froot.580cfbbb3d48d1b1e.css	GET	200	cdn.pdx-1.pipedrive	css	0	26.9 KIB	(Cache)
14		Pipeline CS froot.ca9f85ffc5895c46a2bd.js	GET	200	cdn.pdx-1.pipedrive	script	0	200.3 KIB	(Cache)



Thank you!

Time for your questions