

# STRIX

Instant navigation

Resource preloading and Speculation rules API



Pushing  
boundaries  
in digital commerce

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**Strix**

Optimizing Page Speed  
with Instant Navigation  
and Speculation Rules API.

Meet the speaker

**Toon van Doorn**

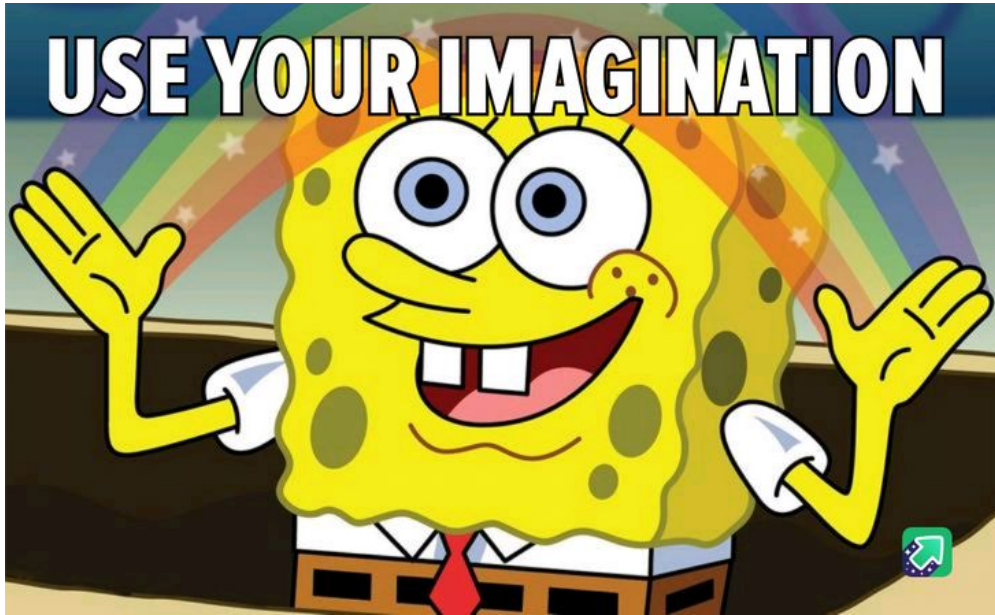
Technical Consultant

We are Strix and

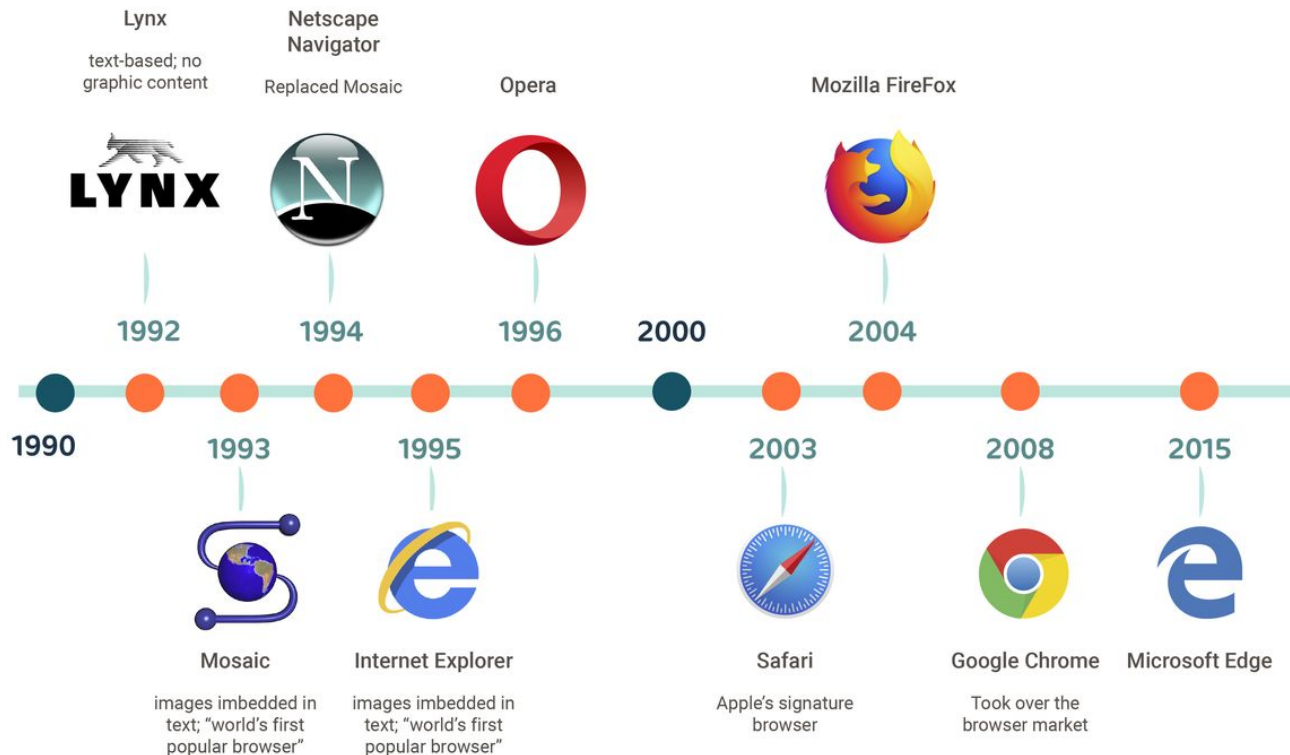
**we are pushing  
boundaries  
in commerce.**



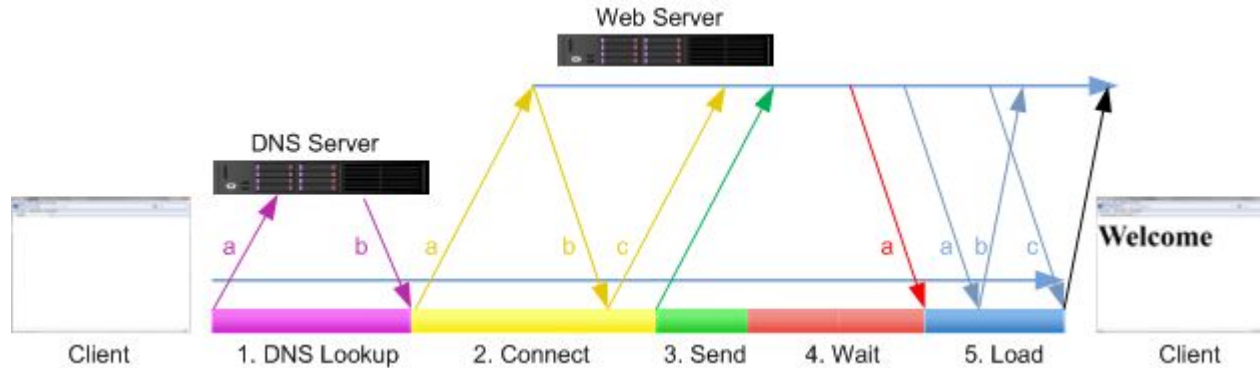
# The Challenge of Web Performance



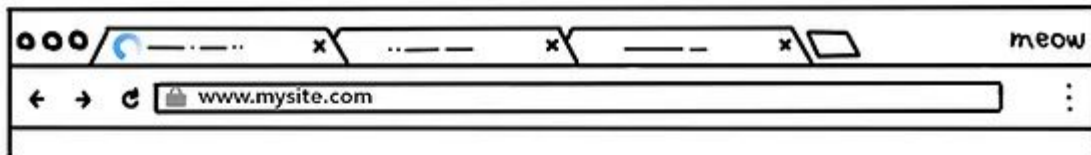
# Imagine: You are a web browser . . .



# First Steps as a Browser



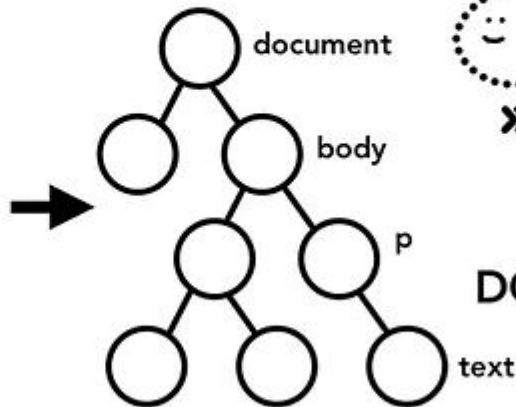
# Resource Gathering



## Renderer Process

```
<!DOCTYPE html>
<html>
  <head>
    ● <link href="zzz.css">
  </head>
  <body>
    ● 
    <p>
      Who is HorseJS
    </p>
    ● <script src="zzz.js">
  </script>
</body>
```

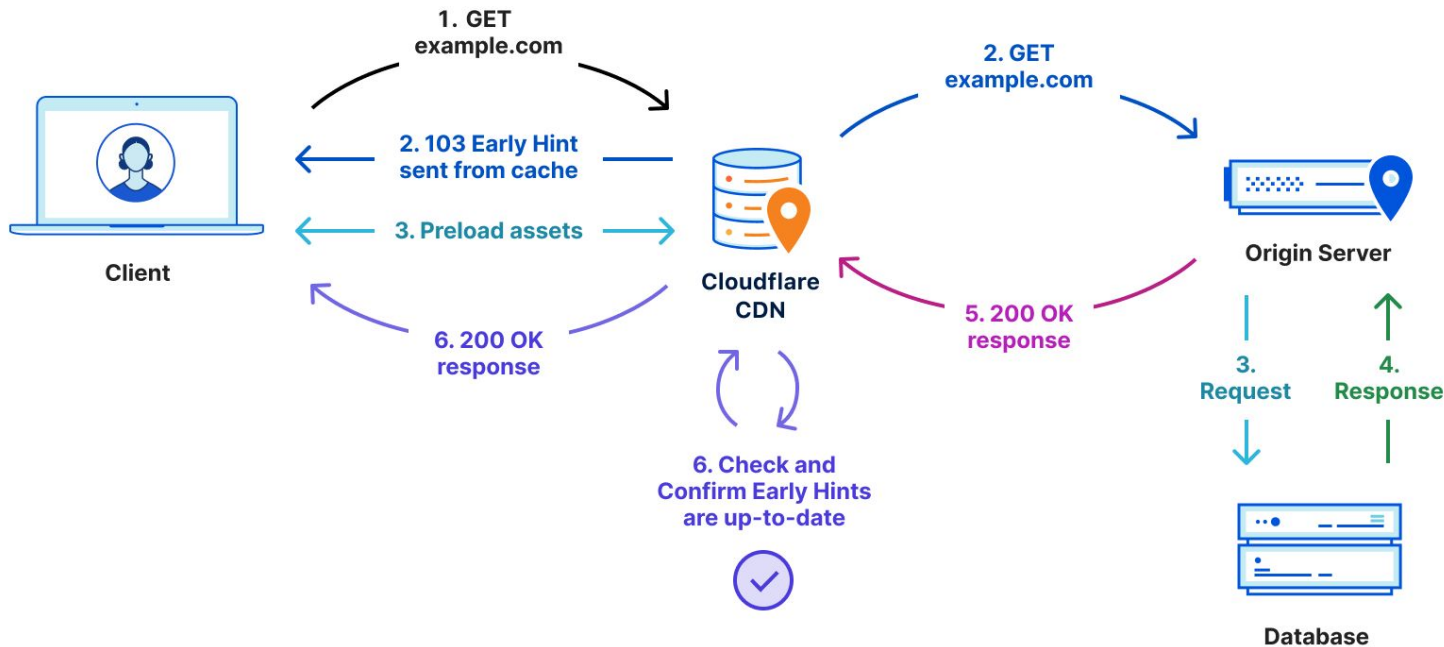
Network Request



DOM Tree



# The Optimized Journey





# Core Web Vitals



|                           | Good    | Poor    | Percentile |
|---------------------------|---------|---------|------------|
| Largest Contentful Paint  | <2500ms | >4000ms | 75         |
| Interaction to Next Paint | <200ms  | >500ms  | 75         |
| Cumulative Layout Shift   | <0.1    | >0.25   | 75         |

# Core Web Vitals

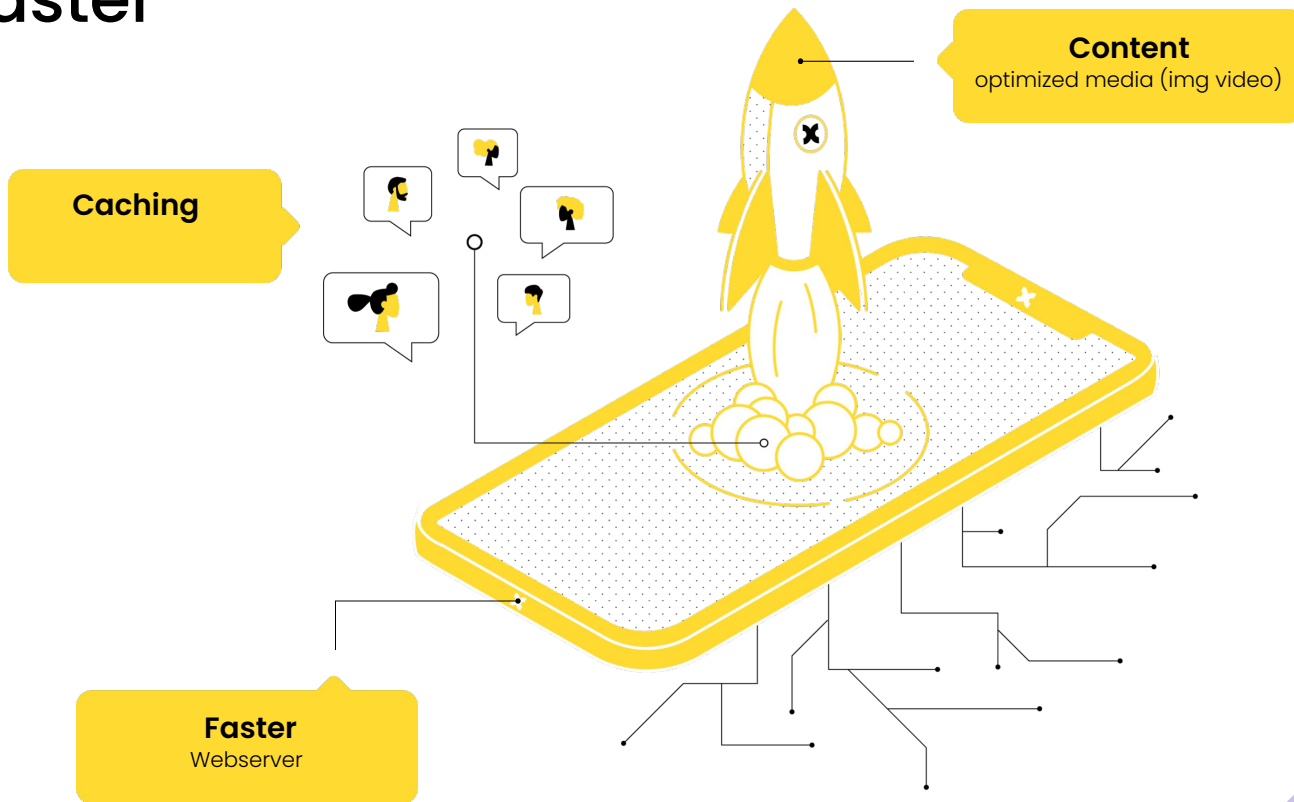
*(Loading)*

# LCP

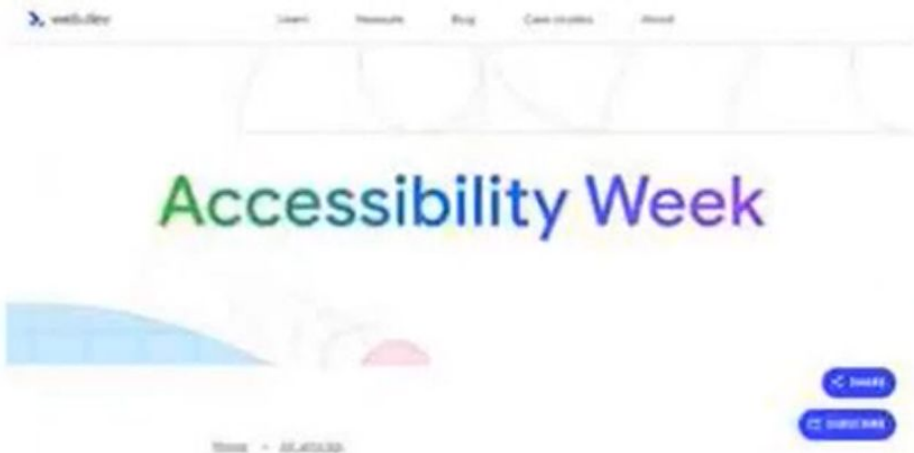
Largest Contentful Paint



# Load faster

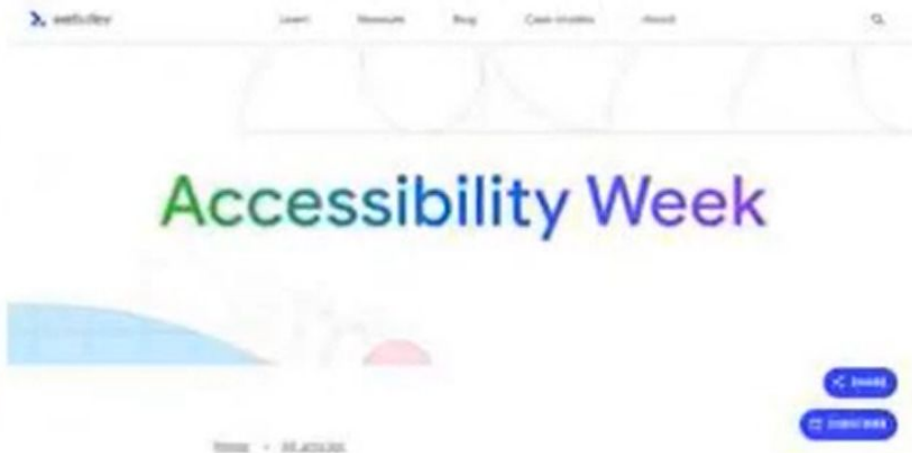


## No Prerender



1.6

## With Prerender

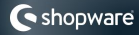


0.2



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PLATINUM  
**PARTNER**

*"Preload, prefetch or prerender"*

# Combining

Improve user experience



Preload



You can let the browser know what resources to preload for the current page visit.

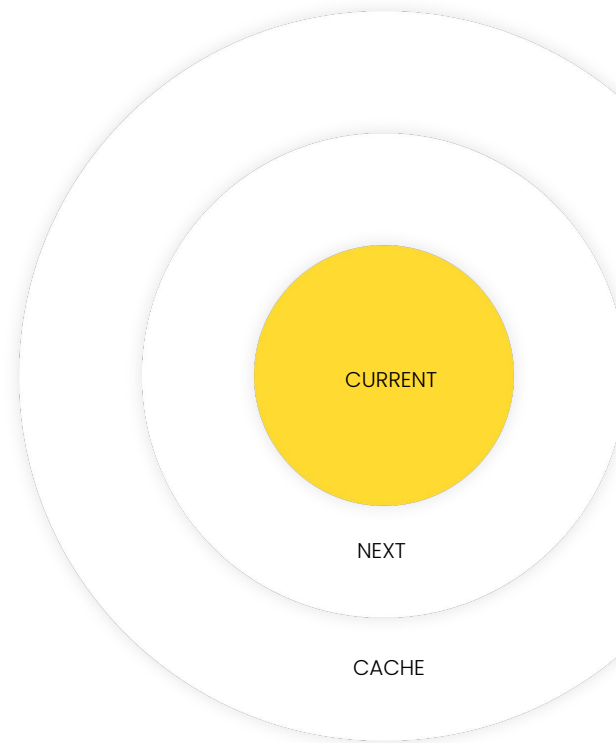


Prerender



Cache

1. `<link rel=preload` for style and script
2. transmit a resource link in the header response
3. send out a 103 early hint (before 200OK)



# Prerender next page



Preload



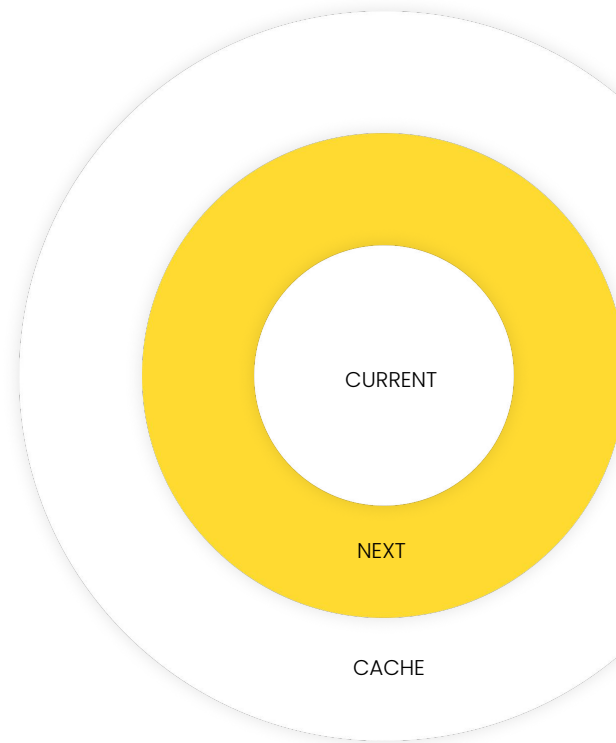
Prerender



Cache

For the next page visit in the same site you can instruct the browser to prefetch it, or fully prerender the next page.

Clicking the link makes an instant navigation.





# Cache on all possible levels

Gain advantage



Preload



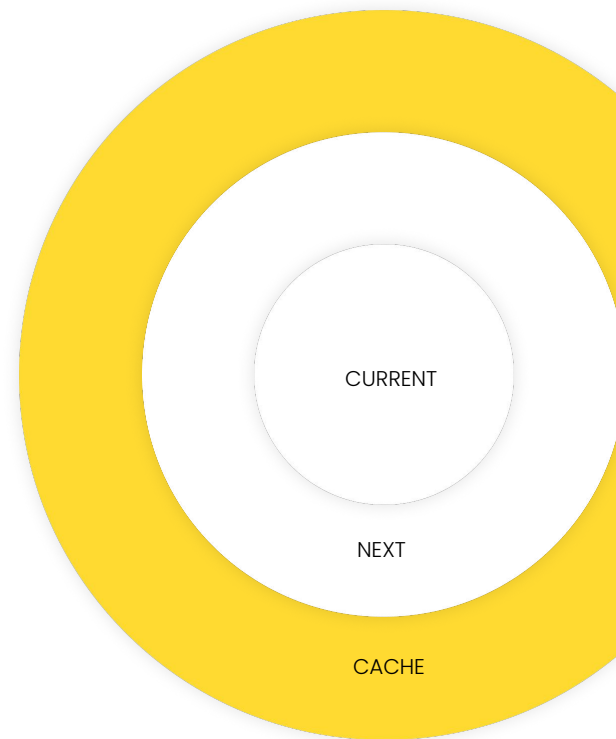
Prerender



Cache

---

- Application Cache
- HTTP Cache
- Edge Cache
- Browser Cache
- Back and Forward Cache (BF-Cache)



# Speculation rules API browser support



## Browser compatibility

### api.Document.prerendering

[Report problems with this compatibility data on GitHub](#)

|                | 📱        |          |         |         |         | 📱              |                     |               |               |                  |                 |
|----------------|----------|----------|---------|---------|---------|----------------|---------------------|---------------|---------------|------------------|-----------------|
|                | Chrome   | Edge     | Firefox | Opera   | Safari  | Chrome Android | Firefox for Android | Opera Android | Safari on iOS | Samsung Internet | WebView Android |
| prerendering 🧪 | ✓<br>108 | ✓<br>108 | ✗<br>No | ✓<br>94 | ✗<br>No | ✓<br>108       | ✗<br>No             | ✓<br>73       | ✗<br>No       | ✓<br>21.0        | ✓<br>108        |

# How does Speculation Rules API work

```
<script type="speculationrules">
{
  "prerender": [
    {
      "urls": ["next.html", "next2.html"]
    }
  ]
}
</script>
```

```
<script type="speculationrules">
{
  "prerender": [{
    "where": {
      "and": [
        { "href_matches": "/*" },
        { "not": { "href_matches": "/wp-admin" }},
        { "not": { "href_matches": "/*\\?*(^|&)add-to-cart=*"}},
        { "not": { "selector_matches": ".do-not-prerender" }},
        { "not": { "selector_matches": "[rel~=nofollow]" }}
      ]
    }
  }]
}
</script>
```

# When to prefetch or prerender

## Chrome limits

Chrome has limits in place to prevent overuse of the Speculation Rules API:

| eagerness                            | Prefetch | Prerender |
|--------------------------------------|----------|-----------|
| <code>immediate / eager</code>       | 50       | 10        |
| <code>moderate / conservative</code> | 2 (FIFO) | 2 (FIFO)  |

# See it working

https://www.luxuryfloors.nl/pvc/

Home > PVC

## PVC vloeren

Ben je op zoek naar een oersterke vloer die tegen een stootje kan? Met een van de vele klik- of plak-PVC vloeren van Luxury Floors maak je een uitstekende keuze. Deze vloeren zijn gemaakt van hoogwaardig kunststof, wat ze niet alleen duurzaam maar ook waterbestendig en onderhoudsvriendelijk maakt. Geen wonder dat PVC vloeren de laatste jaren razendsnel in populariteit is gestegen! Bij Luxury Floors vind je...

[Lees meer](#)

1157 artikelen | Sortering: Aanbevolen PVC

**Patroon**


- Visgraat (263)
- Plank (618)
- Hongaarse punt (31)
- Tegel (238)

**Type PVC**

- Klik PVC (534)
- Plak PVC (621)


**Kleur**

- Licht eiken (251)
- Naturel eiken (225)



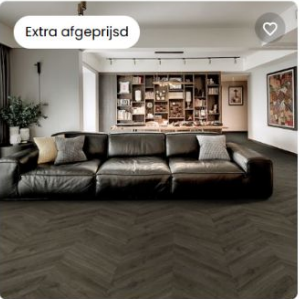
**ALL-IN DEAL**  
**€52,95**  
Inc. egaliseren & verlijmen

Luxury Floors Visgraat XL Hervey Bay Oak 4164HE Plak PVC



**ALL-IN DEAL**  
**€42,95**  
Inc. egaliseren & verlijmen

Luxury Floors Plank XL Hervey Bay Oak 4164E Plak PVC



Extra afgeprijsd

Luxury Floors Hongaarse Punt Purmerende Eik

Application

- Manifest
- Service workers
- Storage

Storage

- Local storage
- Session storage
- Extension storage
- IndexedDB
- Cookies
- Private state tokens
- Interest groups
- Shared storage
- Cache storage
- Storage buckets

Background services

- Back/forward cache
- Background fetch
- Background sync
- Bounce tracking mitigati...
- Notifications
- Payment handler
- Periodic background sync
- Speculative loads**
  - Rules
  - Speculations
- Push messaging
- Reporting API

**Speculative loading status for this page**

**Success**

This page was successfully prerendered.

**Speculations initiated by this page**

70 not triggered

[View all speculation rules](#) · [View all speculations](#)

[Learn more](#)

# You hover a link

## Speculative loading status for this page

✓ Success

This page was successfully prerendered.

## Speculations initiated by this page

⊘ 69 not triggered   ✓ 1 success

[View all speculation rules](#) · [View all speculation](#)

[Learn more](#)

## Speculative loading status for this page

✓ Success

This page was successfully prerendered.

## Speculations initiated by this page

⊘ 68 not triggered   ✓ 2 success

[View all speculation rules](#) · [View all speculation](#)

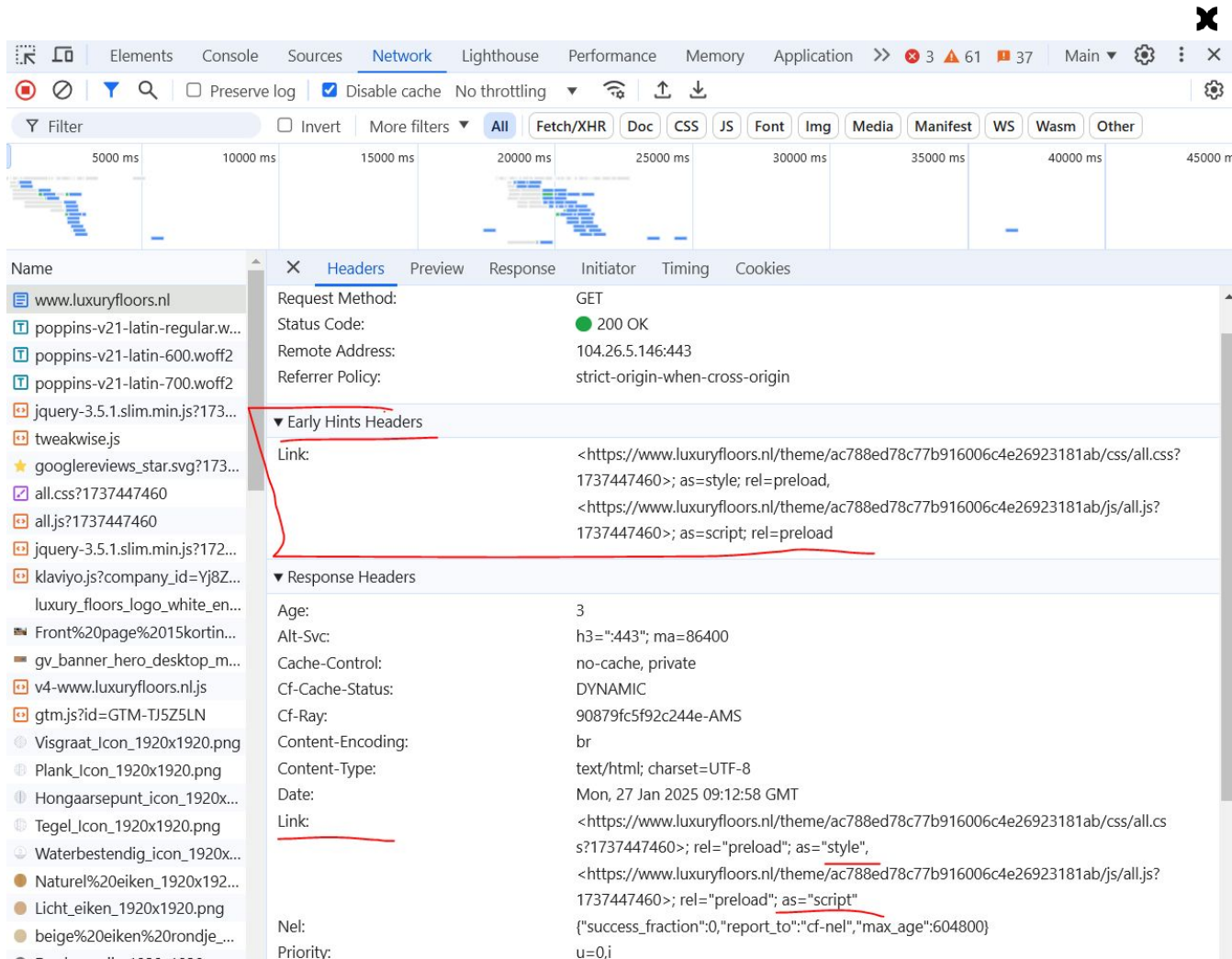
[Learn more](#)

The screenshot shows the Chrome DevTools Application panel with the 'Speculations' section selected. The table displays the following data:

| URL                               | Action    | Rule set | Status        |
|-----------------------------------|-----------|----------|---------------|
| /doe-het-zelf/                    | Prerender | pvc/     | Not triggered |
| /wishlist                         | Prerender | pvc/     | Not triggered |
| /ondervloeren/                    | Prerender | pvc/     | Not triggered |
| /laminaat/                        | Prerender | pvc/     | Not triggered |
| /blog/                            | Prerender | pvc/     | Not triggered |
| /klantenservice/                  | Prerender | pvc/     | Not triggered |
| /plinten-profielen/               | Prerender | pvc/     | Not triggered |
| /vloer-laten-leggen/              | Prerender | pvc/     | Not triggered |
| /hout/                            | Prerender | pvc/     | Not triggered |
| /                                 | Prerender | pvc/     | Not triggered |
| /luxury-floors-collectie/         | Prerender | pvc/     | Not triggered |
| /accessoires/                     | Prerender | pvc/     | Not triggered |
| /pvc/                             | Prerender | pvc/     | Ready         |
| /checkout/cart                    | Prerender | pvc/     | Not triggered |
| /egaline-lijmen/                  | Prerender | pvc/     | Not triggered |
| /laminaat/#twn?tn_fk_merk=Classen | Prerender | pvc/     | Not triggered |
| /pvc/klik-pvc/                    | Prerender | pvc/     | Not triggered |
| /pvc/plak-pvc/                    | Prerender | pvc/     | Not triggered |
| /pvc-ondervloeren/                | Prerender | pvc/     | Not triggered |
| /klantenservice/over-ons/         | Prerender | pvc/     | Not triggered |
| /pvc/klik-pvc/                    | Prerender | pvc/     | Not triggered |
| /laminaat/#twn?tn_fk_merk=Egger   | Prerender | pvc/     | Not triggered |
| //pvc/plak-pvc/visgraat//         | Prerender | pvc/     | Not triggered |
| /visgraat-vloeren                 | Prerender | pvc/     | Not triggered |
| /laminaat/                        | Prerender | pvc/     | Not triggered |
| /klantenservice/nieuwsbrief/      | Prerender | pvc/     | Not triggered |
| /vloer-laten-leggen/              | Prerender | pvc/     | Not triggered |

Below the table, it says: Select an element for more details

# Preload assets



The screenshot displays the Network tab in Chrome DevTools. The selected resource is a GET request to `www.luxuryfloors.nl`. The response status is 200 OK. The Referrer Policy is `strict-origin-when-cross-origin`.

The **Early Hints Headers** section is expanded, showing two Link headers:

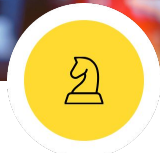
- `<https://www.luxuryfloors.nl/theme/ac788ed78c77b916006c4e26923181ab/css/all.css?1737447460>; as=style; rel=preload,`
- `<https://www.luxuryfloors.nl/theme/ac788ed78c77b916006c4e26923181ab/js/all.js?1737447460>; as=script; rel=preload`

The **Response Headers** section is also expanded, showing various headers including:

- `Age: 3`
- `Alt-Svc: h3=":443"; ma=86400`
- `Cache-Control: no-cache, private`
- `Cf-Cache-Status: DYNAMIC`
- `Cf-Ray: 90879fc5f92c244e-AMS`
- `Content-Encoding: br`
- `Content-Type: text/html; charset=UTF-8`
- `Date: Mon, 27 Jan 2025 09:12:58 GMT`
- `Link: <https://www.luxuryfloors.nl/theme/ac788ed78c77b916006c4e26923181ab/css/all.css?1737447460>; rel="preload"; as="style", <https://www.luxuryfloors.nl/theme/ac788ed78c77b916006c4e26923181ab/js/all.js?1737447460>; rel="preload"; as="script"`
- `Nel: {"success_fraction":0,"report_to":"cf-nel","max_age":604800}`
- `Priority: u=0,i`



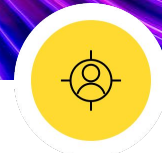
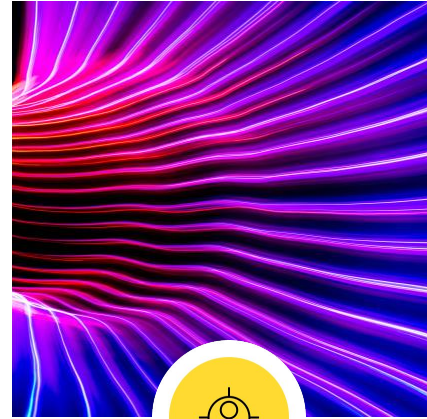
# Strix Instant Navigation plugin



**Preload**



**Link header**



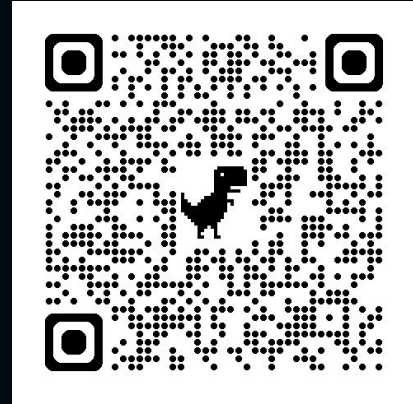
**Prerender**



# Strix Instant Navigation with speculationrules

by [Strix NL](#) | [Platinum partner](#)

# Demo





## Real User Metrics

Core Web Vitals assessment: passed

Page: [homepage](#)

[all pages](#)

Device:

[mobile](#)

[desktop](#)

[all](#)

Data: [Absolute](#)

[Distribution](#)



improving

### Largest Contentful Paint

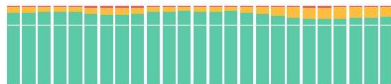


→ 75<sup>th</sup> percentile at 2025-01-25 was 1.01 seconds



regressing

### Interaction to Next Paint



→ 75<sup>th</sup> percentile at 2025-01-25 was 152 ms



steady

### Cumulative Layout Shift

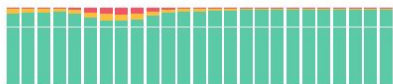


→ 75<sup>th</sup> percentile at 2025-01-25 was 0.00



improving

### First Contentful Paint

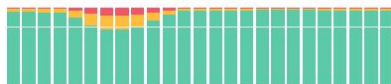


→ 75<sup>th</sup> percentile at 2025-01-25 was 0.75 seconds



steady

### Time to First Byte



→ 75<sup>th</sup> percentile at 2024-12-14 was 191 ms



Choose

### Navigation types



→ Most popular navigation type at 2025-01-11 was navigate

# Field results



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### Navigation types

on mobile devices

during 4-5-2024 to 1-6-2024

75th percentile at 2024-11-02 was 0.84 seconds

#### Navigation type distribution:

- 18% back forward
- 56.4% navigate
- 18% prerender
- 0% restore
- 4.8% bfcache
- 0% navigate cache
- 2.8% reload



### Navigation types



### Navigation types

on mobile devices

during 5-10-2024 to 2-11-2024

→ 75th percentile at 2024-11-02 was 0.84 seconds

#### Navigation type distribution:

- 5.3% back forward
- 61.1% navigate
- 11.3% prerender
- 0% restore
- 20.2% bfcache
- 0% navigate cache
- 2.2% reload



### Navigation types

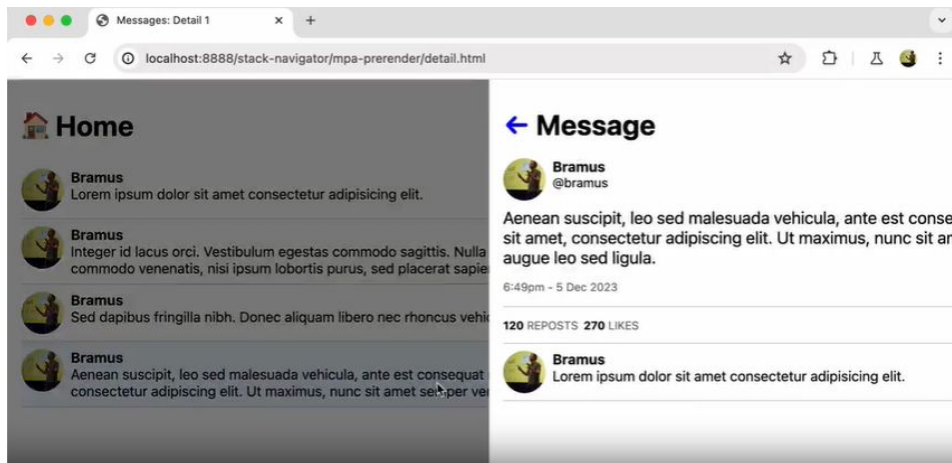


# @view-transition

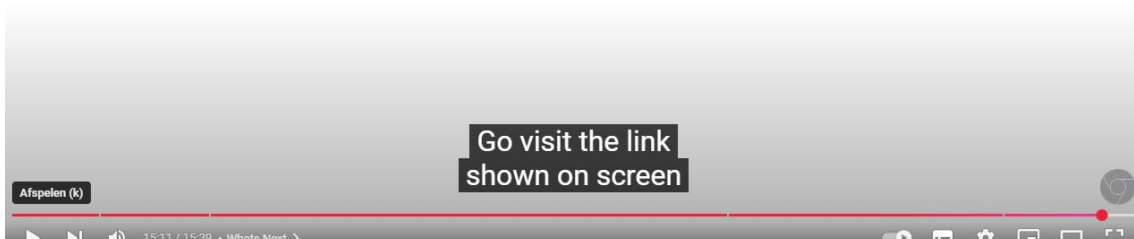


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```
@view-transition {  
  navigation: auto;  
}
```



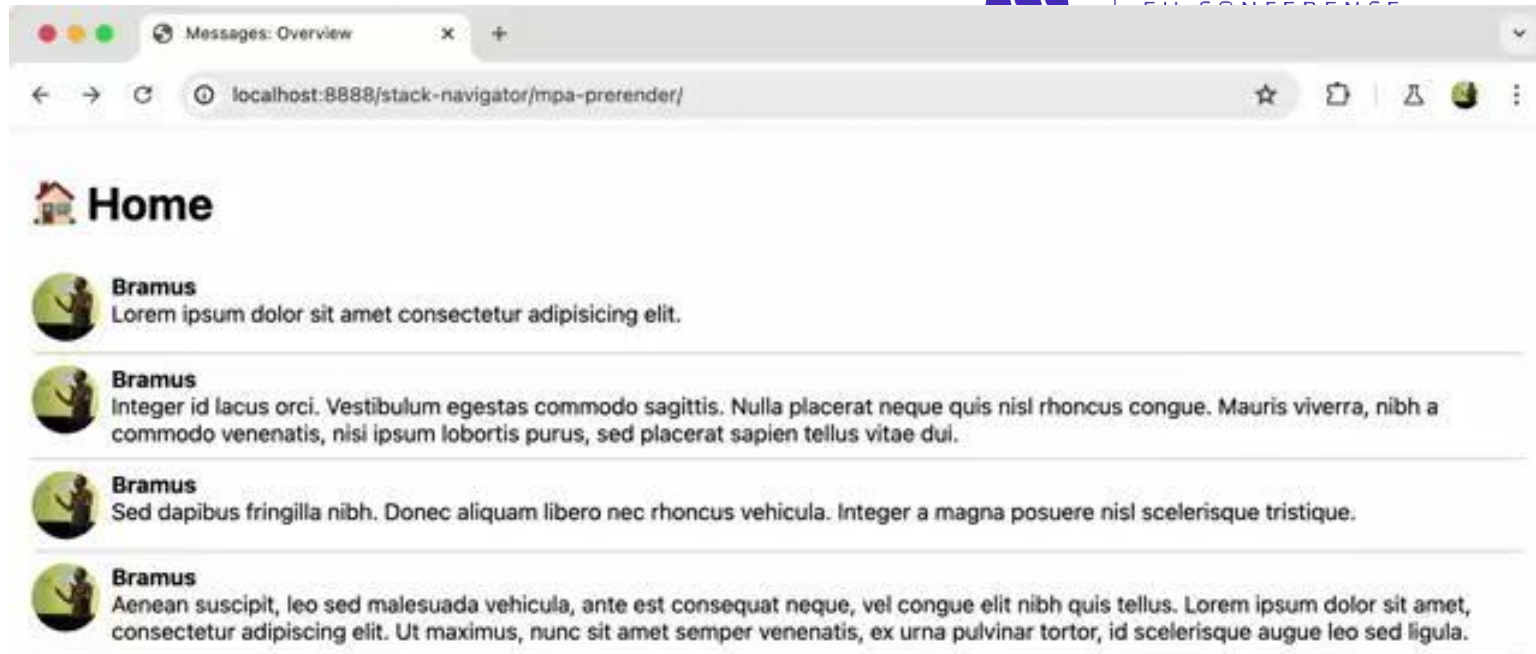
[goo.gl/cross-doc-view-transitions](https://goo.gl/cross-doc-view-transitions)



# @view-transition



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# Sustainability

Fewer server requests → Reduced bandwidth → Lower carbon footprint.

Optimized sites  
save device battery life  
and load pages faster





# Summary

## Web Performance Challenges

- Understanding how browsers handle page loads and why optimizing this process is crucial for user experience. Use real user data instead of synthetic tests.

## Key Optimization Techniques

- Leveraging resource preloading, prerendering, and caching strategies to deliver faster, seamless navigation.

## Speculation Rules API

- Using modern browser capabilities to preload and prerender next-page visits effectively.

## Strix Instant Navigation Plugin

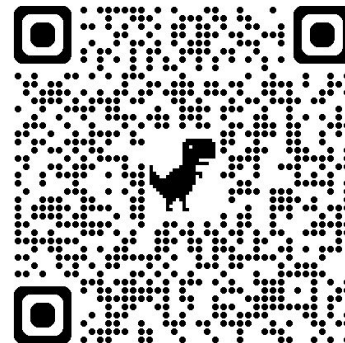
- A ready-to-use solution to implement preloading and prerendering in Shopware, enhancing user experience effortlessly.

# One more thing . . .

 **Exclusive Offer:** The **Strix Instant Navigation Plugin** is available at a **discount this month only!**

 Unlock faster navigation, better performance, and happier users for less.

 Scan the QR code or visit the Shopware store to claim your discount today!



# One more thing . . .

## Shopware Indexing Performance Breakthrough 🚀

- SWAG Language Pack installs **30 languages** by default.
- Even with a few enabled, indexing is heavily impacted.
- On a shop with **2M+ SKUs**, manual cleanup yielded:
  - **85% performance boost** ⚡
  - Indexing time cut from **0.33s** to **0.05s per product**.

Less is more! 🎉



**Dank u wel!**

# Q & A

if there is time ;)

Or meet me later ...