

성능개선 뛰어들기 :고전적 SSR 성능개선

송지은 NAVER

스마트어라운드

N DEVIEW
2020

 SmartAround 

반짝여라젊음아님을 위한
강남역 2호선 주변 

[다른지역 검색](#) 

 [카페/디저트](#)

 [술집/바](#)

 [배달](#)

 [가볼만한곳](#)

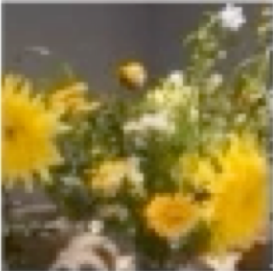
 [강좌/문화](#)

 [테마](#)

강좌

플라워 클래스
2020.06.03 ~ 2020.12.31
매주 수요일 저녁 7시 or 목요일 오후 3시 영국 컨템포러리 스타일 자...

 컨서버토리 / **1.8km**



[도자기] 취미 원데이클래스
2020.05.28 ~ 2023.02.28
[도자기] 취미 원데이클래스

 세라듀 / **1.1km**



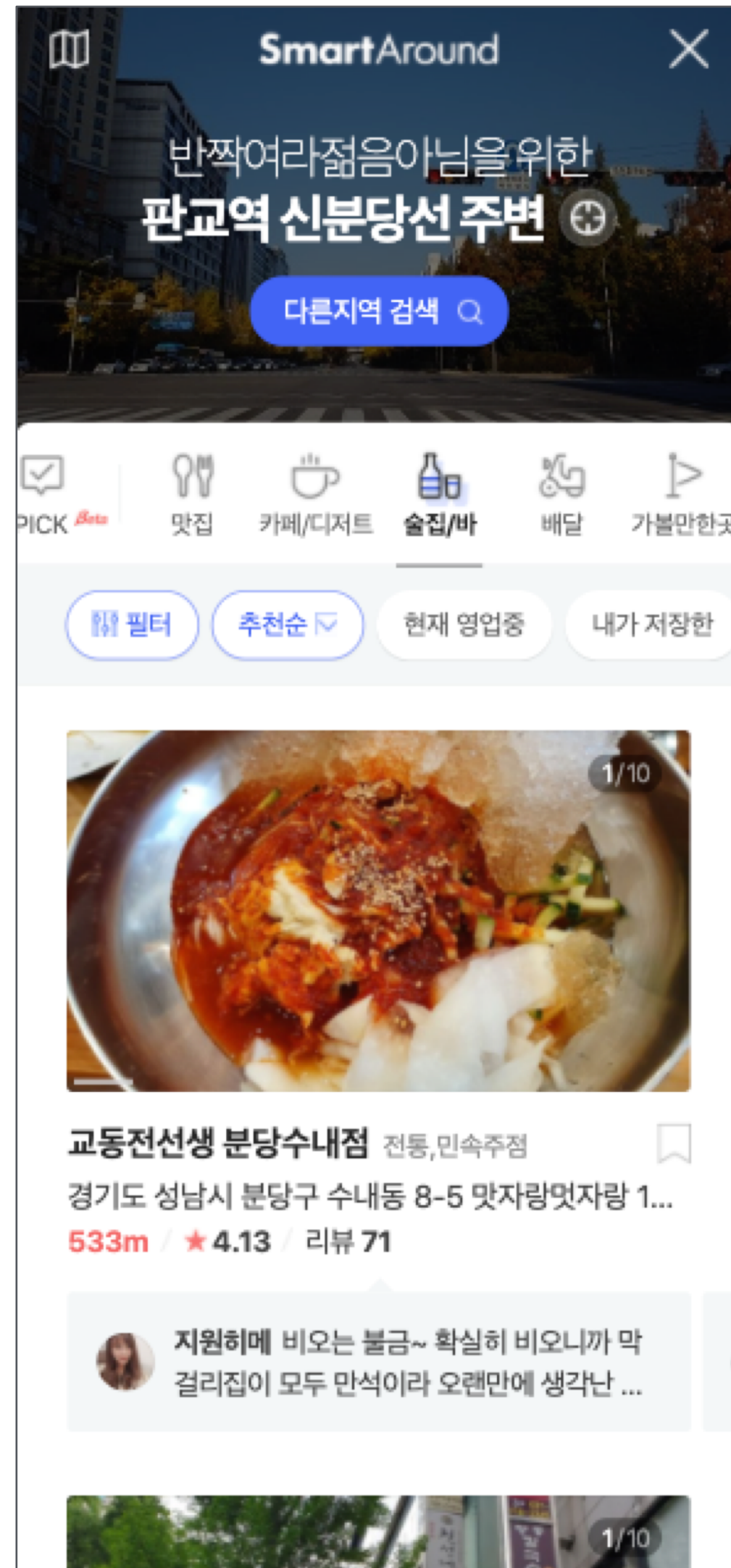
양금플라워떡케이크 원데이클래스
2020.05.25 ~ 2021.05.24

 마쥬네 / **755m**

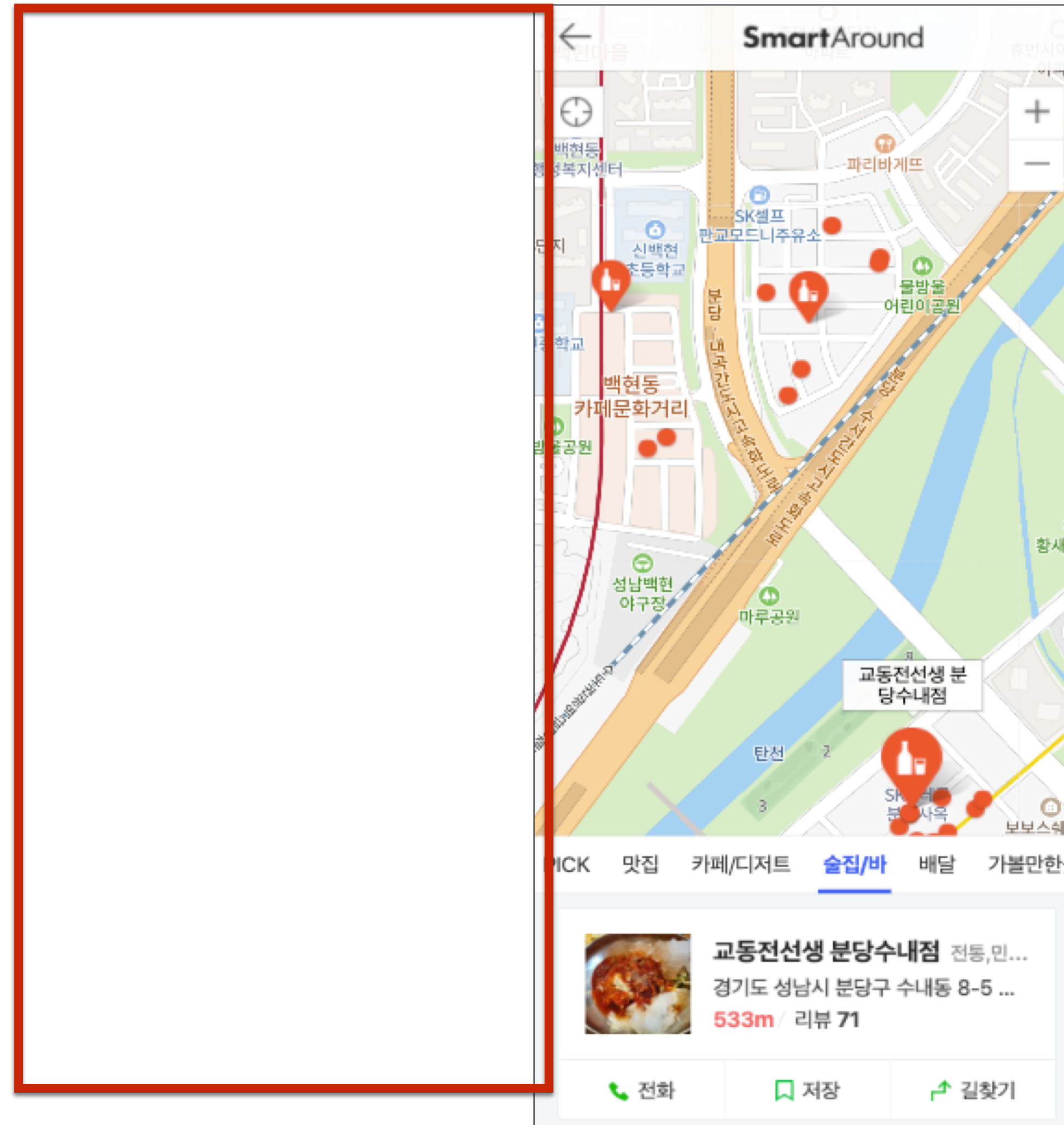


스마트어라운드 특징

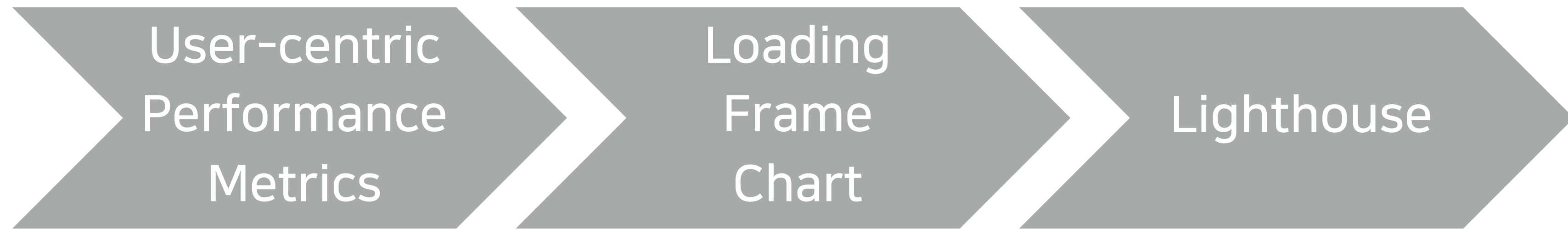
리스트형 뷰

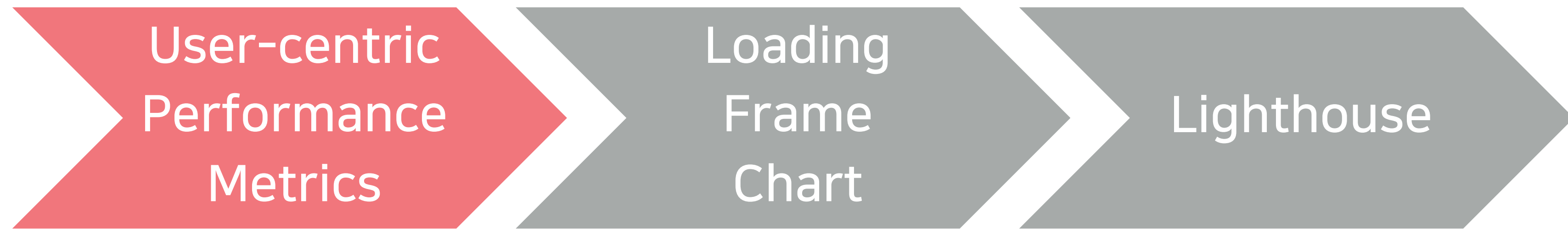


Viewport 지도형 뷰

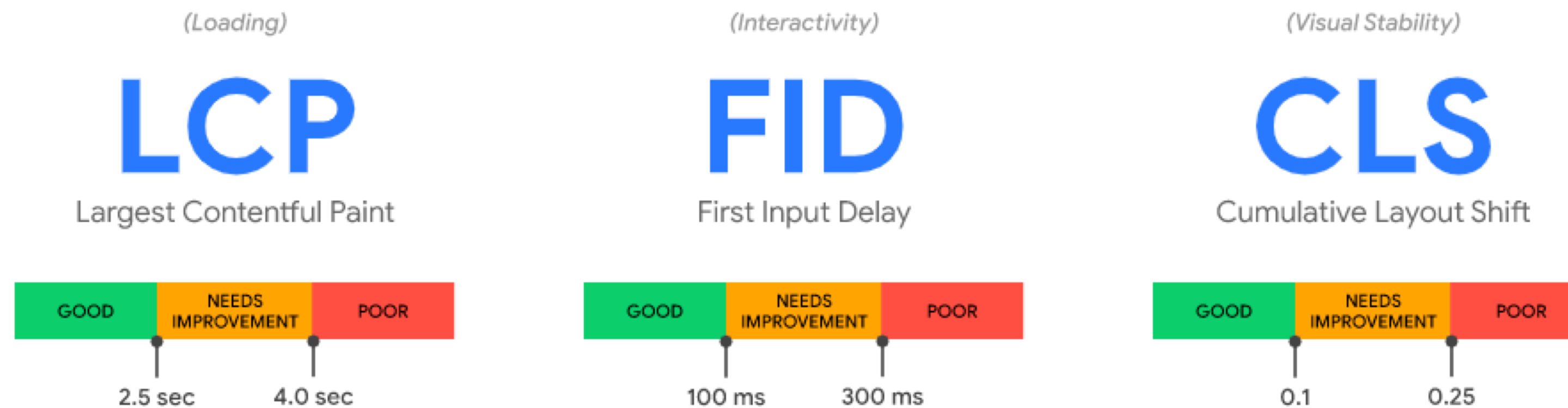


성능개선?





Core Web Vital



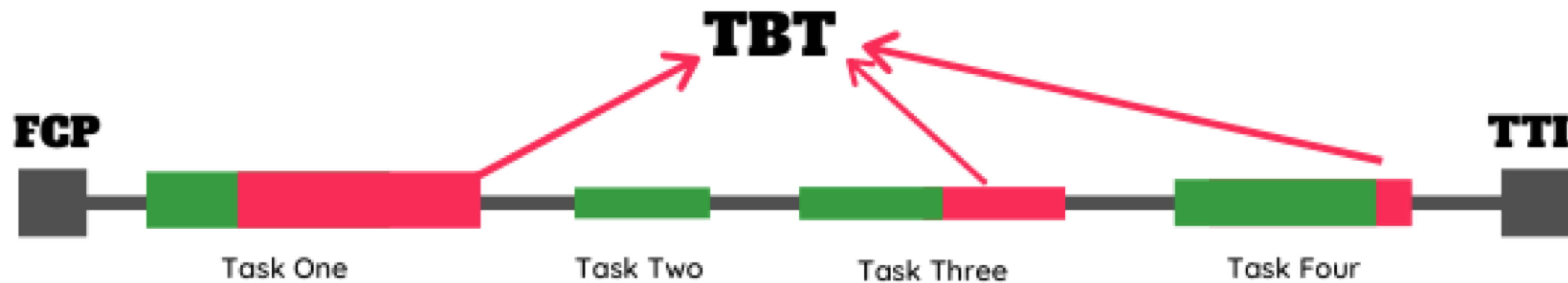
- **Largest Contentful Paint (LCP)**: measures *loading* performance. To provide a good user experience, LCP should occur within 2.5 seconds of when the page first starts loading.
- **First Input Delay (FID)**: measures *interactivity*. To provide a good user experience, pages should have a FID of less 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.

User-Centric Performance Metrics

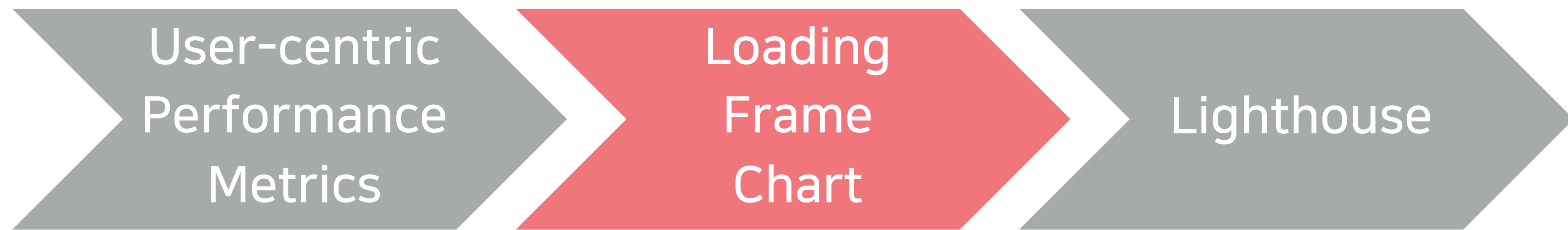
Important metrics to measure

- [First contentful paint \(FCP\)](#): measures the time from when the page starts loading to when any part of the page's content is rendered on the screen. ([lab](#), [field](#))
- [Largest contentful paint \(LCP\)](#): measures the time from when the page starts loading to when the largest text block or image element is rendered on the screen. ([lab](#), [field](#))
- [First input delay \(FID\)](#): measures the time from when a user first interacts with your site (i.e. when they click a link, tap a button, or use a custom, JavaScript-powered control) to the time when the browser is actually able to respond to that interaction. ([field](#))
- [Time to Interactive \(TTI\)](#): measures the time from when the page starts loading to when it's visually rendered, its initial scripts (if any) have loaded, and it's capable of reliably responding to user input quickly. ([lab](#))
- [Total blocking time \(TBT\)](#): measures the total amount of time between FCP and TTI where the main thread was blocked for long enough to prevent input responsiveness. ([lab](#))
- [Cumulative layout shift \(CLS\)](#): measures the cumulative score of all unexpected layout shifts that occur between when the page starts loading and when its [lifecycle state](#) changes to hidden. ([lab](#), [field](#))

FID, TTI, TBT



FID requires a real user and thus cannot be measured in the lab. However, the Total Blocking Time (TBT) metric is lab-measurable, correlates well with FID in the field, and also captures issues that affect interactivity. Optimizations that improve **TBT** in the lab should also improve FID for your users.



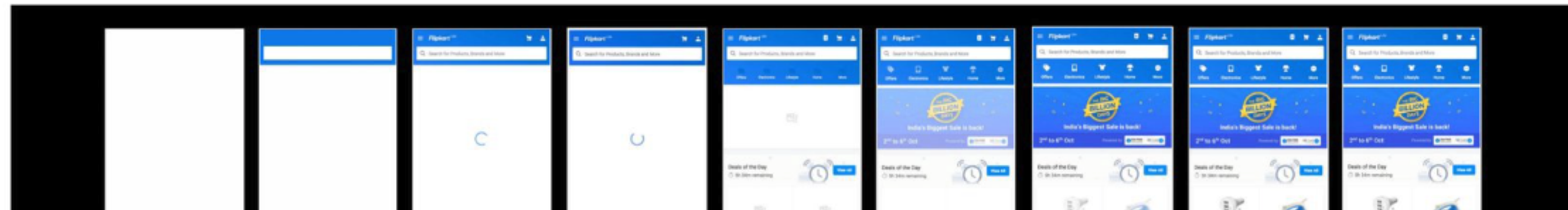
Loading Frame Chart

LOADING IS A JOURNEY

is it happening?

is it useful?

is it usable?



The Experience

Is it happening?

Is it useful?

Is it usable?

The Metric

First Paint (FP) / First Contentful Paint (FCP)

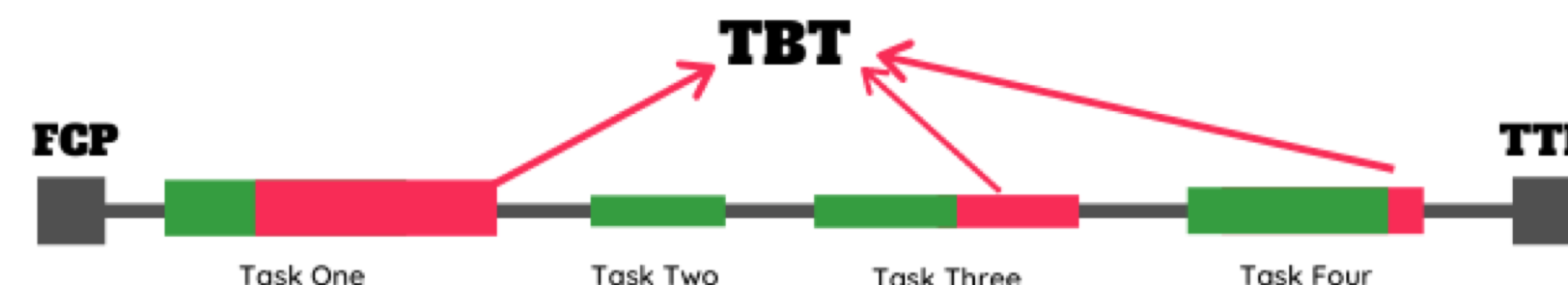
First Meaningful Paint (FMP) / Hero Element Timing

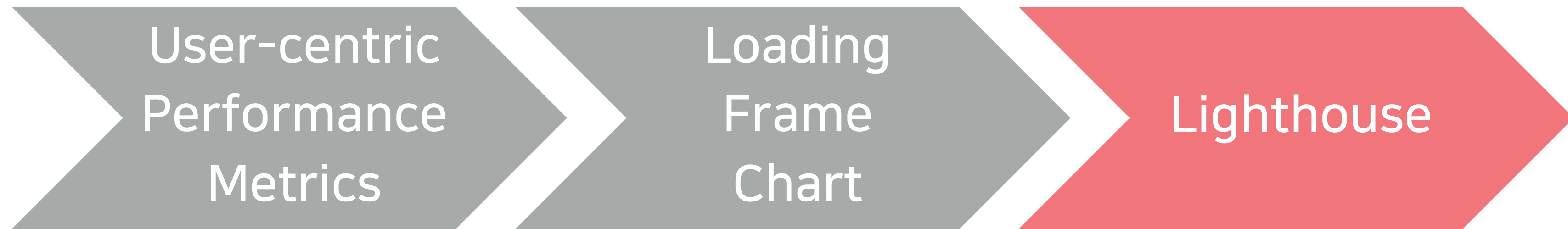
Time to Interactive (TTI)

First Paint

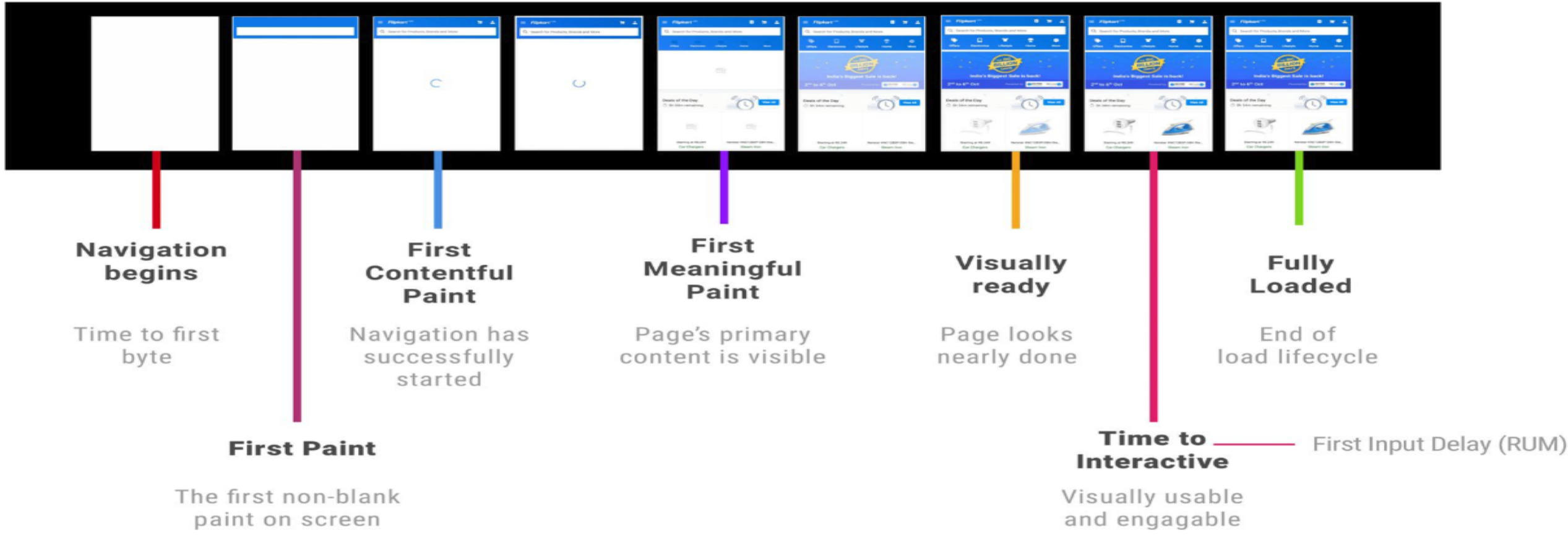
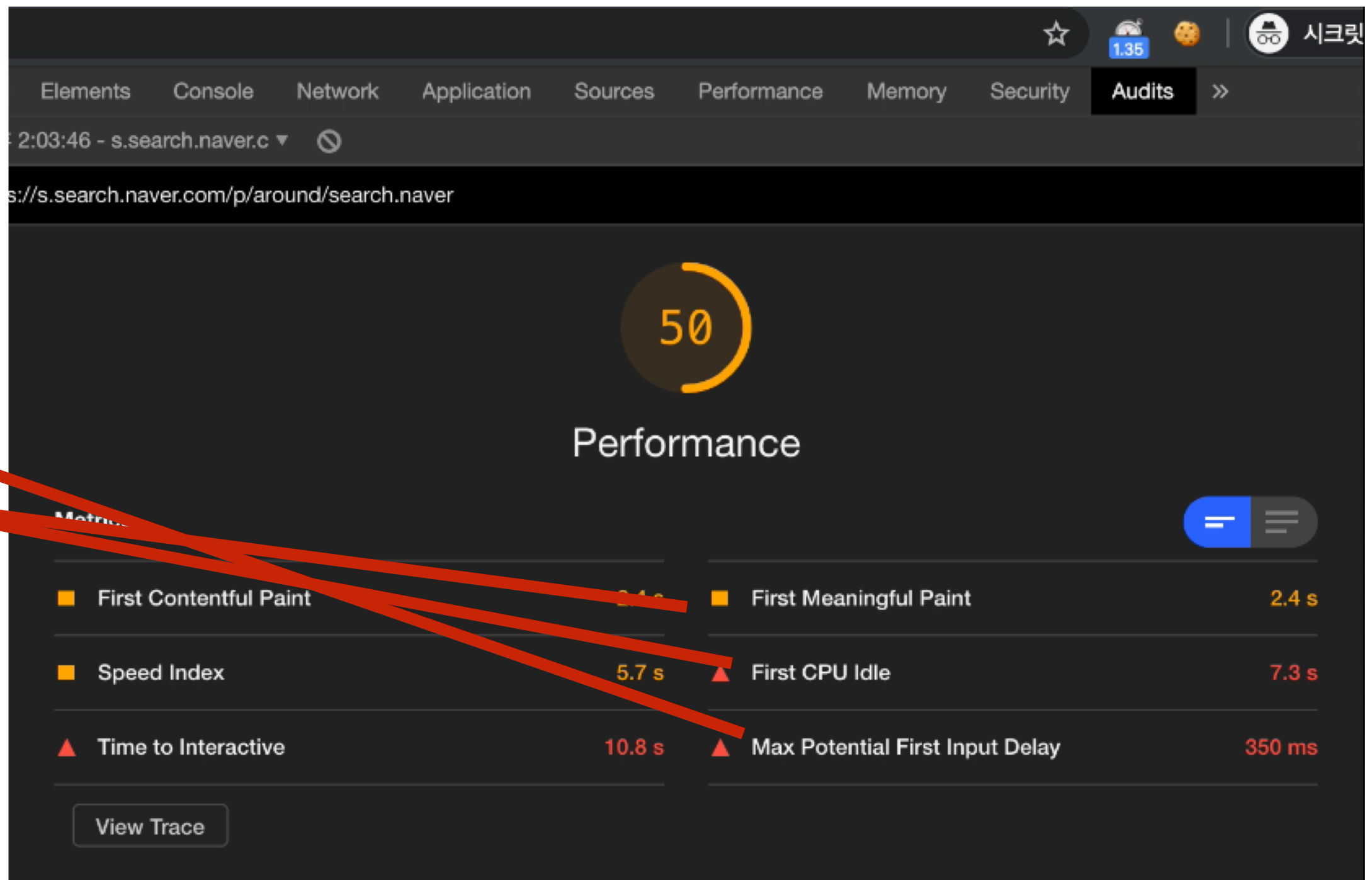
The first non-blur
paint on screen

Time to Interactive — First Input Delay (RUM)



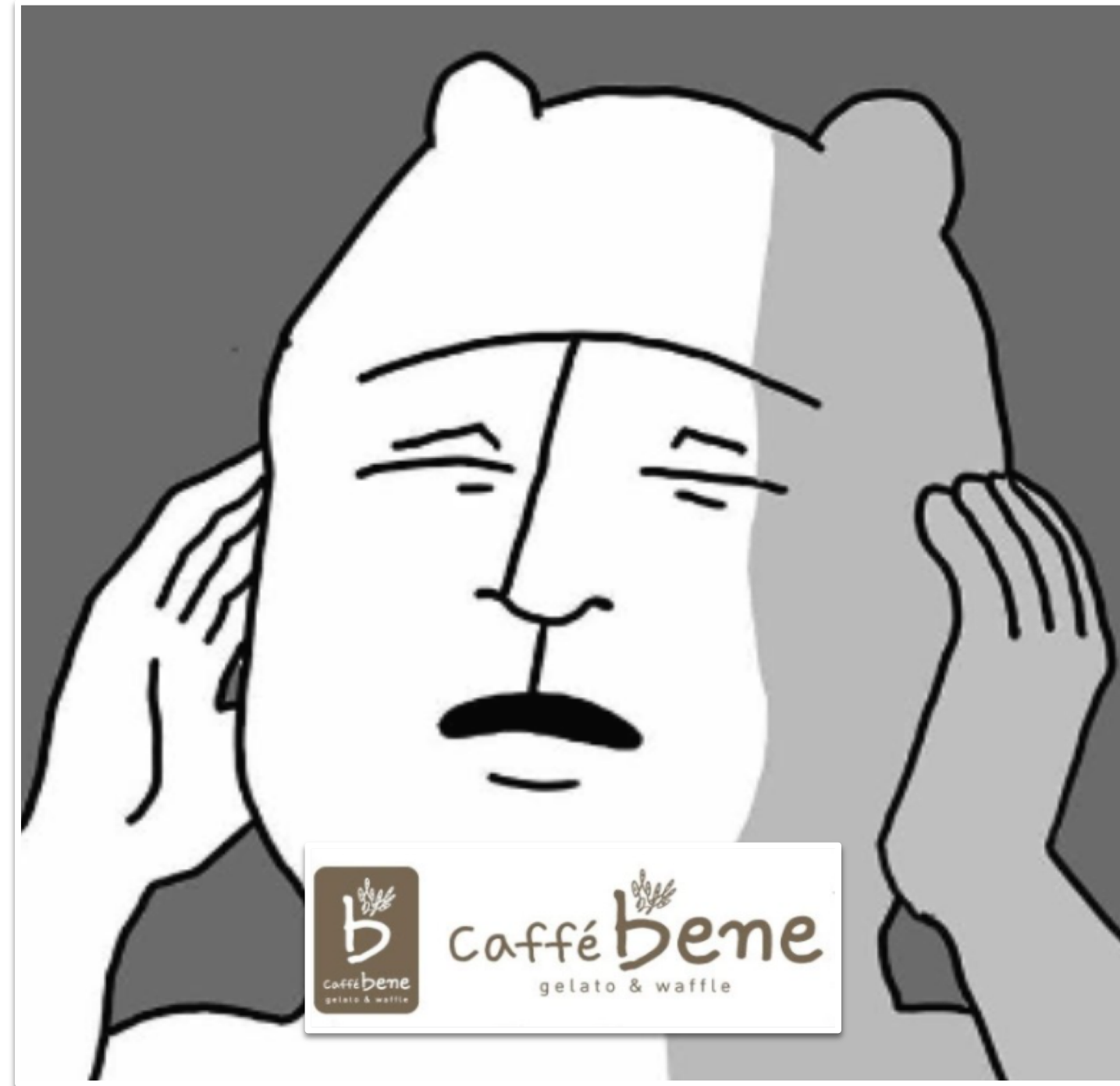


Lighthouse



개선 전 스마트어라운드
Lighthouse

잠깐만~ 스크린샷은?



개선 레퍼런스

Lighthouse - Opportunities

Opportunities — These suggestions can help your page load faster. They don't [directly affect](#) the Performance score.

Opportunity	Estimated Savings
▲ Defer offscreen images	2.1 s ▼
▲ Serve images in next-gen formats	2.1 s ▼
■ Efficiently encode images	0.75 s ▼
■ Eliminate render-blocking resources	0.49 s ▼
■ Preconnect to required origins	0.3 s ▼
■ Remove unused CSS	0.15 s ▼

https://web.dev/

Chrome Dev Summit 2020 is back & going virtual on December 9-10. [Learn more.](#)

Fast load times

Techniques for improving site performance.



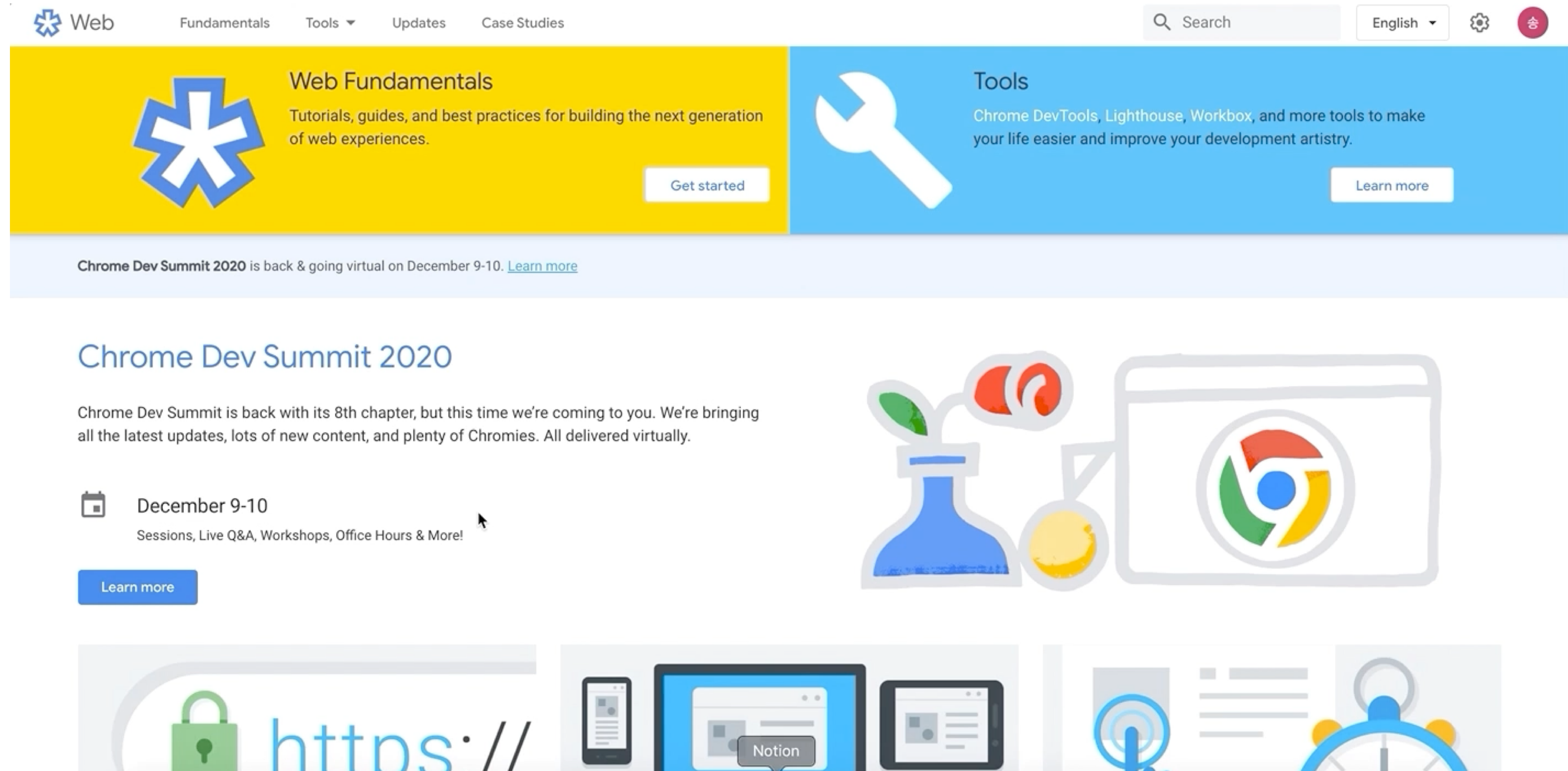
Overview

When you're building a modern web experience, it's important to measure, optimize, and monitor if you're to get fast and stay fast. Performance plays a significant role in the success of any online venture, as high performing sites engage and retain users better than poorly performing ones. Sites should focus on optimizing for user-centric happiness metrics. Tools like Lighthouse (baked into web.dev!) highlight these metrics and help you take the right steps toward improving your performance. To "stay fast", set and

What you'll learn

- ✓ [Introduction](#)
- ✓ [Set performance budgets](#)
- ✓ [Optimize your images](#)
- ✓ [Lazy-load images and video](#)
- ✓ [Optimize your JavaScript](#)
- ✓ [Optimize your resource delivery](#)

https://developers.google.com/web/



The screenshot shows the Google Developers Web page. The top navigation bar includes links for Web, Fundamentals, Tools, Updates, and Case Studies. A search bar and language selector (English) are on the right. The main content area features two large cards: 'Web Fundamentals' (yellow background) and 'Tools' (blue background). Below these is a banner for 'Chrome Dev Summit 2020' with a description, dates (December 9-10), and a 'Learn more' button. The bottom section contains a row of four smaller cards: 'https://', 'Notion', and two others with abstract icons.

Web Fundamentals
Tutorials, guides, and best practices for building the next generation of web experiences.
[Get started](#)

Tools
Chrome DevTools, Lighthouse, Workbox, and more tools to make your life easier and improve your development artistry.
[Learn more](#)

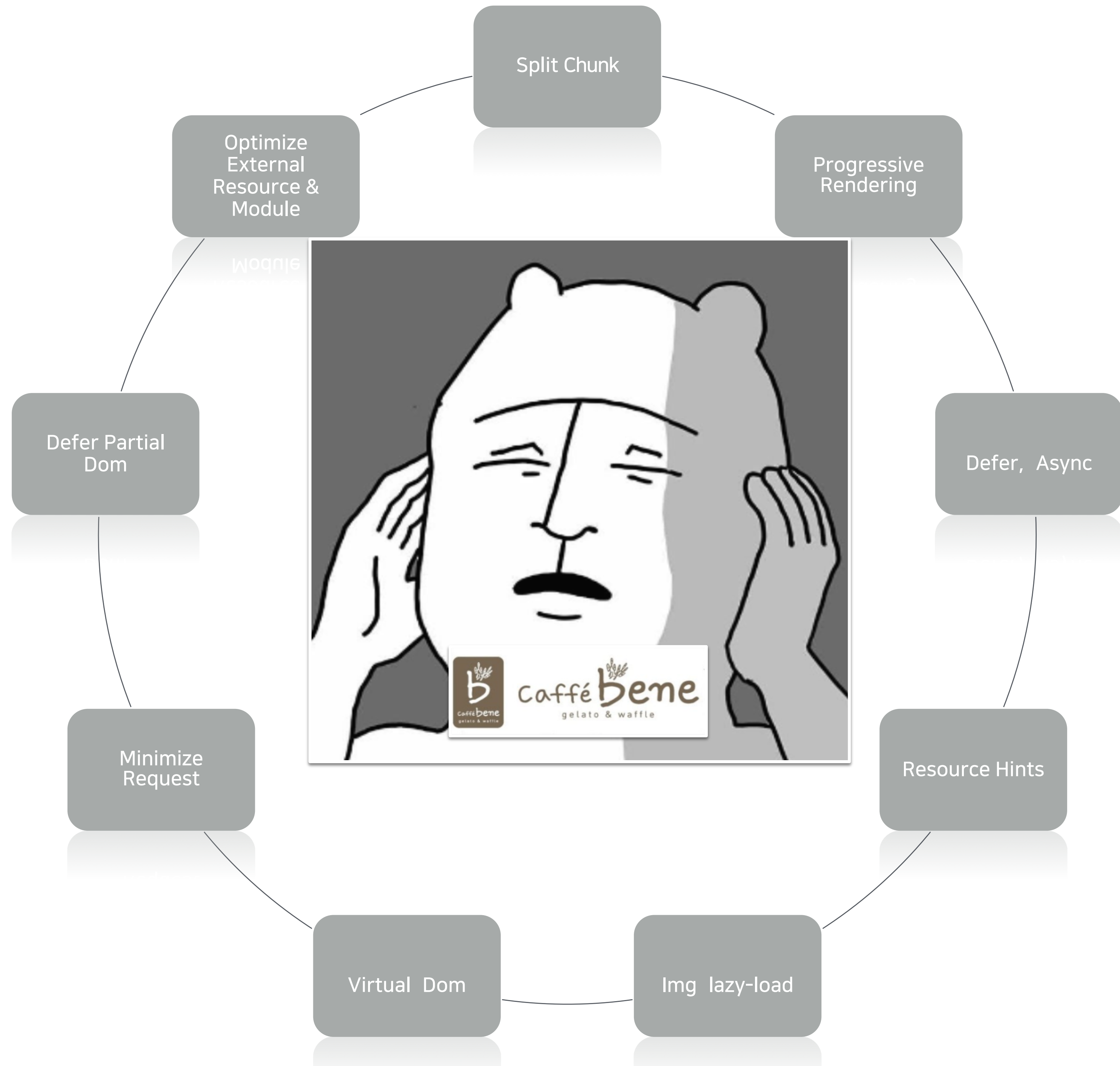
Chrome Dev Summit 2020 is back & going virtual on December 9-10. [Learn more](#)

Chrome Dev Summit 2020

Chrome Dev Summit is back with its 8th chapter, but this time we're coming to you. We're bringing all the latest updates, lots of new content, and plenty of Chromies. All delivered virtually.

 **December 9-10**
Sessions, Live Q&A, Workshops, Office Hours & More!
[Learn more](#)



대규모 개선

Optimize
External Resource
& Module

Split Chunk

Progressive
Rendering

소규모 개선

Remove Unused
Resource

Defer, Async

Minimize Request

Resource Hints

Virtual Dom

Img lazy-load



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Remove Unused
Resource

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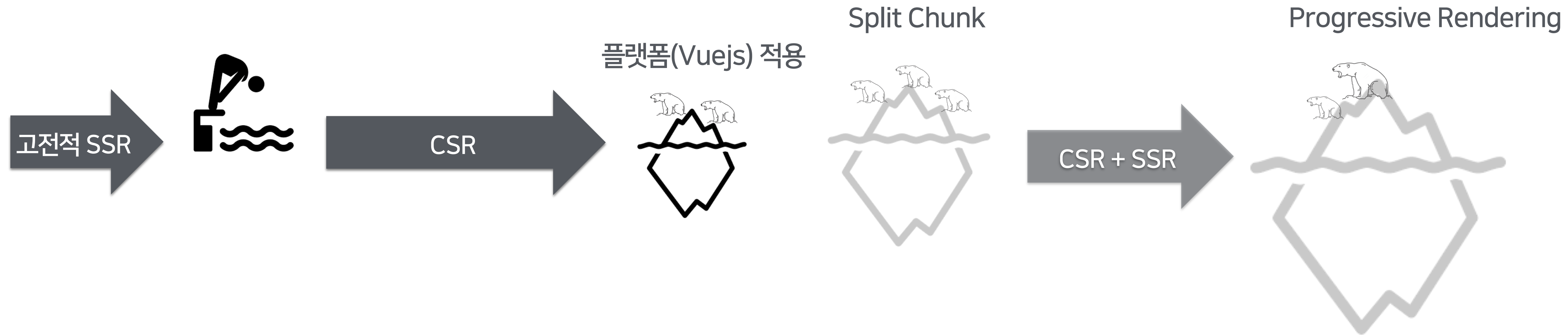
Minimize Request

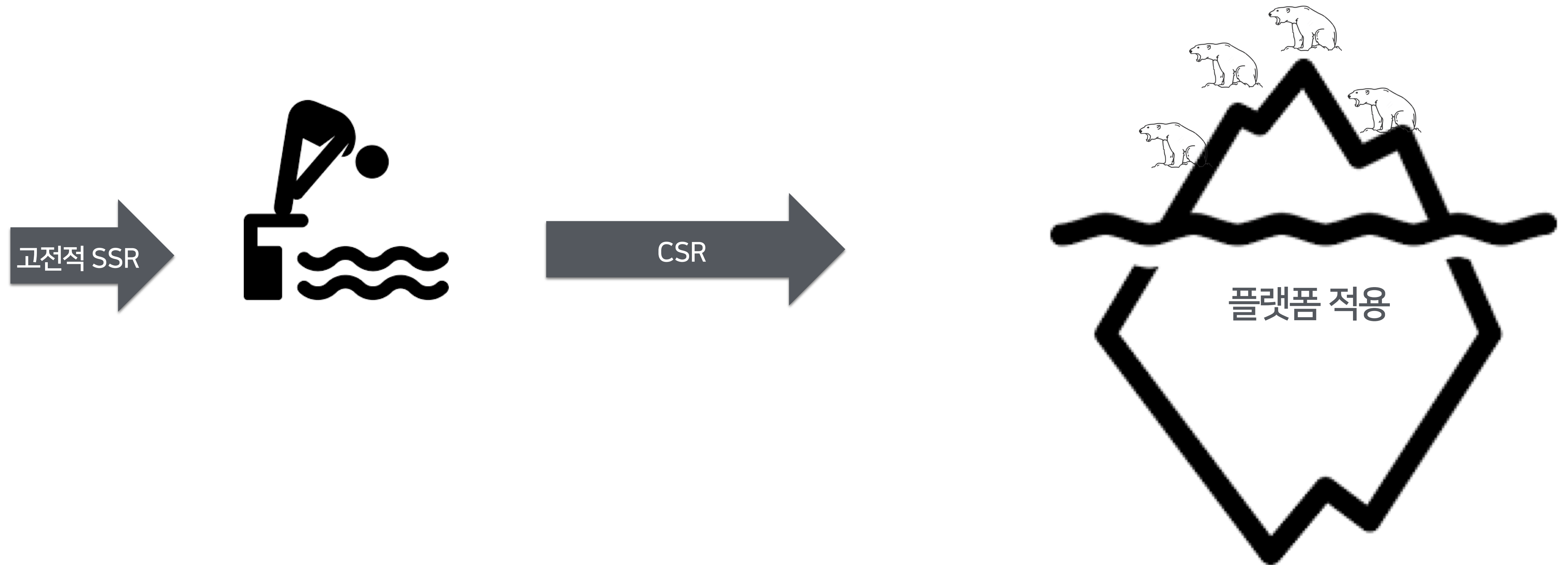
Resource Hints

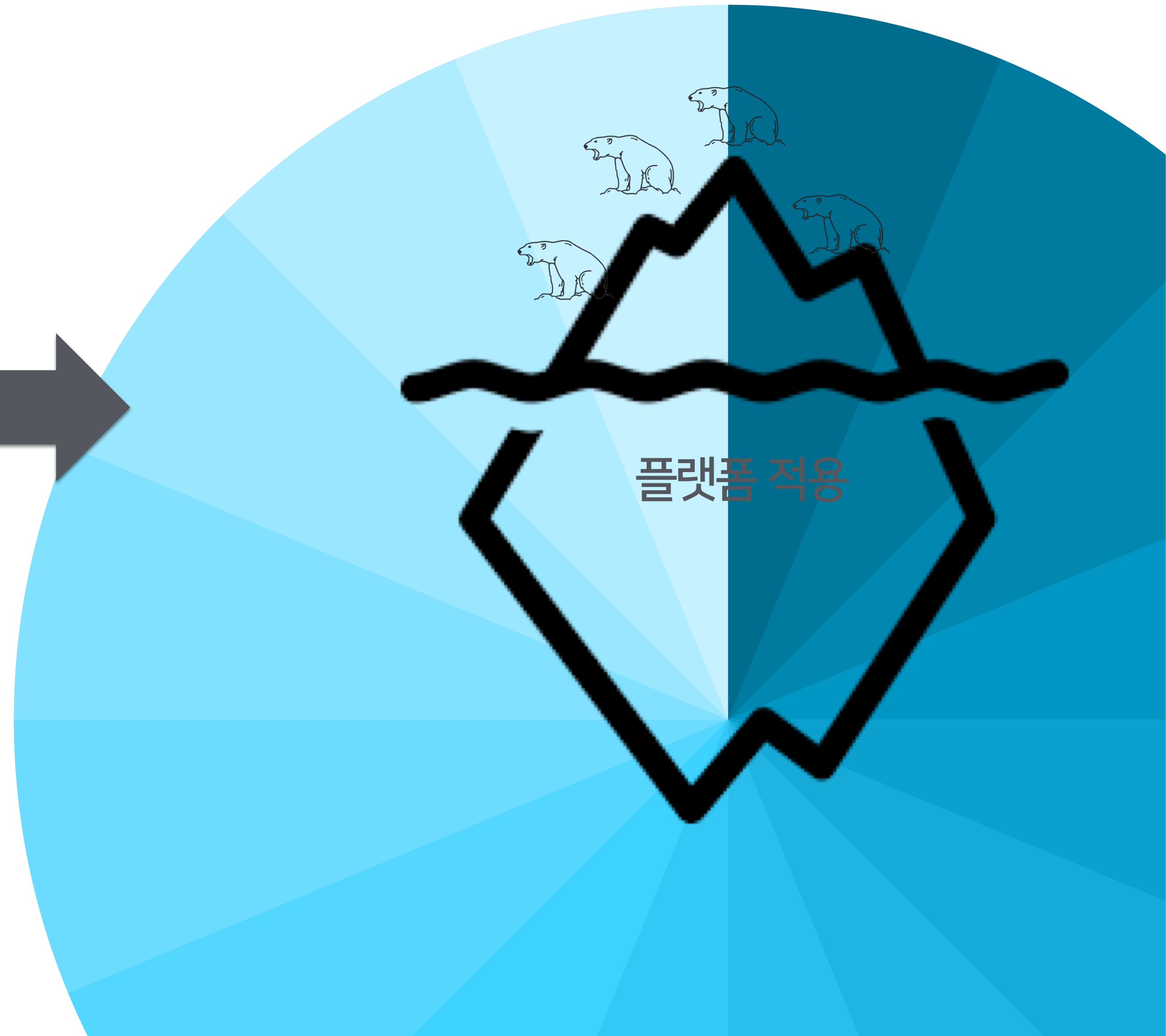
Virtual Dom

Img lazy-load











느리긴 한데...잘 돌아가는 걸 왜...?

그거 좋은 거 맞아요?

일정은 얼마나?

QA 범위는?

Vuejs 적용이라 쓰고
성능개선이라 읽는다.

이슈파악

N DEVIEW
2020



SmartAround

당신을 위한
정자역 수인분당선 주변

다른지역 검색 🔍


NOW


PICK *Beta*


맛집


카페/디저트


배달

심야시간대 1km반경 추천순입니다. ▼



1/10

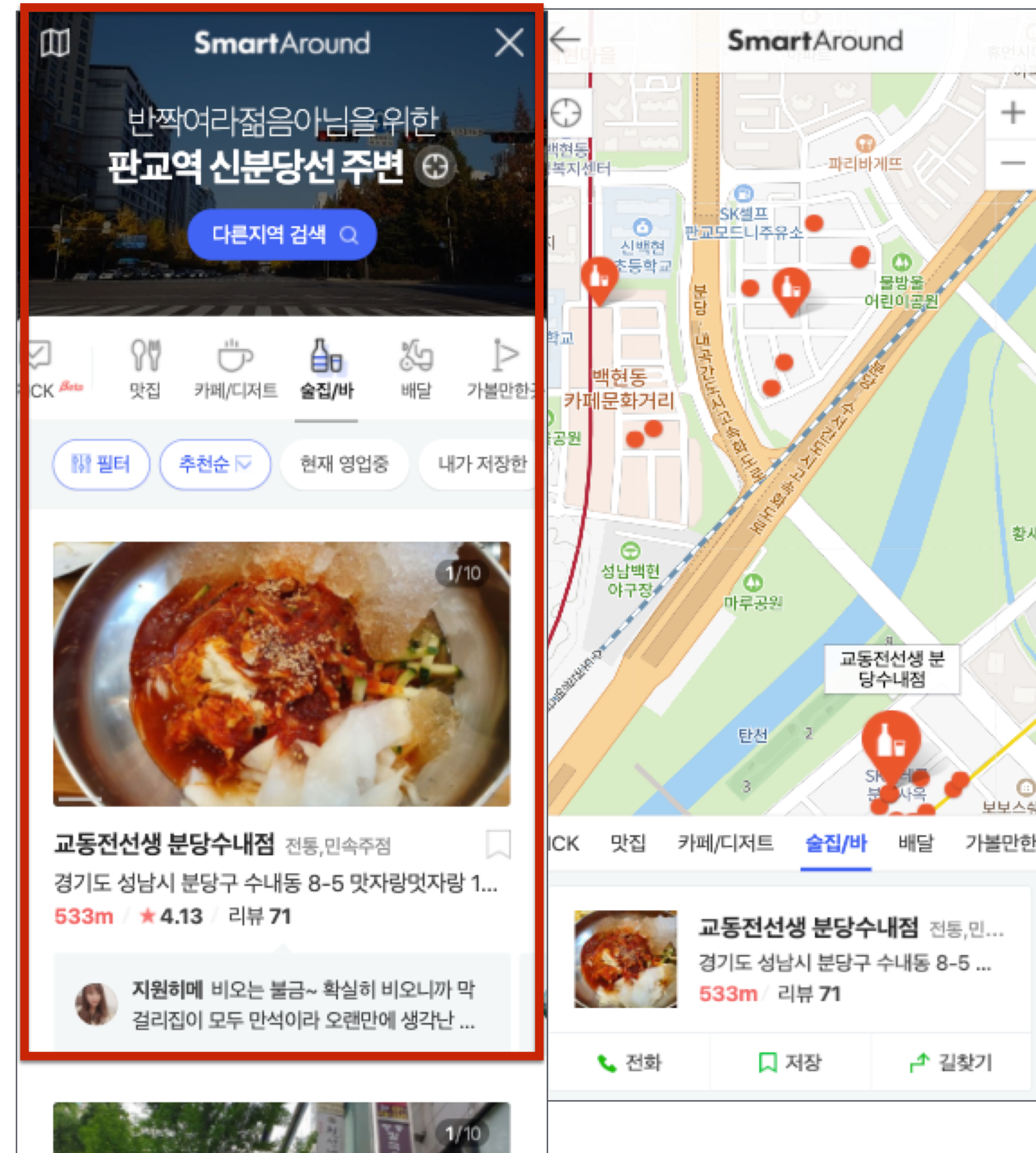
카페드로잉 카페

분위기부터 남다른 브런치카페

421m / ★ 4.02 / 리뷰 1234 / 평균 10,000원

과도한 돔 갯수

Viewport



Vue 전환 후 DOM

```
<!DOCTYPE html>
<html lang="ko">
  <!-- Template 데이터 포맷 가이드: https://oss.navercorp.com/sau-tools/sau-html-template/wiki -->
  <head>...</head>
  <body class="_base"> == $0
    <!--@code lang="html" title="메인 화면 마크업 가이드" hl="auto"-->
    <!-- [AU]
      해당 가이드는 body에 대한 가이드이지만 공유하는 GUIDE 페이지는 아래부터 노출되기 때문에 여기에 기입.
      - body 에 _base, opacity_zero 클래스 추가
    -->
    <!-- 접근성을 위한 html -->
    <div id="u_skip" class="u_skip">...</div>
    <div class="wrap_main">...</div>
    <!--code@-->
    <!--@code lang="html" title="지도 화면 마크업 가이드" hl="auto"-->
    <!-- [AU] _map_layer 클래스를 추가해주세요. -->
    <!-- 지도 -->
    <!-- [D] 지도보기 버튼 클릭시
      1. body에 type_map 추가
      2. 로딩중일때 type_loading_all 추가
      3. 로딩 완료시 type_loading_all 제거 / ani_in 추가 -->
    <!-- [D] 뒤로가기 버튼 클릭시
      1. ani_out 추가
      2. 애니메이션 완료후 type_map 제거
      3. 애니메이션 미적용 기기에는 type_map 먼저 제거 -->
    <div class="map_wrap_map_layer">...</div>
    <div class="bg_bloading dimmed_layer dimmed_all"></div>
    <!-- type_loading_all white Dimmed -->
    <!--code@-->
    <!-- [D] MY 저장버튼 8px 아래 위치 top 조절 -->
    <!-- 저장 알림 -->
    <!-- [AU] _success_alert 클래스를 추가해주세요. -->
    <!-- [AU] style="display:none" 스타일을 추가해주세요. -->
    <div class="ly_my_alert" id="_success_alert" style="display: none;">...</div>
    <!-- 오류 알림 -->
    <!-- [AU] _fail_alert 클래스를 추가해주세요. -->
    <!-- [AU] style="display:none" 스타일을 추가해주세요. -->
    <div class="ly_my_alert" id="_fail_alert" style="display: none;">...</div>
    <!--@code lang="html" title="JS 템플릿 가이드" hl="auto"-->
    <!-- [AU]
      아래 템플릿은 JS 에서 클라이언트 렌더링으로 처리하는 템플릿입니다.
      각 script 태그들을 html 파일내에 추가해주시면 됩니다.
    -->
    <!-- 1. 토픽 카워드 템플릿 -->
    <template id="_smartaround_topic_tmpl">...</template>
    <!-- 2. 네트워크 에러 시 노출시킬 템플릿 - 메인 콘텐츠 -->
    <template id="_smartaround_contents_error_tmpl">...</template>
    <!-- 3. 콘텐츠가 없는 경우 - 메인 콘텐츠 -->
    <tempalte id="_smartaround_contents_empty_tmpl">...</tempalte>
    <!-- 4. 네트워크 에러 시 노출시킬 템플릿 - 지도 콘텐츠 -->
    <template id="_smartaround_error_tmpl">...</template>
    <!-- 5. 지도 상에 노출시킬 마커 템플릿 -->
    <!-- [AU] {{ ... }} 부분은 텍스트입니다. -->
    <template id="_smartaround_marker_tmpl">...</template>
    <!-- 6. 마커 겹침 시 노출시킬 리스트 아이템 템플릿 -->
    <!-- [AU] {{ ... }} 부분은 텍스트입니다. -->
    <template id="_smartaround_overlap_item_tmpl">...</template>
    <!-- 7. 현재 위치를 나타내는 마커의 템플릿 -->
```

```
<!DOCTYPE html>
<html lang="ko">
  <head>...</head>
  <body> == $0
    <div>
      <div class="time_22_to_1">
        <!-->
        <div class="main">
          <header class="header_header">...</header>
          <div class="container">...</div>
          <footer role="contentinfo" class="footer">...</footer>
        </div>
        <!-->
      </div>
      <!-->
      <script src="https://ssl.pstatic.net/sstatic/au/support/smart-around-vue/SmartAround_200908_a.js?o=s.search"></script>
      <script>...</script>
      <script> window.addEventListener('load', function () { lcs_do(); });</script>
      <script type="text/template" id="_smartaround_naverVideoTemplate">...</script>
    </body>
  </html>
```

Vue 전환 후 DOM

Diagnostics — More information about the performance of your application. These numbers don't directly affect the Performance score.

■ Avoid an excessive DOM size — 1,224 elements

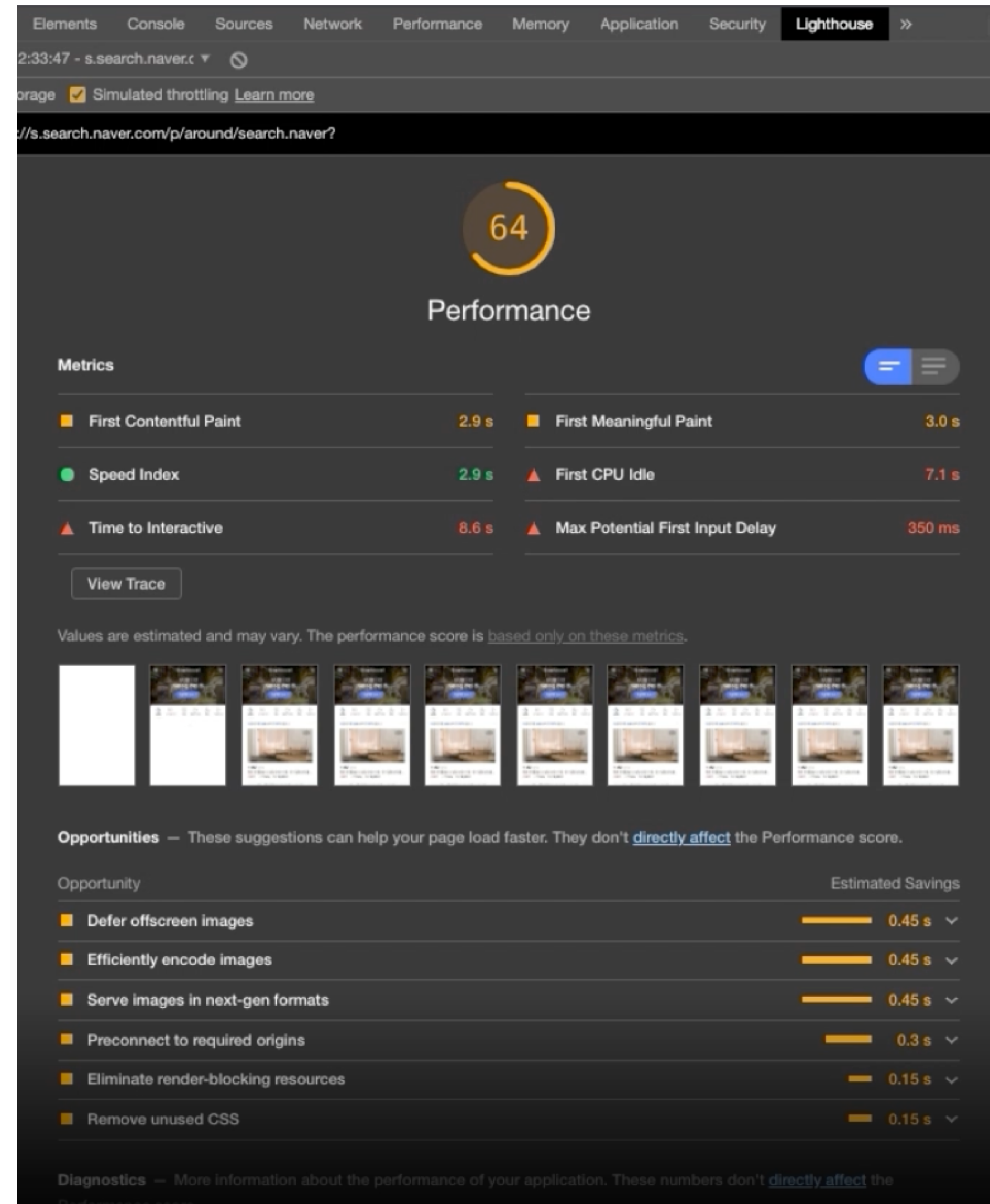
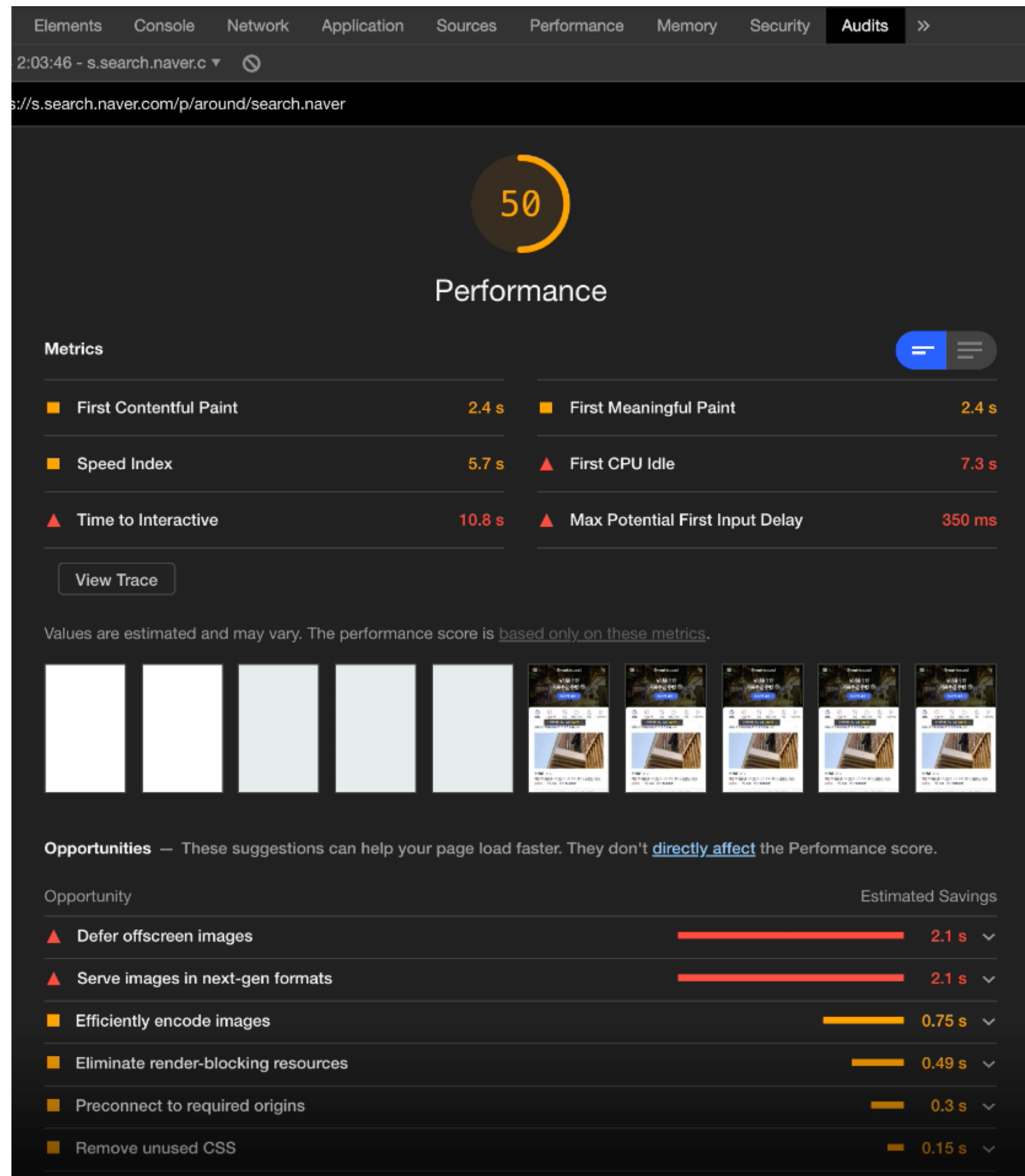


Diagnostics — More information about the performance of your application. These numbers don't directly affect the Performance score.

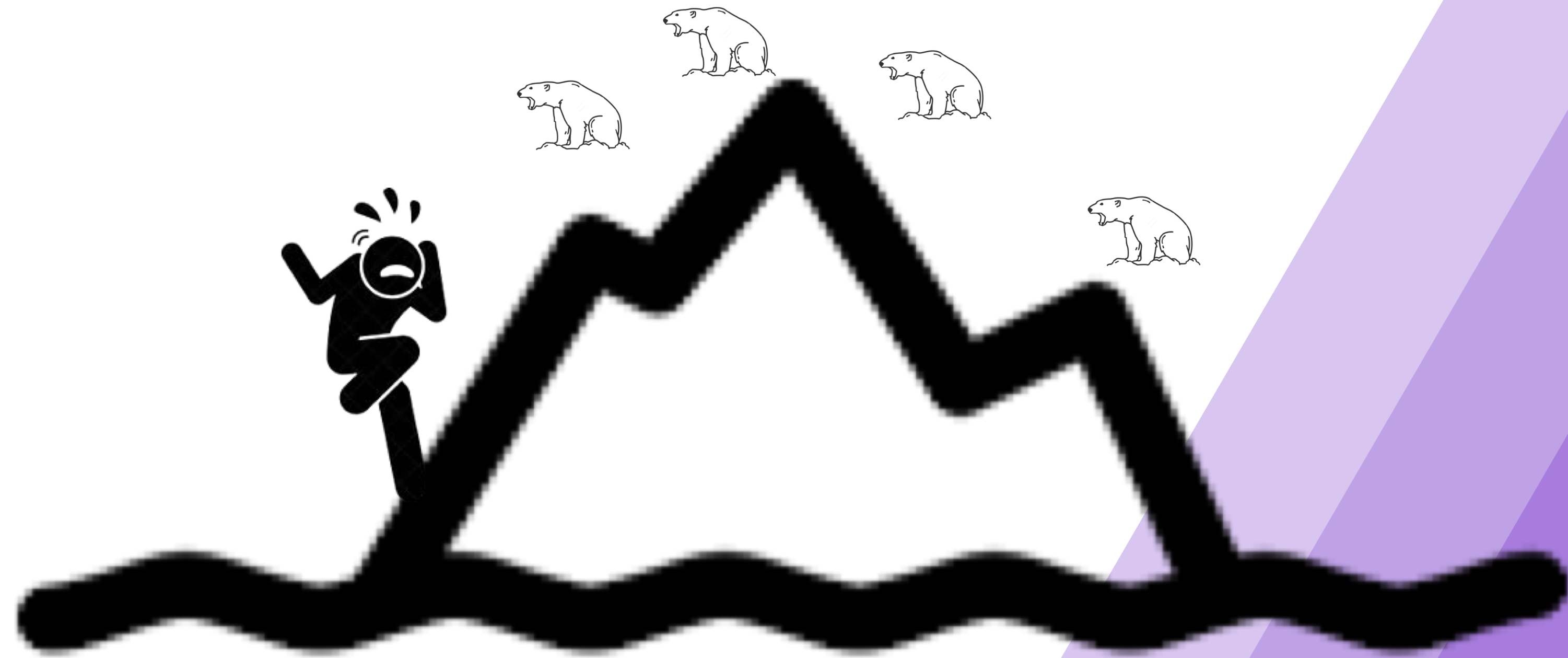
■ Avoid an excessive DOM size — 889 elements



Vue 전환 후 재측정



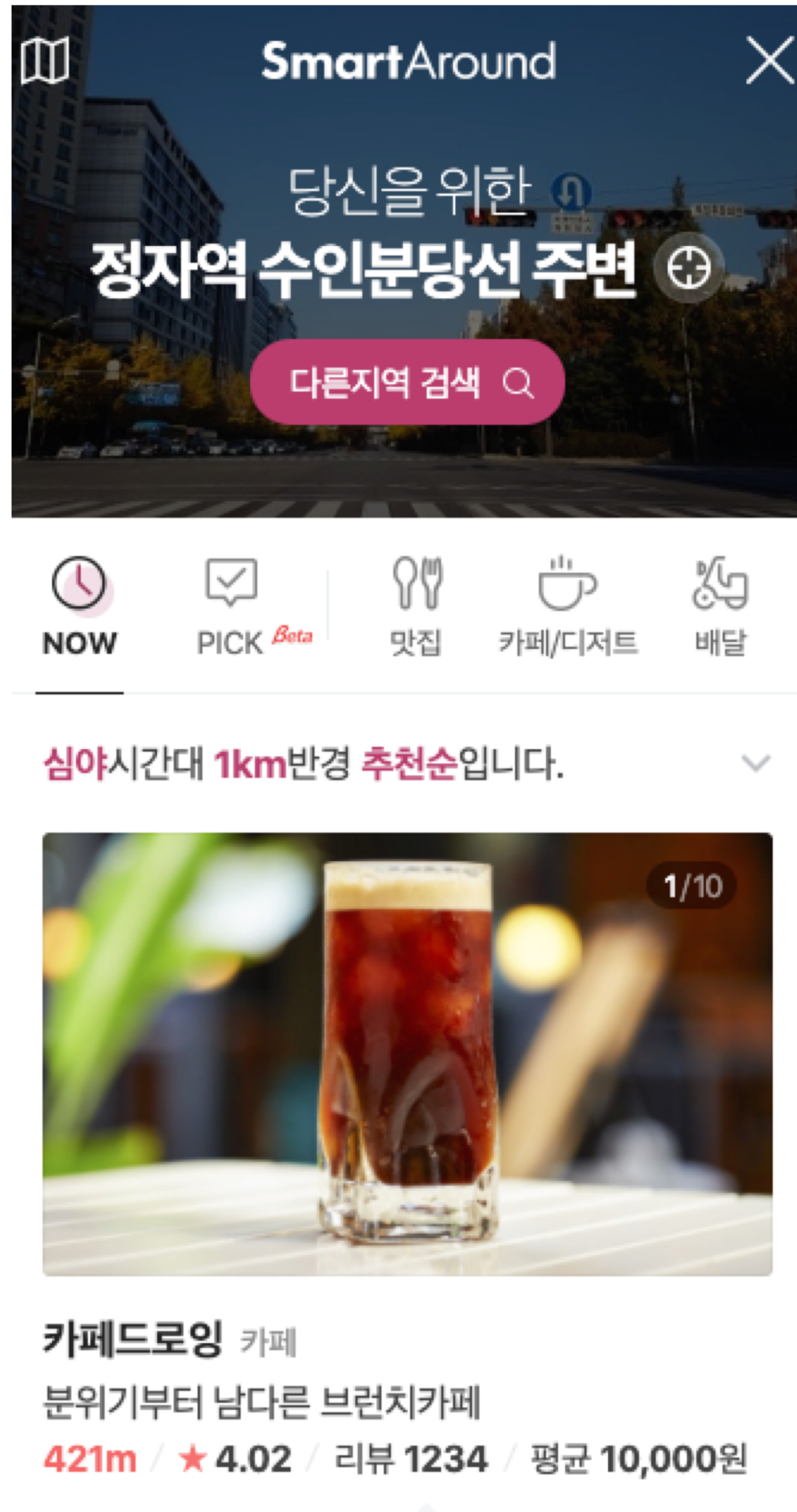




플랫폼 적용

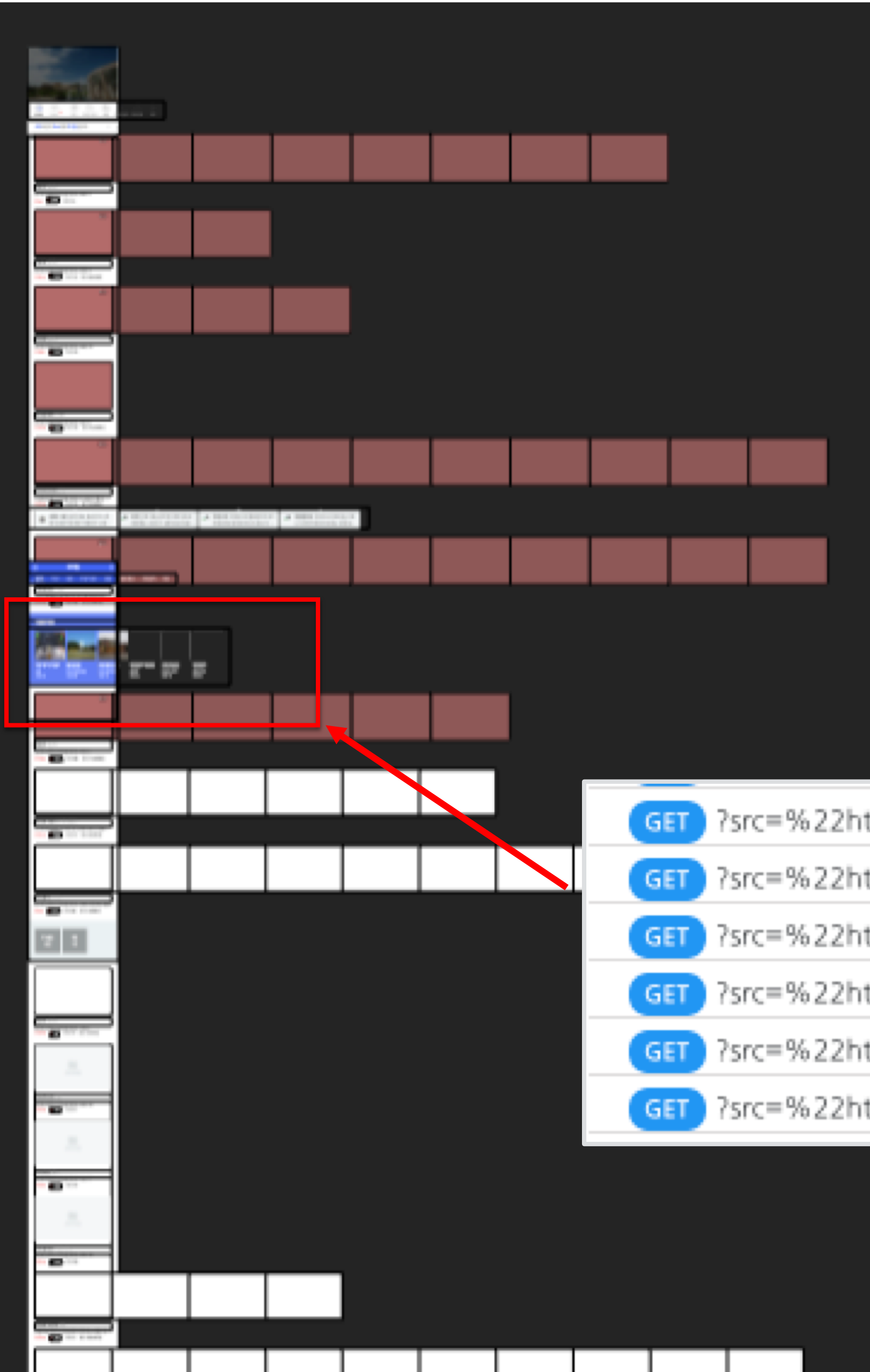
이슈 파악

N DEVIEW
2020



1. 마크업, 고화질 이미지 多

Method	URL	Status	Size	Time
GET	search.naver?	200	1.4 KB	349ms
GET	SmartAround_200630.js?o=s.search	200	170.5 KB	82ms
GET	lcslog_v0.8.3.js	200	6.9 KB	60ms
GET	nclk_v0.4.7.js	200	4.6 KB	50ms
GET	sp_smartaround_200616d.css	200	17.3 KB	34ms
GET	my_lct.s.css	200	1.6 KB	665ms
GET	nclk_v0.4.7.js	200	4.6 KB	44ms
GET	sp_smartaround_200616d.cs	200	17.3 KB	32ms
GET	tutorial2_v2.png	200	45.1 KB	20ms
GET	tutorial1_v2.png	200	65.2 KB	20ms
GET	?src=%22http%3A%2F%2F	200	75.7 KB	18ms
GET	?src=%22http%3A%2F%2F	200	1.8 KB	38ms
GET	?src=%22http%3A%2F%2F	200	50.0 KB	46ms
GET	?src=%22http%3A%2F%2F	200	20.9 KB	58ms
GET	?src=%22http%3A%2F%2F	200	1.9 KB	54ms
GET	?src=%22http%3A%2F%2F	200	46.4 KB	58ms



GET	?src=%22http%3A%2F%2F	200	75.7 KB						18ms
GET	?src=%22http%3A%2F%2F	200	1.8 KB						38ms
GET	?src=%22http%3A%2F%2F	200	50.0 KB						46ms
GET	?src=%22http%3A%2F%2F	200	20.9 KB						58ms
GET	?src=%22http%3A%2F%2F	200	1.9 KB						54ms
GET	?src=%22http%3A%2F%2F	200	46.4 KB						58ms

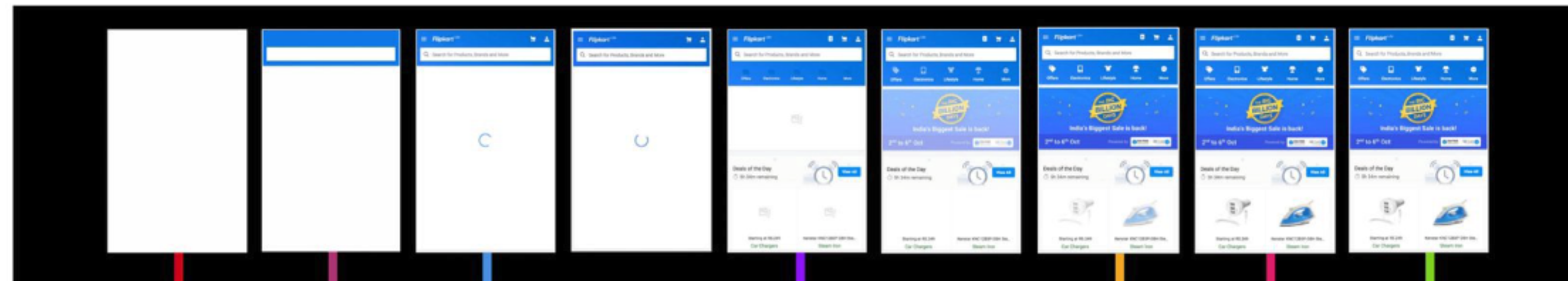
이미지 다 레이저로딩?

LOADING IS A JOURNEY

is it happening?

is it useful?

is it usable?



**Navigation
begins**

Time to first
byte

**First
Contentful
Paint**

Navigation has
successfully
started

**First
Meaningful
Paint**

Page's primary
content is visible

**Visually
ready**

Page looks
nearly done

**Fully
Loaded**

End of
load lifecycle

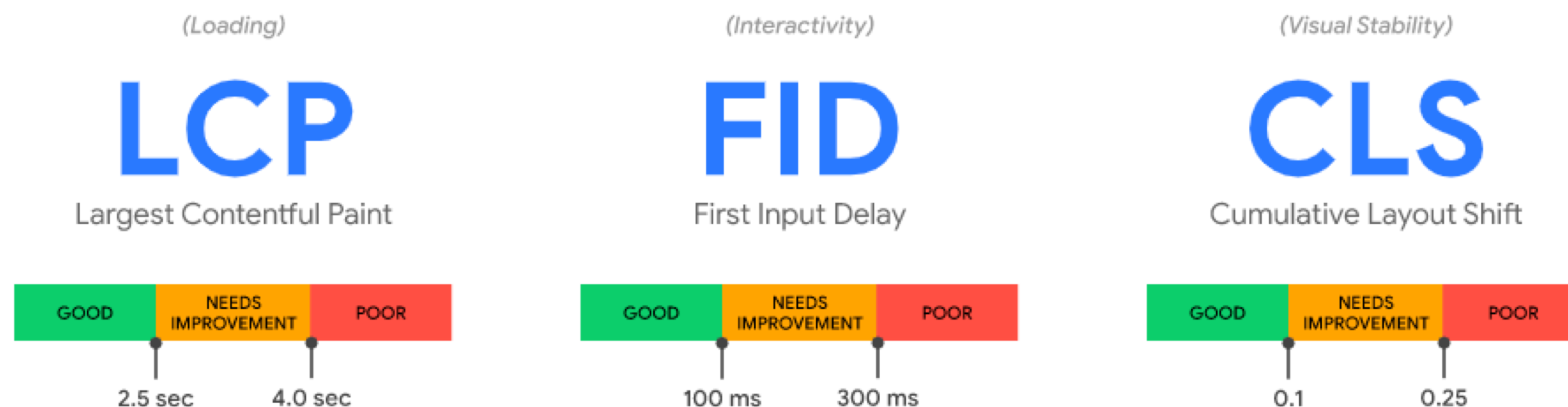
First Paint

The first non-blank
paint on screen

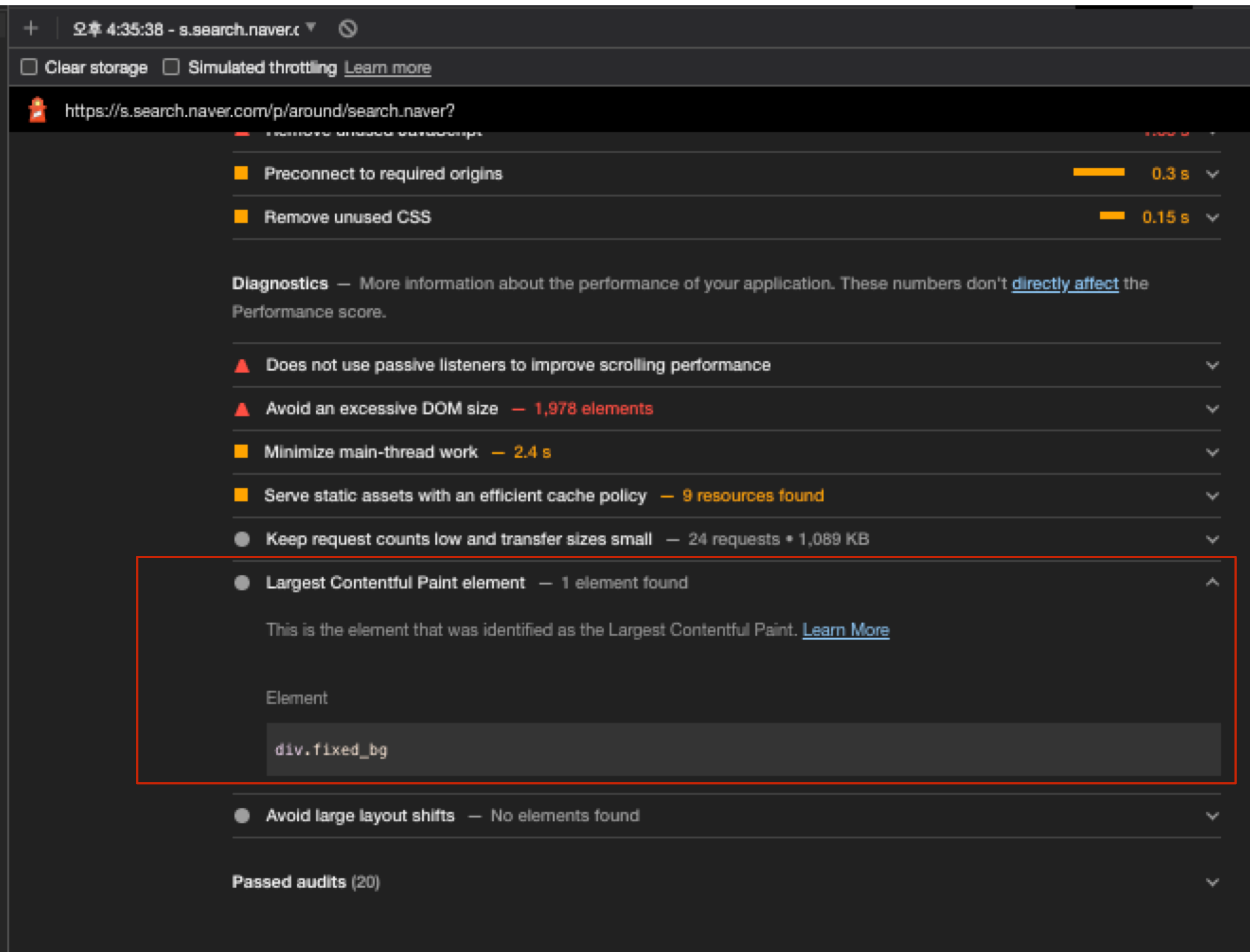
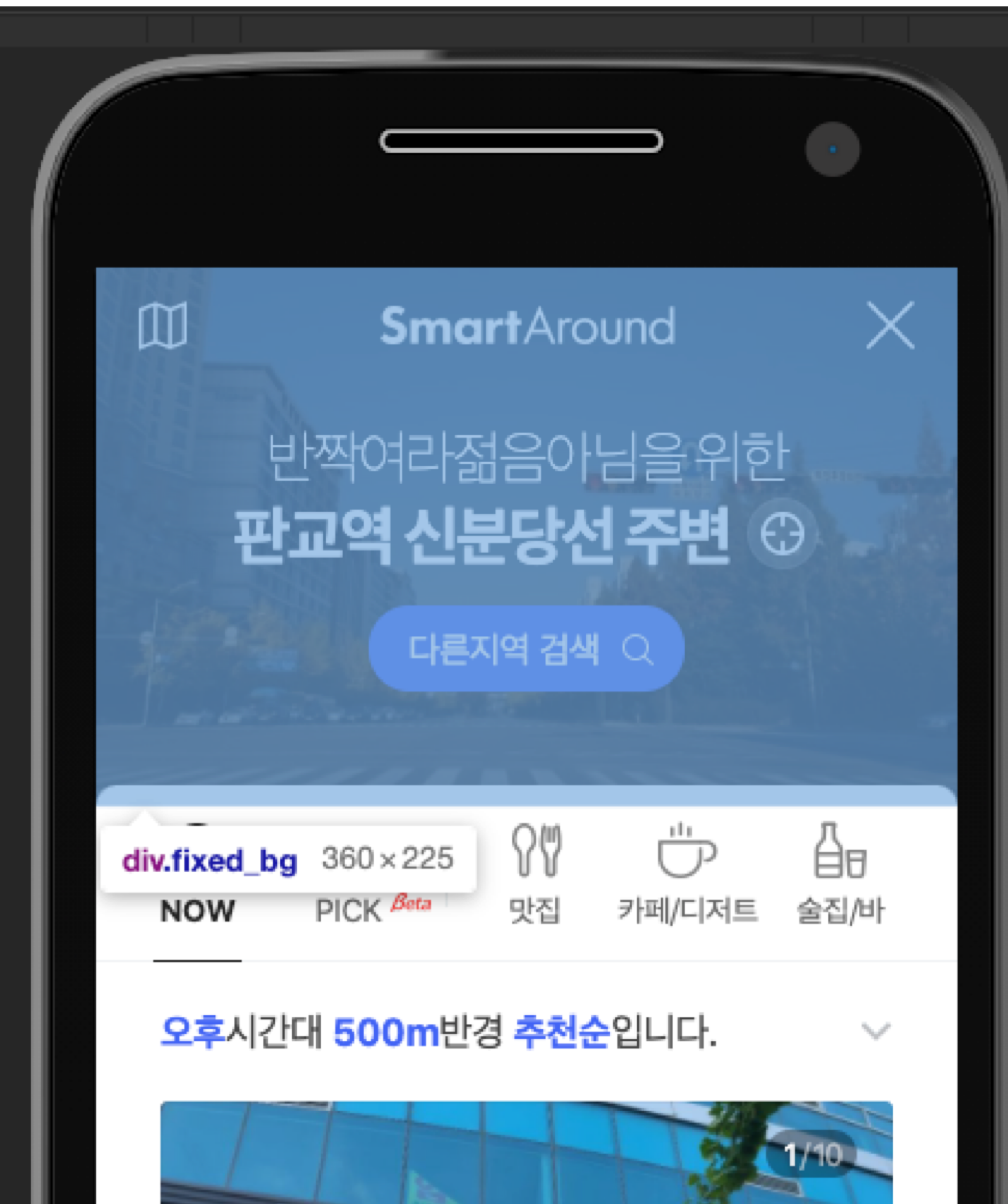
**Time to
Interactive**

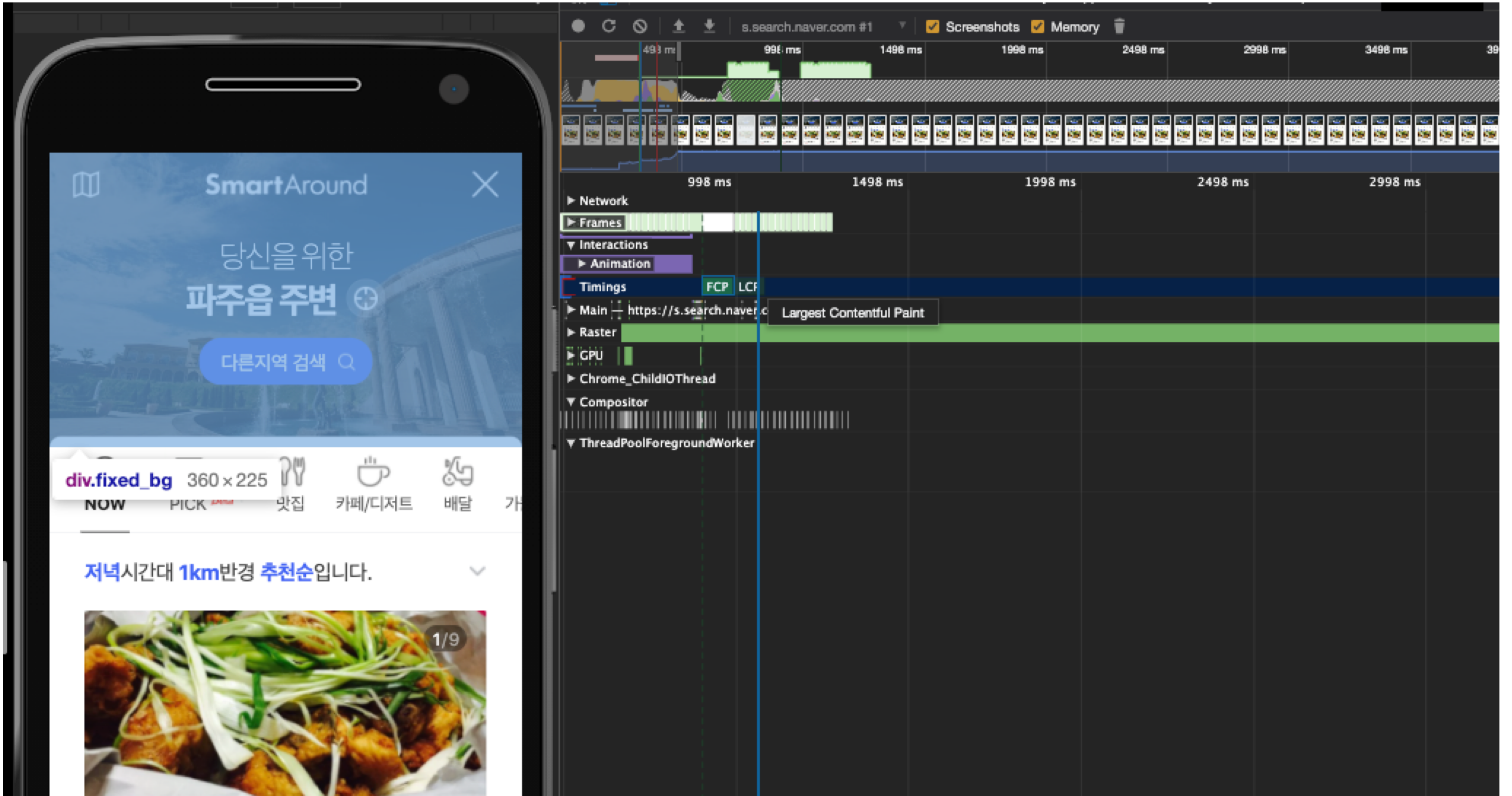
Visually usable
and engaging

First Input Delay (RUM)



- **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.







Metrics			
■ First Contentful Paint	3.1 s	▲ Time to Interactive	7.8 s
● Speed Index	3.1 s	■ Total Blocking Time	390 ms
▲ Largest Contentful Paint	4.2 s	● Cumulative Layout Shift	0

Values are estimated and may vary. The [performance score is calculated](#) directly from these metrics. [See calculator.](#)

Metrics			
■ First Contentful Paint	3.1 s	▲ Time to Interactive	8.4 s
● Speed Index	3.1 s	■ Total Blocking Time	370 ms
▲ Largest Contentful Paint	4.6 s	● Cumulative Layout Shift	0

Values are estimated and may vary. The [performance score is calculated](#) directly from these metrics. [See calculator.](#)

2. 외부 모듈 및 초기화 多

Method	URL	Status	Size	Time
GET	nclk_v0.4.7.js	200	4.6 KB	396ms
GET	sp_smartaround_200616d.css	200	17.3 KB	
GET	lcslog_v0.8.3.js	200	6.9 KB	
GET	jquery-3.3.1.min.js	200	29.5 KB	28ms
GET	tutorial1_v2.png	200	65.2 KB	20ms
GET	tutorial2_v2.png	200	43.1 KB	38ms
GET	tutorial3_v2.png	200	58.9 KB	54ms
GET	search.autopreview_190626.js	200	10.2 KB	
GET	VideoPlayer_200627.js	200	9.4 KB	1.54s
GET	reaction.min.js?20190611	200	6.2 KB	18ms
GET	bookmarks.naver?_callback=__jp1	200	42 B	38ms
GET	src=webplayer_4.18.38.mo.f75ad0e7.min.js	200	354.3 KB	46ms
GET	?src=%22http%3A%2F%2Fblogpfthumb.phinf.naver.net%2FMjAxOTA7%	200	1.9 KB	58ms
GET	likeit_multi.css	200	490 B	20ms
GET	likeit_smartaround.css	200	486 B	20ms
GET	reaction.basic.js	200	8.5 KB	40ms
GET	webplayer_4.18.38.mo.f75ad0e7.min.js	200	354.3 KB	2.42s
GET	webplayer_4.18.38.mo.f75ad0e7.min.js	200	354.3 KB	2.96s

2. 외부 모듈 및 초기화 多



민리사 / 2020.10.11

[분당 카페 / 율동공원 카페] "커피해피" ...
와플 자르는 소리는 언제 들어도 좋네요 (ㅎ'ㅎ)
두께 실화인가요?! 엄청 두꺼워요! 오른쪽은 예...

커피해피 > 카페

4.2km



10월 13일 화요일
오늘의 PICK!

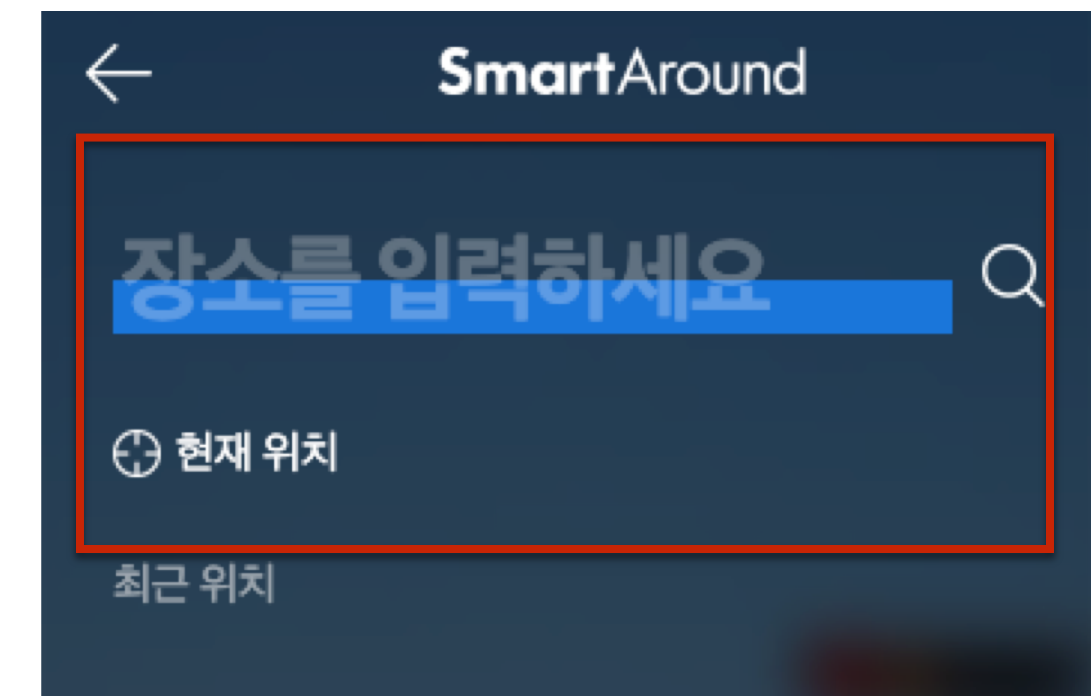
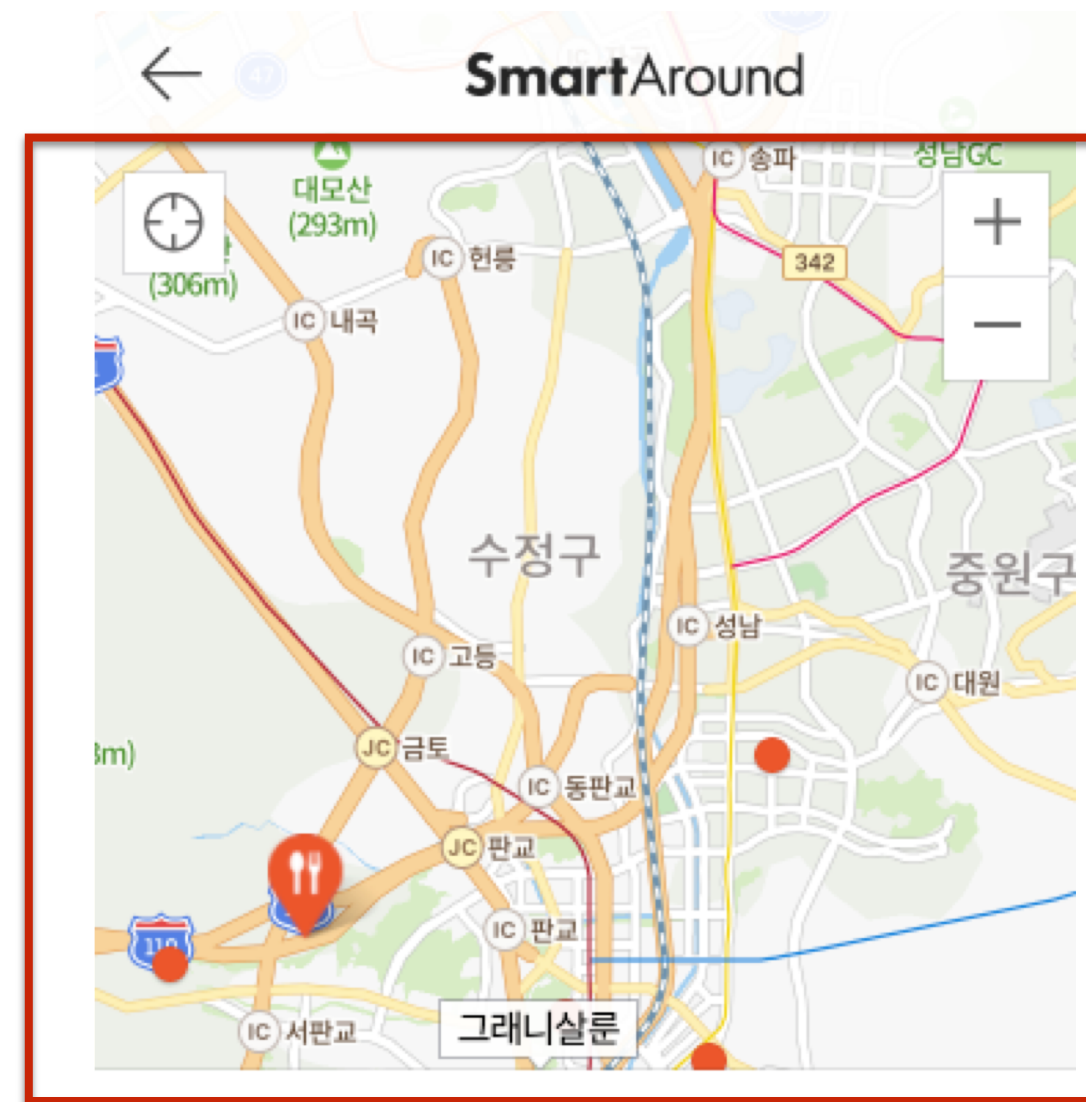
DataLab. ⓘ



화로양 양갈비 예약
3.8km / ★ 4.76 / 리뷰 466 / 평균 25,000원

68%
추천지수

양갈비에 관심 있어 보임

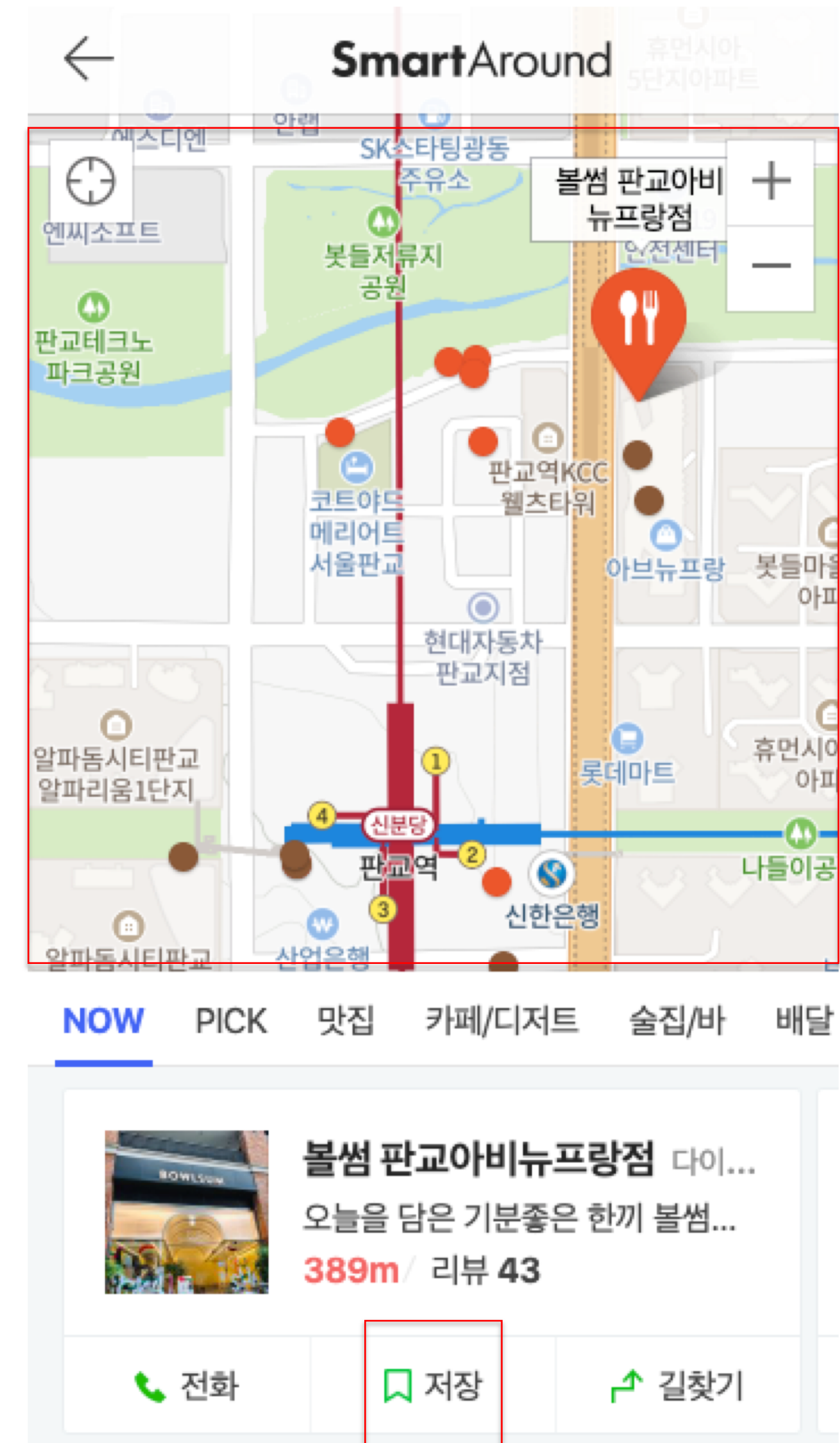


GET	likeit_multi.css	200	490 B
GET	likeit_smartaround.css	200	486 B
GET	reaction.basic.js	200	8.5 KB
GET	webplayer_4.18.38.mo.f75ad0e7.min.js	200	354.3 KB

GET	search.autopreview_190626.js	200	10.2 KB
GET	VideoPlayer_200627.js	200	9.4 KB
GET	reaction.min.js?20190611	200	6.2 KB
GET	bookmarks.naver?_callback=__jp1	200	42 B

GET	nclk_v0.4.7.js	200	4.6 KB
GET	sp_smartaround_200616d.css	200	17.3 KB
GET	lcslog_v0.8.3.js	200	6.9 KB

모듈, 로드 초기화 다 미루나?



다른 로드 타이밍 조절 방법?

Resource Hints

- preload
- preconnect
- prefetch

Script 지연

- defer
- async

3. Resource Hint

Resource Hints

The definition of 'preconnect' in that specification.

Added `dns-prefetch`, `preconnect`, and `prerender` values.

GET

sp_smartaround_200616d.css

200

17.3 KB

GET

SmartAround_200630.js?o=s.search

200

170.5 KB

68ms

4. Defer 로드

GET	nclk_v0.4.7.js	200	4.6 KB	
	-----	---	----	
GET	lcslog_v0.8.3.js	200	6.9 KB	

Scripts with the `defer` attribute will execute in the order in which they appear in the document.

This attribute allows the elimination of **parser-blocking JavaScript** where the browser would have to load and evaluate scripts before continuing to parse. `async` has a similar effect in this case.

북극곰 헤치우자

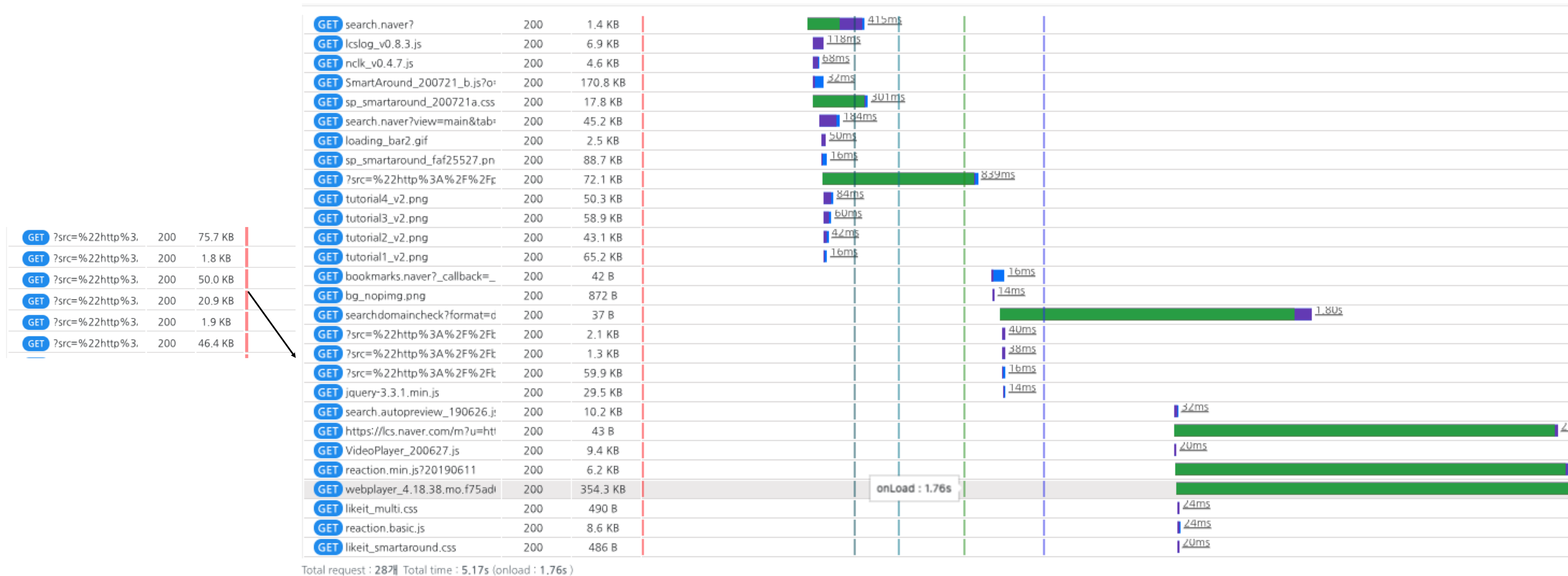
1. CSS, 이미지
2. 모듈 로드 및 초기화
3. Resource Hint
4. Script defer

1. CSS, 이미지

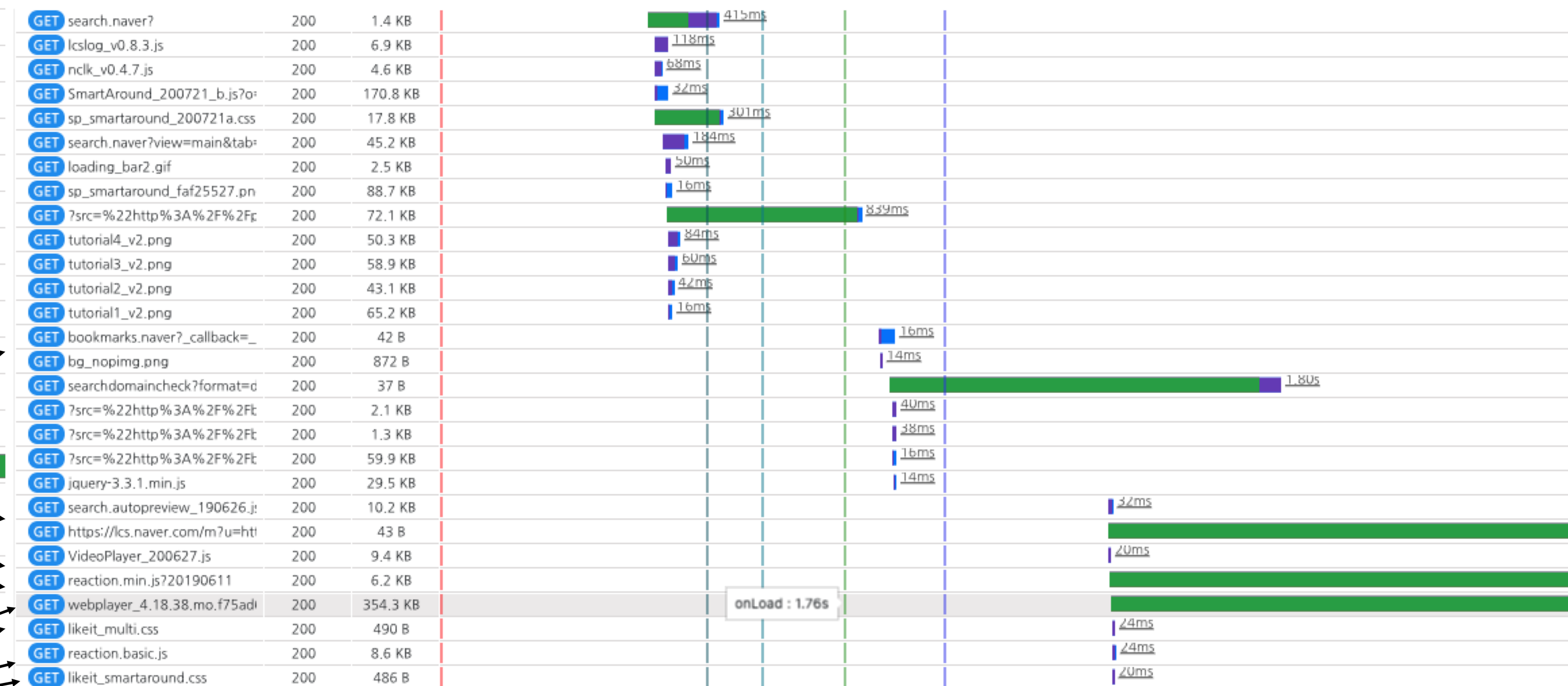
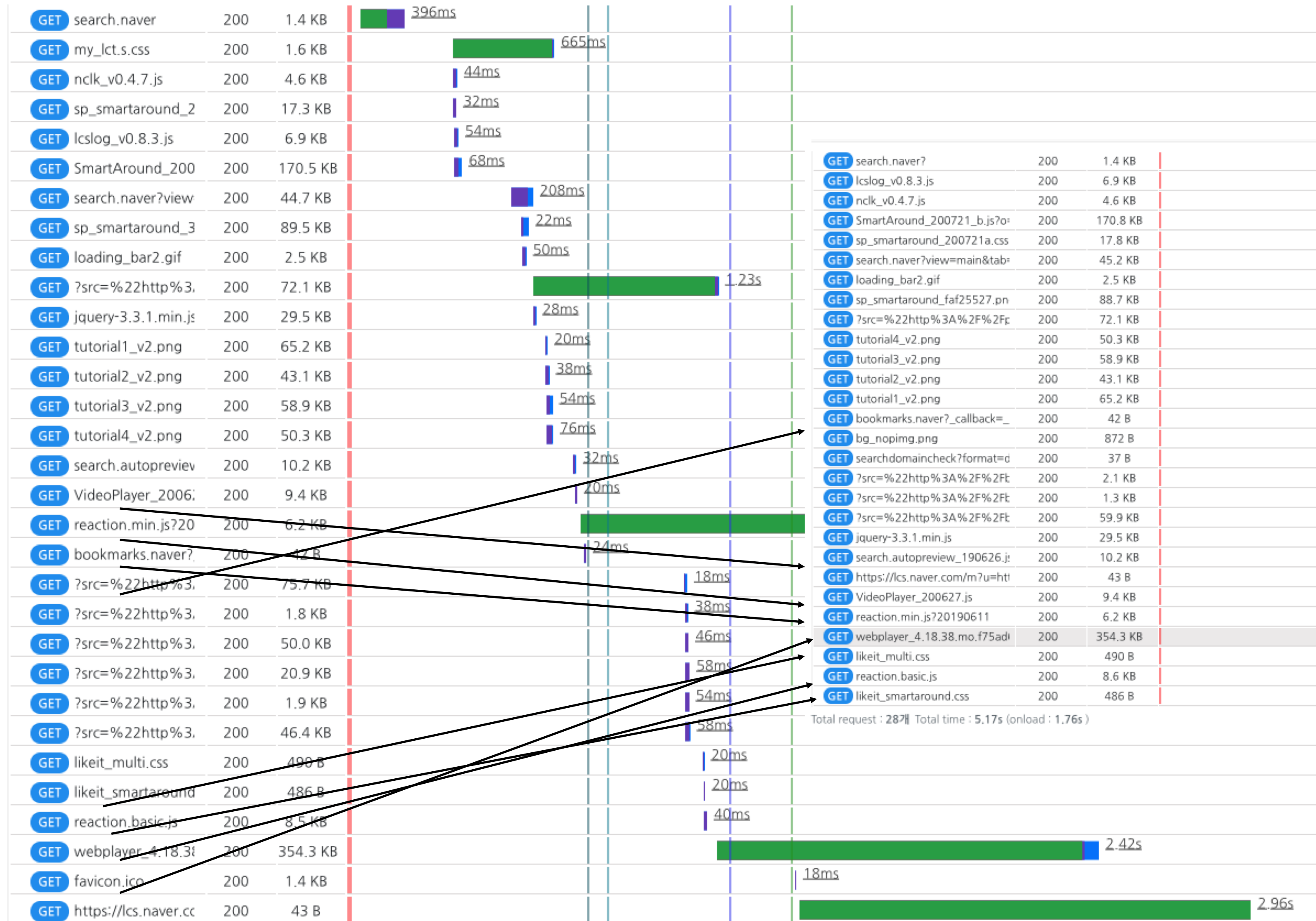
GET	my_lct.s.css	200	1.6 KB		665ms
GET	nclk_v0.4.7.js	200	4.6 KB		44ms
GET	sp_smartaround_200616d.cs	200	17.3 KB		32ms

GET	sp_smartaround_200821.css	200	17.8 KB		312ms
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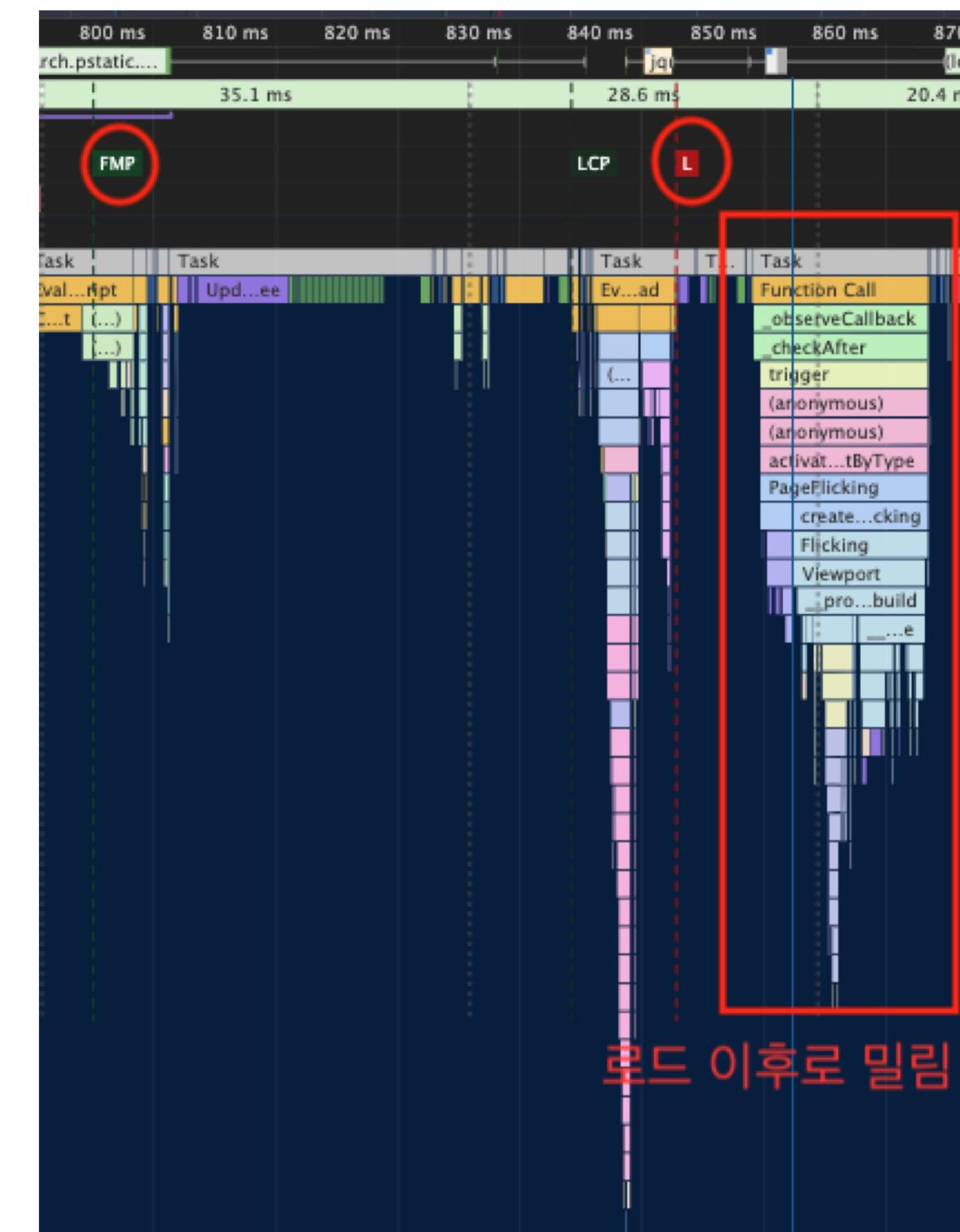
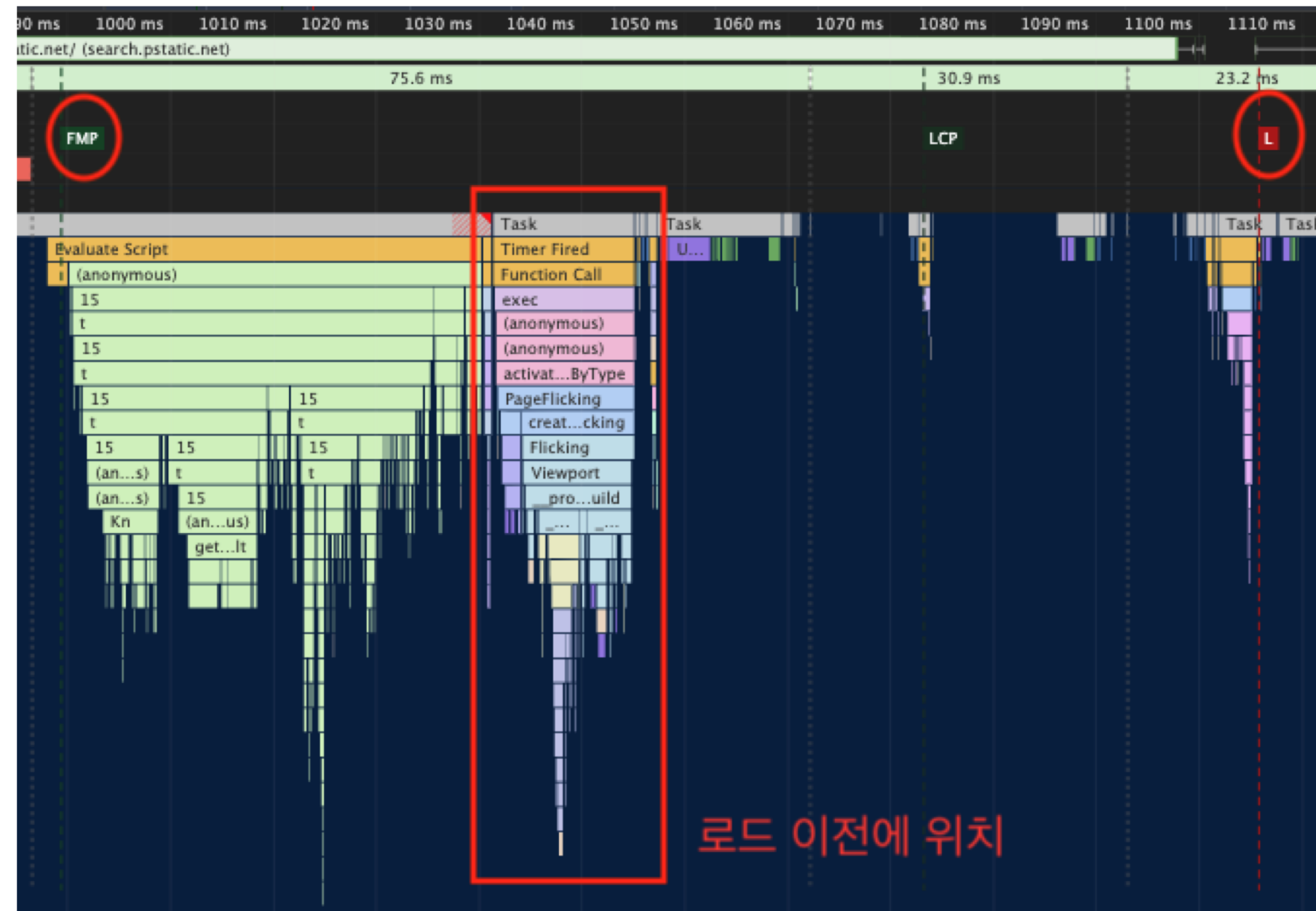
1. CSS, 이미지



2. 모듈 로드 및 초기화



2. 모듈 로드 및 초기화



3. Resource Hint

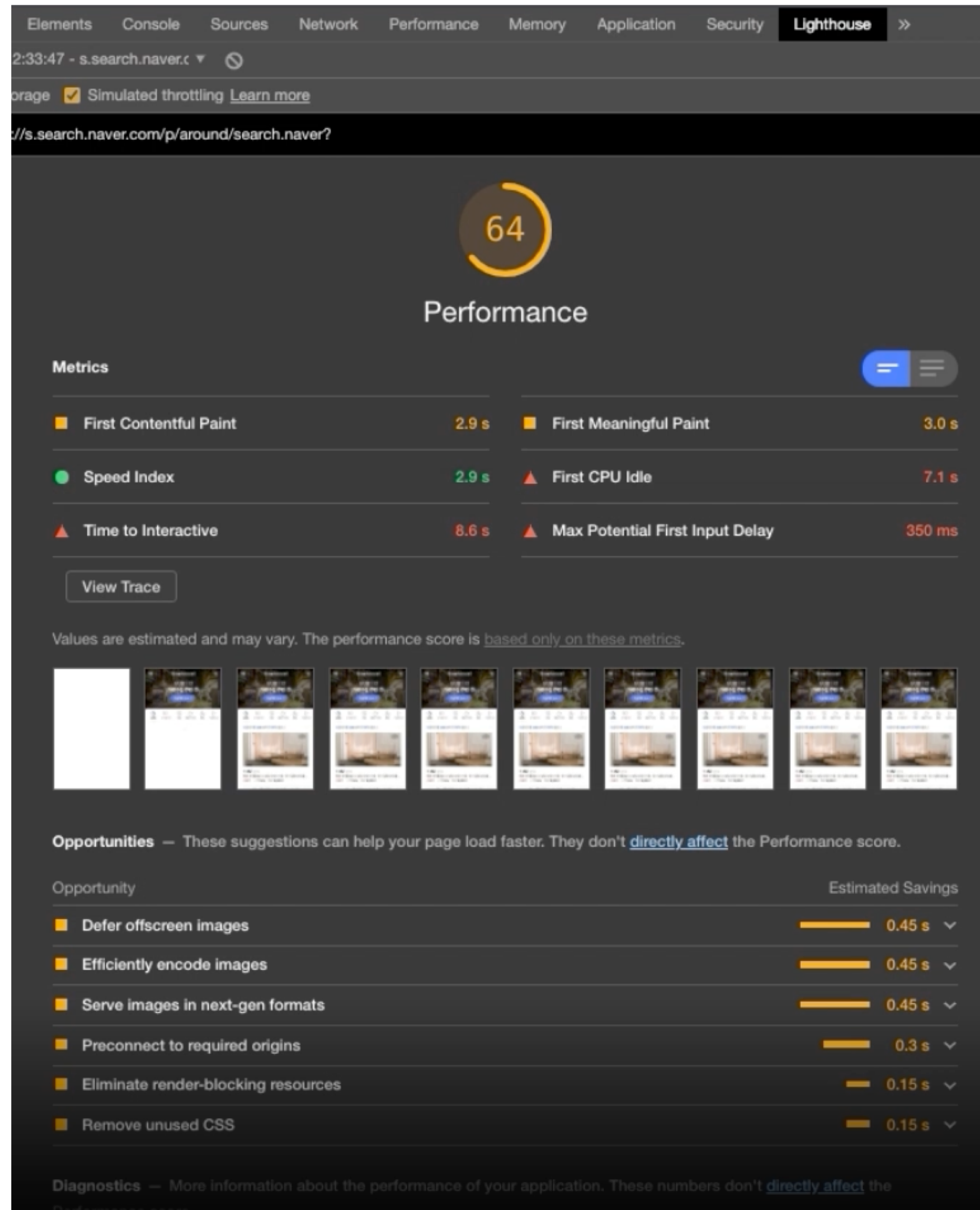
4. preload

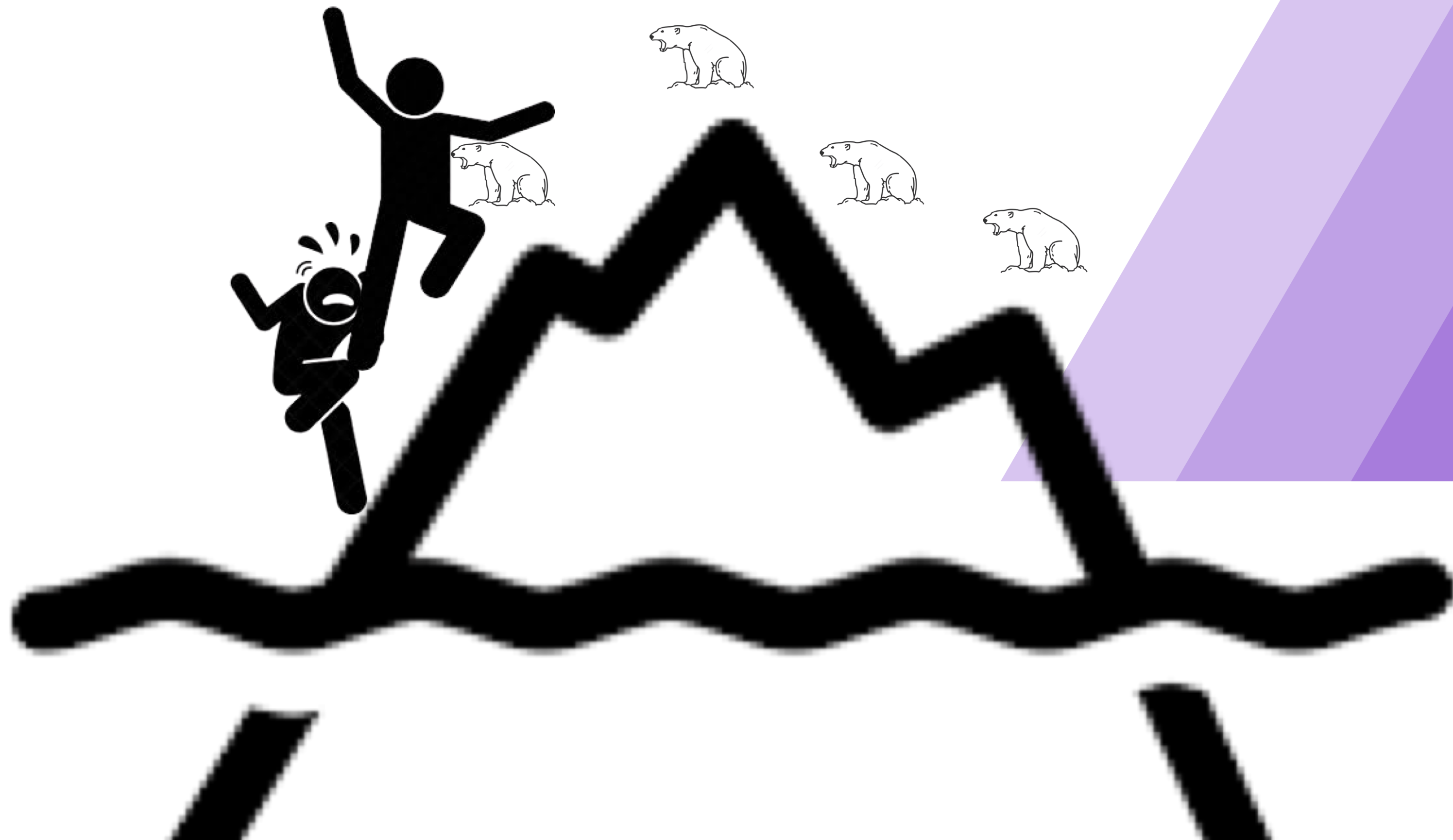
GET	search.naver	200	1.4 KB		396ms
GET	my_lct.s.css	200	1.6 KB		665ms
GET	nclk_v0.4.7.js	200	4.6 KB		44ms
GET	sp_smartaround_2	200	17.3 KB		32ms
GET	lcslog_v0.8.3.js	200	6.9 KB		54ms
GET	SmartAround_200	200	170.5 KB		68ms

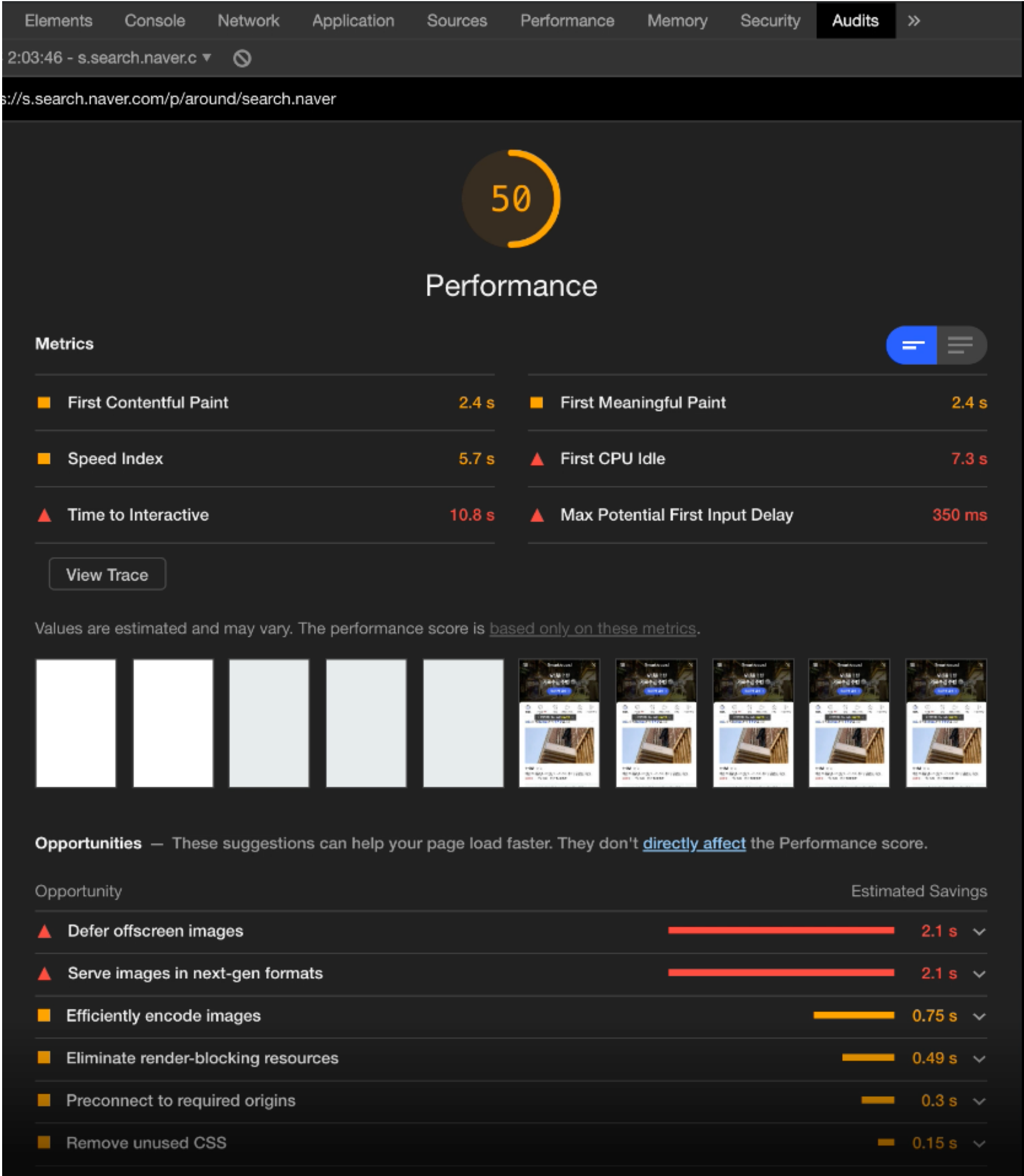
search.naver	200	document	Other	1.9 kB	1...	Hig...
SmartAround_200908_a.js?o=s.search	200	script	<u>search.naver</u>	195 kB	6...	High
sp_smartaround_200908.css	200	stylesheet	<u>search.naver</u>	18.5 kB	1...	Hig...
nclk_v0.4.8.js	200	script	<u>search.naver</u>	5.0 kB	4...	Low
lcslog_v0.4.8.js	200	script	<u>search.naver</u>	7.3 kB	4...	Low

개선 후

N DEVIEW
2020

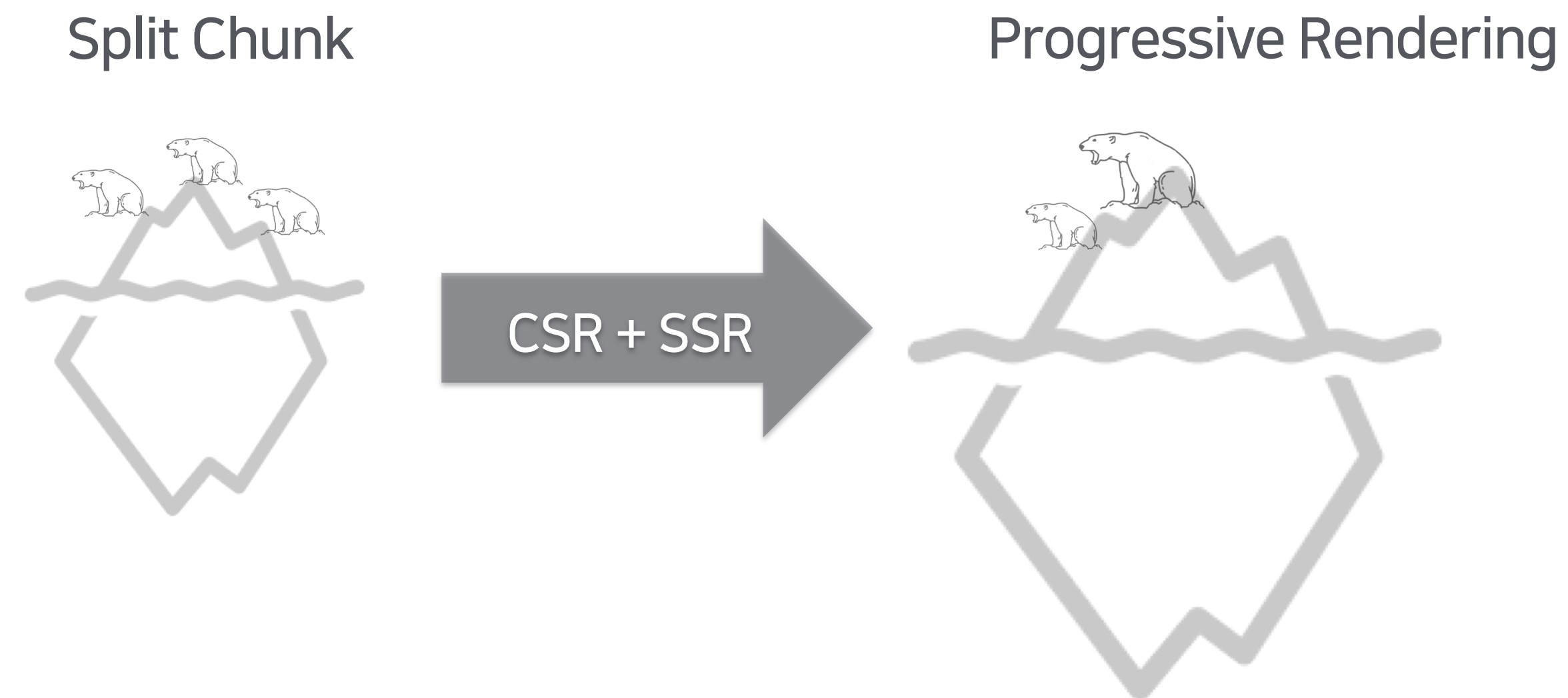






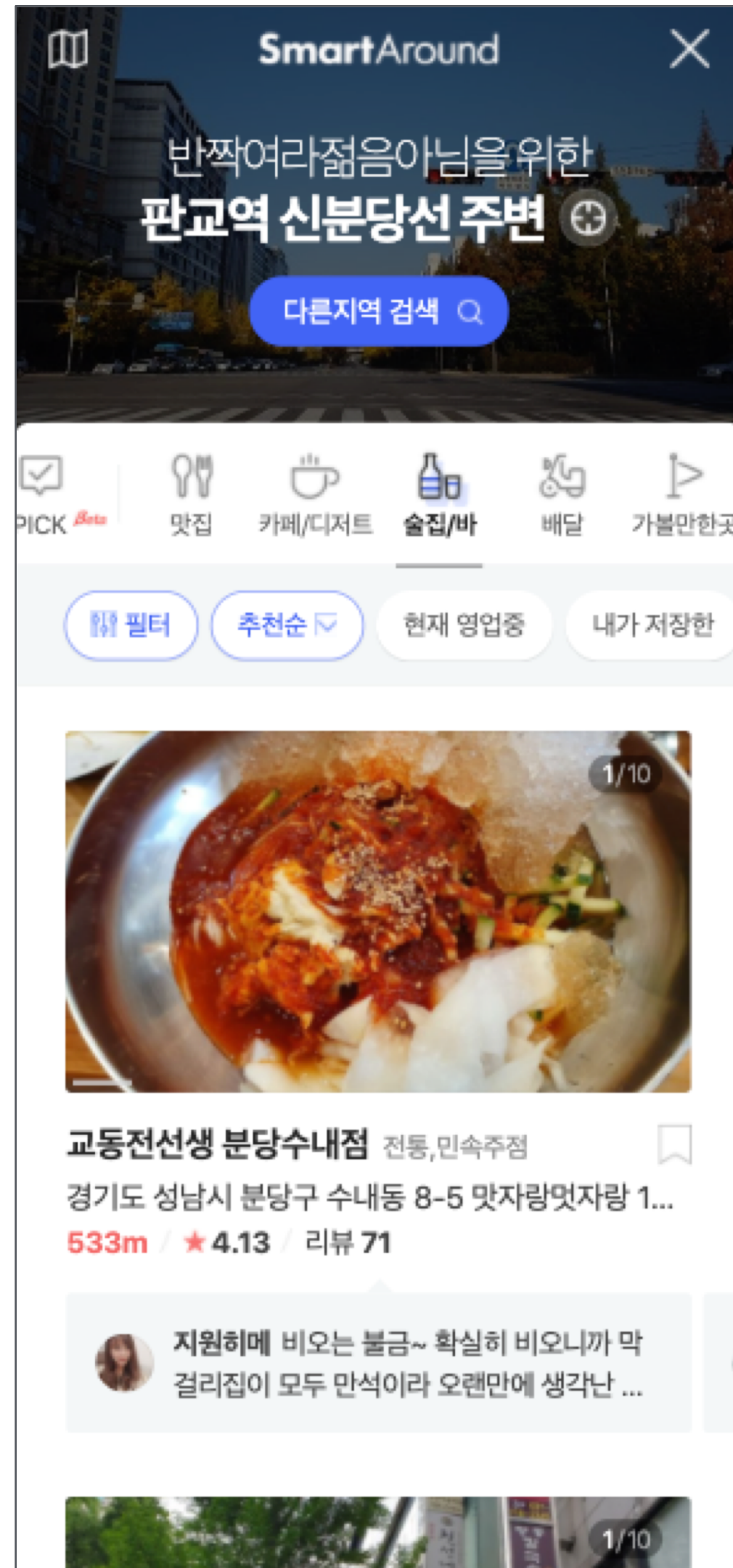
to be continued...

- Split chunk
- Progressive Rendering

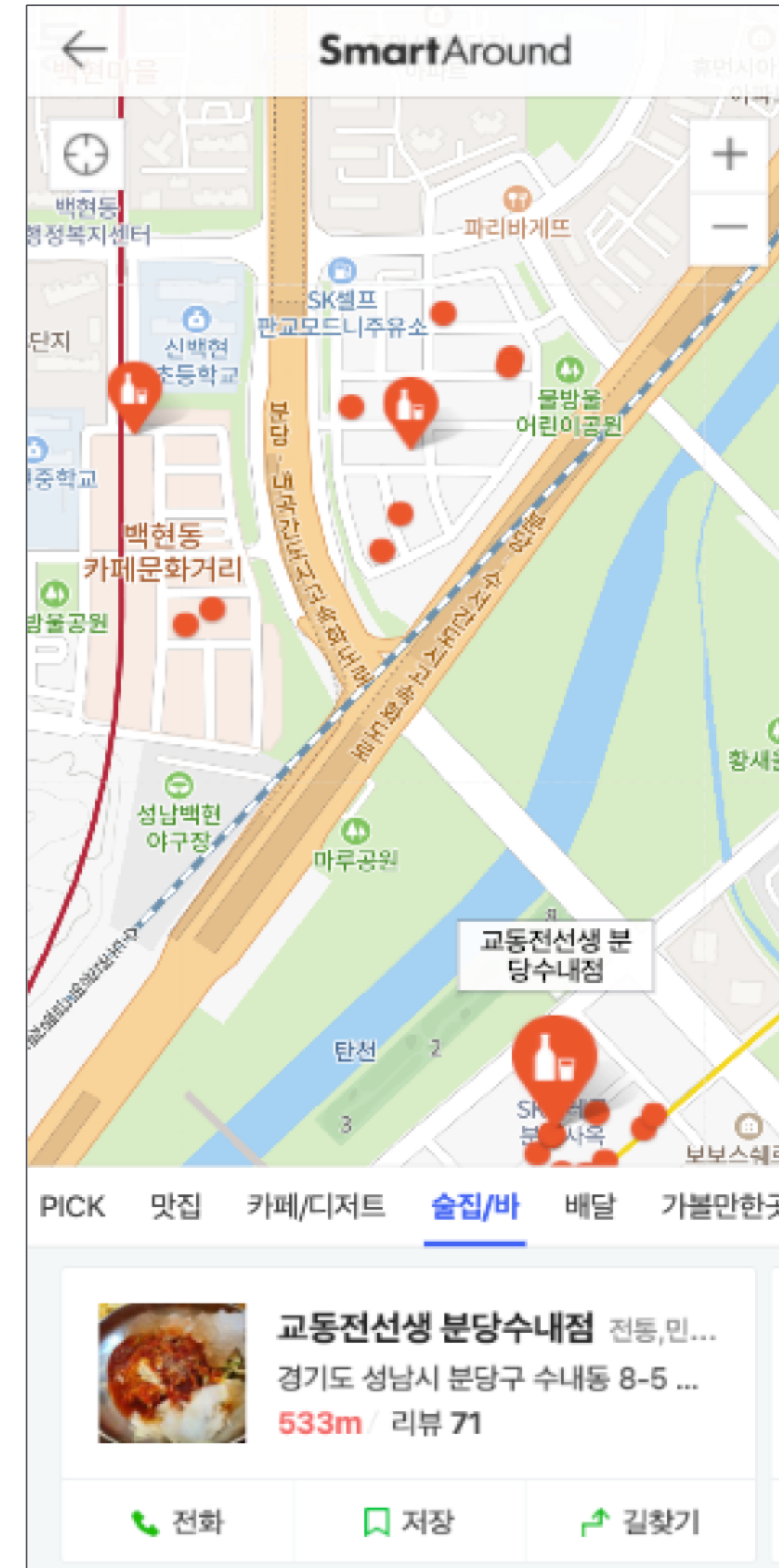


Split Chunk

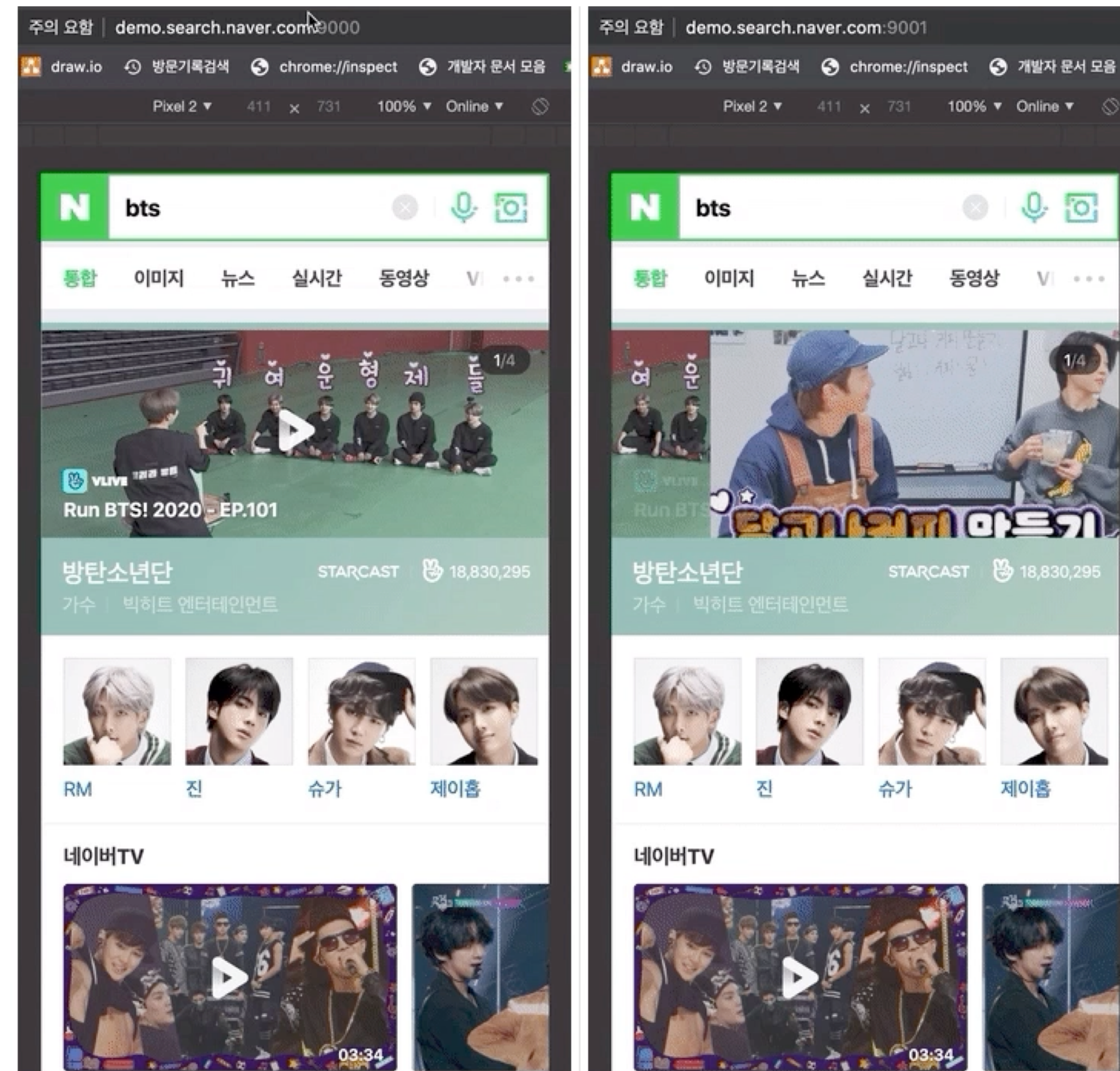
리스트형 뷰



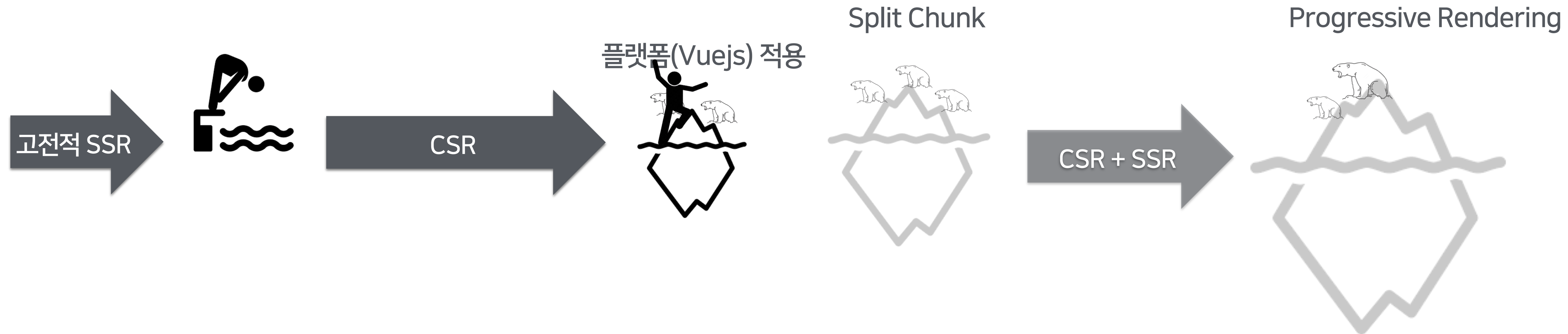
지도형 뷰

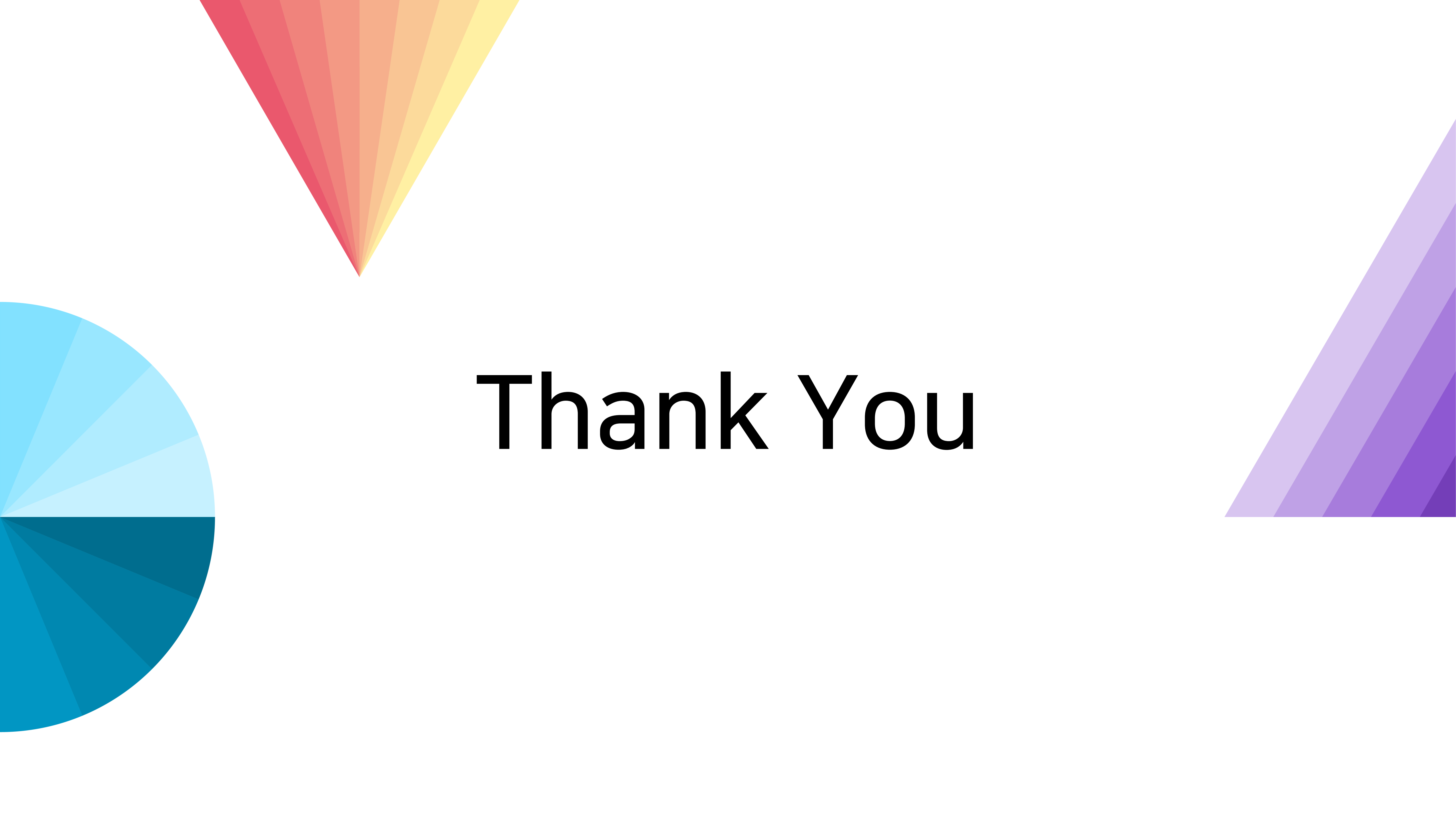


Progressive Rendering



to be continued...





Thank You



Q & A