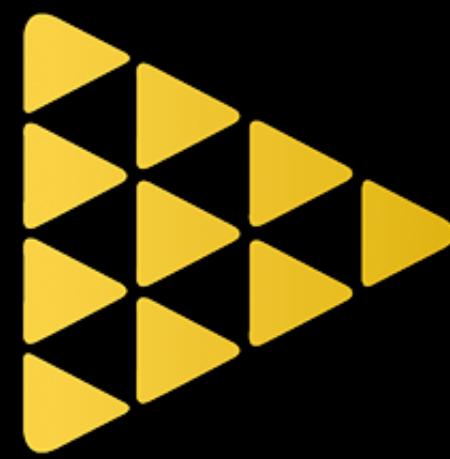


We can't use Angular

---

It will hurt our SEO



@



**GDG DevFest**  
**2015 Season**

# Prologue

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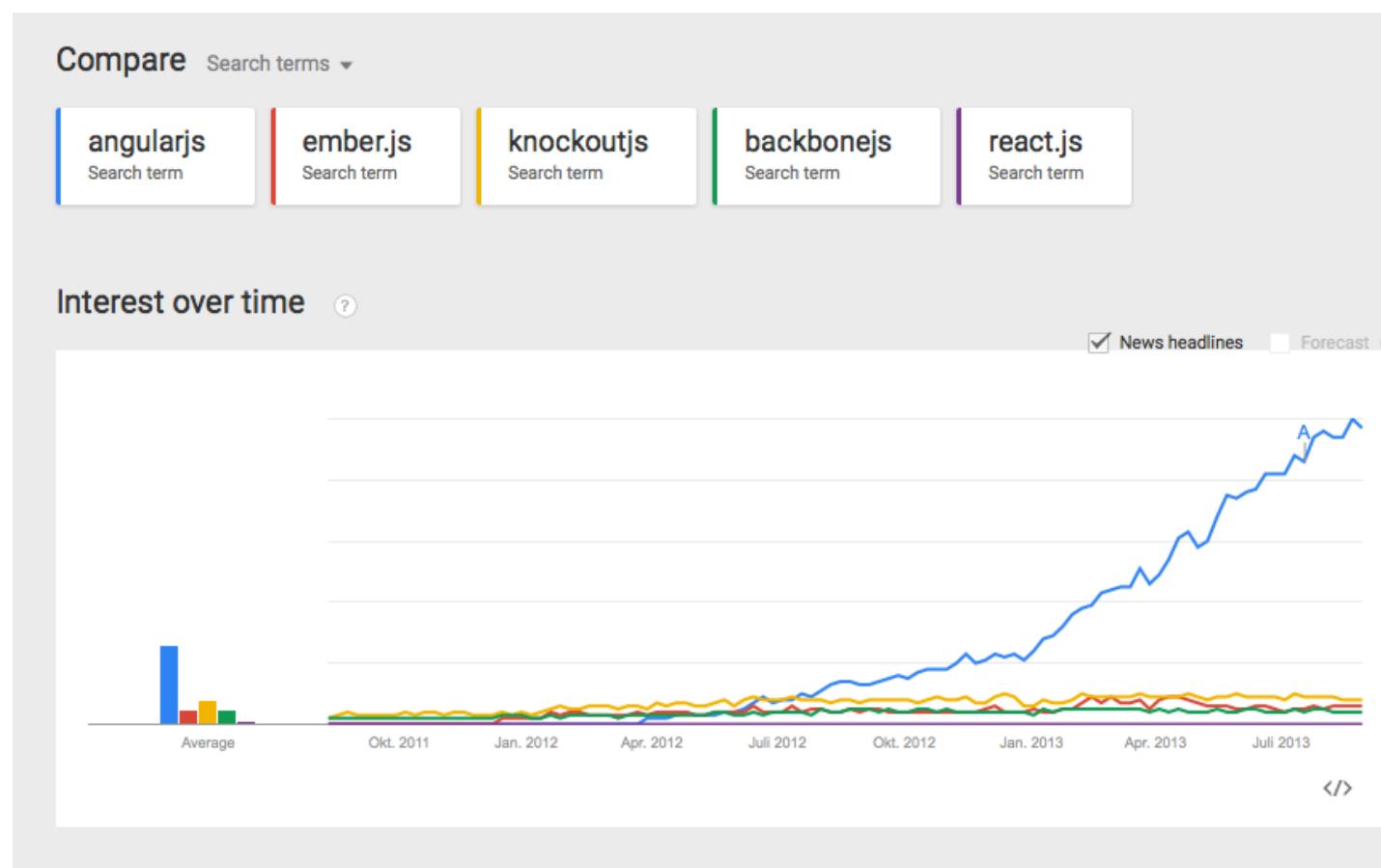
Thread 1

Crawling in the Dark

In 2009, Google created a framework called  
AngularJS...



# It would be quickly adopted worldwide with traction unlike any other framework before



But Google had one serious problem  
with it...

# They could not crawl it.



Google search results for "AngularJS Seo Tutorial". The search bar shows the query. Below it, a navigation bar includes "Web" (highlighted in red), "Videos", "News", "Images", "Shopping", "More", and "Search tools". A message indicates "About 23,600 results (0.37 seconds)". The first result is a link to the AngularJS documentation, titled "Developer Guide - AngularJS Documentation for index". The link URL is "docs.angularjs.org/guide/". Below the title, there are several sub-links: "AngularJS", "25+ items - Guide to AngularJS Documentation. Everything you need to ...", and "Animation", "Core concepts", "Angular Guide to i18n and l10n", "Animation in AngularJS 1.2", and "Creating multilingual support". At the bottom of the result, there is a box containing the text "Scotch Tutorial | {{seo.pageTitle}}", the URL "www.scotch.io/angularjs-seo-tutorial", and the placeholder "{{seo.pageDescription}}".

AngularJS Seo Tutorial

Web Videos News Images Shopping More Search tools

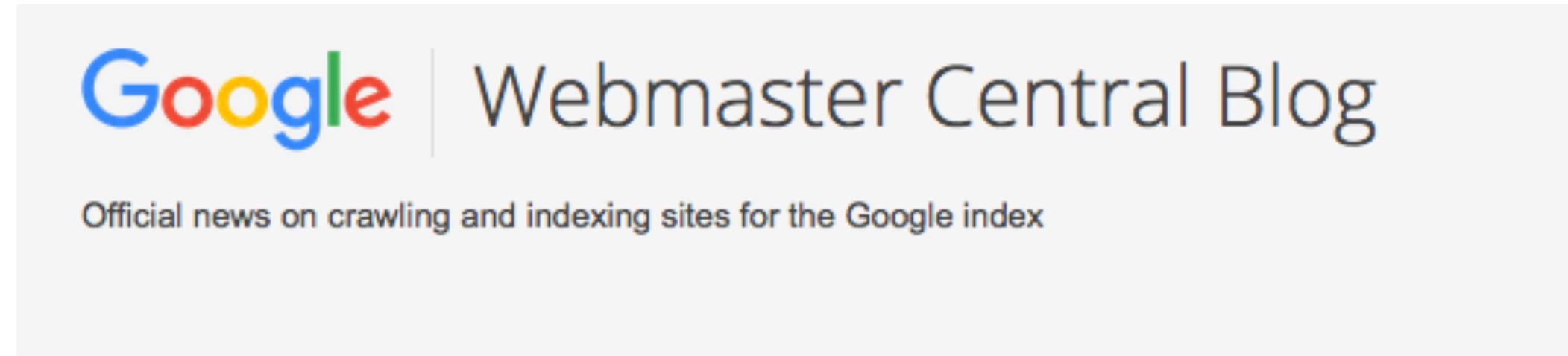
About 23,600 results (0.37 seconds)

[Developer Guide - AngularJS Documentation for index](https://docs.angularjs.org/guide/)  
docs.angularjs.org/guide/ ▾ AngularJS ▾  
25+ items - Guide to AngularJS Documentation. Everything you need to ...

Animation Core concepts Animation in AngularJS 1.2  
Angular Guide to i18n and l10n Creating multilingual support

**Scotch Tutorial | {{seo.pageTitle}}**  
www.scotch.io/angularjs-seo-tutorial  
{{seo.pageDescription}}

(so one month later:)



## A proposal for making AJAX crawlable

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Posted: Wednesday, October 07, 2009



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Webmaster level: Advanced

Still,

for a lot of people, it created additional confusion.

- Would (accidentally) different versions served be considered cloaking?
- How would you treat redirects and 404s?
- How do you know something's off with prerendering when the site is working fine?

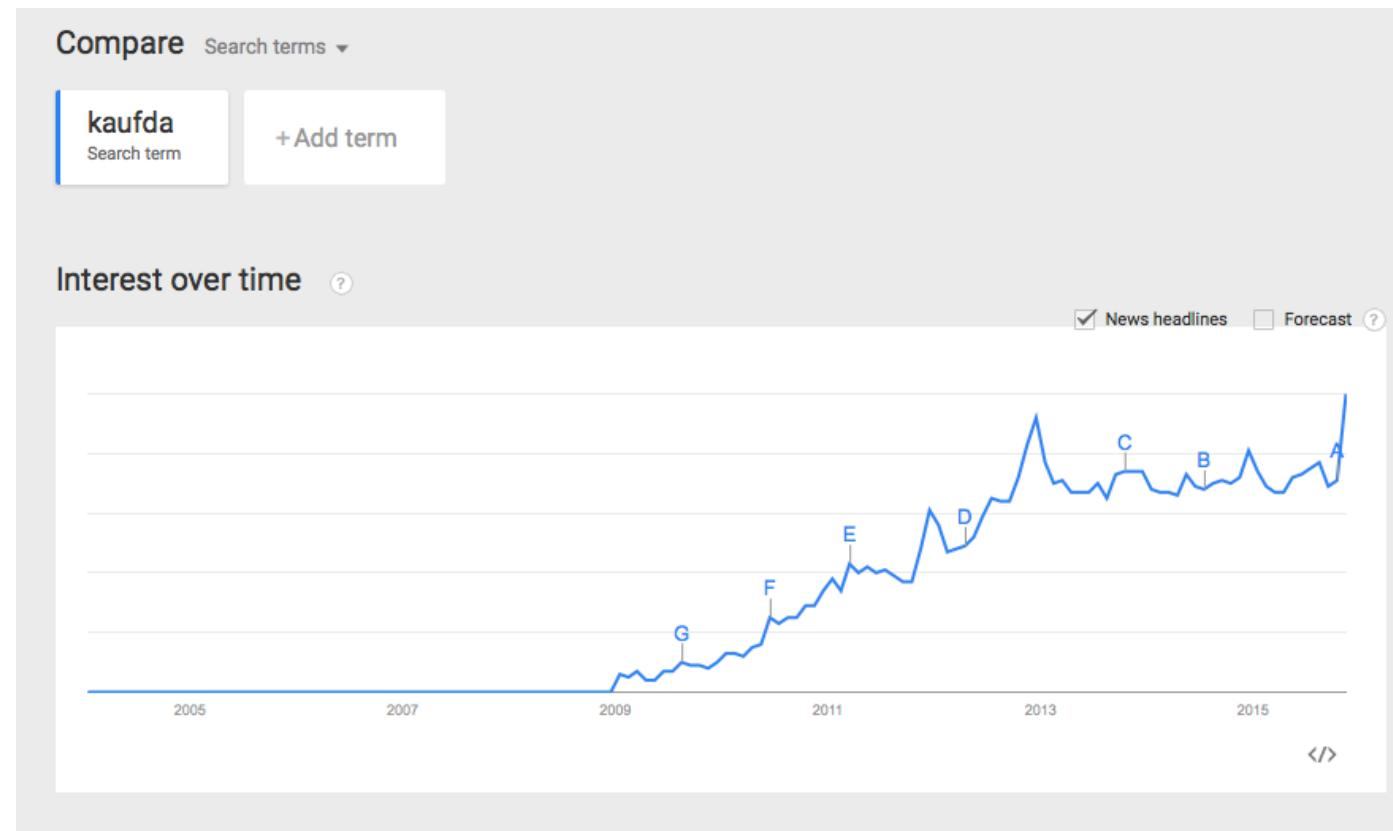
# Prologue

---

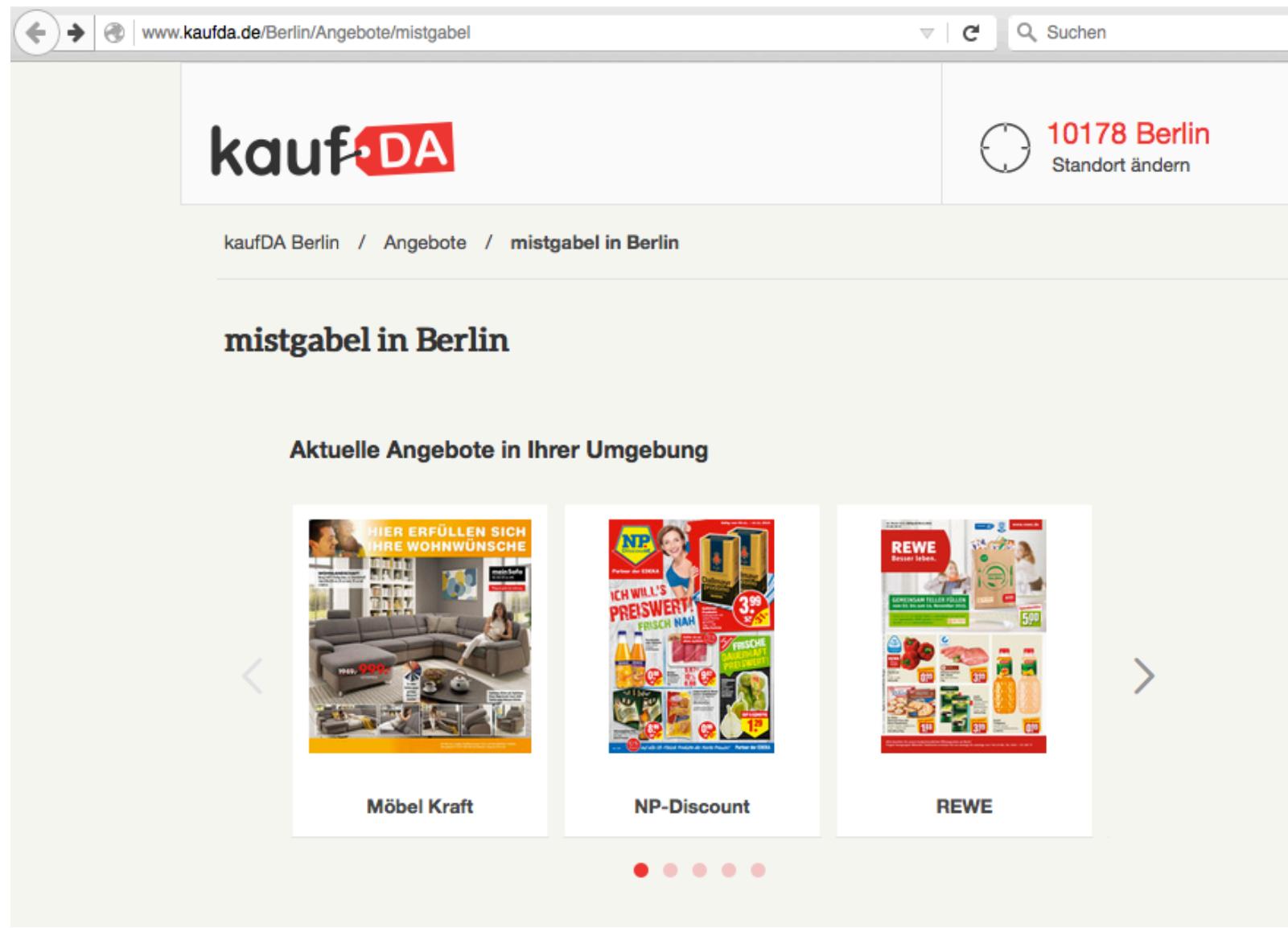
## Thread 2

---

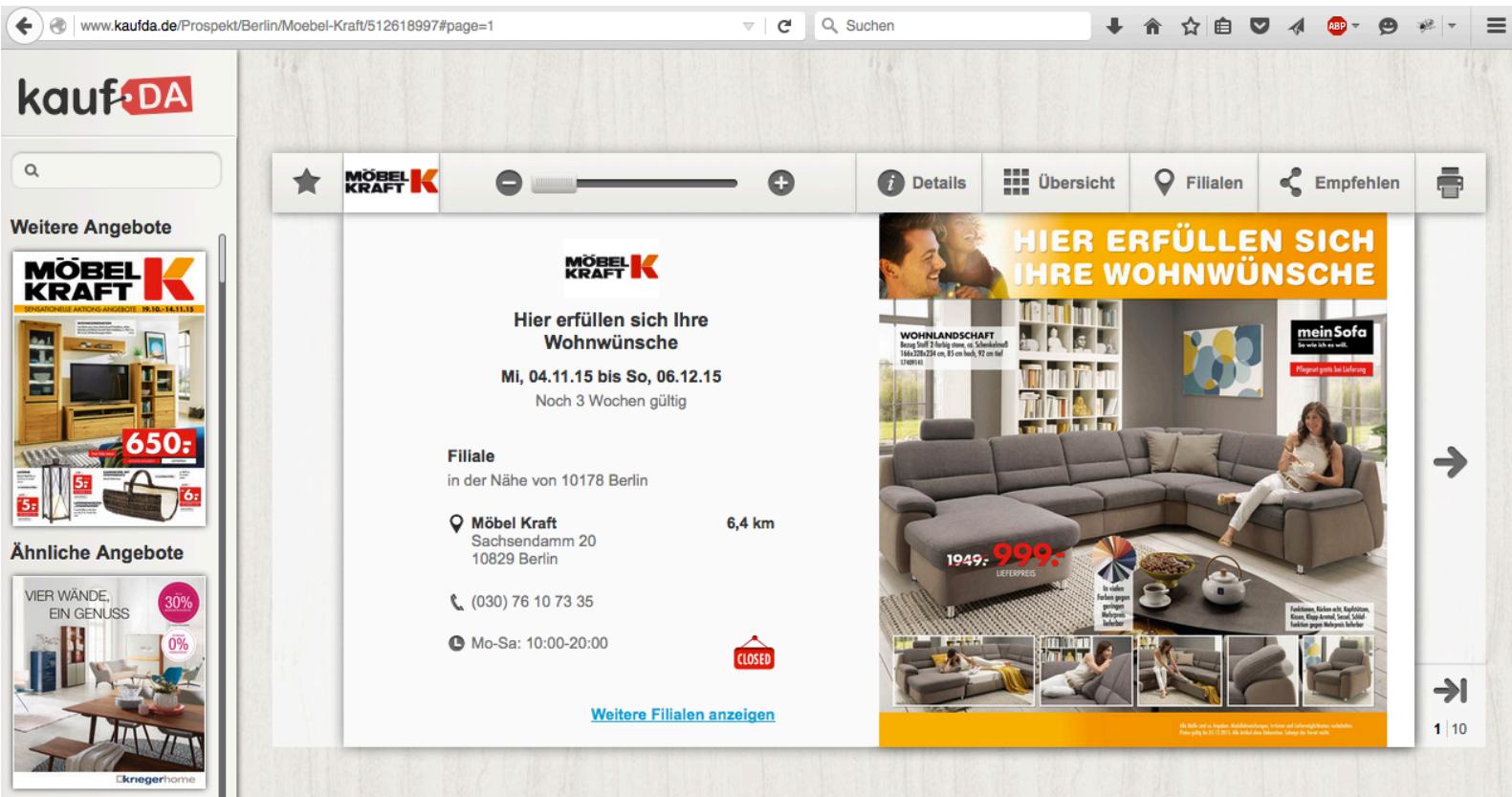
The SEO Situation



Our CEO David joined kaufDA in 2009 and headed their SEO strategy, which eventually turned out to be a huge success in the Top 20 most visible pages in Google Germany.



But in a way, SEO was always an afterthought - here's a typical landing page.



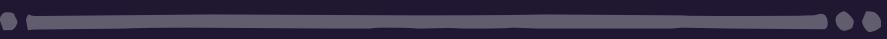
But the Javascript app was always one click away and never really clicked together well and he was a little frustrated about it as there wasn't any interaction. It was always SEO vs. UX - but we wanted both.

There had to be a better  
way

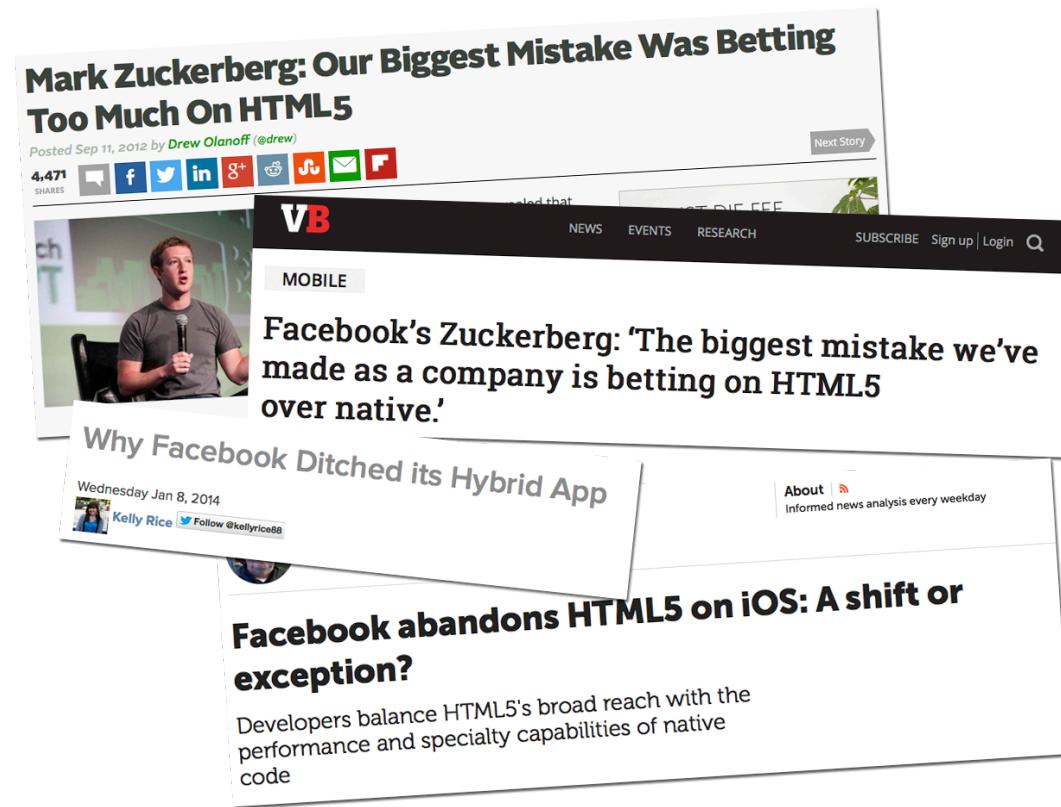
# Prologue



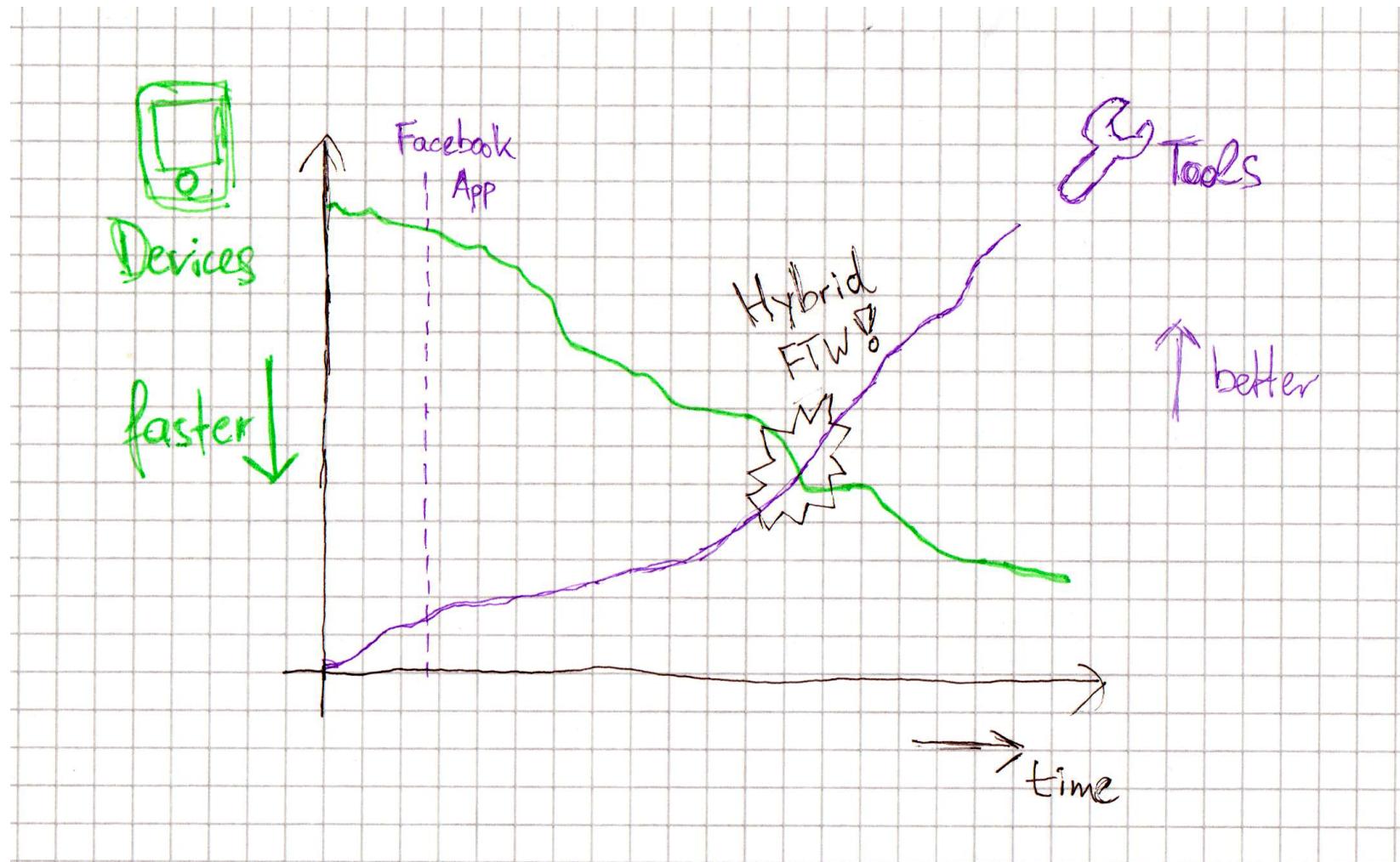
## Thread 3



### Facebook's Hybrid Disaster



In 2011, Facebook launched their new HTML5 app, which was widely considered a failure and gave hybrid apps a bad reputation for years-. I thought that was a little bit too harsh so in a completely scientific way...



...I predicted a revival for hybrid apps. Devices would get faster and tools getting better. Hybrid was just around the corner.

Also...

...the grass wasn't greener on the other side

In a former job I saw how much time and effort it takes to coordinate different native teams on the same product. Everything worked different and behaved different.

It was getting clear we  
had to bet it all  
on one card.

1. Build the content as a single, fast API in Go
2. That can be used by scraper, CMS and apps
3. Build a web app in AngularJS
4. Make the web app SEO capable
5. Build a hybrid app from the same code base
6. World domination :)

# Act I

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SEO with Angular

# Step One: Prerendering



So what's Prerendering anyway?

The screenshot shows the Google Developers website with a blue header. The header includes the Google Developers logo, a search bar with the text "AJAX Crawlin", and a breadcrumb navigation path: Products > Search > Webmasters > AJAX Crawling (Deprecated). Below the header is a large yellow banner with the text "AJAX Crawling (Deprecated)". Underneath the banner are three menu items: HOME, GUIDES (which is underlined), and SUPPORT. At the bottom of the yellow banner, a message states: "This recommendation is officially deprecated as of October 2015."

Products > Search > Webmasters > AJAX Crawling (Deprecated)

# AJAX Crawling (Deprecated)

HOME    GUIDES    SUPPORT

This recommendation is officially deprecated as of October 2015.

So you think this guy is so smart - why do you need to prerender at all? I mean, Google deprecated prerendering just one month ago! Well, yes they did and that was smart.



DuckDuckGo



Why? Because they're shutting out the competition!  
Crawling Javascript at scale is just hard. So you say you  
don't need any search engine but Google? Not so fast...



...because social sharing will be just as affected if nobody can read your single page app.



dom 5:44 PM

you're my man!

<https://www.justwatch.com/uk/movie/the-internship>

JustWatch

**The Internship - movie: watch streaming online**

Is Netflix, Amazon, Now TV, ITV, iTunes, etc. streaming The Internship? Find where to watch movies online now! (64KB) ▾



Dominik Raute shared a anchor.  
Just Sailed · Berlin ·

vinceVAUGHN    owenWILSON

## The Internship



JUSTWATCH.COM

**The Internship - movie: watch streaming online**

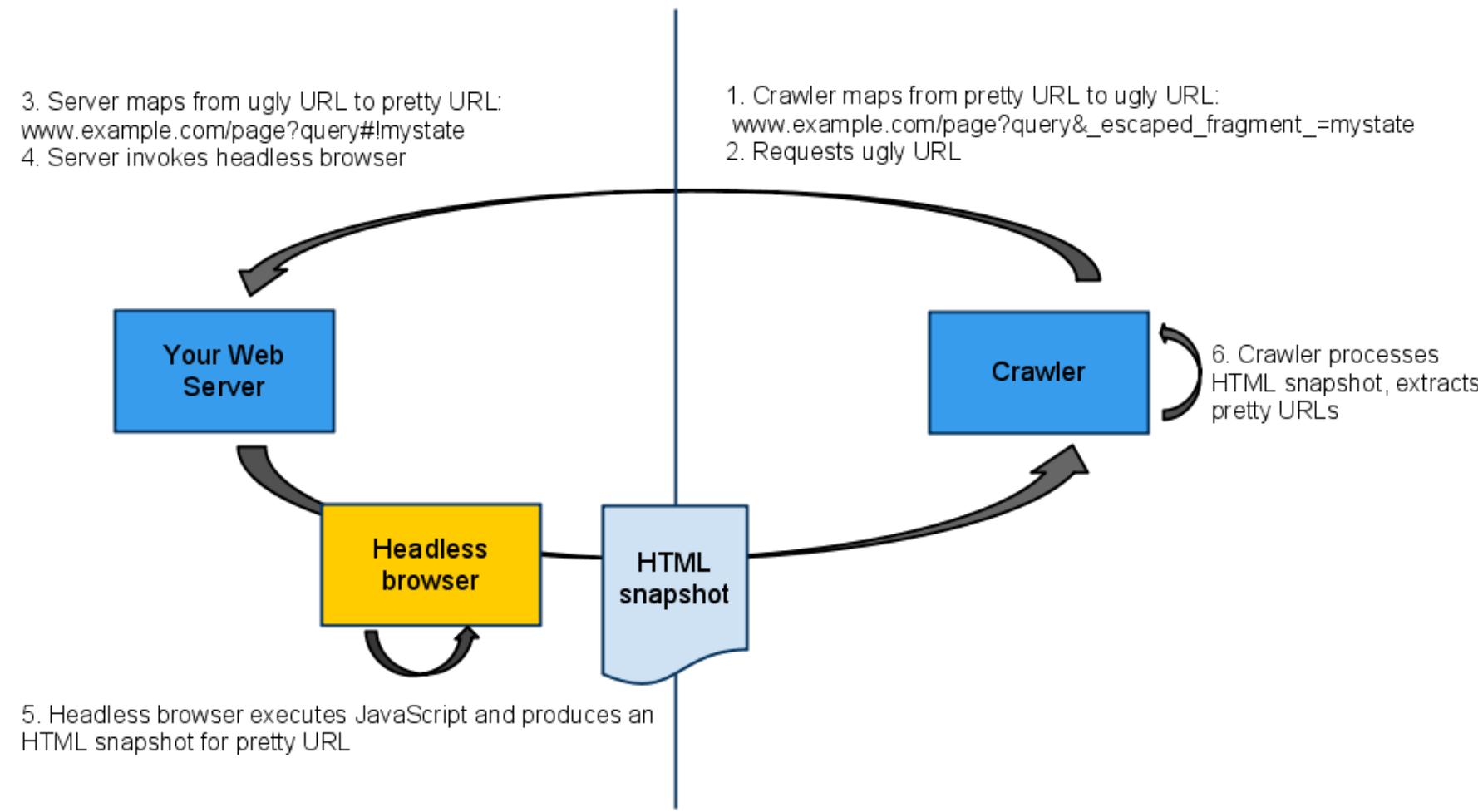
Is Netflix, Amazon, Now TV, ITV, iTunes, etc. streaming The Internship? Find where to watch movies online now!

Like   Comment   Share

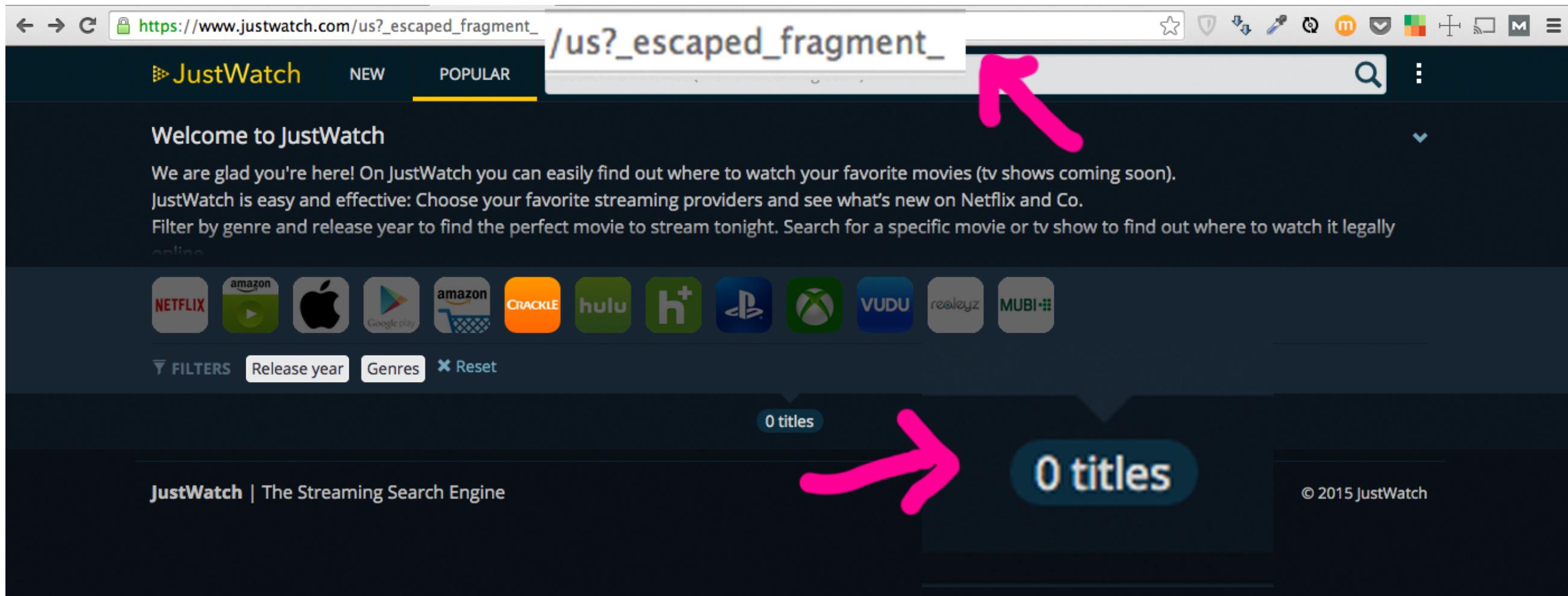
 Scrawl...



So do yourself a favor and go with prerendering.



How to do it? Pretty simple in theory. You just pretend you're a browser and take a HTML snapshot at the right time.



Just finding the right time proved to be difficult... Here's a page that had not finished loading before taking the snapshot.

# At least we knew we were in good company

A screenshot of a Google search results page. The search query in the bar is "site:lyft.com". Below the search bar, there are navigation links for "Web" (which is underlined in red), "Bilder", "News", "Shopping", "Maps", "Mehr ▾", and "Suchoptionen". A status message at the top says "Seite 8 von ungefähr 5.560 Ergebnissen (0,26 Sekunden)". The main result is a snippet for a page from the URL "https://www.lyft.com/drivers/SONA944318". The snippet shows the meta description: "meta.description || 'Rideshare with Lyft. Lyft is your friend ...'" and the link text: "https://www.lyft.com/drivers/SONA944318". Below the snippet is a truncated preview of the page content.

meta.description || 'Rideshare with Lyft. Lyft is your friend ...'  
<https://www.lyft.com/drivers/SONA944318> ▾ Diese Seite übersetzen  
meta.description || 'Rideshare with Lyft. Lyft is your friend with a car, whenever you need one. Download the app, and get a ride from a friendly driver within ...'

# We figured prerendering was harder than we thought.

# Quick quiz:

When has a Single Page App finished loading?

1. When DomReady has fired
2. When all resources from the page have loaded,  
parsed and executed
3. When there is no change in DOM for 1 second
4. When there is no change in DOM for 10 seconds

# Quick quiz:

When has a Single Page App finished loading?

1. When DomReady has fired
2. When all resources from the page have loaded,  
parsed and executed
3. When there is no change in DOM for 1 second
4. When there is no change in DOM for 10 seconds
5. none of the above

# We had to solve this ourselves.

```
<script>  
    window.prerenderReady = false;  
    window.willCallOnCaptureReady = true;  
</script>
```

Taking back control on when the page was rendered did the trick.

# Monitoring.

The screenshot shows a monitoring dashboard with two items listed:

- netflix\_escaped\_fragment** (www.justwatch.com): HTTPS, 2 d, 549 ms, 0 min
- www.justwatch.com** (www.justwatch.com): HTTPS, 1 mo, 487 ms, 0 min

The second item, "www.justwatch.com", is highlighted. Below it, an "Edit Check" dialog is open, containing the following fields:

- Check for string: Should contain
- Value: Netflix

Monitoring was crucial, because prerendering is so invisible. Pro Tip: Monitor the page content as well, so you know you're prerendering the *right* thing.

# Step Two: Routing

# Routing

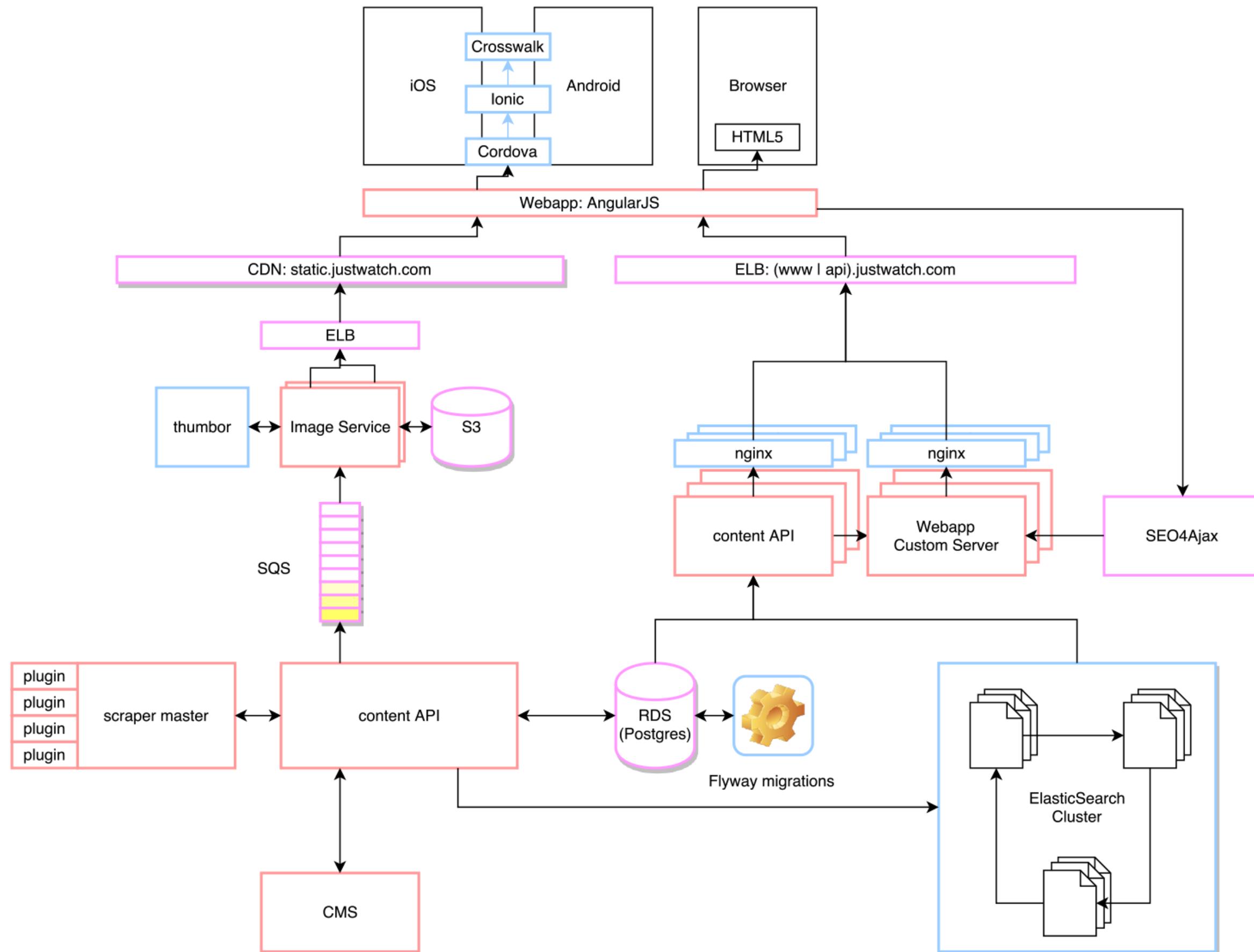
Strict crawl quality requirements:

- Duplicate content
- Sitemap generation
- Clean redirects / 404s
- Multilanguage linking (hreflang)

All pages are registered in API and  
linked to a content object ID

---

(which is served by a custom web server with API access)



# Step Three: Tech Signals

# Technical signals

- HTTPS everywhere
- Mobile-friendly (actually mobile first)
- Speed!
  - Go API with heavy caching
  - Minimize requests
  - As many assets as possible on HTTP2 CDN
  - Responsive image resolution

# Step Four: Relevancy

# Relevancy

- Help Google understand your paradigms
- schema.org

Step Five: Get some Buzz

# Users: OVER 9000

Google Analytics

Startseite Berichte Personalisieren Verwalten

## Übersicht

Aktuell 502

aktive Nutzer auf der Website

■ DESKTOP ■ MOBILGERÄT 82% 15%

Häufigste Verweise:

Quelle	Aktive Nutzer
1. techcrunch.com	34
2. feedly.com	21
3. producthunt.com	12
4. hcknews.com	8
5. cheeaun.github.io	2

Häufigste soziale Zugriffe:

Quelle	Aktive Nutzer
1. Hacker News	317
2. reddit	8
3. Twitter	3
4. Facebook	1
5. Instapaper	1

Häufige Keywords:

Wort	Aktive Nutzer
1. JustWatch	1

Hacker News - news | threads | comments | above | ask | jobs | about

endymion (1088) | login

1. + Email Encryption Software Raises on One Guy, Who Is Going Broke (propublica.org)

101 points by daveg 8 hours ago | 99g | 149 comments

2. + YC for Hardware (cohort.com)

100 points by simeon 3 hours ago | 99g | 96 comments

3. + Photo Preview (apple.com)

171 points by ant 1 hour ago | 99g | 58 comments

4. + Introducing node-firefox (mozilla.org)

131 points by mew 4 hours ago | 99g | 10 comments

5. + Learn Physics by Programming in Haskell (pdf) (arxiv.org)

41 points by MP 4 hours ago | 99g | 6 comments

6. \* Show HN: Hippocam Time usage to look better than anything legal, so we Fixed It (justwatch.com)

223 points by daveg 8 hours ago | 99g | 10 comments

7. + New services expand IBM Watson capabilities to images, speech, and more (ibm.com)

111 points by simeon 3 hours ago | 99g | 10 comments

8. + Life as a Product Design Intern at Khan Academy (khanacademy.org)

47 points by mew 4 hours ago | 99g | 10 comments

9. + Metaprogramming Elixir (erlang.org)

100 points by kyleholmes 8 hours ago | 99g | 10 comments

10. + Scala is no longer experimental (scala-lang.org)

223 points by daveg 8 hours ago | 99g | 61 comments

11. + Interest rates on some European government bonds have gone negative (voxeu.org)

111 points by simeon 3 hours ago | 99g | 10 comments

12. + Negotiating Last Chance to Salvage the TPP by Caving on Copyright Extension (eff.org)

303 points by TatyanaCarey 8 hours ago | 99g | 10 comments

13. + Revolutionize Logistics - Back End Engineers (erlang.org)

```
Tasks: 56, 77 thr; 1 running
Load average: 0.05 0.51
Uptime: 1 day, 04:38:24
```

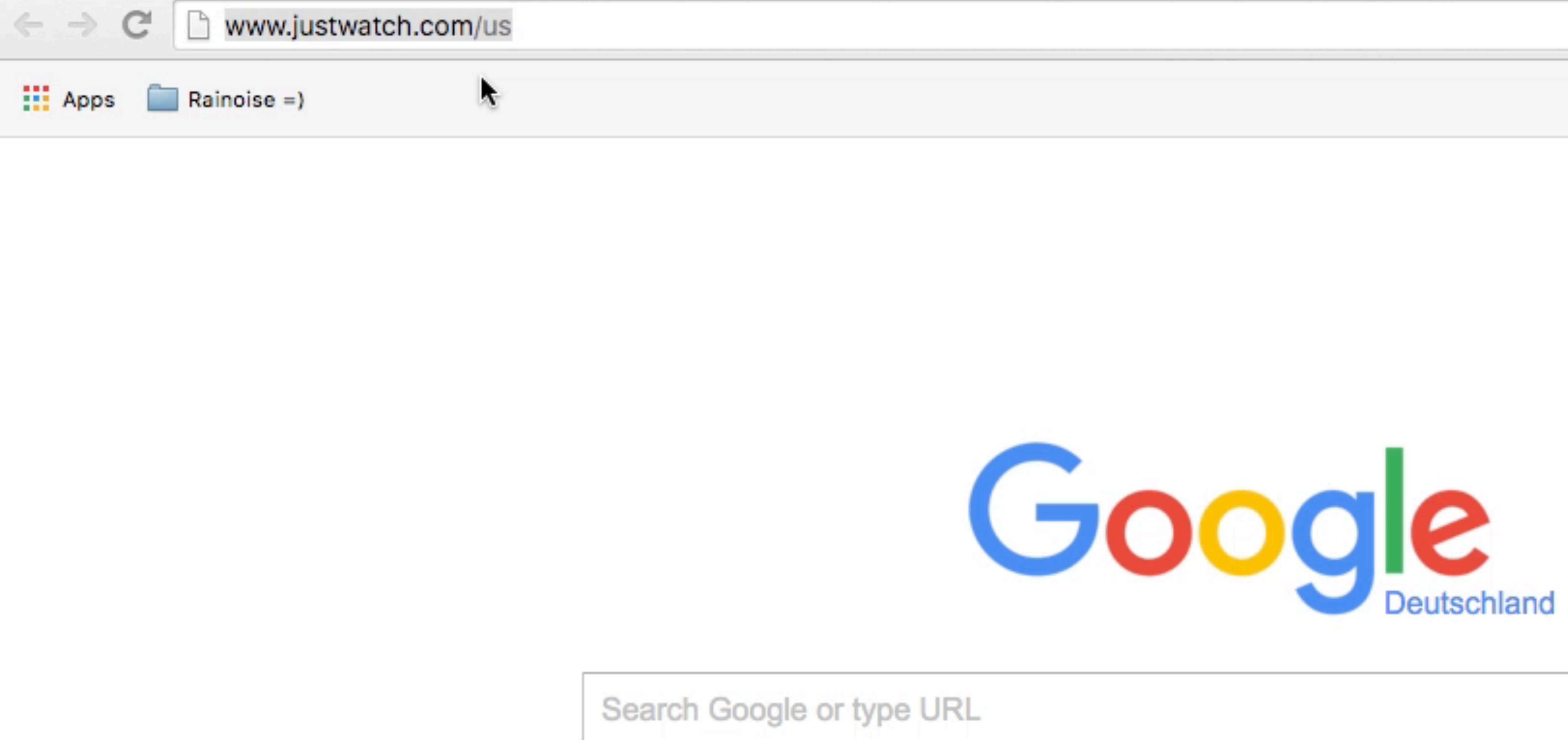
```
PID USER PRIO NI VIRT RES SHR S CPU % MEM % TIME+ Command
1299 root 20 0 1240 34552 4729 5 2.0 9.5 3h22.23 /usr/lib/jvm/java-7-oracle/bin/java -jar node-image-service.jar
1448 20 0 1270 35552 4729 5 2.7 9.5 9:57 1.47 /usr/lib/jvm/java-7-oracle/bin/java -jar node-image-service.jar
5508 20 0 24564 16240 4428 5 0 0.2 1.81 1.52 /usr/lib/jvm/java-7-oracle/bin/java -jar node-image-service.jar
5110 20 0 24564 16240 4428 5 0 0.2 1.81 1.57 /usr/lib/jvm/java-7-oracle/bin/java -jar node-image-service.jar
1446 20 0 40836 18164 89988 5 2.7 13.6 1:35.15 /usr/lib/jvm/java-7-oracle/bin/java -jar node-image-service.jar
5113 20 0 24564 16240 4428 5 0 0.2 1.81 1.43 /usr/lib/jvm/java-7-oracle/bin/java -jar node-image-service.jar
1445 20 0 40836 18164 89988 5 0 0.2 1.81 1.32 50 /usr/lib/jvm/java-7-oracle/bin/java -jar node-image-service.jar
1437 20 0 40836 18164 89988 5 0 0.2 1.81 1.33 39 /usr/lib/jvm/java-7-oracle/bin/java -jar node-image-service.jar
2981 ubuntu 20 0 24176 2032 1336 8 0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 http
1446 20 0 40836 18164 89988 5 0 0.2 1.81 1.36 2:35.45 /usr/lib/jvm/java-7-oracle/bin/java -jar node-image-service.jar
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5449 20 0 40836 18164 89988 5 0 0.2 1.81 1.33 26 /usr/lib/jvm/java-7-oracle/bin/java -jar node-image-service.jar
2980 ubuntu 20 0 17956 7243 7352 5 0.7 0.9 18:23.52 /usr/lib/jvm/java-7-oracle/bin/java -jar node-image-service.jar
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1448 20 0 6379 35184 7352 5 0.7 0.9 18:23.52 /usr/lib/jvm/java-7-oracle/bin/java -jar node-image-service.jar
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1450 20 0 6379 35184 7352 5 0.7 0.9 18:23.52 /usr/lib/jvm/java-7-oracle/bin/java -jar node-image-service.jar
1451 20 0 6379 35184 7352 5 0.7 0.9 18:23.52 /usr/lib/jvm/java-7-oracle/bin/java -jar node-image-service.jar
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1457 20 0 6379 35184 7352 5 0.7 0.9 18:23.52 /usr/lib/jvm/java-7-oracle/bin/java -jar node-image-service.jar
2981 ubuntu 20 0 24176 2032 1336 8 0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 http
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2981 ubuntu 20 0 24176 2032 1336 8 0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 http
1446 20 0 40836 18164 89988 5 0 0.2 1.81 1.36 2:35.45 /usr/lib/jvm/java-7-oracle/bin/java -jar node-image-service.jar
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5145 20 0 40836 18164 89988 5 0 0.2 1.81 1.32 3:29.65 /usr/lib/jvm/java-7-oracle/bin/java -jar node-image-service.jar
1444 20 0 40836 18164 89988 5 0 0.2 1.81 1.32 3:29.65 /usr/lib/jvm/java-7-oracle/bin/java -jar node-image-service.jar
1445 20 0 40836 18164 89988 5 0 0.2 1.81 1.32 3:29.65 /usr/lib/jvm/java-7-oracle/bin/java -jar node-image-service.jar
1446 20 0 40836 18164 89988 5 0 0.2 1.81 1.32 3:29.65 /usr/lib/jvm/java-7-oracle/bin/java -jar node-image-service.jar
1447 20 0 40836 18164 89988 5 0 0.2 1.81 1.32 3:29.65 /usr/lib/jvm/java-7-oracle/bin/java -jar node-image-service.jar
1448 20 0 40836 18164 89988 5 0 0.2 1.81 1.32 3:29.65 /usr/lib/jvm/java-7-oracle/bin/java -jar node-image-service.jar
1449 20 0 40836 18164 89988 5 0 0.2 1.81 1.32 3:29.65 /usr/lib/jvm/java-7-oracle/bin/java -jar node-image-service.jar
1450 20 0 40836 18164 89988 5 0 0.2 1.81 1.32 3:29.65 /usr/lib/jvm/java-7-oracle/bin/java -jar node-image-service.jar
1451 20 0 40836 18164 89988 5 0 0.2 1.81 1.32 3:29.65 /usr/lib/jvm/java-7-oracle/bin/java -jar node-image-service.jar
1452 20 0 40836 18164 89988 5 0 0.2 1.81 1.32 3:29.65 /usr/lib/jvm/java-7-oracle/bin/java -jar node-image-service.jar
1453 20 0 40836 18164 89988 5 0 0.2 1.81 1.32 3:29.65 /usr/lib/jvm/java-7-oracle/bin/java -jar node-image-service.jar
1454 20 0 40836 18164 89988 5 0 0.2 1.81 1.32 3:29.65 /usr/lib/jvm/java-7-oracle/bin/java -jar node-image-service.jar
1455 20 0 40836 18164 89988 5 0 0.2 1.81 1.32 3:29.65 /usr/lib/jvm/java-7-oracle/bin/java -jar node-image-service.jar
1456 20 0 40836 18164 89988 5 0 0.2 1.81 1.32 3:29.65 /usr/lib/jvm/java-7-oracle/bin/java -jar node-image-service.jar
1457 20 0 40836 18164 89988 5 0 0.2 1.81 1.32 3:29.65 /usr/lib/jvm/java-7-oracle/bin/java -jar node-image-service.jar
2981 ubuntu 20 0 24176 2032 1336 8 0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 http
1446 20 0 40836 18164 89988 5 0 0.2 1.81 1.36 2:35.45 /usr/lib/jvm/java-7-oracle/bin/java -jar node-image-service.jar
1257 20 0 40836 18164 89988 5 0 0.2 1.81 1.32 3:29.65 /usr/lib/jvm/java-7-oracle/bin/java -jar node-image-service.jar
1347 20 0 40836 18164 89988 5 0 0.2 1.81 1.32 3:29.65 /usr/lib/jvm/java-7-oracle/bin/java -jar node-image-service.jar
5145 20 0 40836 18164 89988 5 0 0.2 1.81 1.32 3:29.65 /usr/lib/jvm/java-7-oracle/bin/java -jar node-image-service.jar
1444 20 0 40836 18164 89988 5 0 0.2 1.81 1.32 3:29.65 /usr/lib/jvm/java-7-oracle/bin/java -jar node-image-service.jar
1445 20 0 40836 18164 89988 5 0 0.2 1.81 1.32 3:29.65 /usr/lib/jvm/java-7-oracle/bin/java -jar node-image-service.jar
1446 20 0 40836 18164 89988 5 0 0.2 1.81 1.32 3:29.65 /usr/lib/jvm/java-7-oracle/bin/java -jar node-image-service.jar
1447 20 0 40
```

So was it still worth all this hassle to  
build a SPA?

---

Results time.

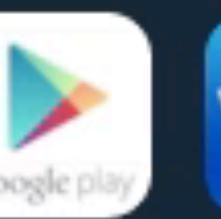
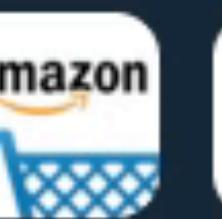
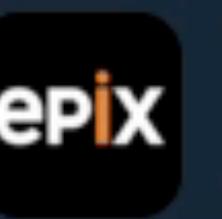
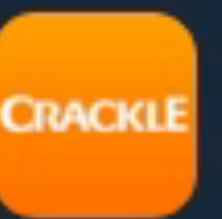
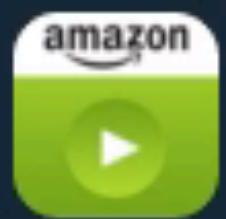
New Tab



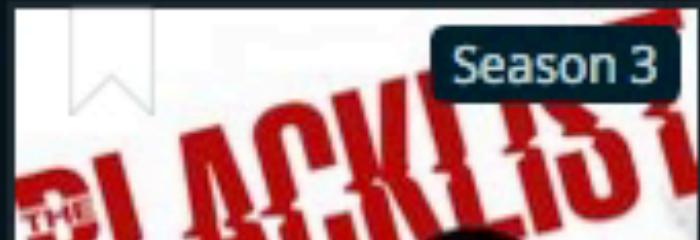
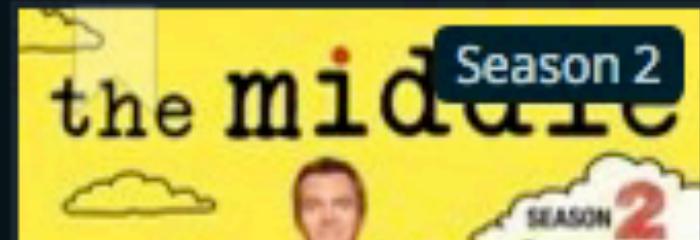
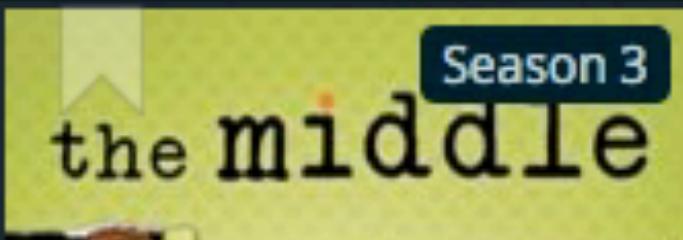
Search Google or type URL

## New and recently added movies and tv shows

Choose your favorite streaming providers and never miss when new movies or episodes of your favorite genre or release year. Our Watchbar will remember your settings.

 Movies TV Shows FILTERS Release year Genres Price Rating Reset Today

175 titles



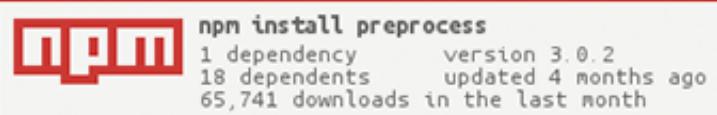
# Act II



## Going hybrid

## ★ preprocess public

Preprocess directives in HTML, JavaScript, etc directives based off variable context



Linux build passing Windows build passing coverage 98% dependencies up-to-date devDependencies up-to-date

Preprocess HTML, JavaScript, and other files with directives based off custom or ENV configuration

```
1 angular.module('mc-webapp', [  
2   // @if ENV='mobile'  
3   'ionic',  
4   'angulartics.google.analytics.cordova',  
5   // @endif  
6  
7   'ui.router',  
8   'ui.bootstrap',  
9   'pascalprecht.translate',  
10  'isoCurrency',  
11  ...  
12 ])  
13  
14 )  
15
```

## Configuration

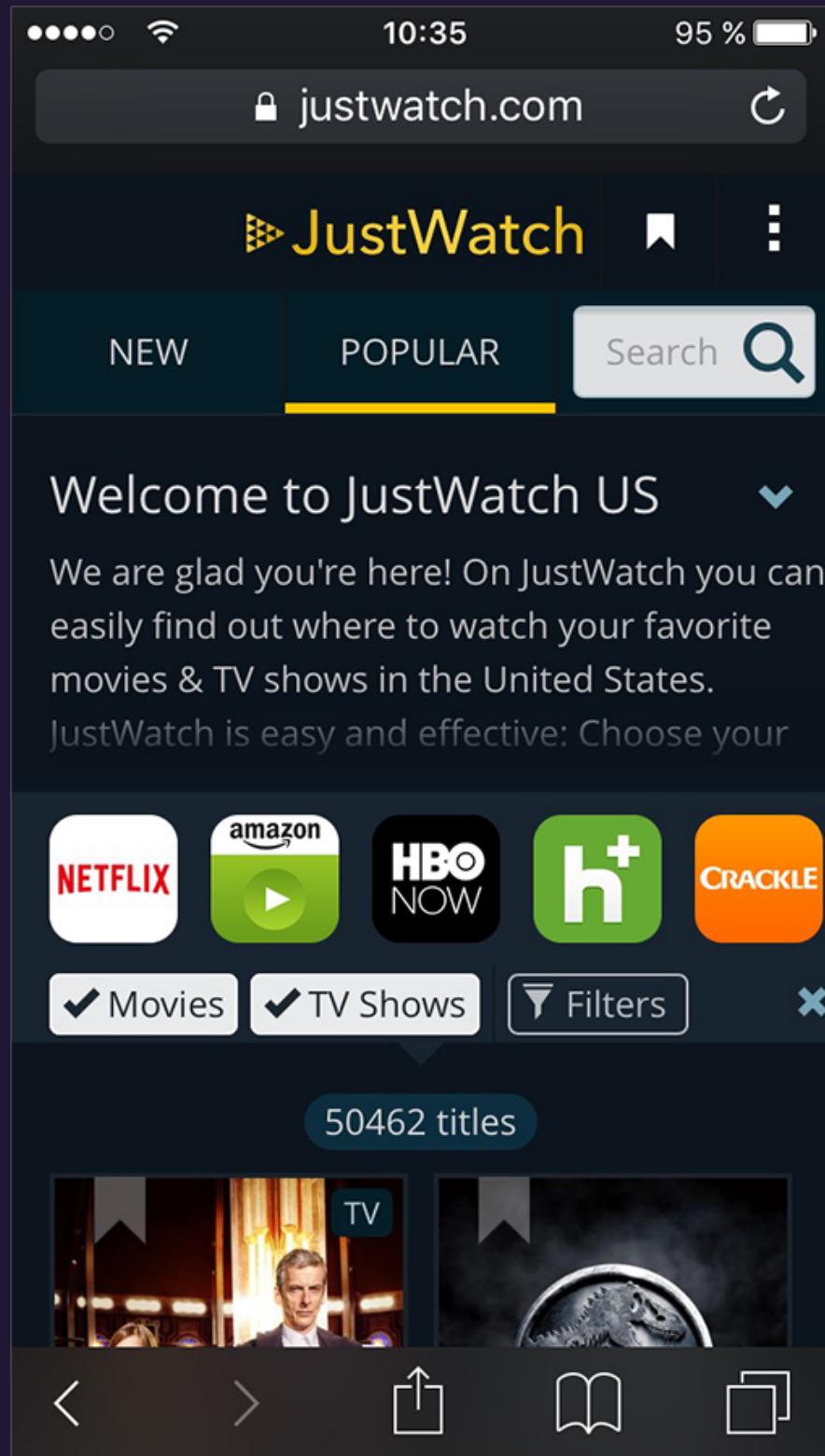
Install via npm:

```
$ npm install --save preprocess
```

## What does it look like?

```
<head>  
  <title>Your App</title>  
  
  <!-- @if NODE_ENV='production' -->  
  <script src="some/production/lib/like/analytics.js"></script>  
  <!-- @endif -->  
  
</head>  
<body>  
  <!-- @ifdef DEBUG -->  
  <h1>Debugging mode - <!-- @echo RELEASE_TAG --> </h1>  
  <!-- @endif -->  
  <p>  
    <!-- @include welcome_message.txt -->  
  </p>  
</body>
```

# Web App



} Safari  
} Webapp Nav  
(commented out)

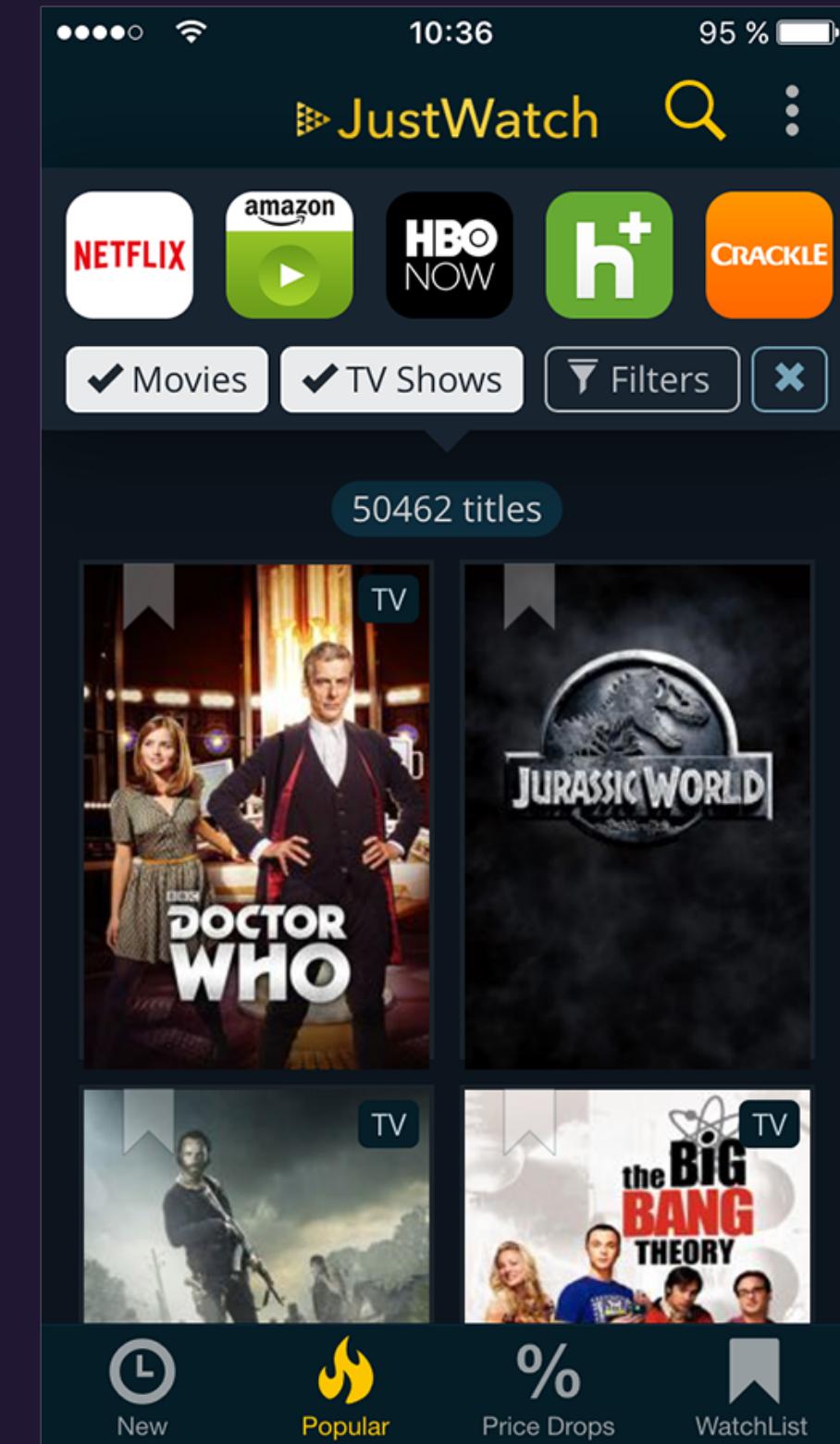
} SEO Text  
(commented out)

} Filter Bar  
(same as Hybrid)

} Content Area  
(same as Hybrid)

} Safari

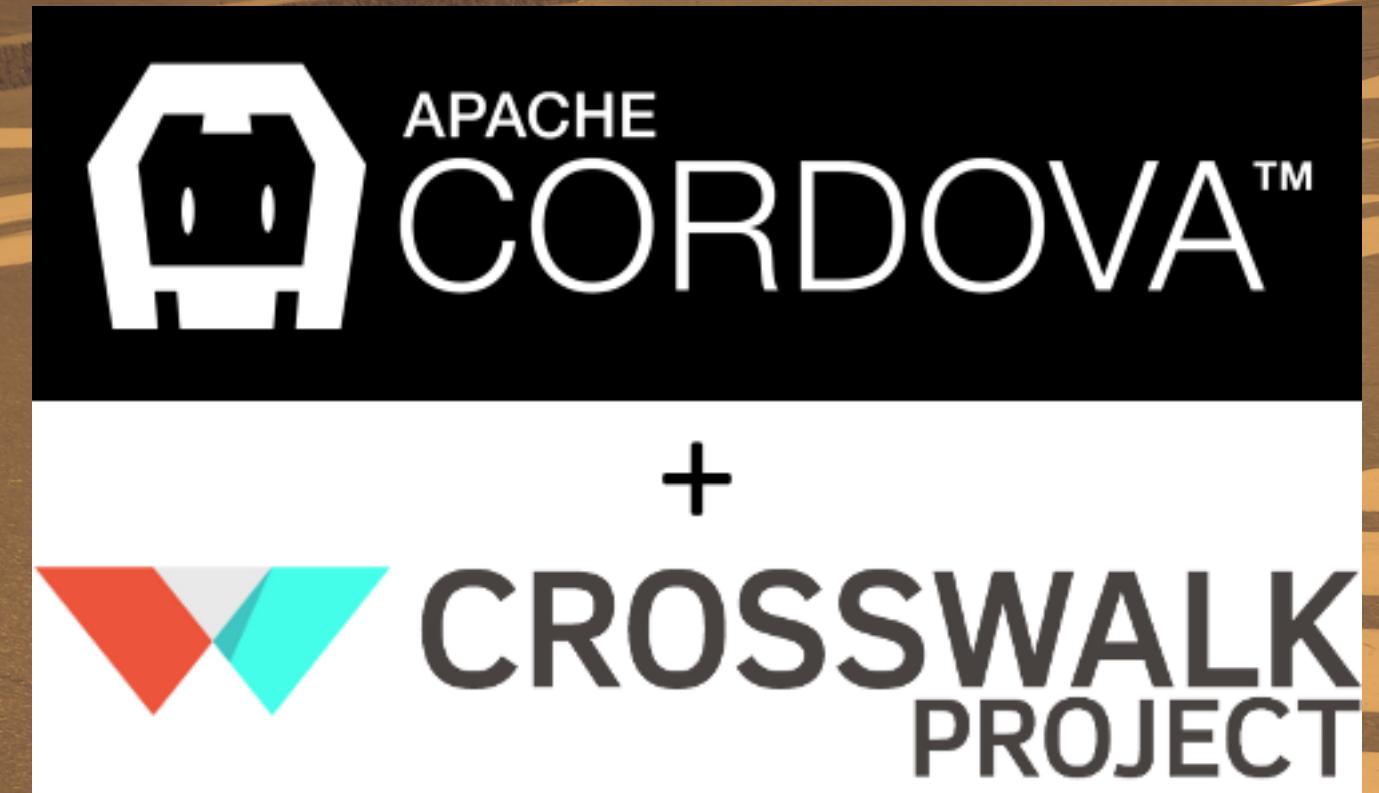
# Hybrid App



} Ionic Native UI  
} Filter Bar  
(same as Web)

} Content Area  
(same as Web)

} Ionic Native UI



The big performance breakthrough on Android  
came with Crosswalk.

# Tips:

- Have a solid build workflow
- Use one-time bindings extensively.
- Kill watchers. Then kill some more.
- Cordova plugins (follow the stars!)
- API proxy when you have CORS issues
- Newton's law: Instant reaction (don't lock the UI)

# Benefits in practice

- One single engineer can release three platforms within minutes (plus 7-14 days of iOS review...)
- Just roundabout 30% more effort per feature
- Exactly the same features, tracking, deeplinks
- Performance tweaks go back to web app
- Only drawbacks: APK size, initial setup time

Featured



A showcase of the most beautiful apps built with Ionic

[TOP APPS](#)

[NEWEST](#)

[ARCHIVE](#)

Submit



Viceversa

By [Jonathan Widawski](#)



Moodle Mobile

By [Moodle Pty Ltd](#)



JustWatch

By [JustWatch](#)



Songhop

By [Eric Simons](#)

## Cordova App Showcase

See other apps that use Cordova



**Pacifica - Stress and Anxiety Relief**  
Daily tools for stress, anxiety and depression based on Cognitive Behavioral Therapy and Mindfulness.



**Sworkit - Personal Workout Trainer**  
Sworkit delivers on-demand, personalized video exercises to millions of users to help them stay fit.



**FanReact - Sports Fans Social App**  
Sports only social app for fans to share their experiences.



**JustWatch - Streaming Search Engine**  
JustWatch is the easiest way to see if your favorite movies or TV shows are available on any streaming provider.

First thing you see here is that the community really

seemed to like these apps.

Second thing you see here are actually some high quality backlinks...

# Takeaways

- SEO with single page apps isn't just possible, but can be a boon if you use it right - though they can be quite a hassle if you're not using isomorphic JS
- Hybrid Apps are viable and performant enough for a lot of use cases in 2015 - and they can peacefully coexist with a single page web app in a single repo



TL;DR: Thx!