PWAS AND GOTCHAS

lightning talk @ DomCode 2017-04

@jbmoelker

Progressive Web Apps (PWAs)

are websites upgraded
with native-like functionality

@jbmoelker

PWA GOTCHA #1

IOS

CHROME, ANDROID (2016-09)

Native Behaviors

- LOCAL NOTIFICATIONS ✓
- PUSH MESSAGES ✓
- FOREGROUND DETECTION ✓
- PERMISSIONS ✓

Seamless Experience

- OFFLINE MODE ✓
- HOME SCREEN INSTALLATION
- BACKGROUND SYNC ✓
- INTER-APP COMMUNICATION ✗

Camera & Microphone

- AUDIO & VIDEO CAPTURE ✓
- ADVANCED CAMERA CONTROLS ✗
- RECORDING MEDIA ✓
- REAL-TIME COMMUNICATION ✓

Location & Position

- GEOLOCATION ✓
- GEOFENCING ✗
- DEVICE ORIENTATION ✓
- DEVICE MOTIONS ✓

Input

- TOUCH GESTURES ✓
- SPEECH RECOGNITION ✓
- CLIPBOARD (COPY & PASTE) ✓
- POINTING DEVICE ADAPTATION ✓

Surroundings

- BLUETOOTH ✓
- NFC ✗
- PROXIMITY SENSORS ✗
- AMBIENT LIGHT ✗

Device Features

- NETWORK TYPE & SPEED ✓
- ONLINE STATE ✓
- VIBRATION ✓
- BATTERY STATUS ✓

Screen & Output

- FULLSCREEN ✓
- SCREEN ORIENTATION & LOCK ✓
- WAKE LOCK ✗
- PRESENTATION FEATURES ✓

Operating System

- OFFLINE STORAGE ✓
- FILE ACCESS ✓
- CONTACTS ✗
- STORAGE QUOTAS ✓

What Web Can Do Today

Can I rely on the Web Platform features to build my app?
An overview of the device integration HTML5 APIs

✓ Feature available in your current browser ✗ Feature not available in your current browser

whatwebcando.today

SAFARI, IOS (2016-09)

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Location & Position

- GEOLOCATION ✓
- GEOFENCING ✗
- DEVICE ORIENTATION ✓
- ACCELEROMETER ✓

Input

- TOUCH GESTURES ✓
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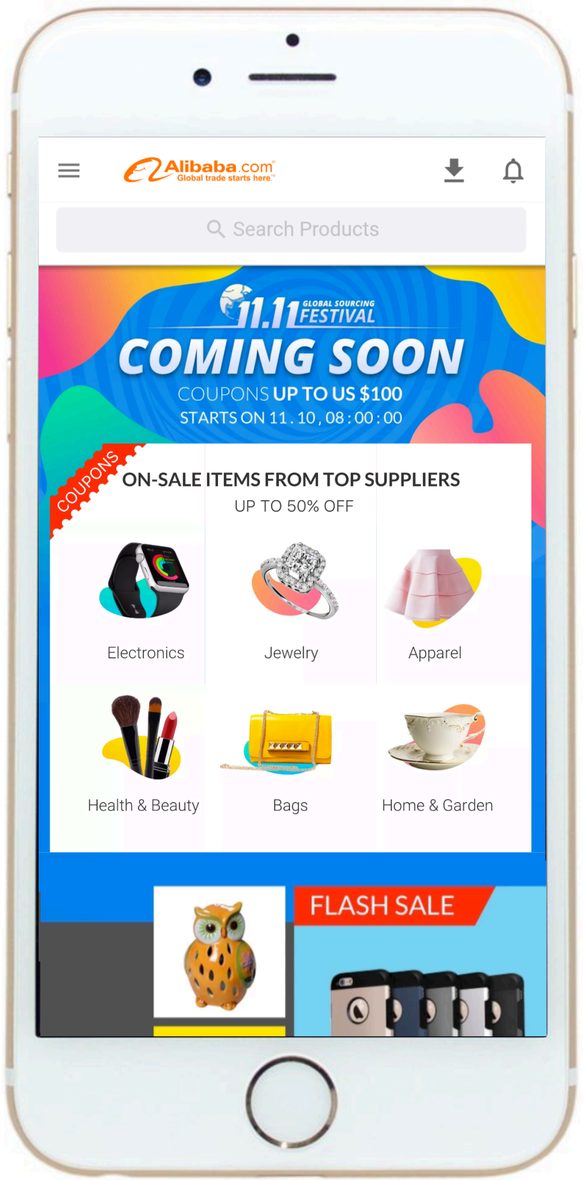
whatwebcando.today

Help,
my Product Owner has an iPhone

image source: [bloomberg.com]

PWA EFFECT ON IOS



Alibaba.com PWA:

14% more monthly users on iOS

source: pwastats.com

Platform ▶	iOS			Android			Desktop		
Context ▶	App	Web	In-app	App	Web	In-app	IE	Safari	Chrome and others
Usage ▶	6%	15%	6%	4%	22%	5%	4%	3%	35%
▼ Feature									
Installable									
Available without install									
App store presence									
Always latest version									
Push notifications									
Works offline									
Access media and location									
Linkable									
Inter-app comm.									
App-like look & feel									

yes, Edge

App (web)

Limited?

hard

Native tech

Web tech

Not available

Hybrid

App matrix

PWA, PACKAGED

left-to-right: web, Android app, iOS app

read voorhoede.nl/nl/portfolio/trouw-volkskrant-parool/

PHONEGAP 2017

Adobe PhoneGap

Progressive Web Apps

The purpose of PhoneGap is to allow you to build hybrid mobile apps today with the intention of throwing those same apps onto the web tomorrow. It's been a long game that we started in 2008, but we believe Progressive Web Apps (PWA) are the final sprint to our finish line.

This year, you can expect the PhoneGap team to create compatibility between Apache Cordova and Progressive Web Apps. This will allow you to create a PWA app, deploy it on the web, and also compile it for App Store distribution.

read PhoneGap 2017 Roadmap

build PWAs today,

use a wrapper for

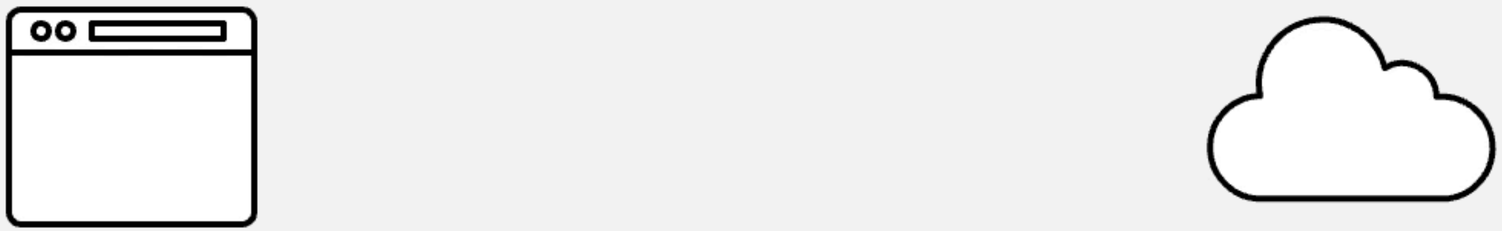
App Stores of yesterday

@jbmoelker

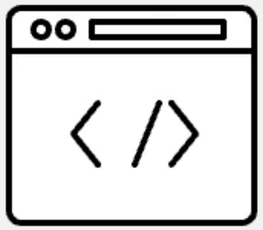
PWA GOTCHA #2

HTTPS

INITIAL PAGE LOAD



REGISTER SERVICE WORKER



REGISTER SERVICE WORKER

```
if ('serviceWorker' in navigator) {
  navigator.serviceWorker.register('/sw.js');
}
```

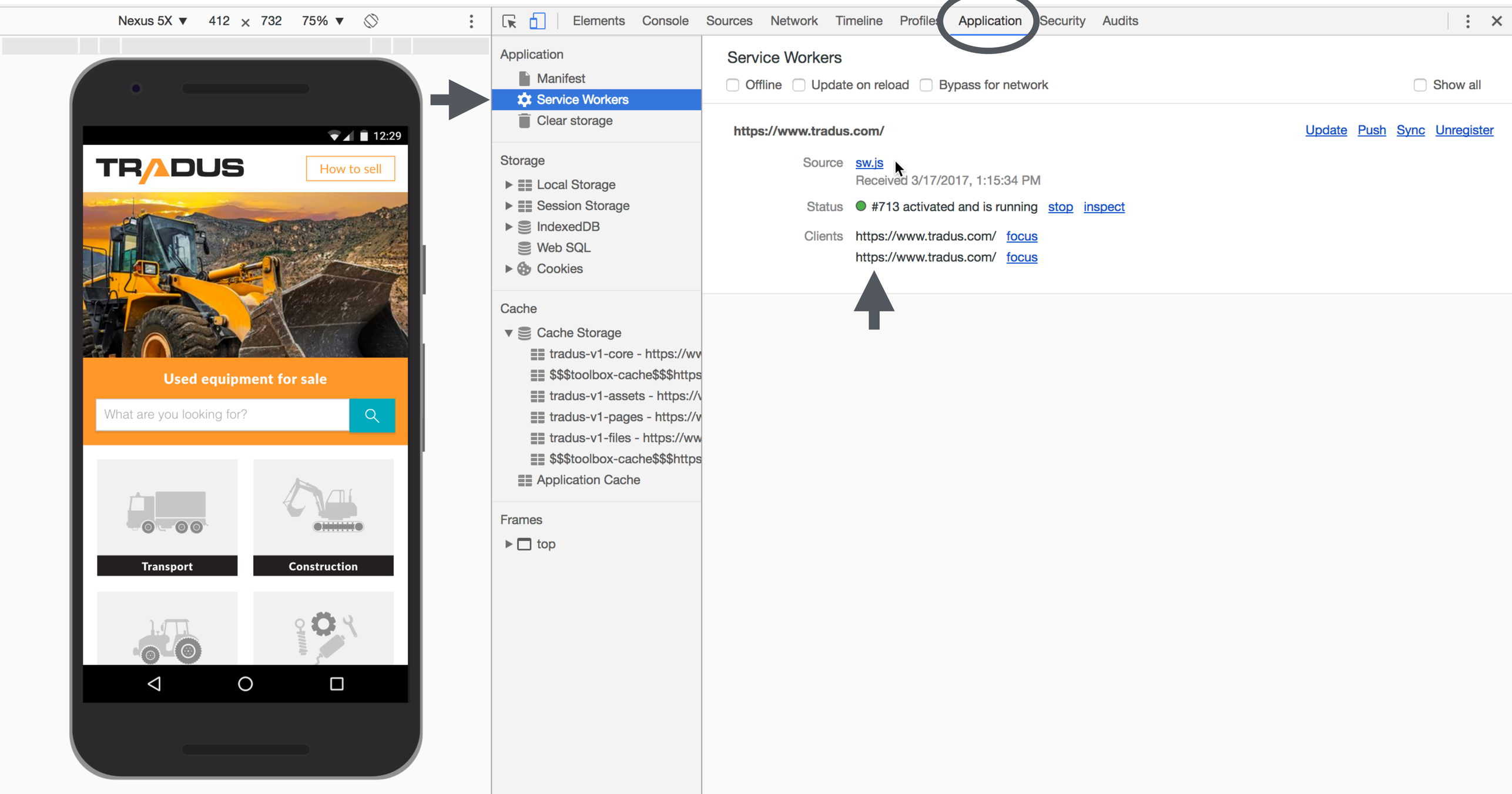
SECURE ORIGINS ONLY

```
if ('serviceWorker' in navigator) {
  navigator.serviceWorker.register('/sw.js');
}
```

```
▼Uncaught (in promise)                    (index):408
DOMException: Only secure origins are
allowed (see: https://goo.gl/Y0ZkNV).
    (anonymous) @ (index):408
```

see developers.google.com

SECURE ORIGINS ONLY



Progressive Web Apps

require HTTPS

@jbmoelker

PWA GOTCHA #3

REDIRECTS

NO REDIRECTS

```
app.use('/sw.js', (req, res, next) => {
  res.redirect('301', '/relocated/sw.js');
  next();
}
```

NO REDIRECTS

```
app.use('/sw.js', (req, res, next) => {
  res.redirect('301', '/relocated/sw.js');
  next();
}
```

```
▶Uncaught (in promise) DOMException:          (index):1
Failed to register a ServiceWorker: The script
resource is behind a redirect, which is disallowed.
```

read more SW redirect gotchas

never redirect

your Service Worker

script endpoint

@jbmoelker

PWA GOTCHA #4

ES NEXT

```
const cacheResources = async () => {
  const urlsToCache = ['/', 'app.css']
  const cache = await caches.open('demo')
  return cache.addAll(urlsToCache)
}

self.addEventListener('install', event =>
  event.waitUntil(cacheResources)
)

const cachedResource = async req => {
  const cache = await caches.open('demo')
  return await cache.match(req)
}

self.addEventListener('fetch', event =>
  event.respondWith(cachedResource(event.request))
)
```

"All browsers that support SW, also support `async` functions."

—

Gleb Bahmutov

twitter.com/bahmutov/status/849635160899420160

ALL BROWSERS ?

?

?

SAMSUNG INTERNET 4

kangax.github.io/compat-table/ (2017-04-13)

BROWSER SUPPORT

Service Workers - WD

Global 32.89% + 30.5% = 63.39%

IE	Edge *	Firefox	Chrome	Safari	Opera	iOS Safari *	Opera Mini *	Android Browser *	Blackberry Browser	Opera Mobile *	Chrome for Android	Firefox for Android	IE Mobile	UC Browser for Android	Samsung Internet	QQ Browser
11	2 15	52	57	10.1	44	10.3	all	56	10	37	57	52	11	11	4	1.2

Async functions - OTHER

Global 53.99%

IE	Edge *	Firefox	Chrome	Safari	Opera	iOS Safari *	Opera Mini *	Android Browser *	Blackberry Browser	Opera Mobile *	Chrome for Android	Firefox for Android	IE Mobile	UC Browser for Android	Samsung Internet	QQ Browser
11	15	52	57	10.1	44	10.3	all	56	10	37	57	52	11	11	4	1.2

caniuse.com using Showing all *(2017-04-13)*

transpile SW code to ES5

and

apply **feature checks**

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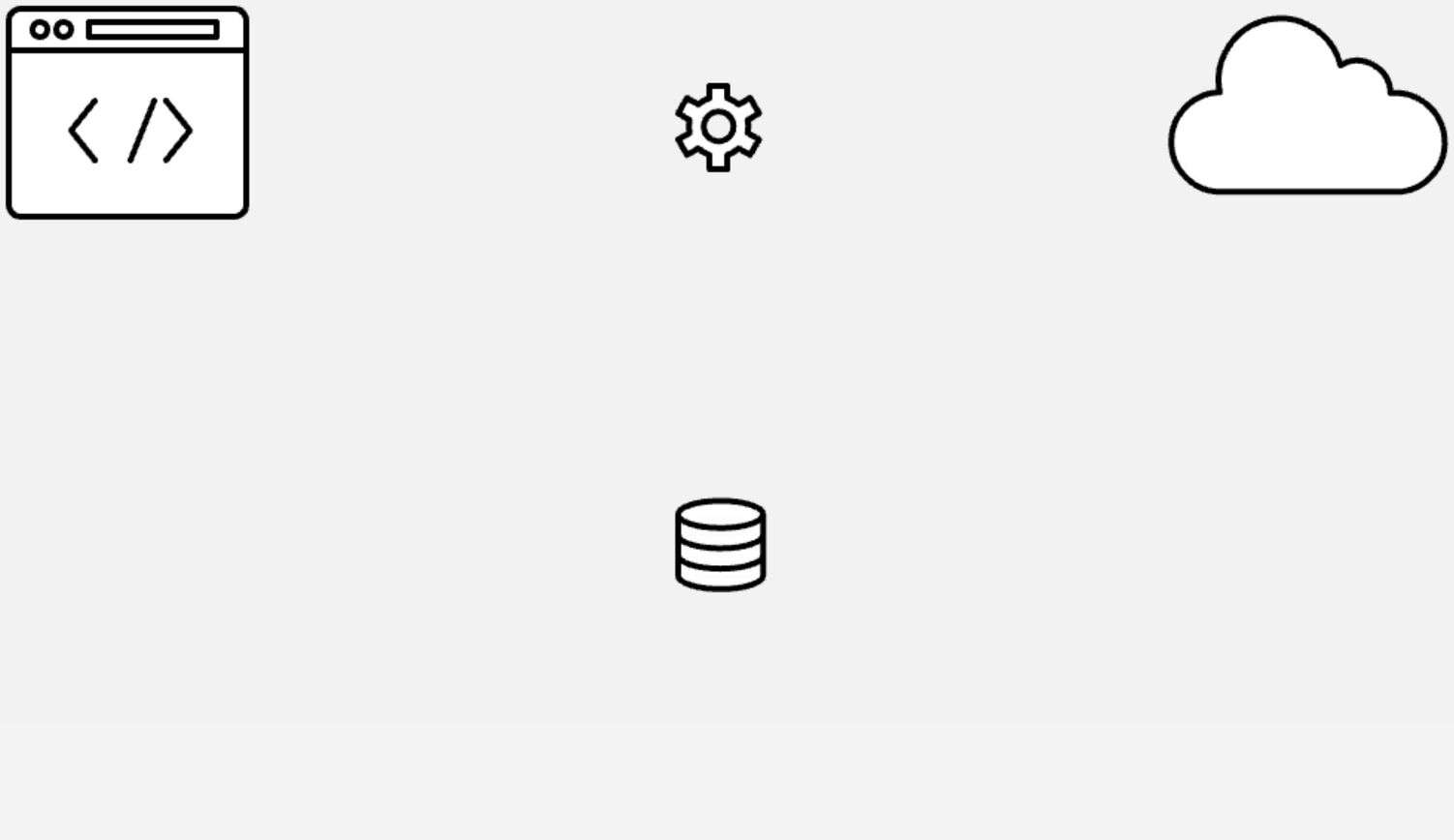
PWA GOTCHA #5

UPDATE / RESET

SERVICE WORKER AS PROXY

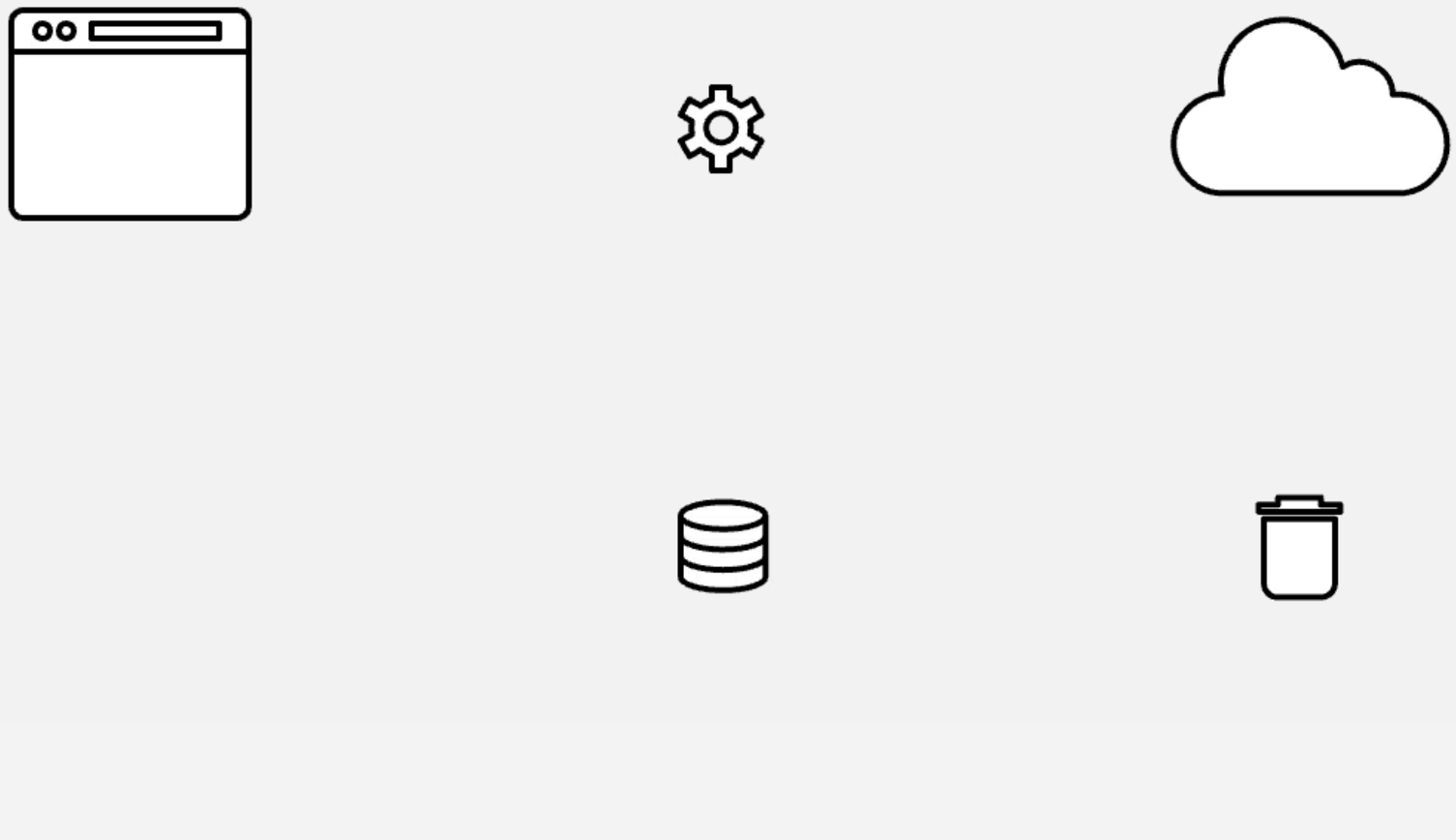
HIJACK FETCH

SERVE FROM CACHE



UPDATE SERVICE WORKER

CLEAN ON ACTIVATE



UPDATE STRATEGY

```
const cachePrefix = `my-app-v3-`;

self.onactivate = event => event.waitUntil(
  caches.keys().then(cacheNames => Promise.all(
    cacheNames
      .filter(key => !key.startsWith(cachePrefix))
      .map(key => caches.delete(key))
  ))
));
```

SW RESET HELPER

```
self.oninstall = event => event.waitUntil(
  caches.keys().then(cacheNames => Promise.all(
    cacheNames
      .map(key => caches.delete(key))
  ))
));
```

adapted from github.com/jakearchibald/simple-serviceworker-tutorial/blob/gh-pages/reset/sw.js

prepare **update strategy**

have **reset helper** ready

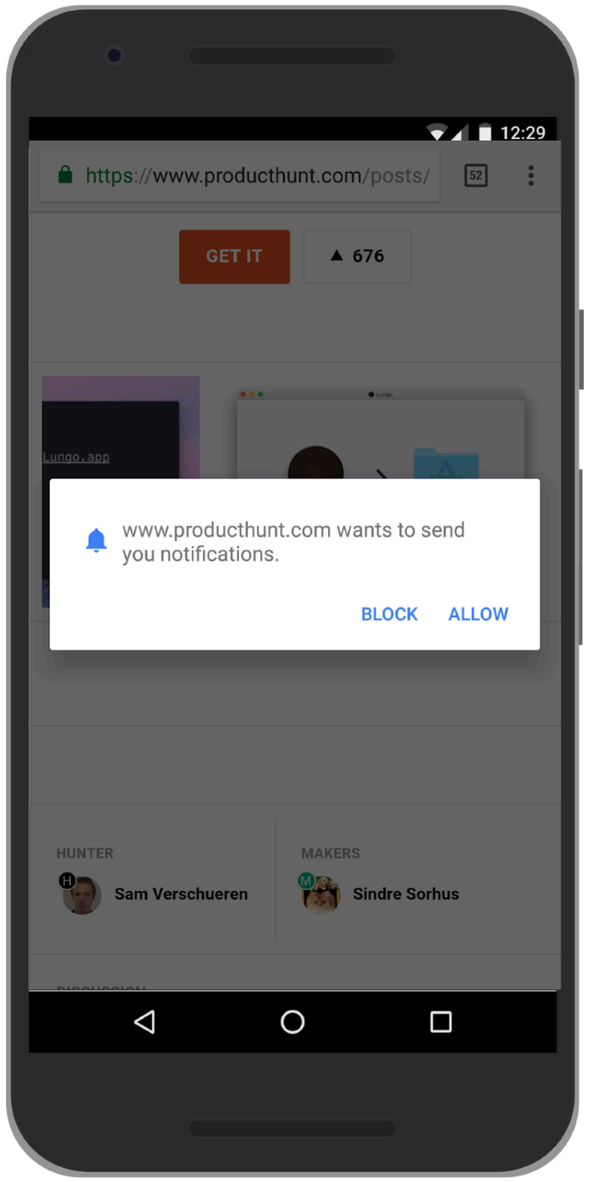
don't cache SW script itself

@jbmoelker

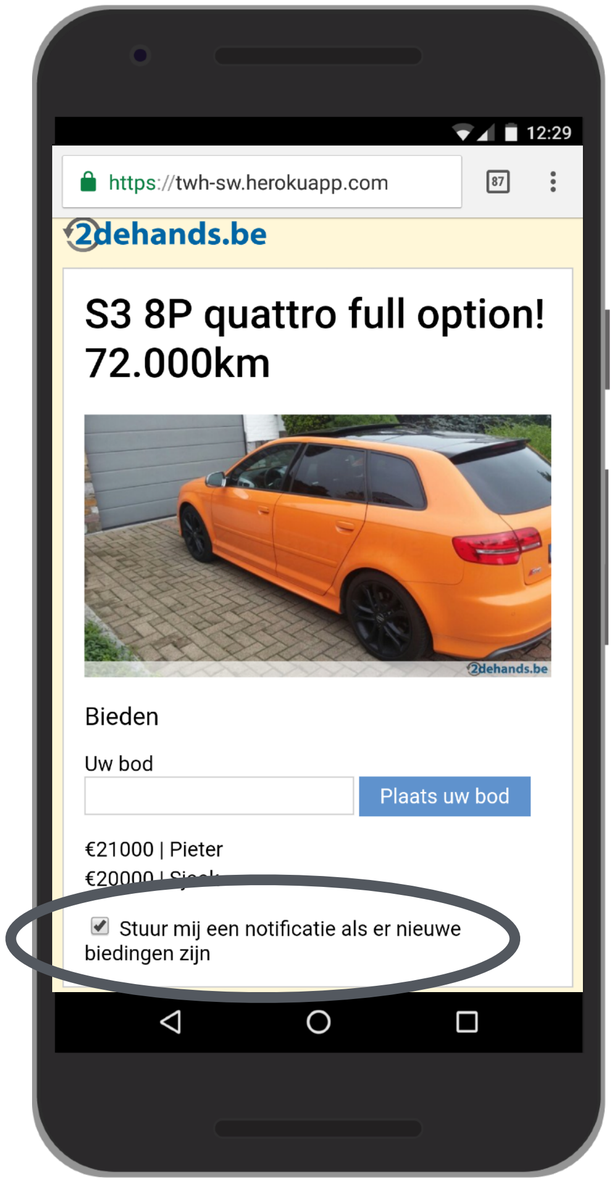
PWA GOTCHA #6

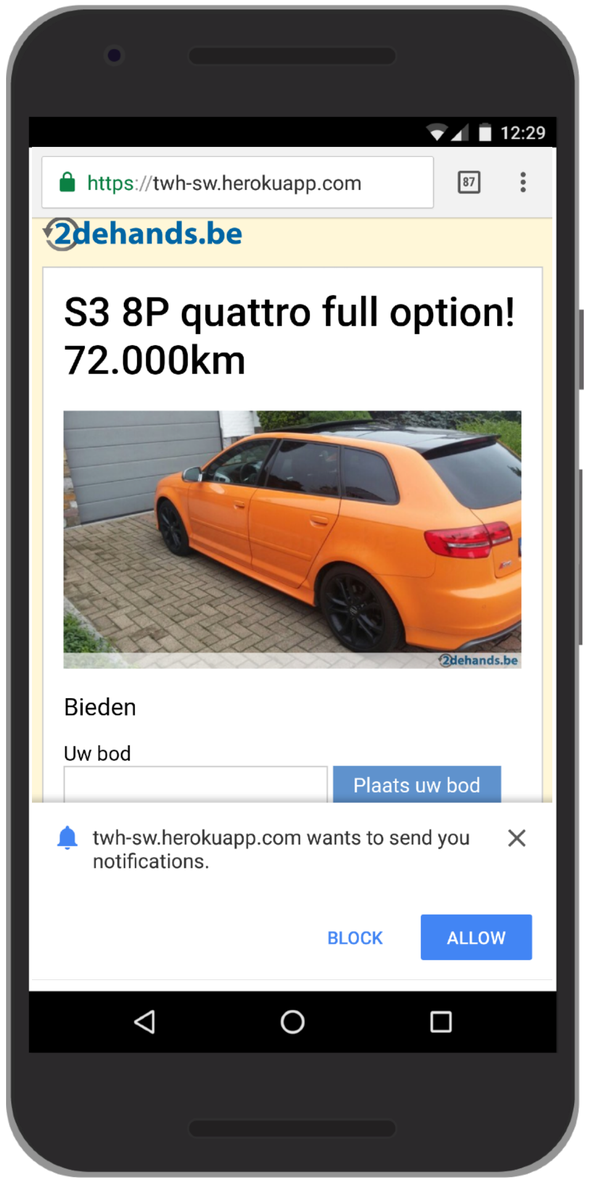
DESIGN NEEDED

BE KIND

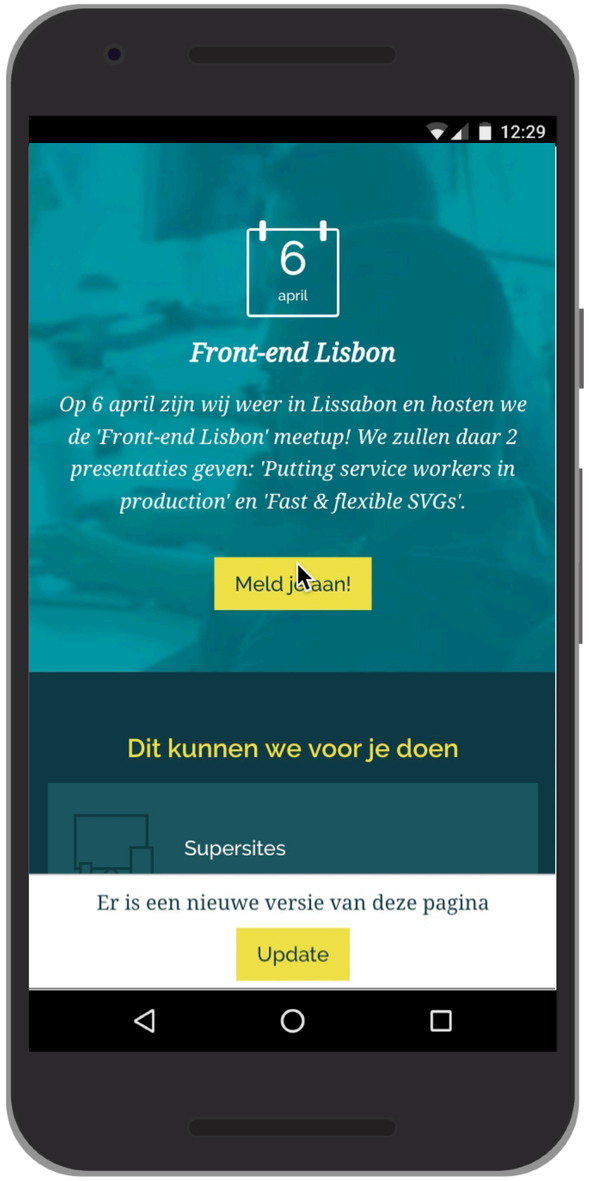

12:29
https://www.producthunt.com/posts/
52
GET IT
▲ 676
www.producthunt.com wants to send you notifications.
BLOCK
ALLOW
HUNTER
Sam Verschueren
MAKERS
Sindre Sorhus

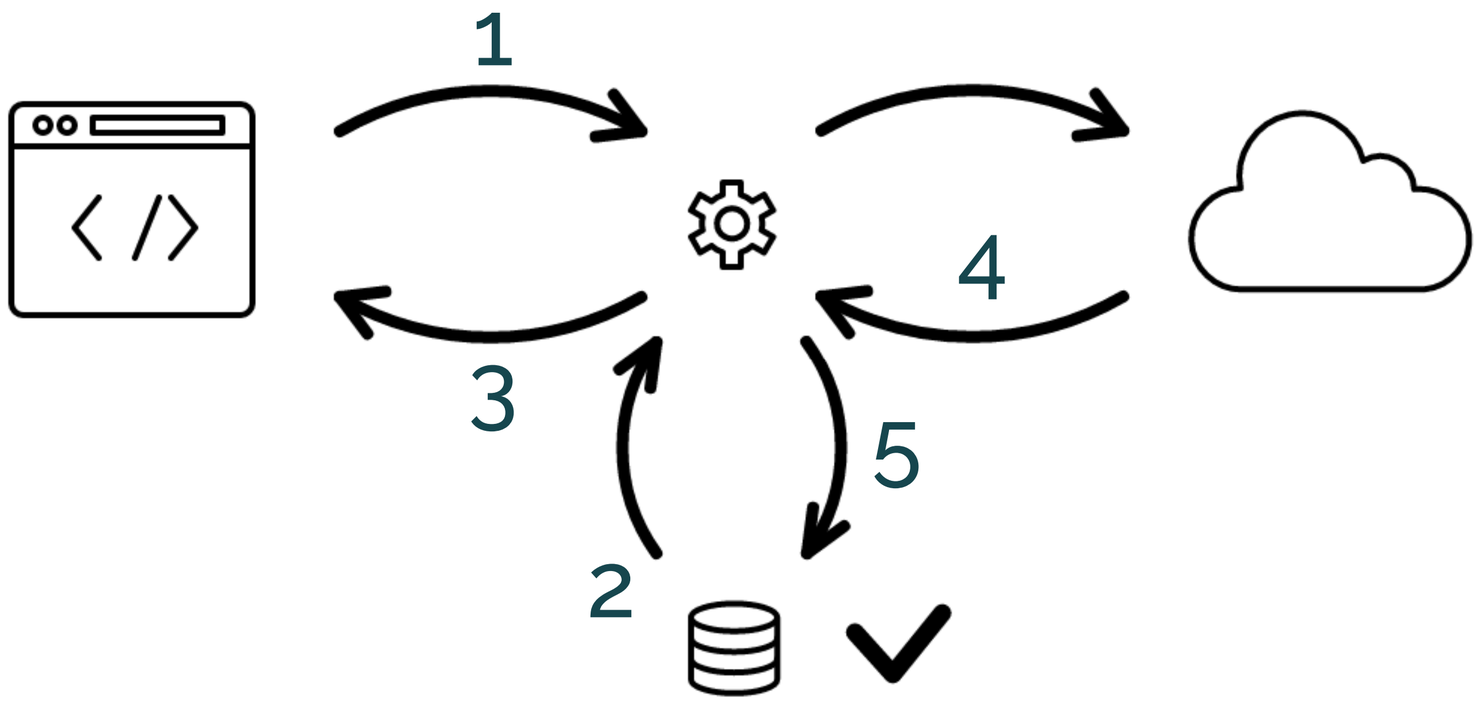
VS


12:29
https://twh-sw.herokuapp.com
87
2dehands.be
S3 8P quattro full option!
72.000km
2dehands.be
Bieden
Uw bod
Plaats uw bod
€21000 | Pieter
Stuur mij een notificatie als er nieuwe biedingen zijn

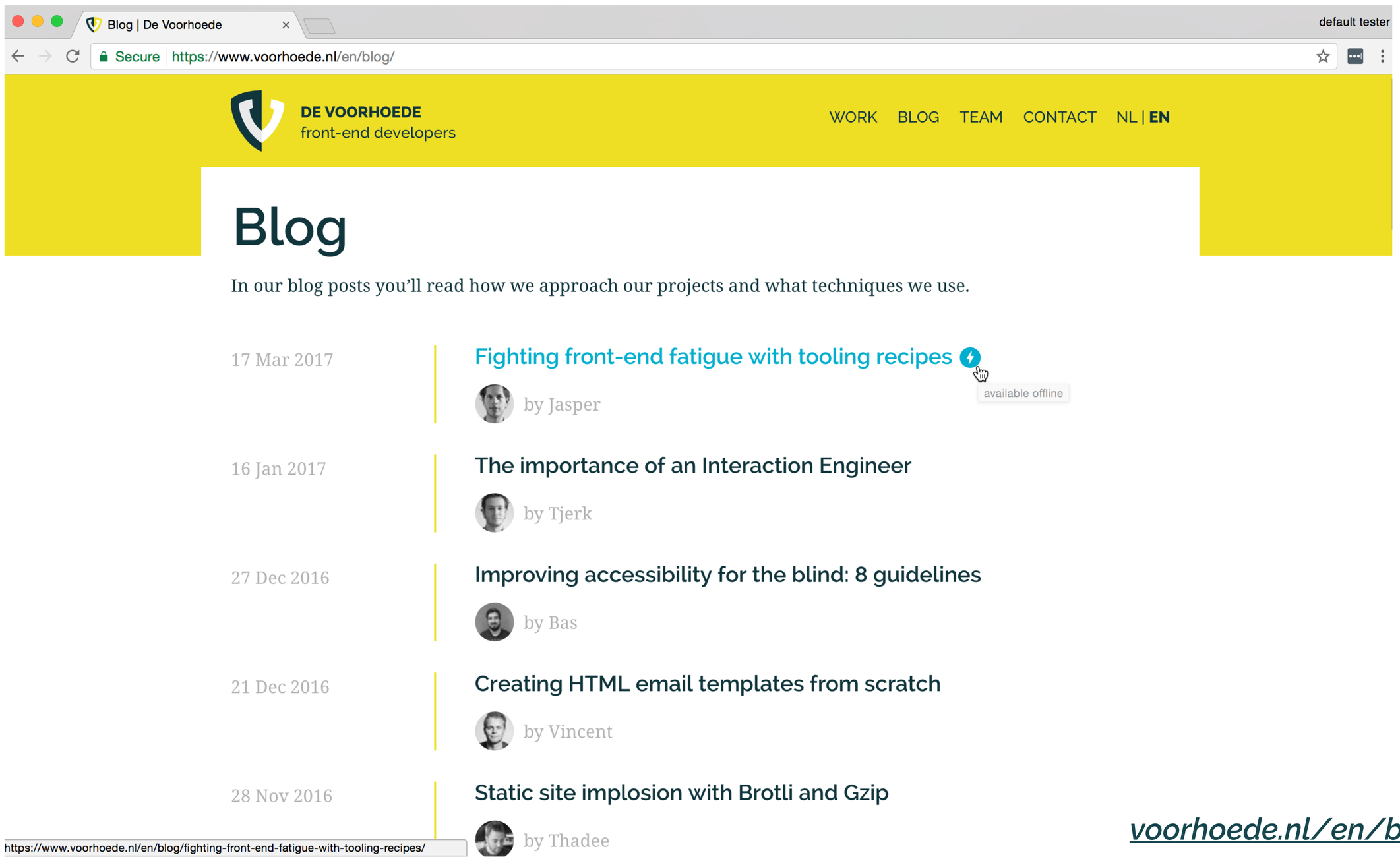

12:29
https://twh-sw.herokuapp.com
87
2dehands.be
S3 8P quattro full option!
72.000km
2dehands.be
Bieden
Uw bod
Plaats uw bod
twh-sw.herokuapp.com wants to send you notifications.
BLOCK
ALLOW

STAY FRESH


12:29
6
april
Front-end Lisbon
Op 6 april zijn wij weer in Lissabon en hosten we de 'Front-end Lisbon' meetup! We zullen daar 2 presentaties geven: 'Putting service workers in production' en 'Fast & flexible SVGs'.
Meld jeaan!
Dit kunnen we voor je doen
Supersites
Er is een nieuwe versie van deze pagina
Update

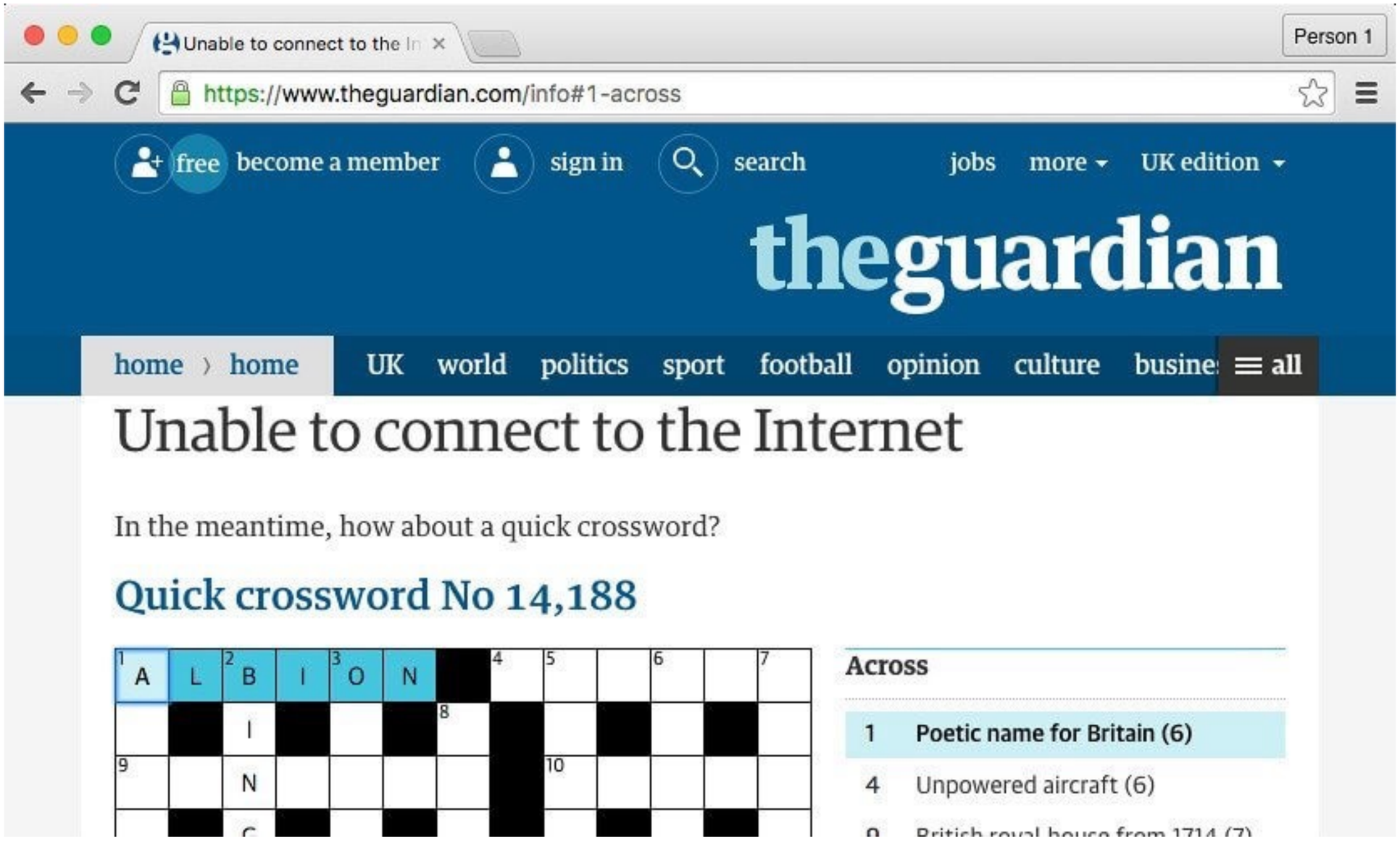

1
2
3
4
5

SHOW OFF



voorhoede.nl/en/blog/

HAVE FUN



smashingmagazine.com/2016/08/a-beginners-guide-to-progressive-web-apps/

design new interactions

enabled by PWAs

@jbmoelker

TAKEAWAYS

PWAs

make part of larger **strategy**

include **design**

test everywhere

@jbmoelker

THANK YOU!

questions?

@jbmoelker