

Offline-first WEB

Aurelijus Banelis





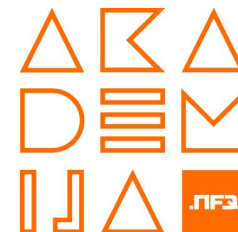
Aurelijus Banelis

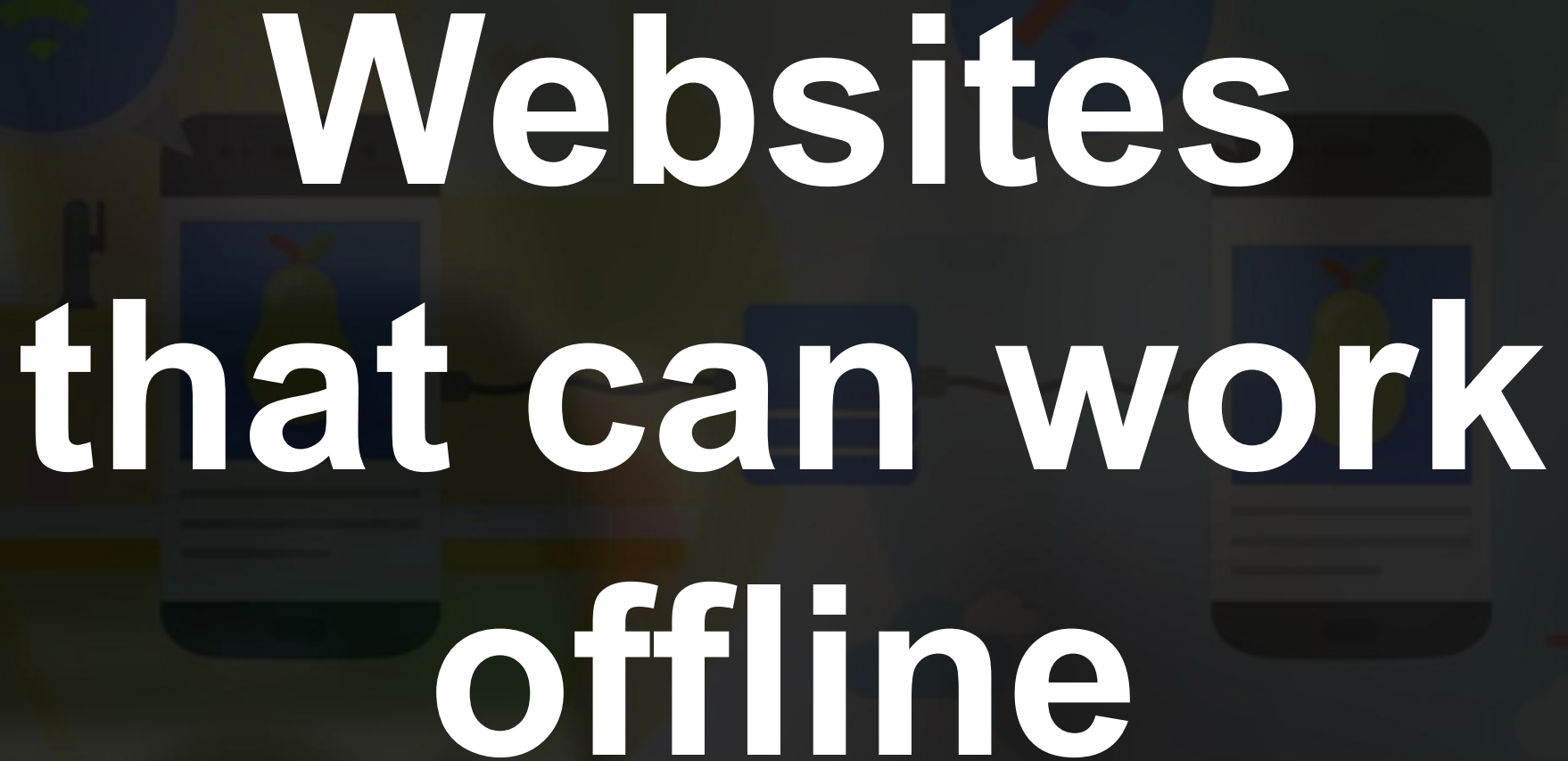
Software developer

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aurelijus@banelis.lt

PGP 0x320205E7539B6203
130D C446 1F1A 2E50 D6E3
3DA8 3202 05E7 539B 6203



The background is a dark, muted blue-grey. It features faint, stylized illustrations of two laptops. The laptop on the left has a green Wi-Fi signal icon above its screen. The laptop on the right has a blue circle with a red diagonal line through it (a 'no' or 'offline' symbol) above its screen. The text is centered and reads:

**Websites
that can work
offline**

Context

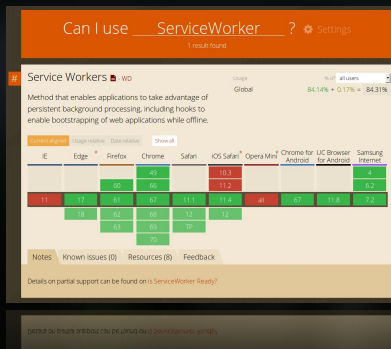
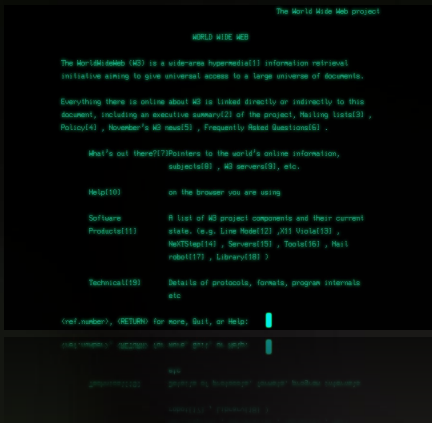
Designed to be online, but used offline?

Principles

Taking advantage of restrictions

Tooling

Creating your own offline WebSite



Context

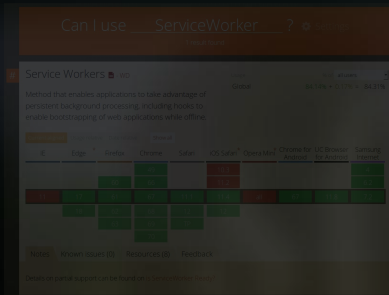
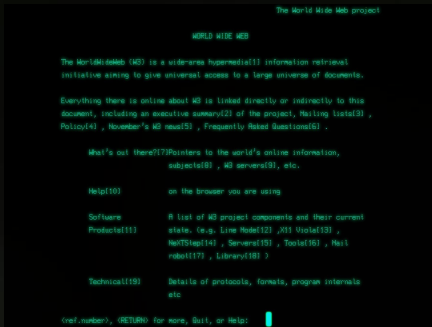
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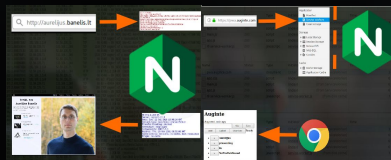
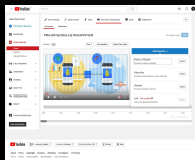
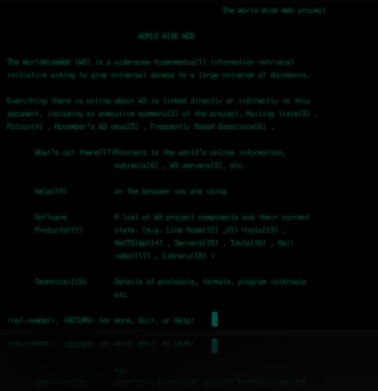
Context

Designed to be online, but used offline?

WebSite looks

Users connecting

Communication



WORLD WIDE WEB

The WorldWideWeb (W3) is a wide-area hypermedia[1] information retrieval initiative aiming to give universal access to a large universe of documents.

Everything there is online about W3 is linked directly or indirectly to this document, including an executive summary[2] of the project, Mailing lists[3] , Policy[4] , November's W3 news[5] , Frequently Asked Questions[6] .


WebSite look


What's out there?[7] Links to the world's online information,
Help[10] on the browser you are using


Software Products[11] A list of W3 project components and their current state. (e.g. Line Mode[12] ,X11 Viola[13] , NeXTStep[14] , Servers[15] , Tools[16] , Mail robot[17] , Library[18])

Technical[19] Details of protocols, formats, program internals etc

CREATOR STUDIO

 YOUTUBE STUDIO BETA


 DASHBOARD


 VIDEO MANAGER


Videos


Playlists


Copyright Notices


 LIVE STREAMING


 COMMUNITY

 CHANNEL


 ANALYTICS


 TRANSLATIONS & TRANSCRIPTIONS

 CREATE


 YOUR CONTRIBUTIONS

Help and feedback


 Info & Settings

 Enhancements

 Audio

 End screen & Annotations

 Cards

 Subtitles/CC



End screen

Annotations

PWA with Symfony 4 @ VilniusPHP 0x43

All changes saved [Save](#)

Preview ☐

View

Use template...

Import from video...



0:00 0:03 0:06 0:09 0:12 0:15 0:18 0:21 0:24

Add element

Video or Playlist

Promote a video or playlist

Create

Subscribe

Promote subscriptions to your channel

Create

Link Not enabled

Link to an approved website

Enable

A sepia-toned photograph of a historic library or study. The room features a vaulted brick ceiling and brick walls. Several wooden desks are arranged in rows, with chairs tucked under them. In the background, a person is standing near a tall wooden bookshelf. A chandelier hangs from the ceiling. The word "Connecting" is overlaid in large white text.

Connecting

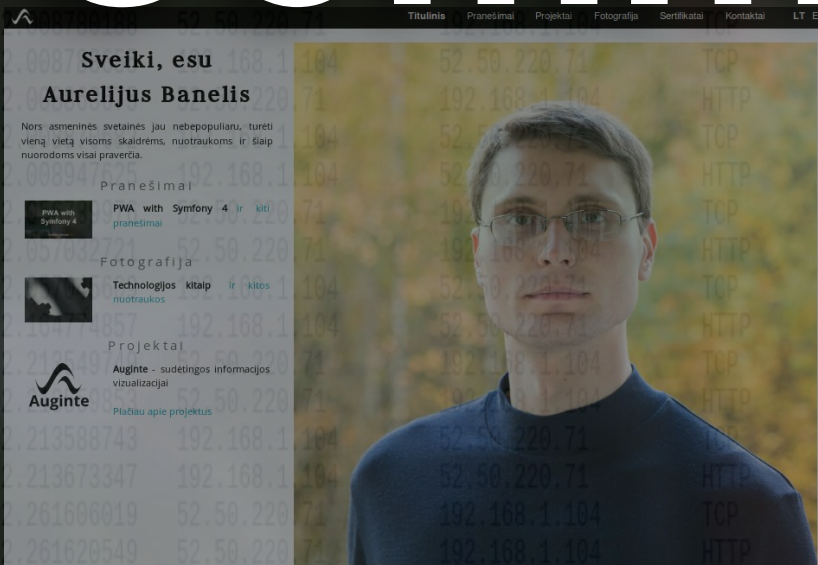
A man wearing a camouflage jacket is sitting in a red and blue striped hammock. He is holding a black smartphone in his right hand and has his left hand near his face. The hammock is strung between two trees in a wooded area. In the background, another hammock with yellow and green stripes is visible. The word "Connecting" is overlaid in large, white, sans-serif font across the center of the image.

Connecting

http://aurelijus.banelis.lt





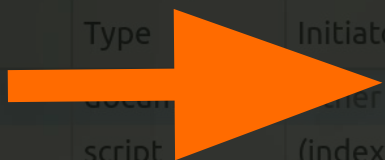
Communicate






```
GET / HTTP/1.1
Host: aurelijus.banelis.lt
User-Agent: Mozilla/5.0 (X11; Ubuntu; Linux x86_64; rv:61.0) Gecko/20100101 Firefox/61.0
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8
Accept-Language: en-GB,en;q=0.5
Accept-Encoding: gzip, deflate
Cookie: ses628799680=d339f80d161e77a157d8a39741f0e8d
Connection: keep-alive
Upgrade-Insecure-Requests: 1
Cache-Control: max-age=0
```

```
HTTP/1.1 200 OK
Server: nginx/1.11.1
Date: Sun, 22 Jul 2018 13:48:14 GMT
Content-Type: text/html; charset=UTF-8
Transfer-Encoding: chunked
Connection: keep-alive
X-Powered-By: PHP/7.2.0
Expires: Thu, 19 Nov 1981 08:52:00 GMT
Cache-Control: no-store, no-cache, must-revalidate
Pragma: no-cache
```






  <https://pwa.auginte.com>





Application

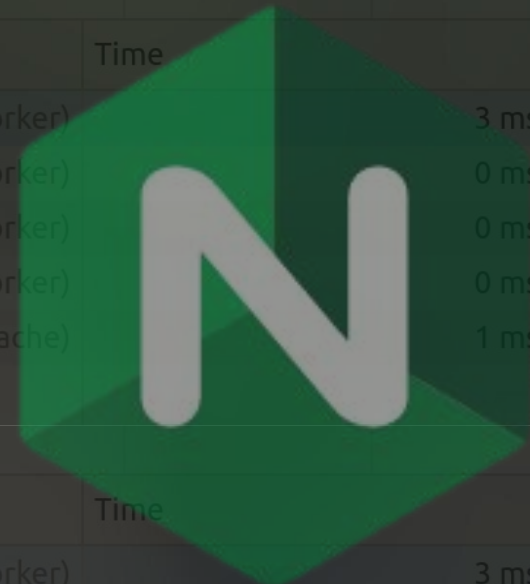
-  Manifest
-  **Service Workers**
-  Clear storage

Storage

-  Local Storage
-  Session Storage
-  IndexedDB
-  Web SQL
-  Cookies

Cache






-  Cache Storage
-  Application Cache

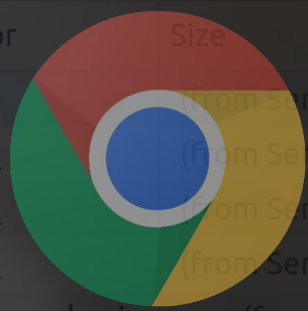


Communicate

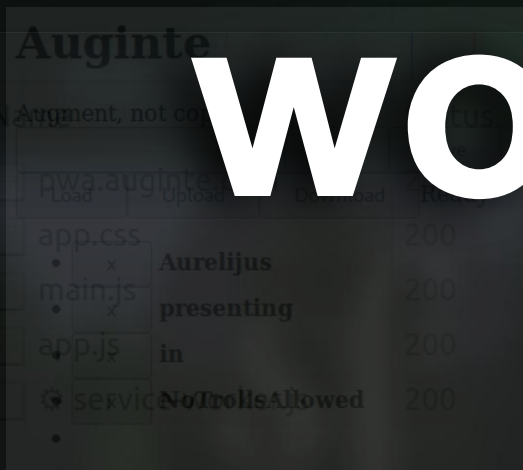
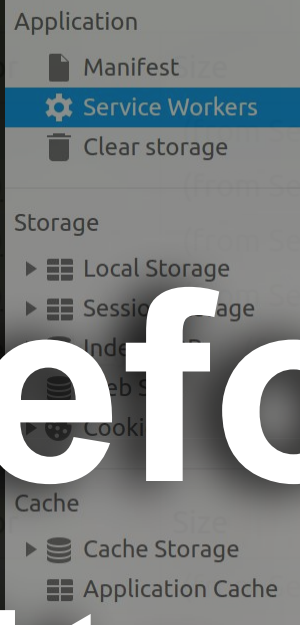
Auginte

Augment, not copy

-  Aurelijus
-  presenting
-  in
-  NoTrollsAllowed
- 



Therefore WebSite can work offline



Service Workers

☐ Offline ☐ Update on reload ☐ Bypass for network

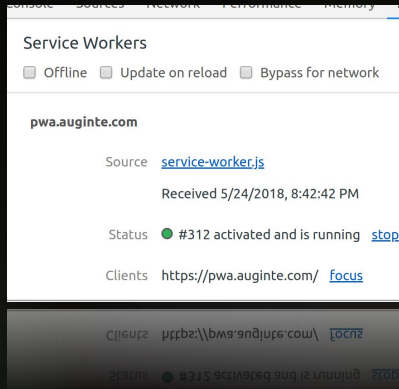
pwa.auginte.com

Service Workers:

Received 5/24/2018, 8:42:42 PM

is it enough?

Clients <https://pwa.auginte.com/> [focus](#)



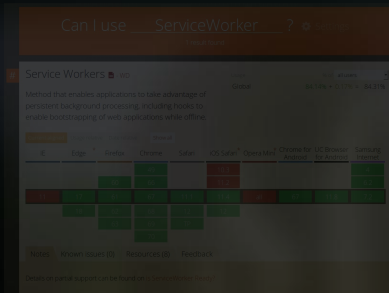
Context

Service Workers – technology behind offline Web



Principles

Taking advantage of restrictions



Tooling

Creating your own offline WebSite

Context

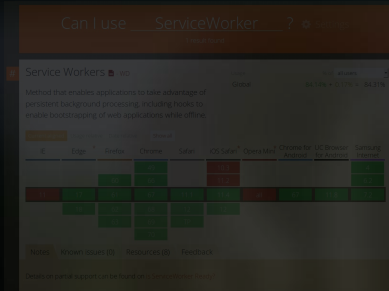
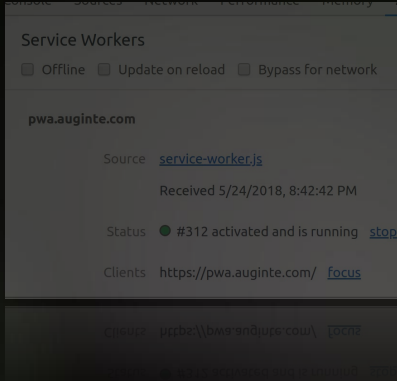
Service Workers – technology behind offline Web

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**To keep offline
User experience
as good as
online...**

Size

(from Service...

6 ms


(from Service...

0 ms


A 3D structure of dark red cubes is centered in the background. The cubes are arranged in a complex, symmetrical pattern, with some cubes appearing to be stacked or interlocked. The lighting creates soft shadows and highlights on the edges of the cubes, giving them a three-dimensional appearance. The overall scene is set against a solid black background.

Read immutable

Write Later



Let's explain by example...



Read immutable

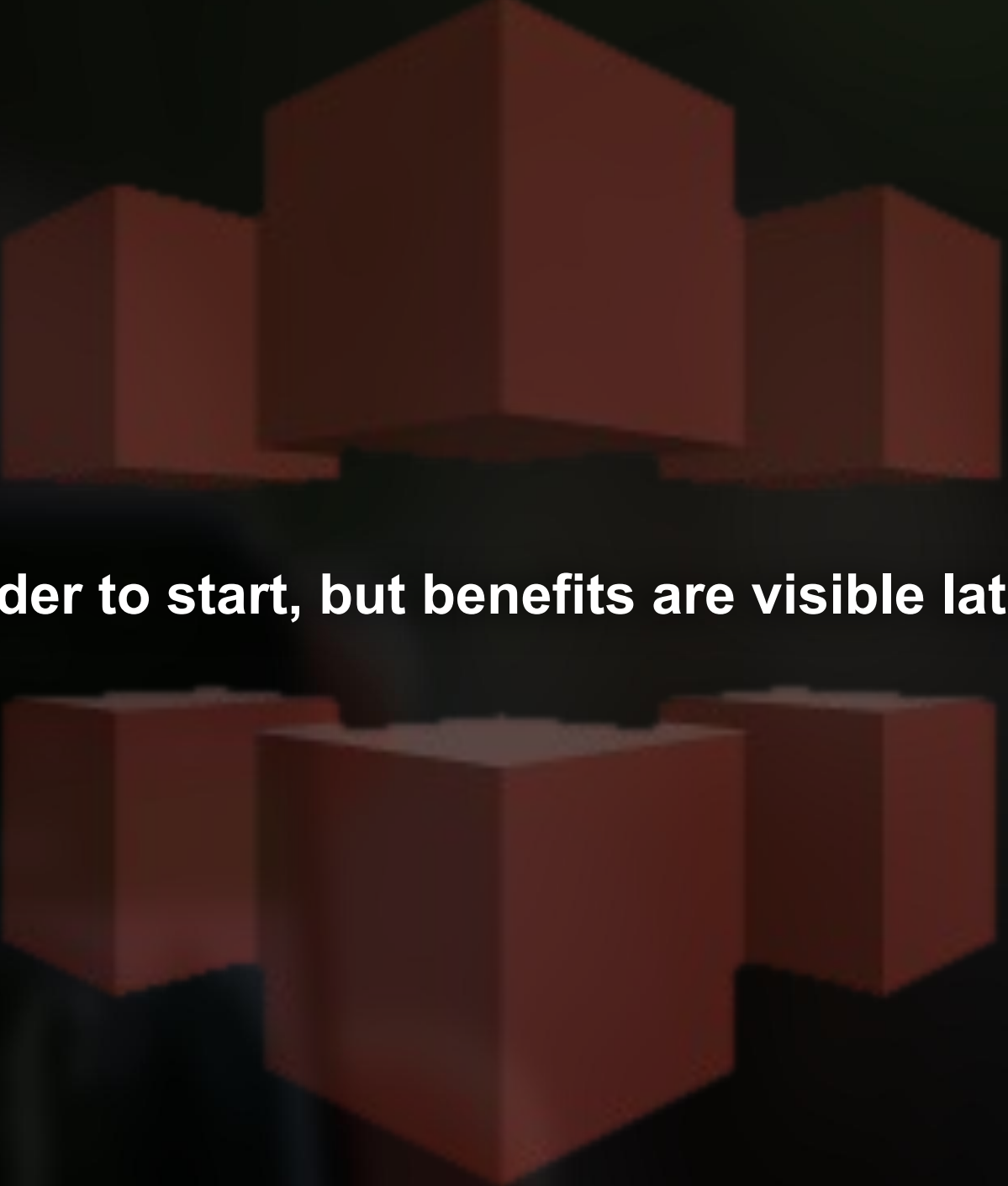


Download all resources with versions

**Store in the Browser,
then upload to server**



Write later



Harder to start, but benefits are visible later...



Fast first byte

CDN + progressive enhancement

Time to interaction

Split + HTTP2 + Cache + Lazy load

2018 reform of EU data protection rules

Stronger rules on data protection mean people have more control over their personal data and businesses benefit from a level playing field.

Tracking as a discount

PAGE CONTENT

About the regulation and data protection

Background

Library

Related links

Rules for business and organisations

Rights for citizens

Application of the GDPR obligations, individuals also request enforcement

Enforcement of our personal data rights and redress

About the regulation and data protection

Monitor + Store in browser →
Sync on consent

- [What does the General Data Protection Regulation \(GDPR\) govern?](#)

- [What is personal data?](#)

- [What constitutes data processing?](#)

- [What are Data Protection Authorities \(DPAs\)?](#)

Importuoti skaidres

x

Pristatymai

Įkelti

A/B testing

Cache Storage + FileReader API →

Fast test load + simultaneous store

Context

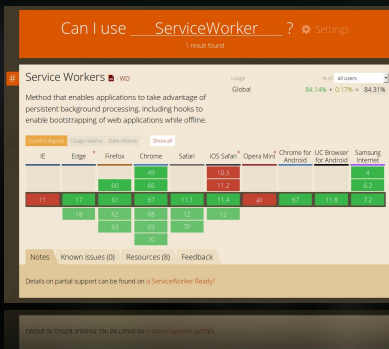
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Progressive Web Apps

[PWA CHECKLIST](#)

A new way to deliver amazing user experiences on the web.

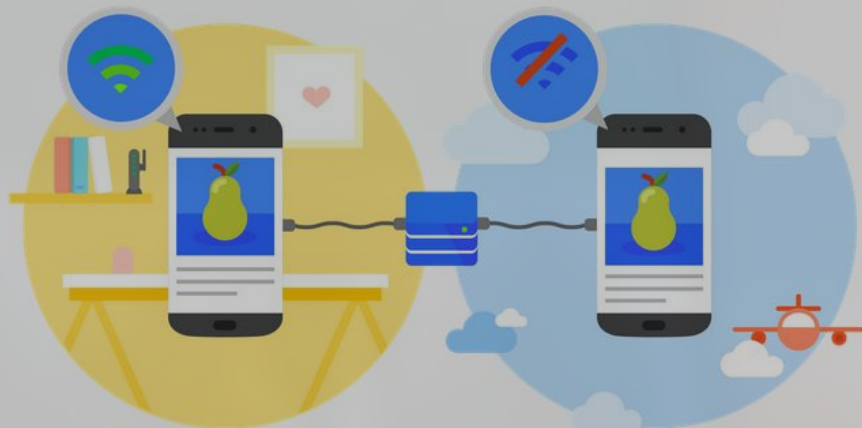
Progressive Web Apps are user experiences that have the reach of the web, and are:

- **Reliable** - Load instantly and never show the downasaur, even in uncertain network conditions.
- **Fast** - Respond quickly to user interactions with silky smooth animations and no janky scrolling.
- **Engaging** - Feel like a natural app on the device, with an immersive user experience.

This new level of quality allows Progressive Web Apps to earn a place on the user's home screen.



ServiceWorkers



Reliable

When launched from the user's home screen, service workers enable a Progressive Web App to load instantly, regardless of the network state.

A service worker, written in JavaScript, is like a client-side proxy and puts you in control of the cache and how to respond to resource requests. By pre-caching key resources you can eliminate the dependence on the network, ensuring an instant and reliable experience for your users.

[LEARN MORE](#)

Button to clear Cache

CommandQuerySeparation



Martin Fowler
5 December 2005

The term 'command query separation' was coined by Bertrand Meyer in his book "**Object Oriented Software Construction**" - a book that is one of the most influential OO books during the early days of OO. (The first edition is the one that has the influence, the second edition is good but you'll need several months in a gym before you can lift it.)

The fundamental idea is that we should divide an object's methods into two mutually separated categories:

- **Queries:** Return a result and do not change the observable state of the system (are free of side effects).
- **Commands:** Change the state of a system but do not return a value.

Because the term 'command' is widely used in other contexts I prefer to refer to them as '**modifiers**', you also see the term 'mutators'.

Can I use ServiceWorker ?  Settings

1 result found

Service Workers - WD

Usage

% of

Global

84.14% + 0.17% = 84.31%

Method that enables applications to take advantage of persistent background processing, including hooks to enable bootstrapping of web applications with offline

Check

Current aligned Usage relative Date relative Show...

IE	Edge *	Firefox	Chrome	Safari	iOS Safari *	Opera Mini *	Chrome for Android	UC Browser for Android	Samsung Internet
11	17	61	67	11.1	11.4	all	7	11.8	7.2
	18	62	68	12	12				
		63	69	TP					
			70						

Notes Known issues (0) Resources (8) Feedback

Details on partial support can be found on [is ServiceWorker Ready?](#)

Context

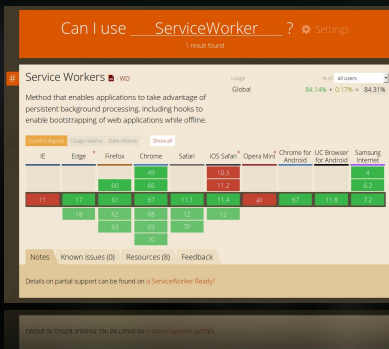
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WEB: Born online, Flourish offline

Offline-first WEB

Thank you.
Questions?

Aurelijus Banelis

Further reading

<https://developers.google.com/web/fundamentals/instant-and-offline/web-storage/offline-for-pwa>

<https://www.npmjs.com/package/sw-precache-webpack-plugin>

<https://stackoverflow.com/questions/8645369/how-do-i-get-the-file-content-from-a-form>

https://youtu.be/_bzqF05xsC4 o

<https://aws.amazon.com/appsync/>

<https://medium.com/webpack/predictable-long-term-caching-with-webpack-d3eee1d3fa31>

https://ec.europa.eu/commission/sites/beta-political/files/data-protection-factsheet-changes_en.pdf

<https://jakearchibald.com/2016/streams-ftw/>