

Progressive Web Apps

For Enterprise



Tarik Huber

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@TarikHuber





Tarik Balkanborn of the House Huber, First of His Name, the Overweight, King of the First PWA apps in ICS and Magister for road traffic, Tamer of React, Creator of React Most Wanted, Organiser of Google Developer Group Berchtesgadener Land, Sensei of Bachelor Students at FH Salzburg and Father of Dragons

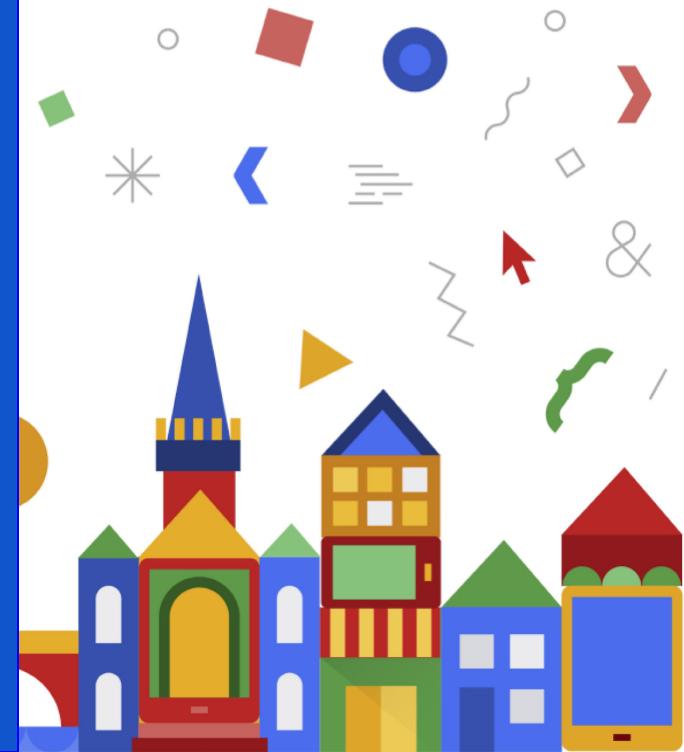
THE DRAGONS





Google Developer Groups

› GDG Berchtesgadener Land





300 000 +



672

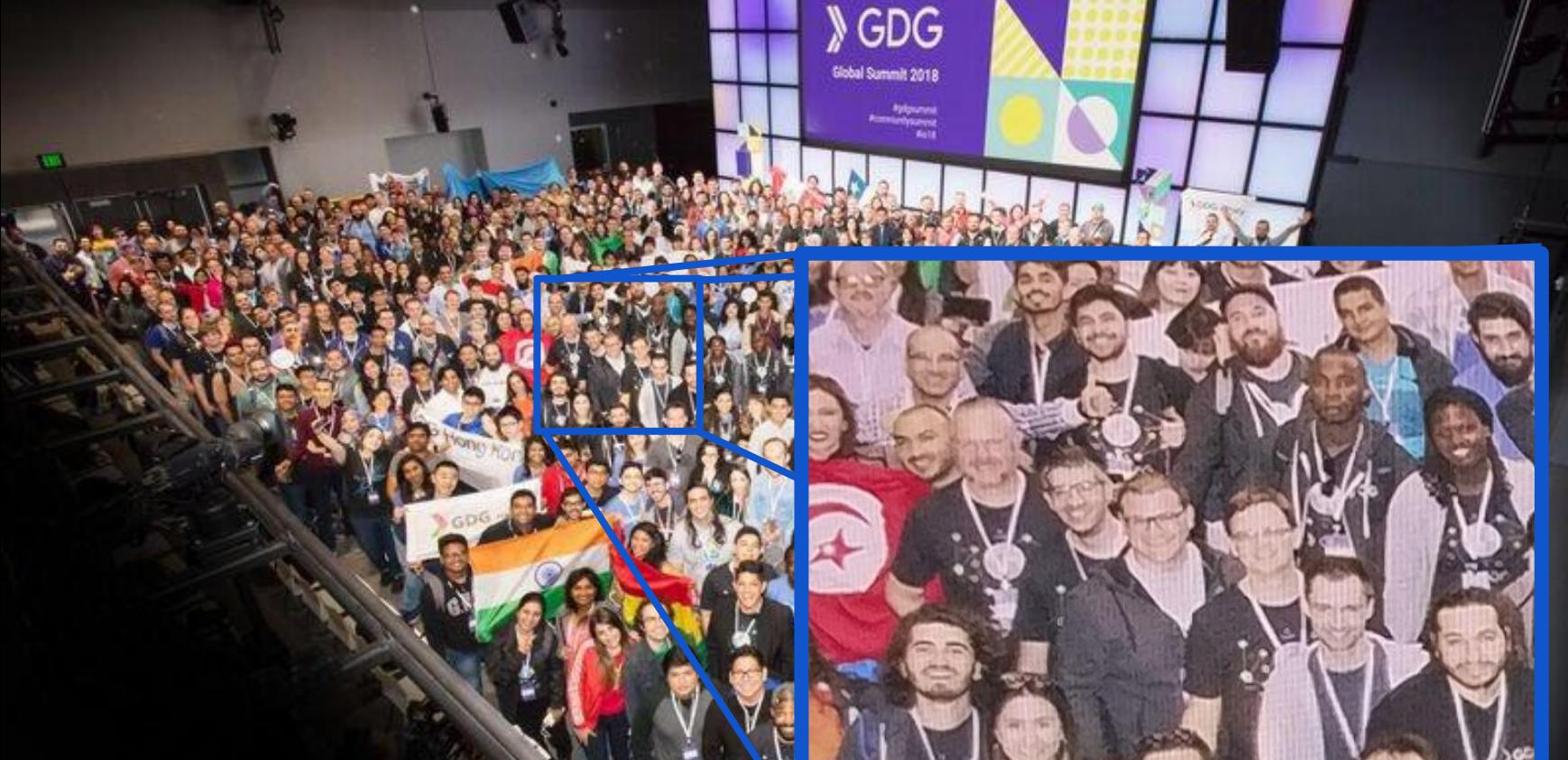


108

 GDG

Global Summit 2018

Polycom
Community
Summit
2018



» GDG

Global Summit 2018







DACHFest

Munich. November 10-11, 2018.
Making a difference.

 GDG != Google



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PWA

Progressive Web Apps

For Enterprise





WORKING AT

ENTERPRISE



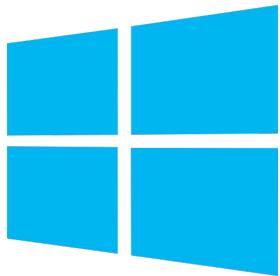
↗ GDG Berchtesgadener Land





I HAVE NO IDEA WHAT I'M DOING HERE

Get them all



Get them all

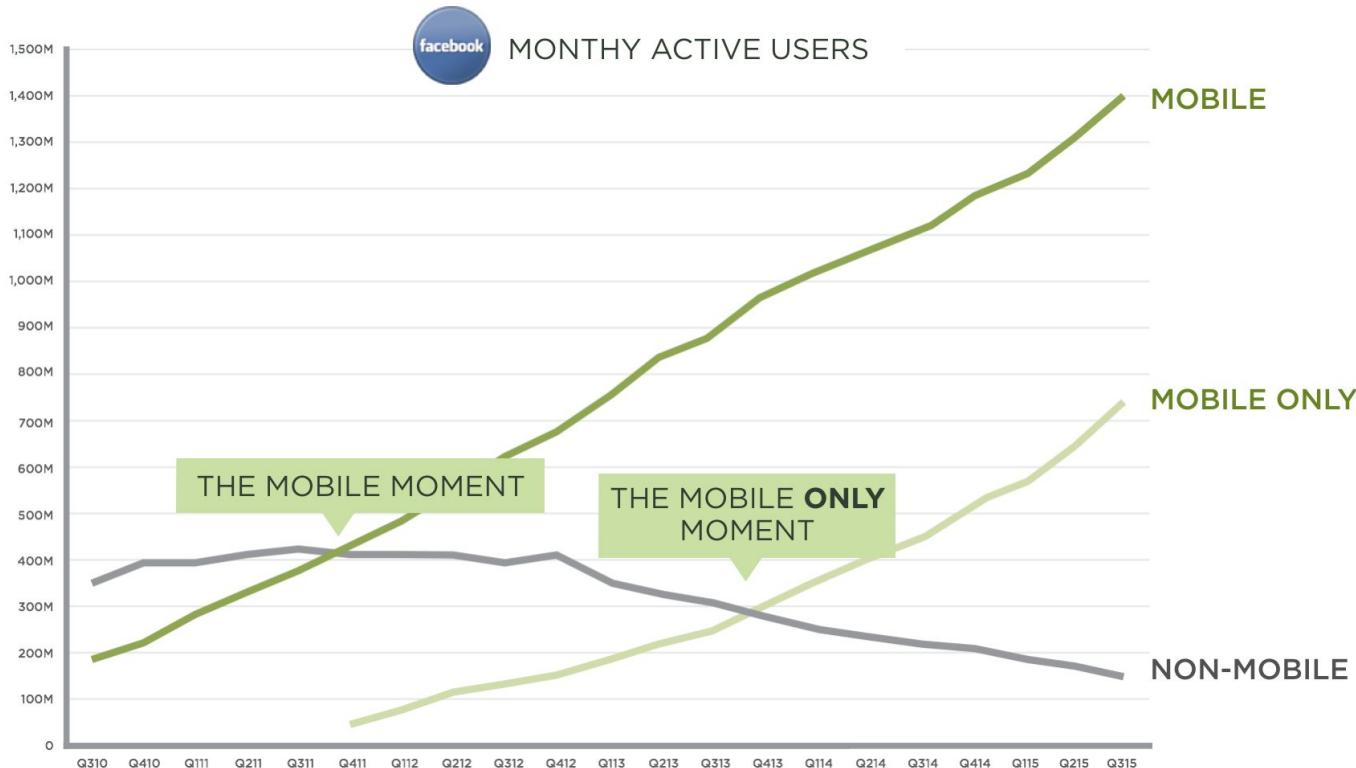


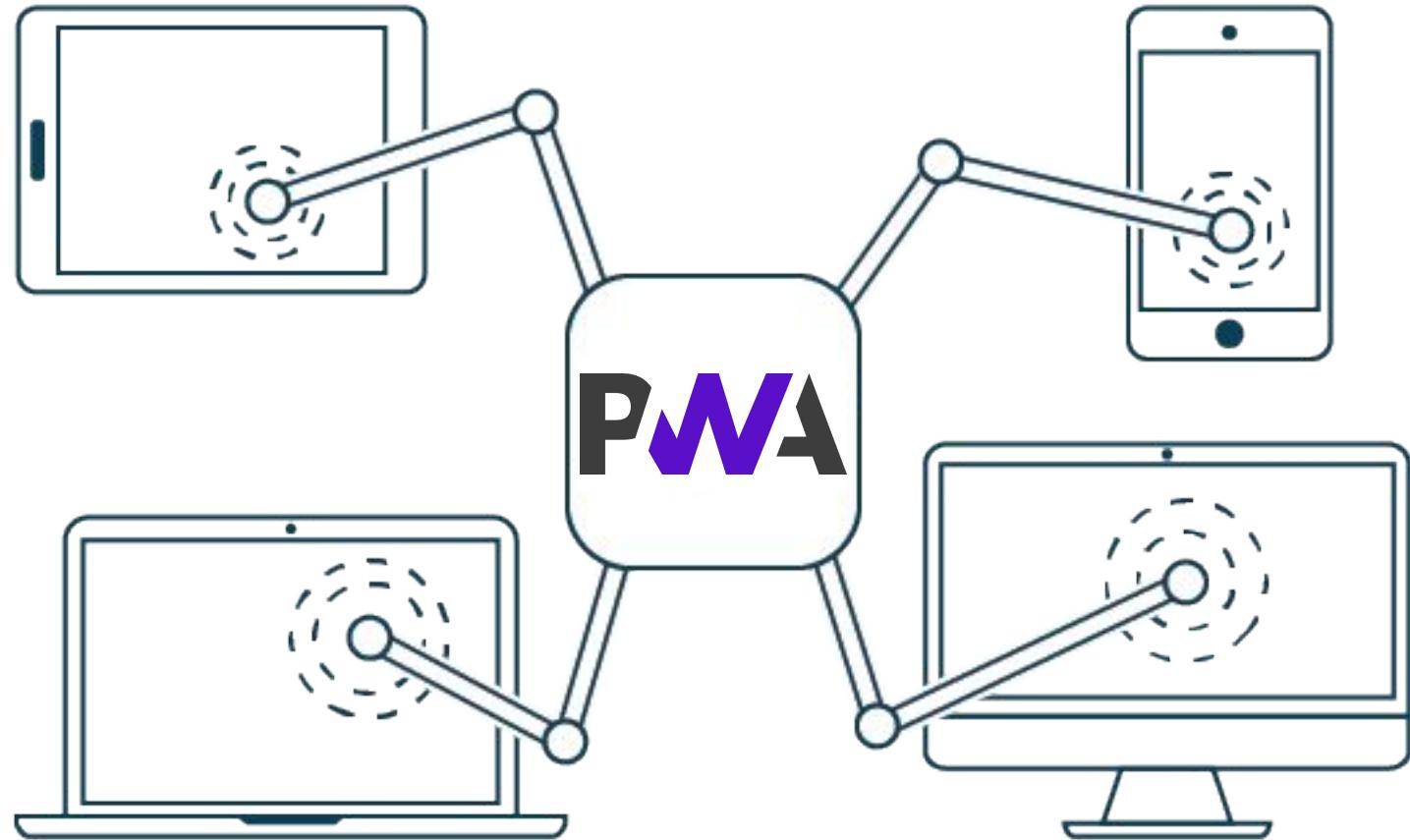
TARIK

PLEASE STOP





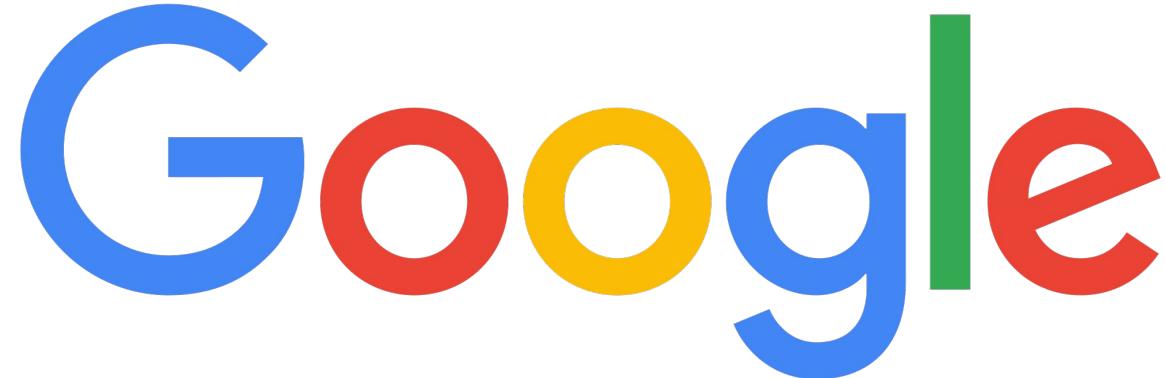


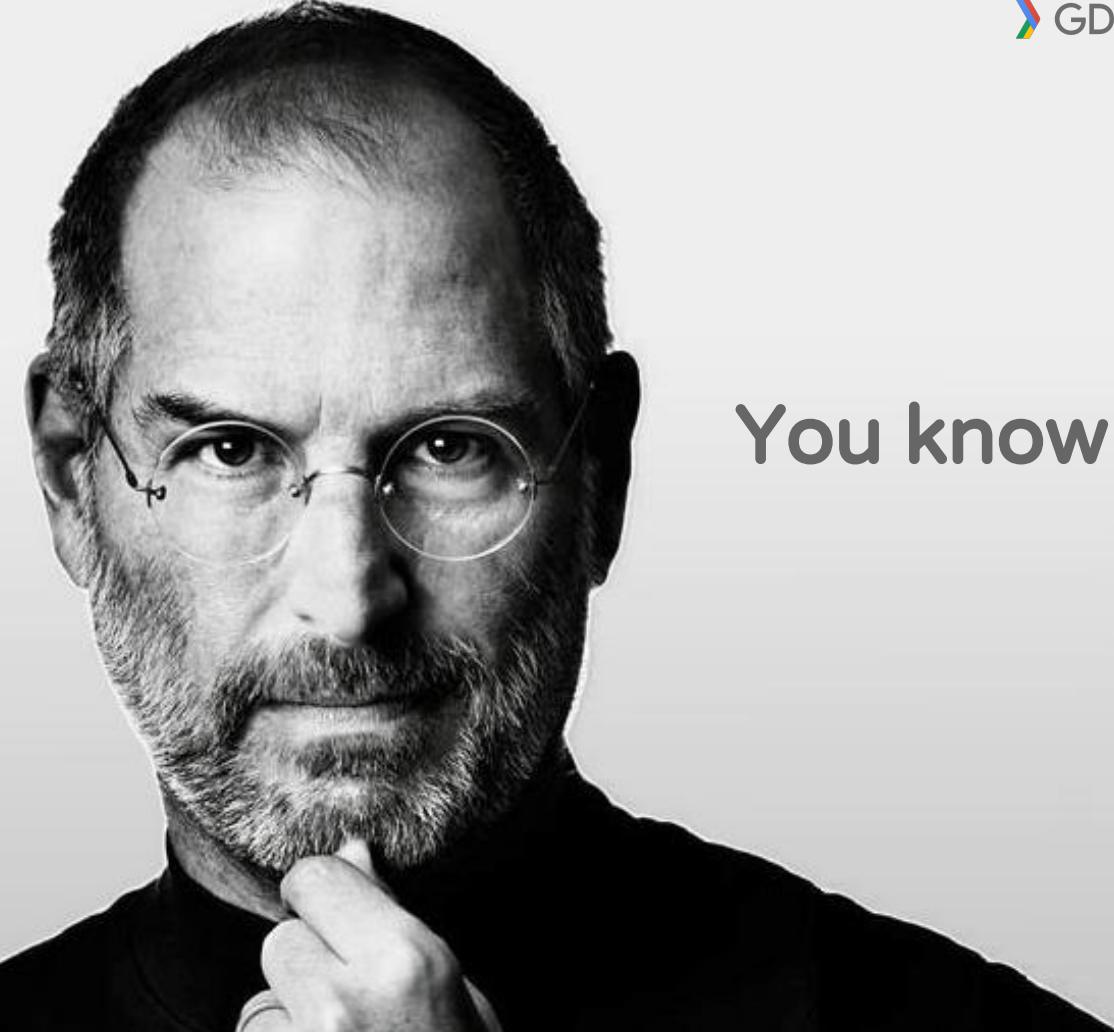


NO PWA



NO WADER

Just a
Google
thing !?

A black and white portrait of Steve Jobs, looking directly at the camera with his hand resting against his chin.

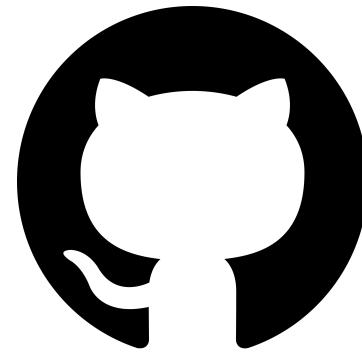
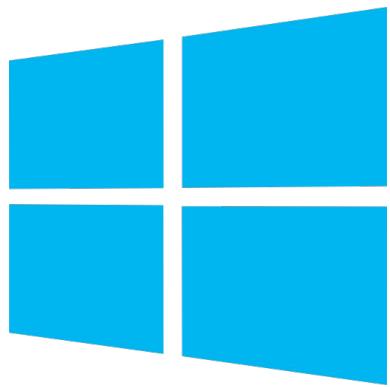
You know him?!

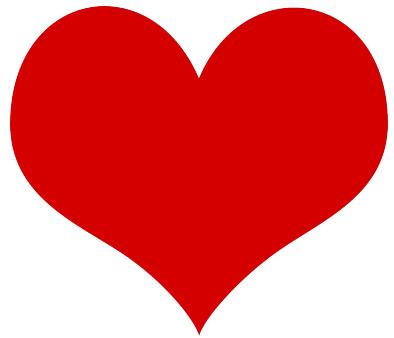
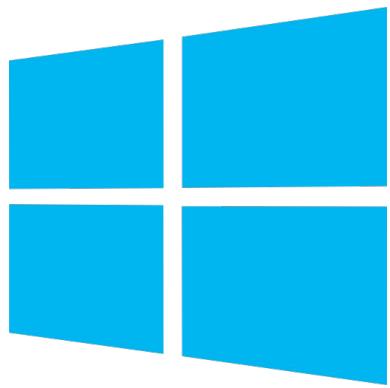
“You’ve got everything you need if you know how to write apps using the most modern web standards to write amazing apps for the iPhone today.”

/ Steve Jobs - Extract from Steve Jobs speech at Macworld 2007

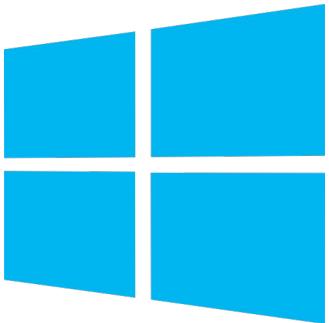
IMPERIALBEDROOMS



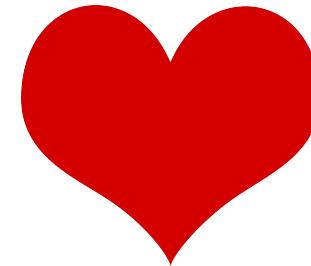
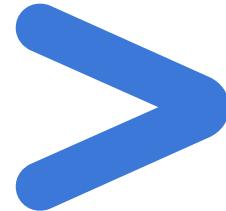




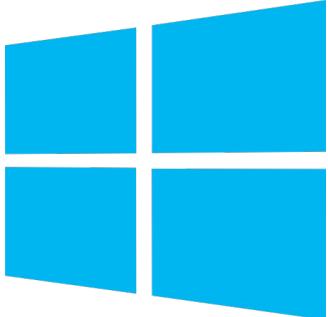
PWA



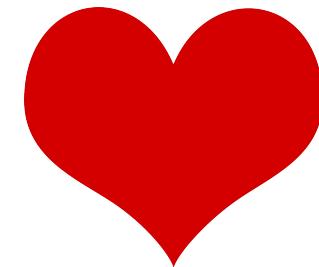
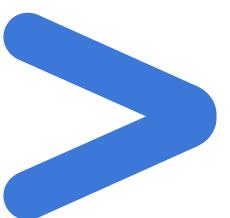
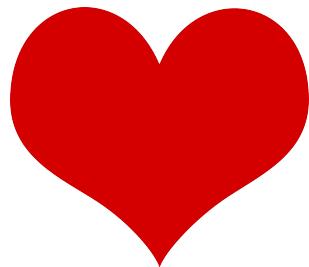
Google



PWA

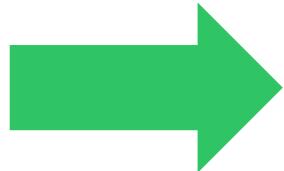


Google



PWA

PWA



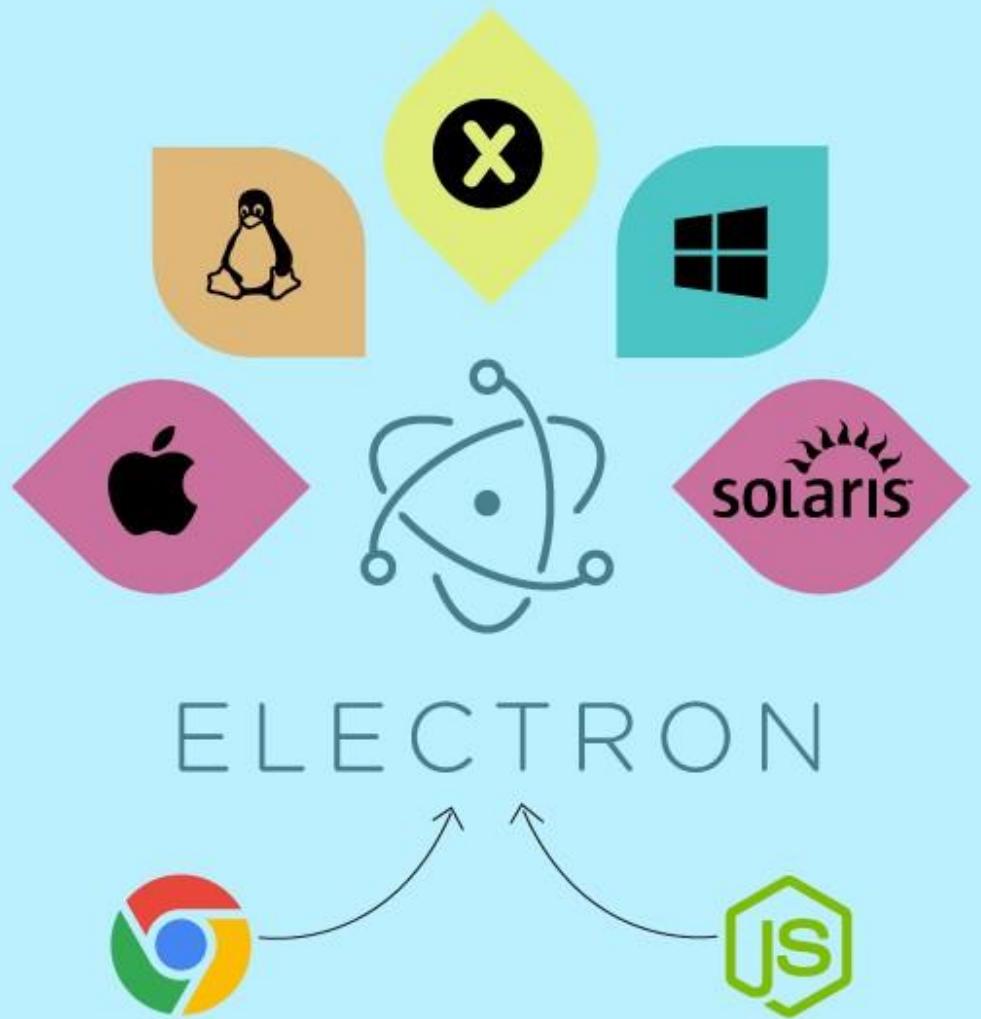
YEEESSS

we are excited

	HTML 5	CSS3 & JS development	Service Workers	Cache & Push APIs
Pros/Cons				
Development cost	✗	✓	✓	✓
Maintenance	✗	✓	✓	✓
Speed	✓	✗	✓	✓
User Interface	✓	✗	✓	✓
Platform independence	✗	✓	✓	✓
App store distribution	✓	✗	✓	✗
Offline functionality	✓	✗	✗	✓
Push notifications	✓	✗	✗	✓
Icon on home screen	✓	✗	✗	✓

source: <https://www.scivisum.co.uk/blog/progressive-web-apps-right-business/>

Evolution of apps



Native App
“single code base”
development



=



+

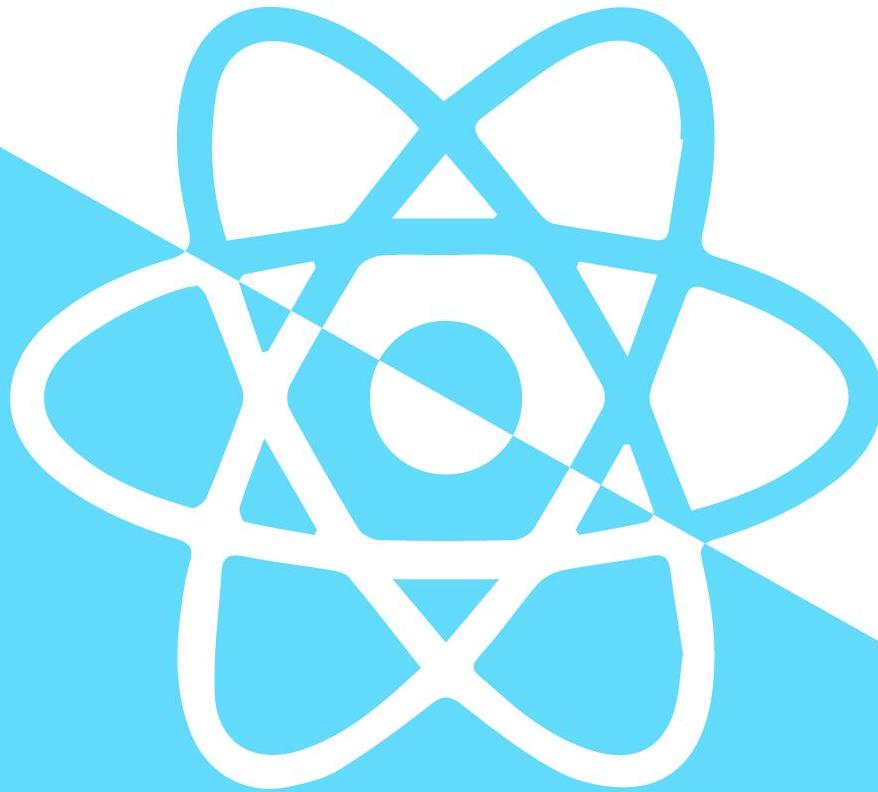


+

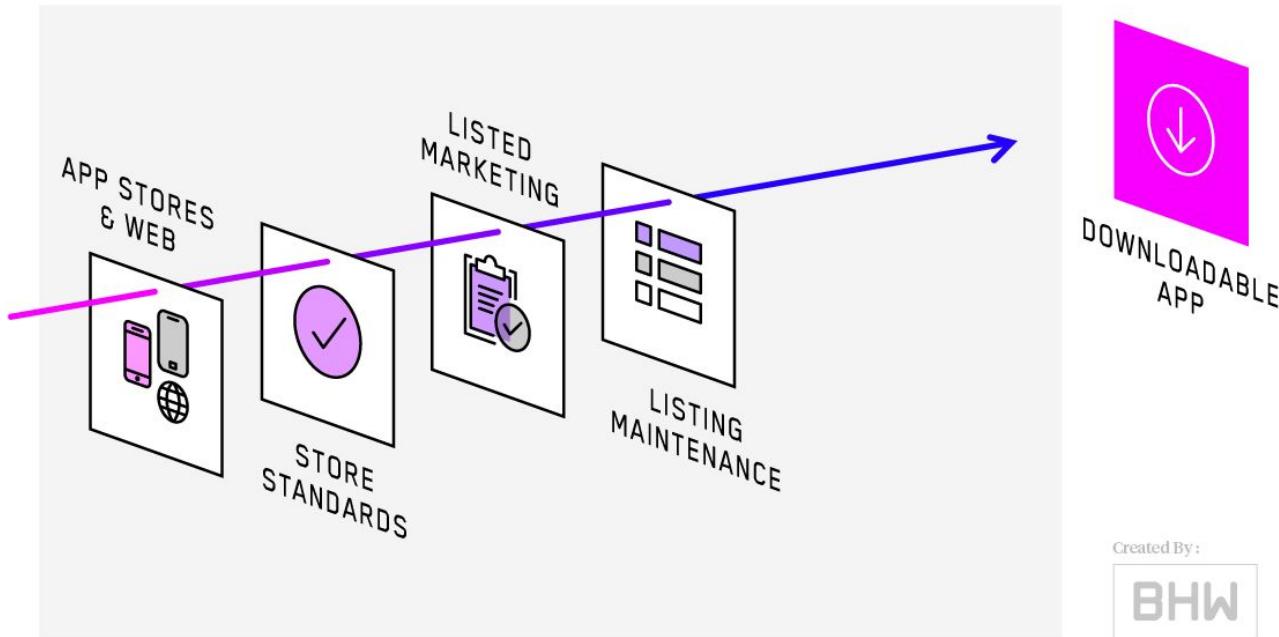


+

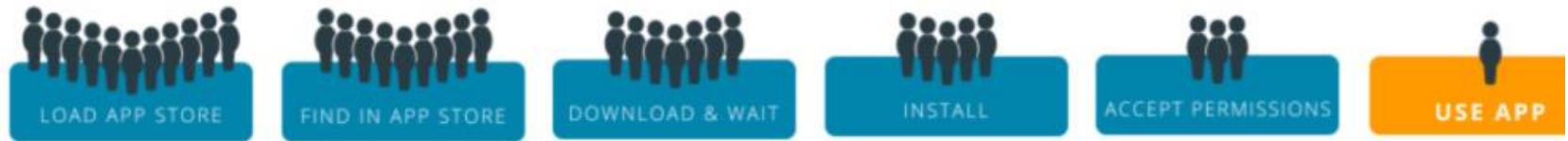




Release time



Native App Installation User Flow:



Native App Installation User Flow:



Progressive Web App User Flow:



PWA release



Para, Money, Cash



NO CASH

NO APP



PWA

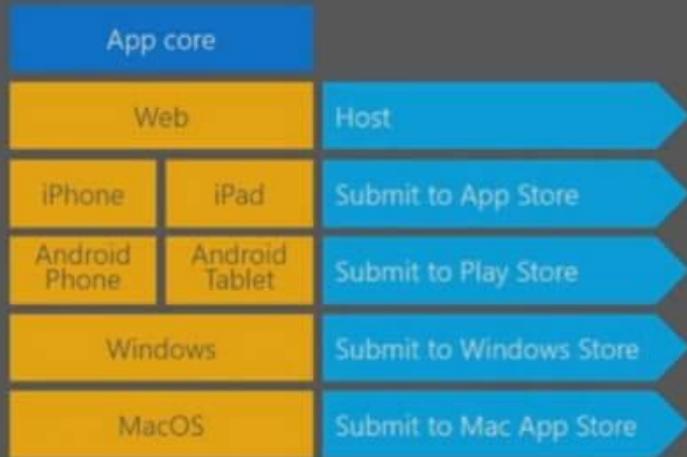
TO RESCUE

Why build a Progressive Web App?

PWAs = Lower Cost (& Time) to Build

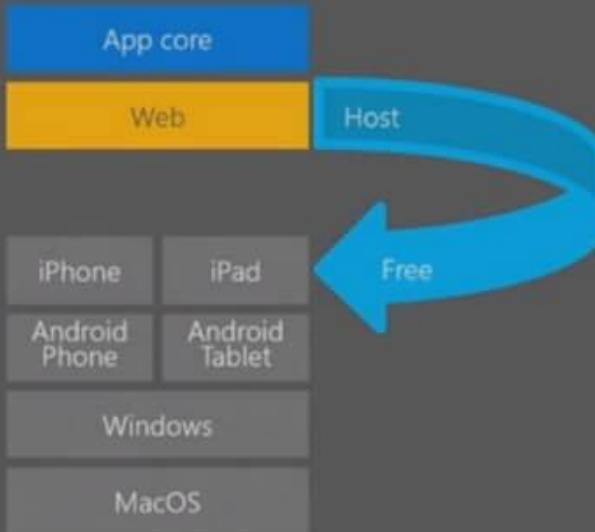
Native

App store submission is largely required



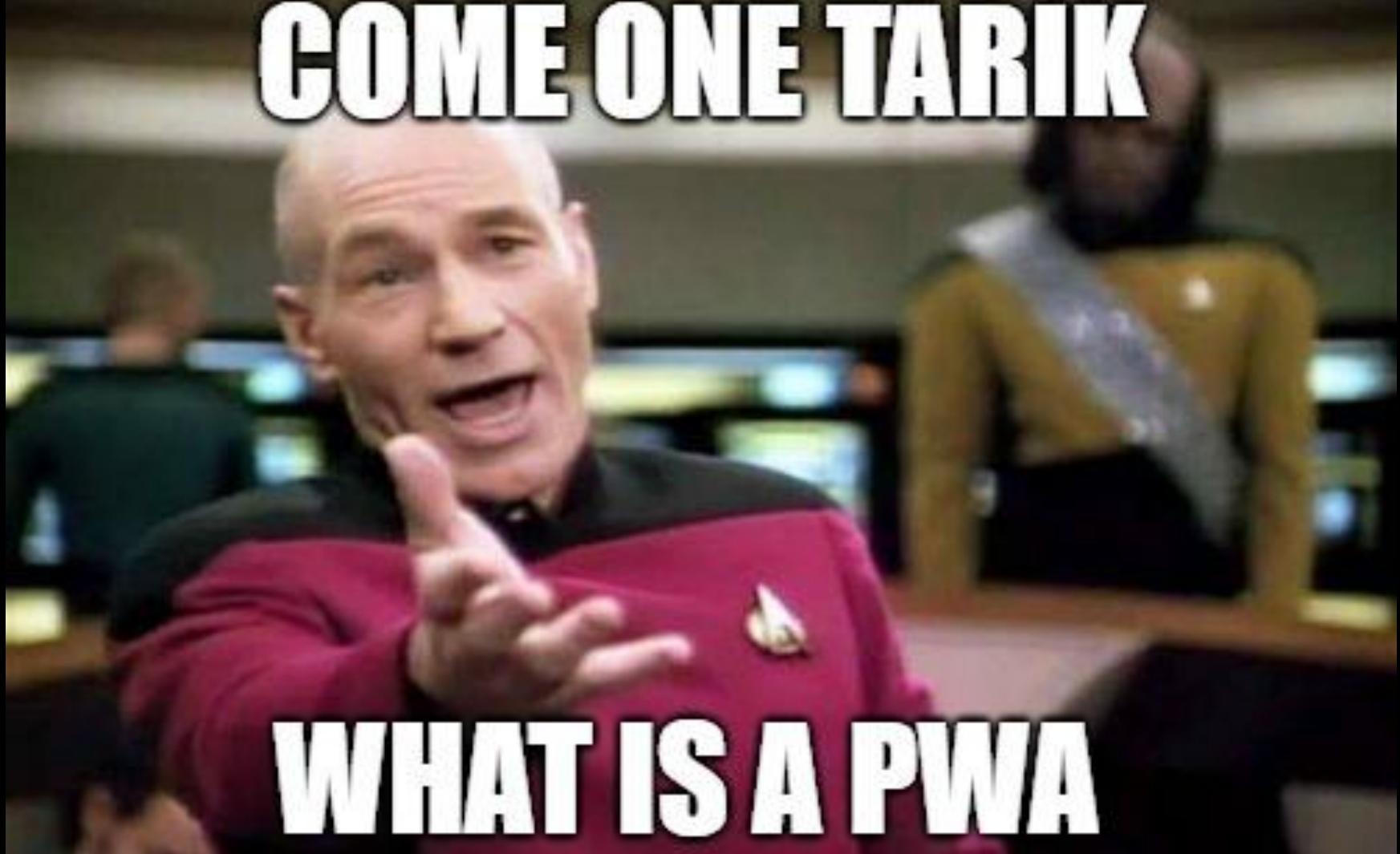
PWA

App store submission optional (or one-time)



COME ONE TARIK

WHAT IS A PWA



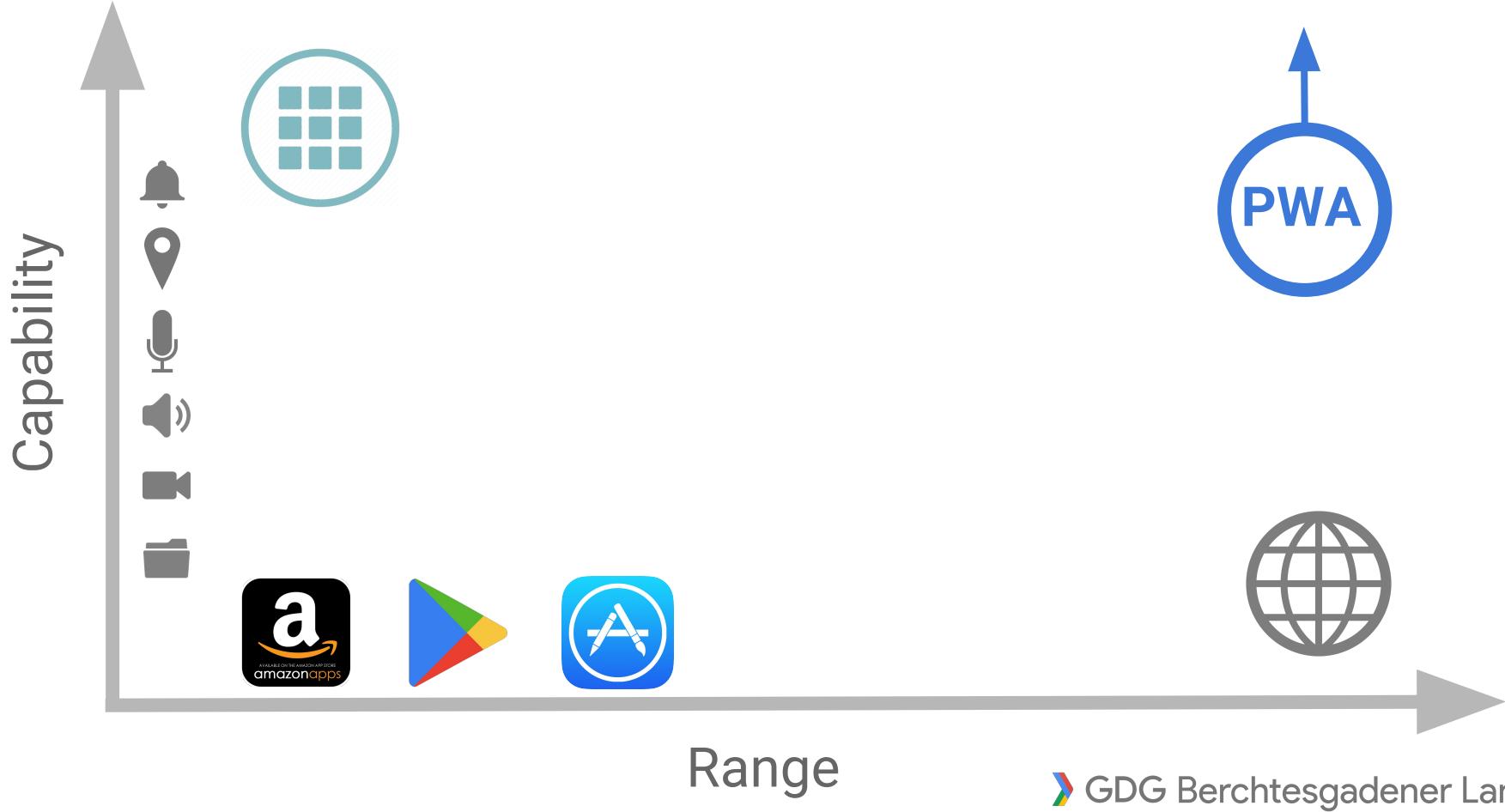
Progressive Web Apps

means radically improving
web user experiences

PWA-S ARE



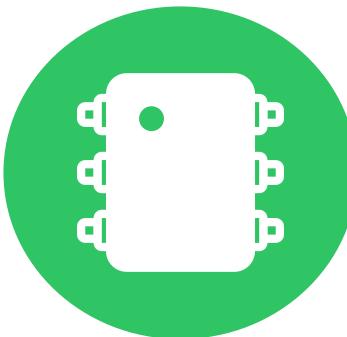
**JUST WEBSITES THAT TOOK
ALL THE RIGHT VITAMINS**



Progressive Web Apps



Fast



Integrated



Reliable

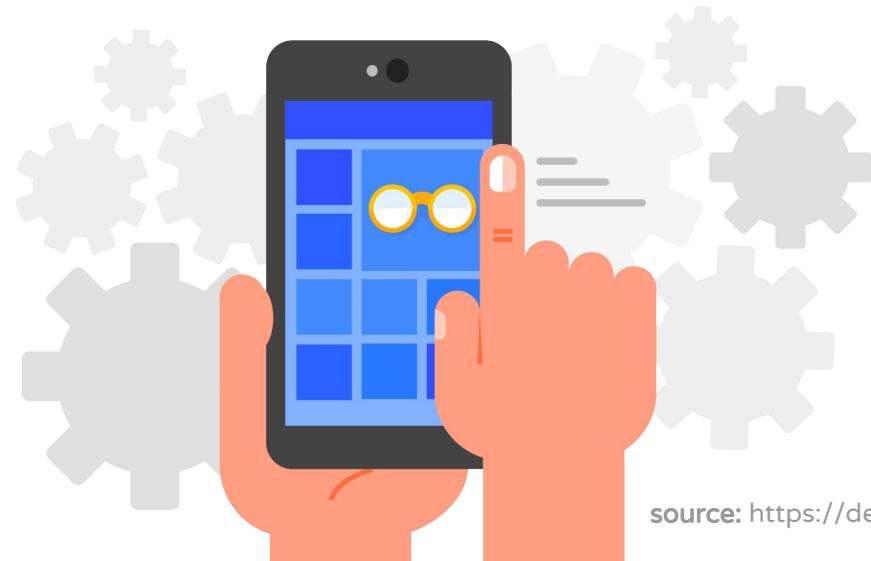


Engaging
Ansprechend

FAST

53%

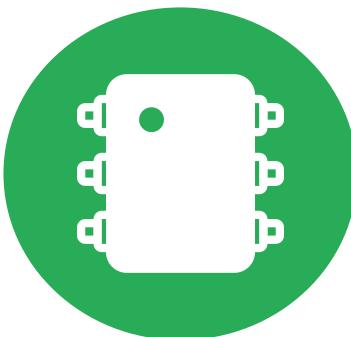
of users will abandon a site if it takes longer than
3 seconds to load!



Progressive Web Apps



Fast



Integrated



Reliable



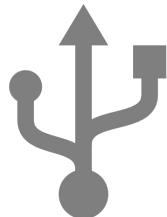
Engaging

INTEGRATED

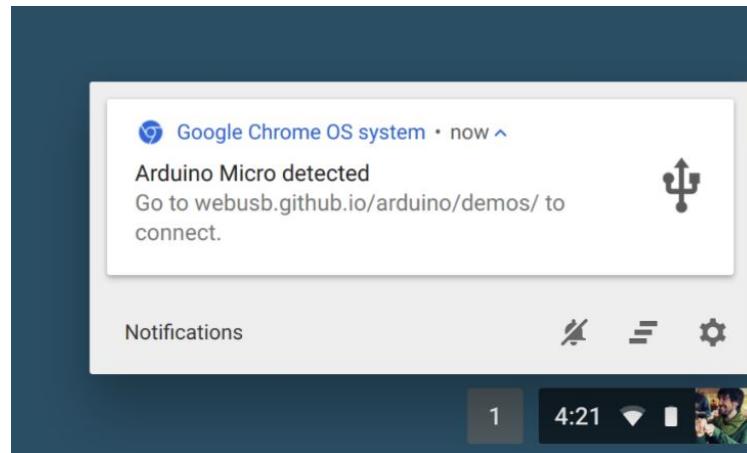
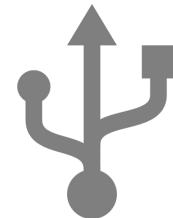
Users shouldn't have to feel like
they're reaching through a
browser tab in order to access
your **app**.







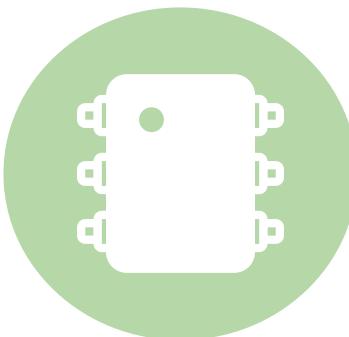
and more are coming ...



Progressive Web Apps



Fast



Integrated



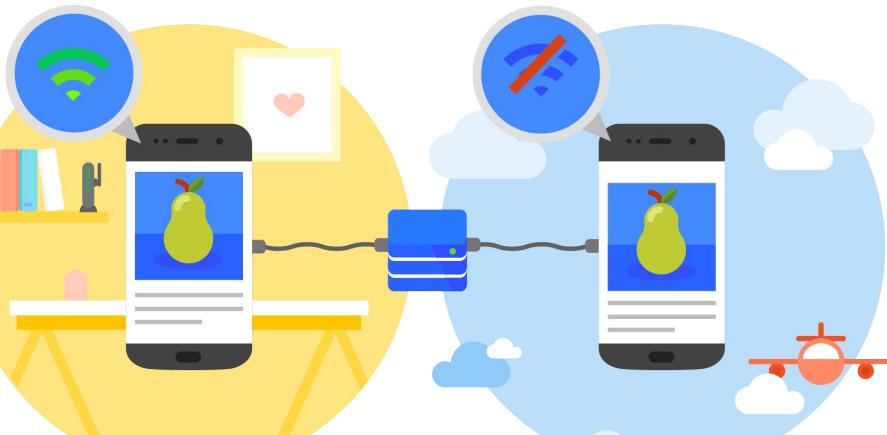
Reliable



Engaging

RELIABLE

Progressive Web Apps should load instantly, regardless of the **network state**.



32% of Firefox Setup 2.0.0.7.exe Completed



Saving:

Firefox Setup 2.0.0.7.exe from mozilla.mirror.ac.za



Estimated time left: 1 min 43 sec (1.79 MB of 5.73 MB copied)

Download to: C:\Docume...|Firefox Setup 2.0.0.7.exe

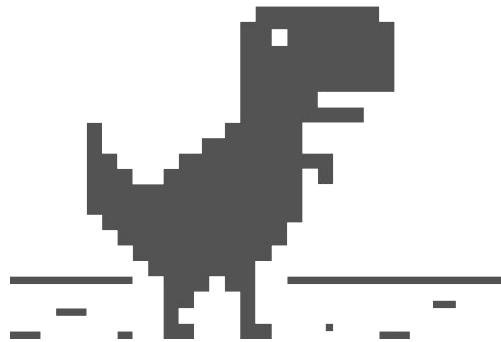
Transfer rate: 39.9 KB/Sec

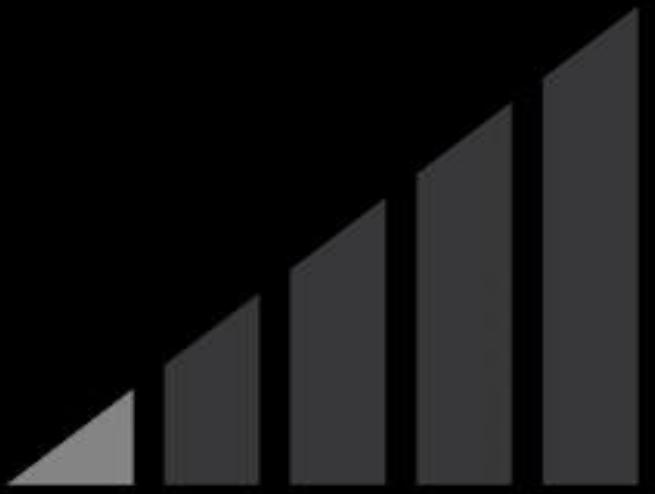
Close this dialog box when download completes

Open

Open Folder

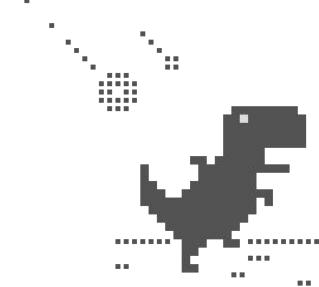
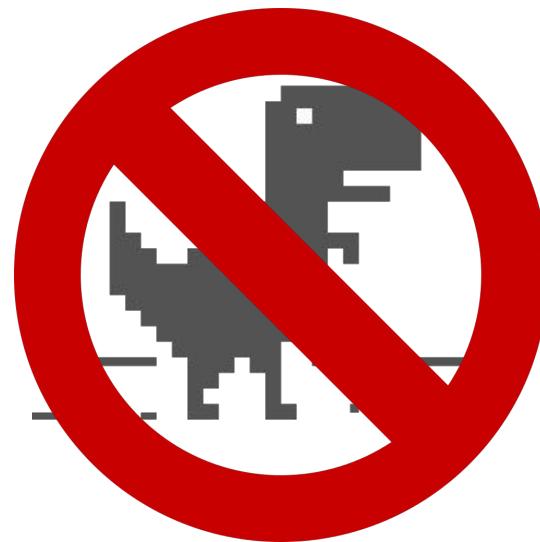
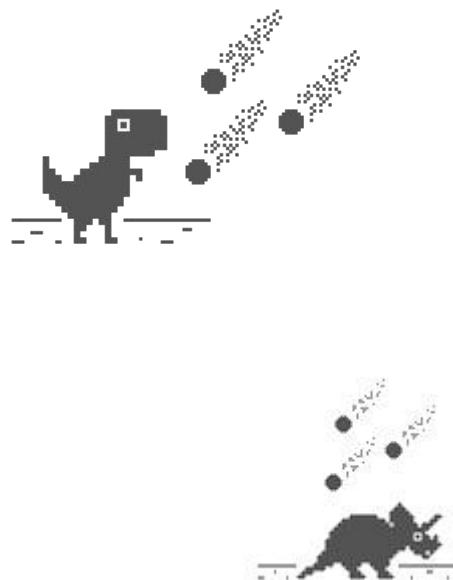
Cancel



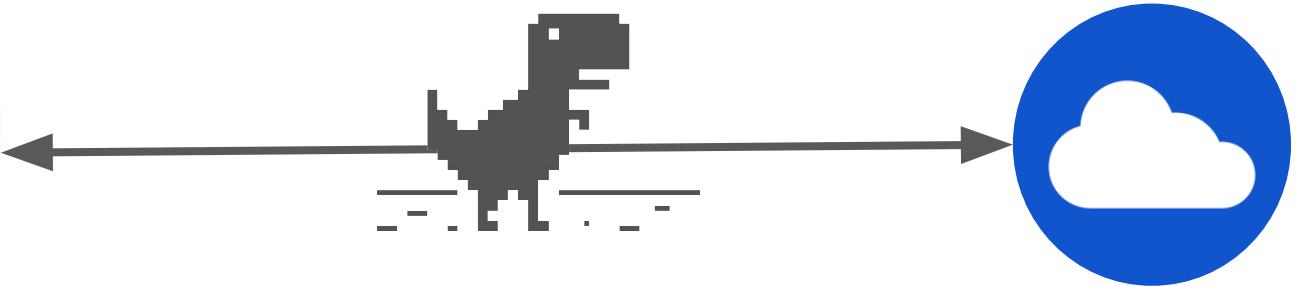
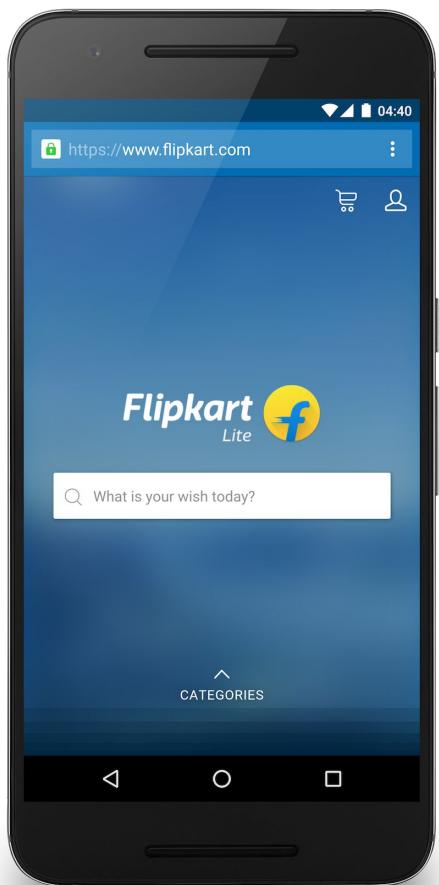


Lie-Fi

Reliability means
never showing the Downasaur

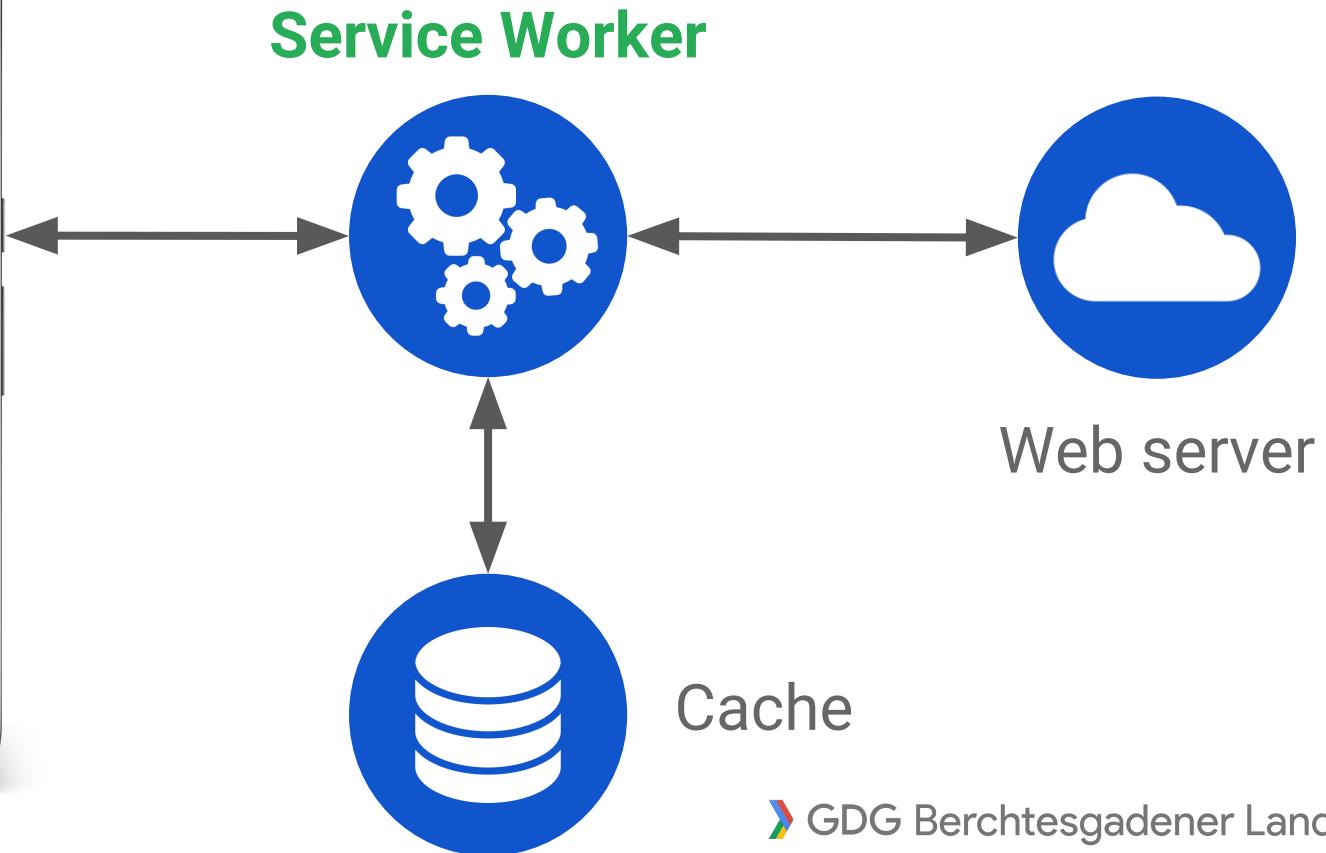
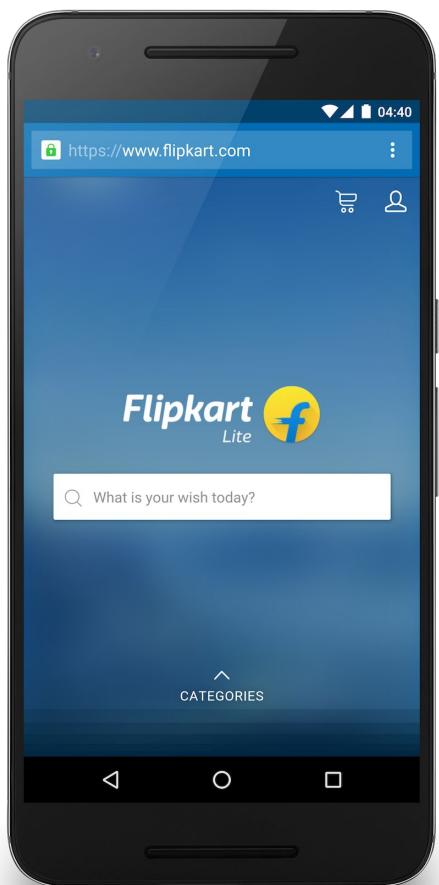


Service Worker: reliable application



Web server

Service Worker: client-side JavaScript proxy



Service Worker





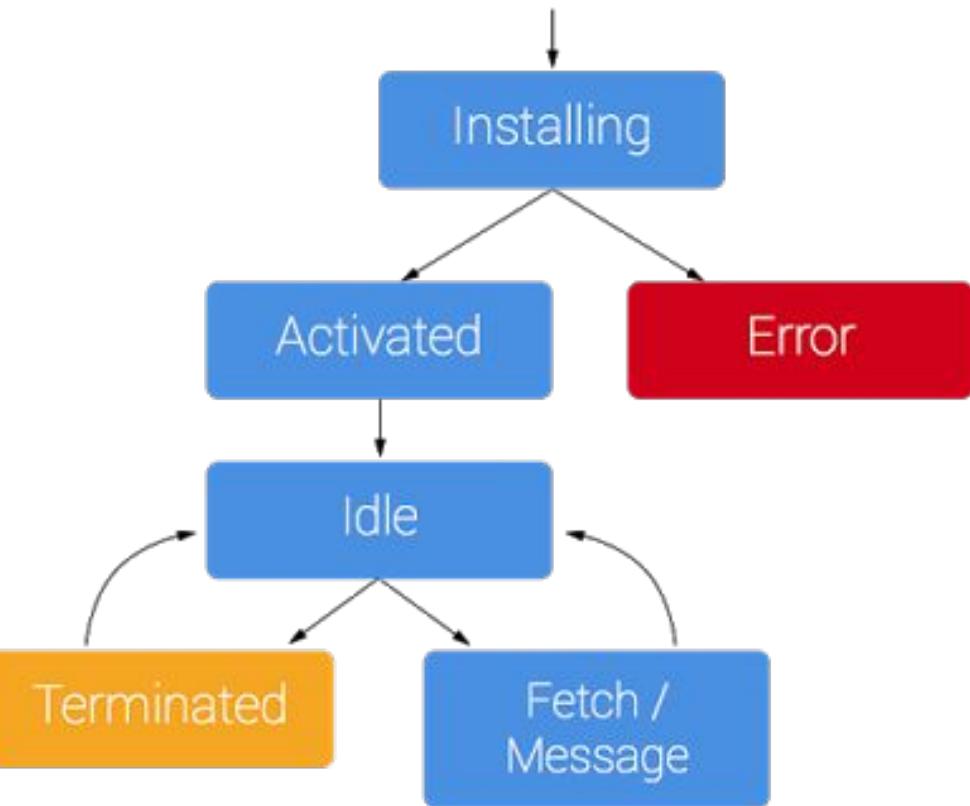
MAY THE SERVICE WORKER BE WITH YOU



```
if ('serviceWorker' in navigator) {  
  
  window.addEventListener('load', function() {  
  
    navigator.serviceWorker.register('/sw.js').then(function(registration) {  
  
      // Registration was successful  
  
      console.log('ServiceWorker registration successful with scope: ',  
registration.scope);  
  
    }, function(err) {  
  
      // registration failed :(  
  
      console.log('ServiceWorker registration failed: ', err);  
  
    });  
  });  
}  
}
```

source: <https://developers.google.com/web/fundamentals/primers/service-workers/lifecycle>

No Service Worker



Installing



Active



Installing



Waiting



Application

- Manifest
- Service Workers
- Clear storage

Storage

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

Cache

- Cache Storage
- Application Cache

Frames

- top

Service Workers

Offline Update on reload Bypass for network Show all

<https://www.react-most-wanted.com/firebase-cloud-messaging-push-scope> [Update](#) [Push](#) [Sync](#) [Unregister](#)

Source [firebase-messaging-sw.js](#)

Received 1.1.1970, 01:00:00

Status ● #30483 activated and is stopped [start](#)

<https://www.react-most-wanted.com/> [Update](#) [Push](#) [Sync](#) [Unregister](#)

Source [service-worker.js](#)

Received 9.10.2017, 01:07:00

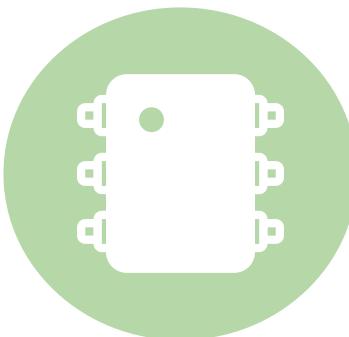
Status ● #30772 activated and is stopped [start](#)

Clients <https://www.react-most-wanted.com/companies> [focus](#)

Progressive Web Apps



Fast



Integrated



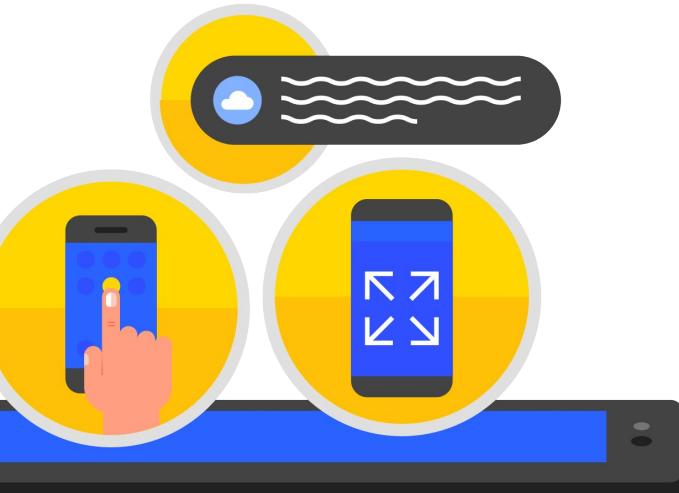
Reliable



Engaging

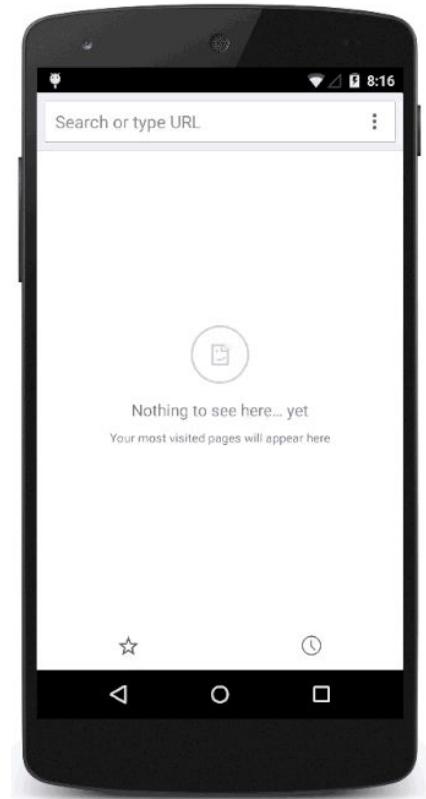
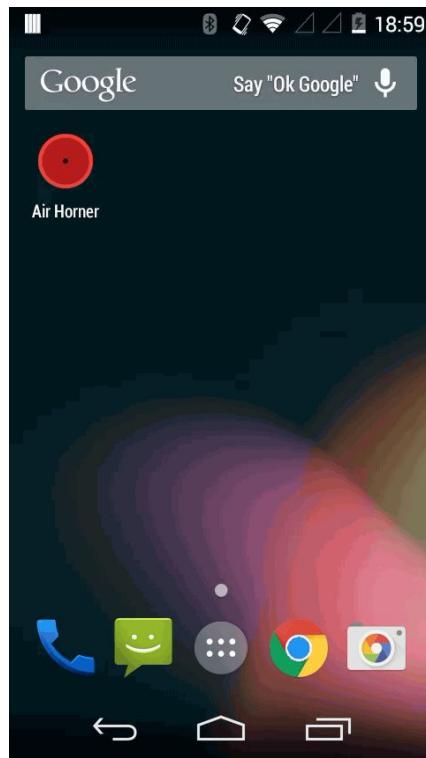
ENGAGING

Progressive Web Apps
are **installable** and live
on the user's **home**
screen, without the need
for an app store.





Manifest



source: <https://developers.google.com/web/fundamentals/web-app-manifest/>

Manifest

```
<link rel="manifest" href="/manifest.json">

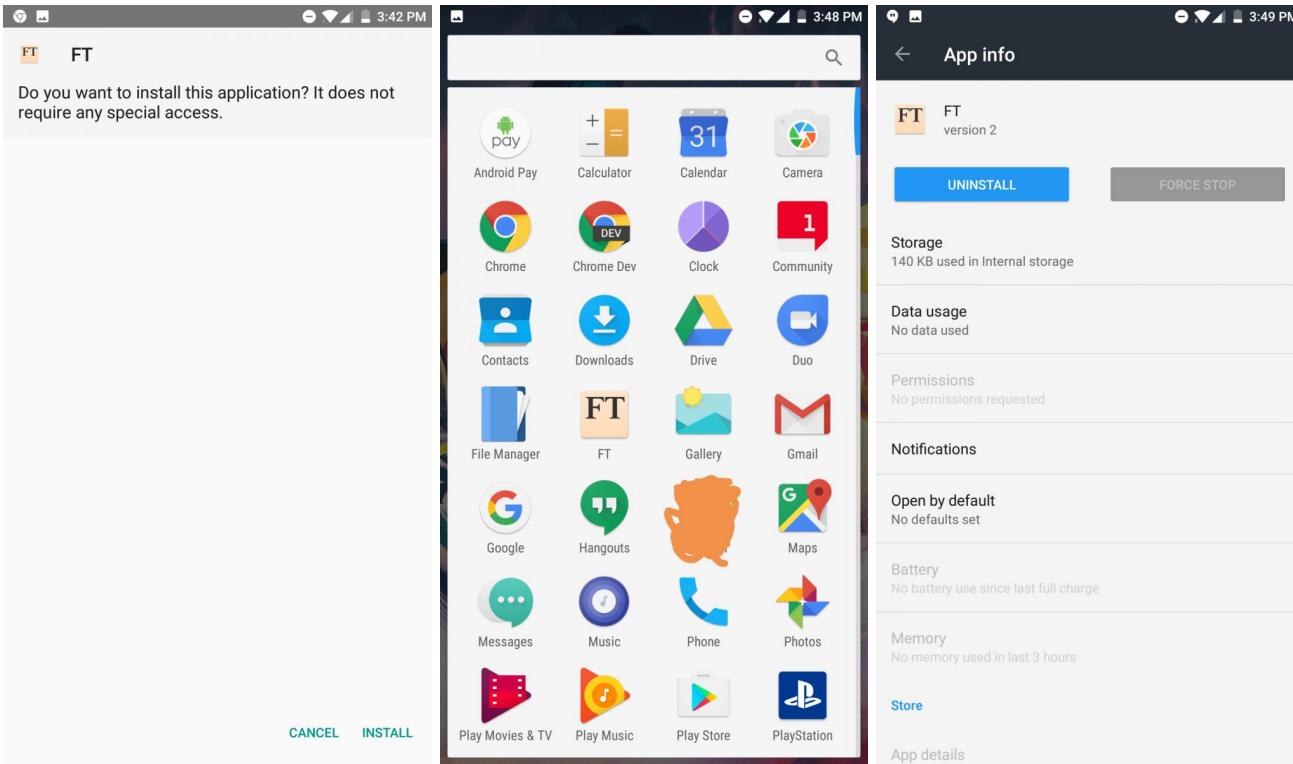
{
  "short_name": "AirHorner",
  "name": "Kinlan's AirHorner of Infamy",
  "icons": [
    {
      "src": "launcher-icon-1x.png",
      "type": "image/png",
      "sizes": "48x48"
    },
    {
      "src": "launcher-icon-2x.png",
      "type": "image/png",
      "sizes": "96x96"
    },
    {
      "src": "launcher-icon-4x.png",
      "type": "image/png",
      "sizes": "192x192"
    }
  ],
  "start_url": "index.html?launcher=true"
}
```

Screenshot of the Chrome DevTools Application panel showing the manifest configuration:

Section	Setting	Value	
Application	Manifest	https://airhorner.com/manifest.json	
	Service Workers		
	Clear storage		
Identity	Name	The Air Horner	
	Short name	Air Horner	
	Add to homescreen		
	Presentation	Start URL	/homescreen=1
		Theme color	#2196F3
		Background color	#2196F3
Orientation		portrait	
Display		standalone	
Icons			
Icon Size	128x128		
Icon Type	image/png		
Icon Preview			

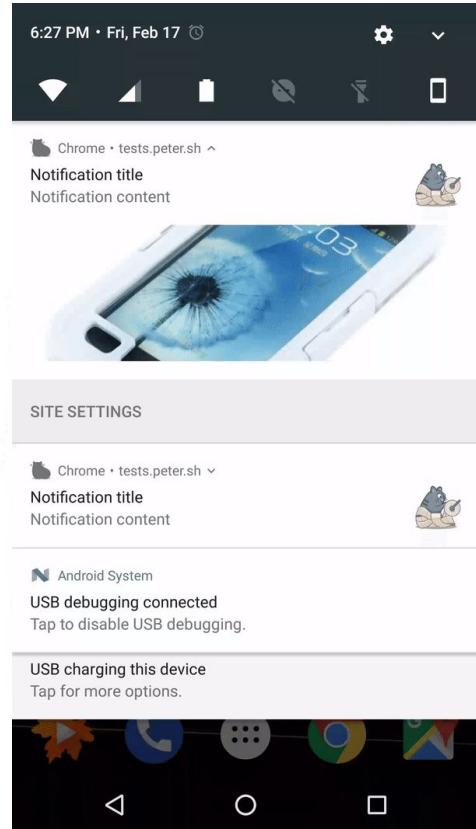
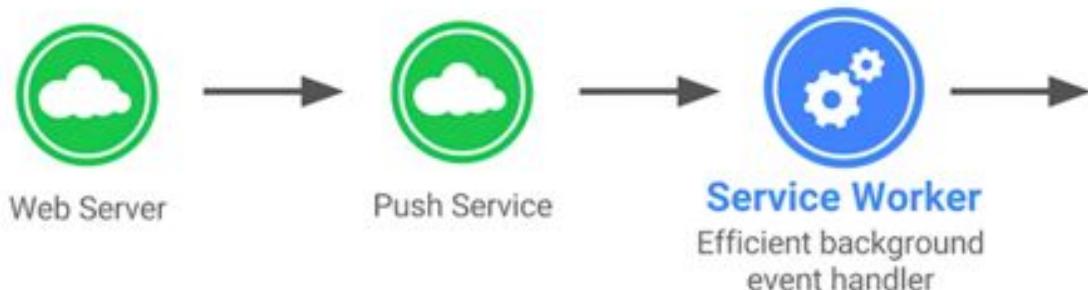
source: <https://developers.google.com/web/fundamentals/web-app-manifest/>

WebAPK



source: <https://www.xda-developers.com>

Service Worker: push notifications



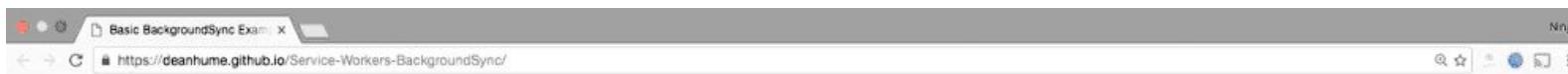
```
{  
  "body": "Did you make a $1,000,000 purchase at Dr. Evil...",  
  "icon": "images/ccard.png",  
  "vibrate": [200, 100, 200, 100, 200, 100, 400],  
  "tag": "request",  
  "actions": [  
    { "action": "yes", "title": "Yes", "icon": "images/yes.png" },  
    { "action": "no", "title": "No", "icon": "images/no.png" }  
  ]  
}
```



A close-up portrait of Mr. Spock from Star Trek. He has his signature dark brown hair in a flat-top style and is wearing his iconic blue Starfleet uniform. His expression is neutral, looking slightly off-camera to the left. The background is a soft, out-of-focus grey.

FASCINATING

Background sync API



You are currently online!

Click on the button below to make an HTTP request.

Make an HTTP request - do it!

A screenshot of the Chrome DevTools Console tab. The tab bar includes Elements, Console (which is selected), Profiles, Sources, Network, Timeline, Application, Security, and more. Below the tab bar, there are filters for "top" messages, log preservation options, and message levels: Errors, Warnings, Info, Logs, Debug, and Handled. A "Filter" input field is also present.



Why build a Progressive Web App?

★ Best of the **web**

- multi-platform
- frictionless
- discoverable
- open

★ Best of **native apps**

- home screen icons
- standalone display
- network-independent
- instant load

and if you like...

- push notifications
- other device feature



GDG Berchtesgadener Land



source: <http://www.news.3ms.website/google-io-whats-going-on-with-progressive-web-apps/>

Browser Support



Progressive Web Apps are progressive.

(Not everything works everywhere yet,
but user experience is the key.)



Graceful degradation



”By 2020, Progressive Web Apps will have replaced 50% of general-purpose consumer facing apps.”



Gartner Research

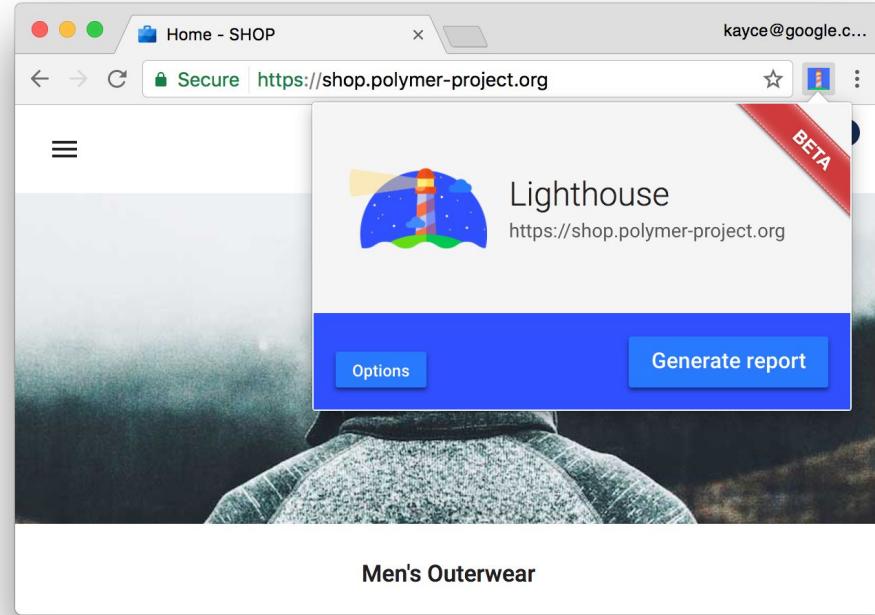
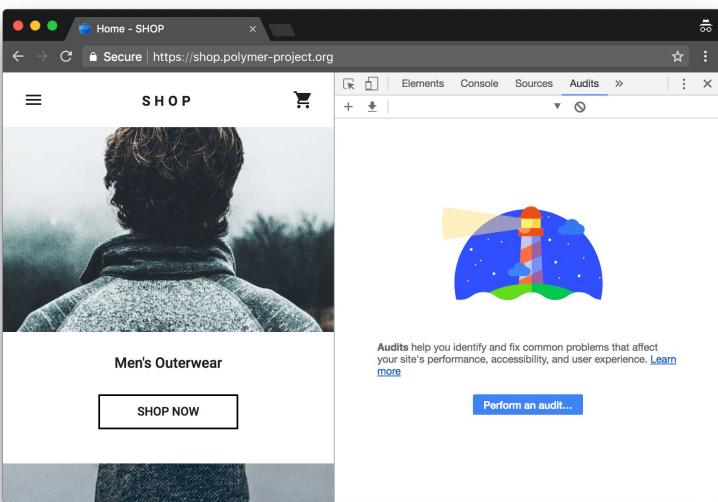
Why PWA for enterprise?

- **true** cross-platform
- **true** single code base
- fast release
- lower cost (& time) to build
- network-independent
- graceful degradation

Lighthouse



Chrome DevTools or Extension



source: <https://developers.google.com/web/tools/lighthouse>

Lighthouse report

The screenshot shows a Lighthouse report for the URL <https://shop.polymer-project.org>. The report is displayed in a browser window titled "Home - SHOP". The main content area features a large image of a person's back wearing a textured jacket. Below the image, the text "Men's Outerwear" and a "SHOP NOW" button are visible.

Audits:

- Progressive Web App: 100
- Performance: 88
- Accessibility: 100
- Best Practices: 85

Progressive Web App Audit Details:

- Score: 100
- Description: These audits validate the aspects of a Progressive Web App, as specified by the baseline [PWA Checklist](#).
- 0 failed audits
- 11 Passed Audits
- Manual checks to verify

Performance Audit Details:

- Score: 88
- Description: These encapsulate your app's performance.
- Metrics: These metrics encapsulate your app's performance across a number of dimensions.

source: <https://developers.google.com/web/tools/lighthouse>



PWA

YOU

**NATIVE
APPS**



**KEEP
CALM
AND
PWA**

Links

- ★ developers.google.com/web
- ★ react-most-wanted.com
- ★ meetup.com/GDG-BGL
- ★ dachfest.com

Thank you!



Tarik Huber

huber.tarik@gmail.com

@TarikHuber



 GDG Berchtesgadener Land



Q&A

