

# Peter Eijgermans



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A close-up, slightly blurred image of a smartphone lying on a dark wooden surface. The screen of the phone displays lines of code in various colors (green, blue, red, yellow) on a dark background. Overlaid on the center of the screen is a white loading spinner icon, which consists of a circle with eight radiating lines. The overall lighting is dim, with the phone's screen being the primary light source.

# PWAs - The What, the Why and the How

# Workshop

<https://github.com/petereijgermans11/progressive-web-app>

*cd pwa-workshop*

<https://github.com/The-Guide/fe-guild-2019-pwa.git>

**Offline**



## No internet

Try:

- Checking the network cables, modem, and router
- Reconnecting to Wi-Fi
- [Running Windows Network Diagnostics](#)

DNS\_PROBE\_FINISHED\_NO\_INTERNET

# **Push notification**







# Native Apps

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Fast and responsive

App stores

Full platform features

Work offline



Multiple codebases

App stores

Not cheap

# Web Apps

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Easy to maintain

Easy to build

One codebase

Cheaper



Browsers !!!

Slower than native

Cannot work offline

Device features

# PWA



	Native App	Responsive Website	Progressive Web App
Functions Offline	✓	✗	✓
Push Notifications	✓	✗	✓
Installable on home screen	✓	✗	✓
Full screen experience	✓	✗	✓
Indexable by search engines	✗	✓	✓
One place to enter content	✗	✓	✓
Works across all devices	✗	✓	✓
No download required	✗	✓	✓
Doesn't require updates	✗	✓	✓



# 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

## FEATURES

## TRAININGS

## SERVICES

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

### Camera & Microphone

- 📷 AUDIO & VIDEO CAPTURE ✓
- 📹 ADVANCED CAMERA CONTROLS ✓
- 🎤 RECORDING MEDIA ✓
- 📺 REAL-TIME COMMUNICATION ✓

### Advertisement



Bring your team together with  
Slack, the collaboration hub  
for work.

ads via Carbon

### Surroundings

- 📶 BLUETOOTH ✓
- 🔌 USB ✓
- 📶 NFC ✗
- 📶 ... ✗

### Native Behaviors

- 📱 LOCAL NOTIFICATIONS ✓
- 📡 PUSH MESSAGES ✓
- 📥 HOME SCREEN INSTALLATION ✓
- 🖥️ FOREGROUND DETECTION ✓
- 🔒 PERMISSIONS ✓

### Operating System

- ★ OFFLINE STORAGE ✓
- 📁 FILE ACCESS ✓
- 👤 CONTACTS ✗
- 💬 SMS ✗
- 💾 STORAGE QUOTAS ✓
- 🕒 TASK SCHEDULING ✗

### Seamless Experience

- ⚙️ OFFLINE MODE ✓
- ☁️ BACKGROUND SYNC ✓
- 🔄 INTER-APP COMMUNICATION ✗
- 💳 PAYMENTS ✓
- 🔑 CREDENTIALS ✓

### Location & Position

- 📍 GEOLOCATION ✓
- 📍 GEOFENCING ✗
- 📶 DEVICE POSITION ✓
- 📶 DEVICE MOTION ✓
- 📶 PROXIMITY SENSORS ✗

### Screen & Output

# Geofencing



# PWA Technical Components

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Service Worker



Manifest.json



HTTPS

# Web App Manifest

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# Minimal manifest.json

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```
{
  "name": "Progressive Selfies",
  "short_name": "PWA Selfies",
  "icons": [
    {
      "src": "/src/images/icons/app-icon-192x192.png",
      "type": "image/png",
      "sizes": "192x192"
    },
    {
      "src": "/src/images/icons/app-icon-512x512.png",
      "type": "image/png",
      "sizes": "512x512"
    }
  ],
  "start_url": "/index.html",
  "scope": ".",
  "display": "fullscreen|standalone|minimal-ui|brows",
  "background_color": "#fff",
  "theme_color": "#3f51b5"
}
```

Application

Manifest

Service Workers

Clear storage

Storage

Local Storage

Session Storage

IndexedDB

Web SQL

Cookies

Cache

Cache Storage

Application Cache

Frames

top

App Manifest

<blob:https://the-guide.github.io/62acafe2-ff44-4445-9550-eccda486613a>

Identity

Name

Progressive Selfies

Short name

PWA Selfies

Presentation

Start URL

<https://the-guide.github.io/fe-guild-2019-pwa/index.html>

Theme color

#3f51b5

Background color

#fff

Orientation

portrait-primary


Display

standalone

Icons


48x48

image/png



96x96

image/png



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

# PWA Technical Components

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Service Worker



Manifest.json



HTTPS

# Service Workers

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Page



Service Worker



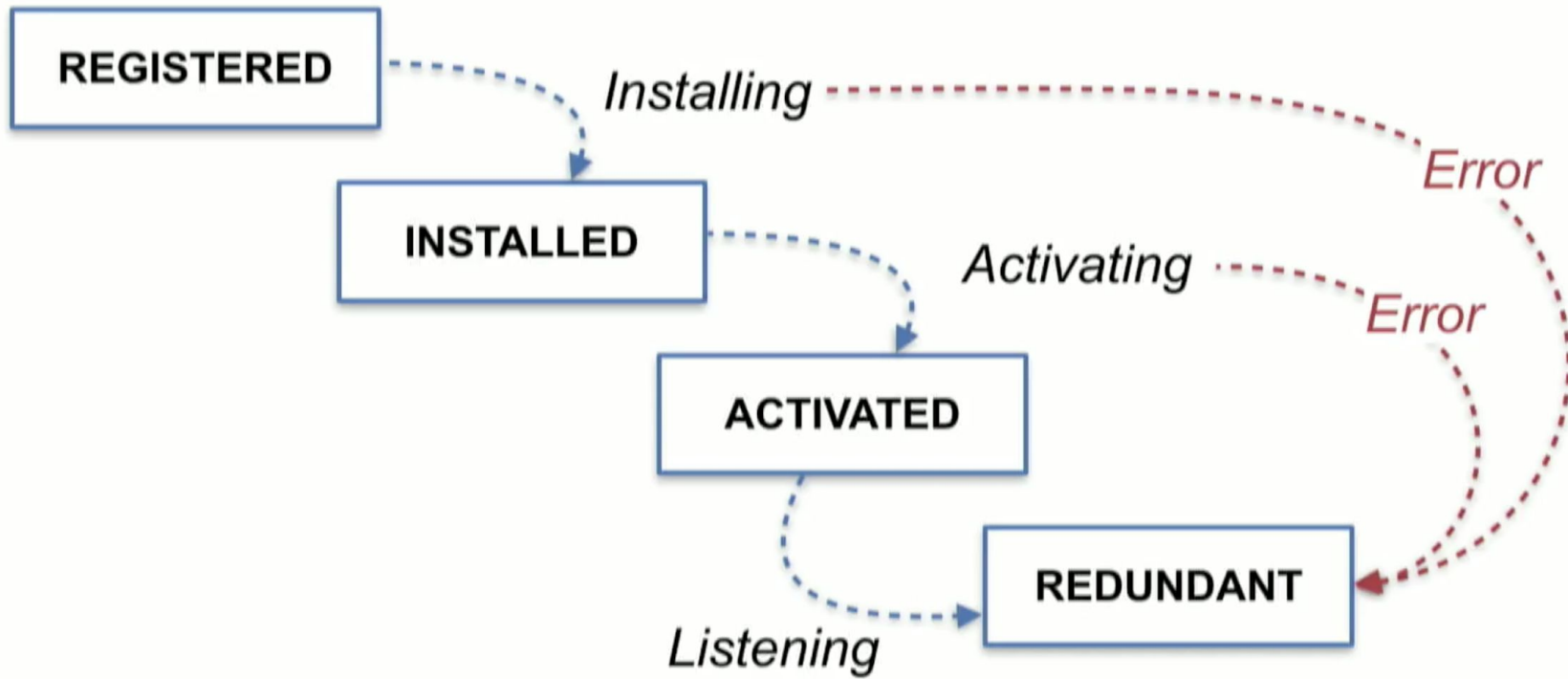
Network



Cache



# Lifecycle



# Events

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install

activate

message

fetch

sync

push

# Listen to events in sw.js

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```
self.addEventListener('install', event => {  
  console.log('[Service Worker] Installing Service Worker', event);  
  event.waitUntil(self.skipWaiting());  
});  
  
self.addEventListener('activate', event => {  
  console.log('[Service Worker] Activating Service Worker', event);  
  return self.clients.claim();  
});
```





# Workbox

JavaScript Libraries for Progressive Web Apps

# Lighthouse

