

Progressive Web App Day 1

Hilman Ibnu Assiddiq



Outline

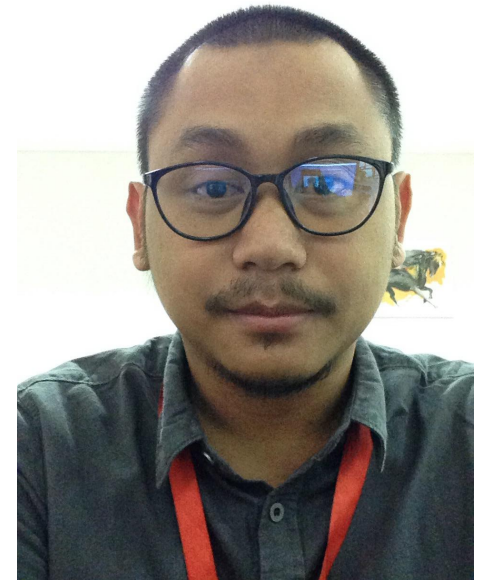
- Getting Started
- Understanding App Manifest
- The Service Workers
- Promise and Fetch
- Service Workers - Caching
- Service Workers - Advanced Caching
- IndexedDB and Dynamic Data

Hilman Ibnu Assiddiq



- Software Developer at Bandung Techno Park
(2014 - now)
- Zend Framework 2 Certified Architect
- Co-Founder SISCA

<https://github.com/hilmania>

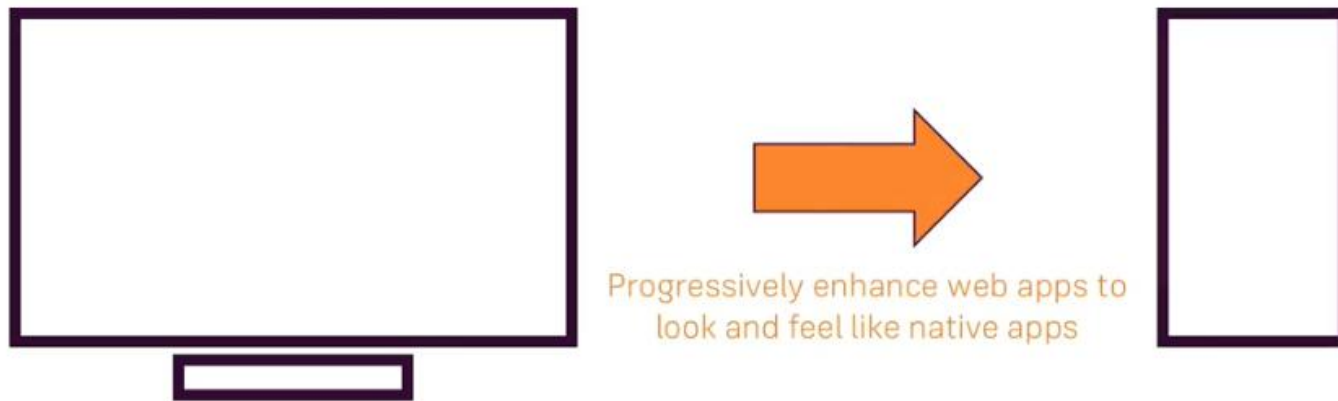


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PWA?

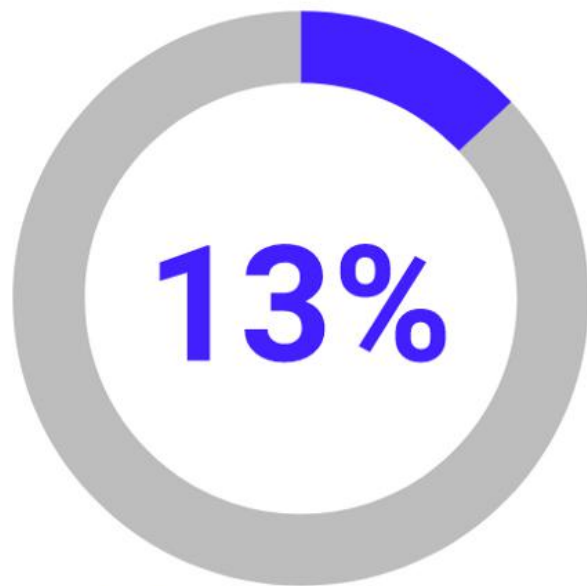
- What is Progressive Web Frameworks?



- Be **reliable** : Load fast and provide offline functionality
- **Fast** : Respond quickly to user actions
- **Engaging** : Feel like a native app on mobile devices

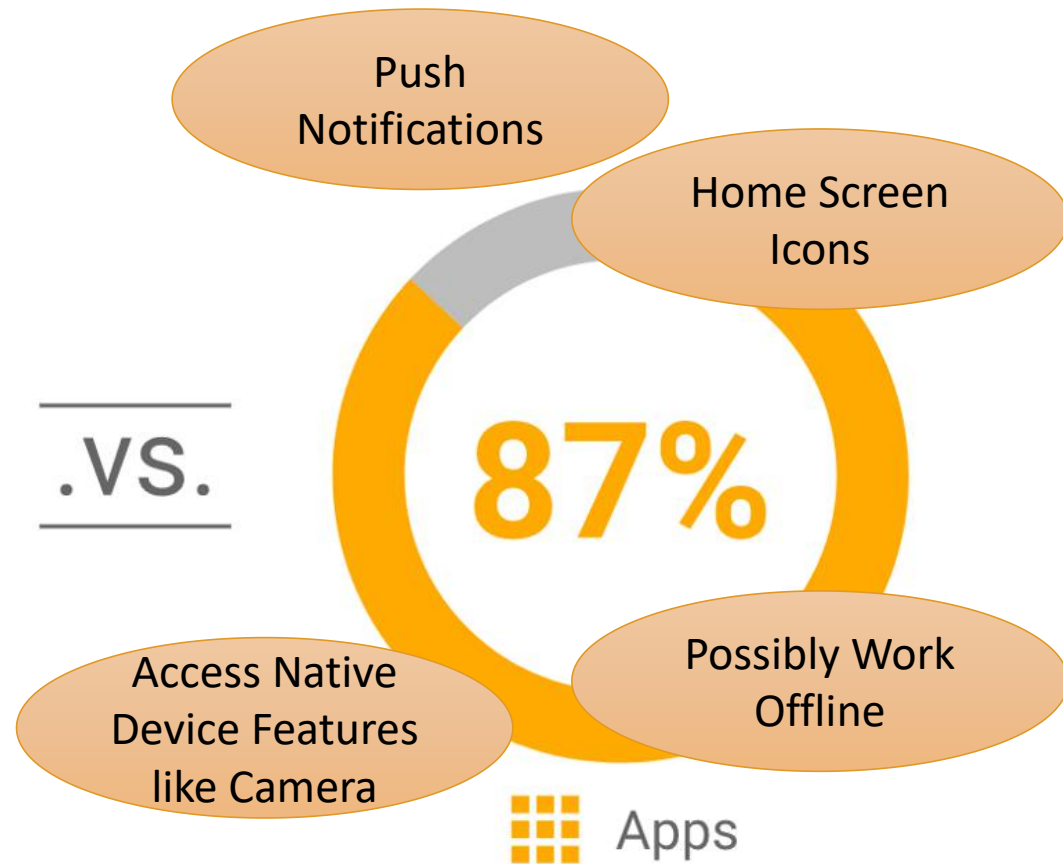


Mobile Web vs Native Apps



Mobile web

.vs.



Apps

Source : comScore Mobile Metrix 2018



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Do you really want to Build a Native App?

Learn two different Languages

80%

of Time spent happens in User's Top 3
Apps on Device

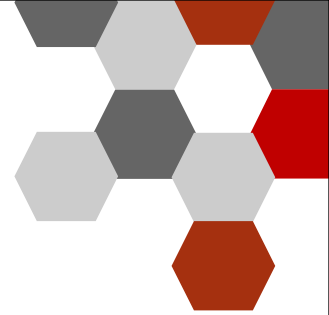
Source : comScore Mobile Metrix 2018



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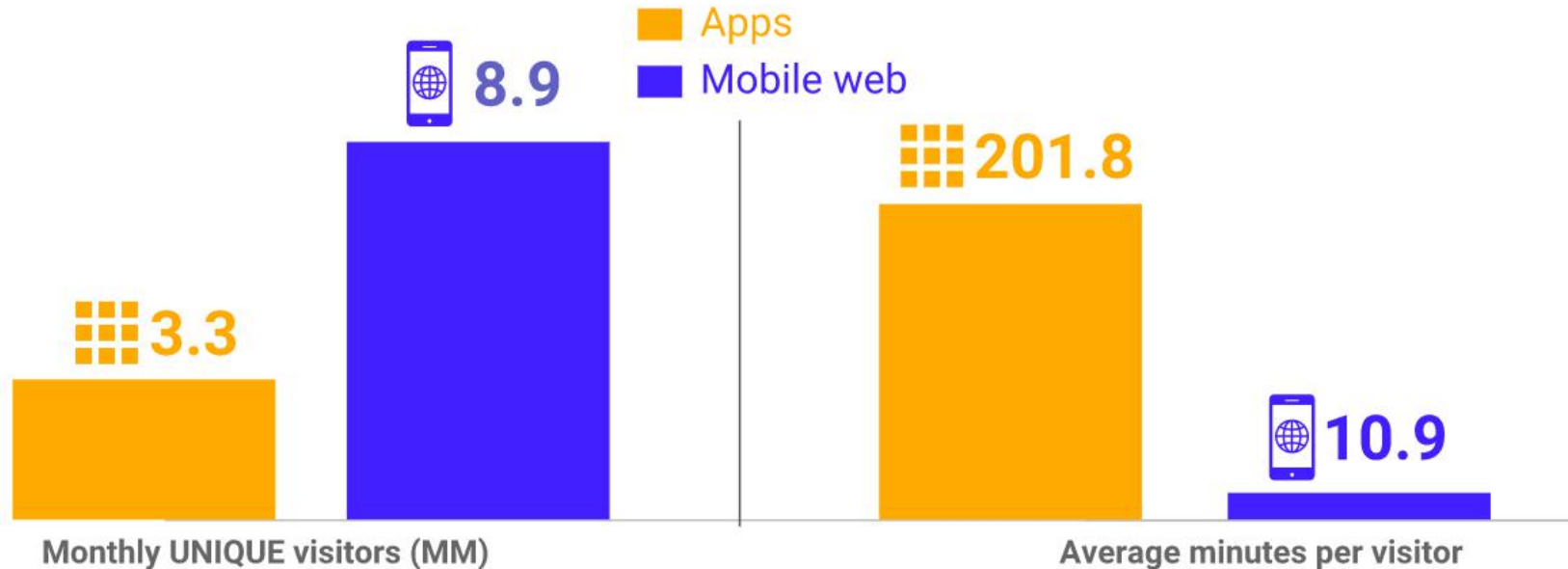
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Reach of Apps vs Mobile Web



Broad Reach, Low Engagement

Top 1000 mobile apps .vs. top 1000 mobile web properties



Source : comScore Mobile Metrix 2018



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PWAs vs Native Apps vs “Traditional” Web Pages

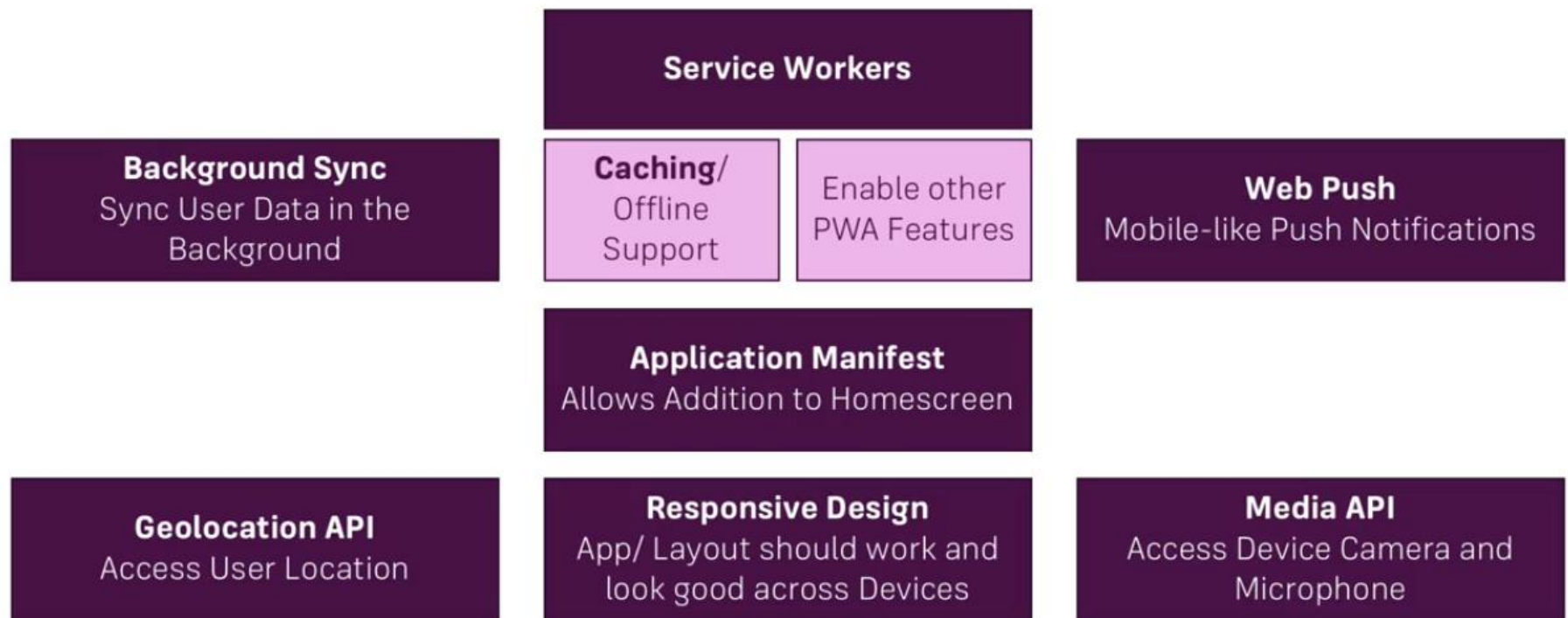


	Capability	Reach
Native Apps	Access Device Features, Leverage OS	Top 3 Apps Win, Rest Loses
Traditional Web Apps	Highly Limited Device Feature Access	High Reach, No Borders
Progressive Web Apps	Access Device Features, Leverage OS	High Reach, No Borders

Requirements

- Google Chrome
- NodeJS
- Text Editor (Visual Studio Code, or others)

PWA Core Building Blocks

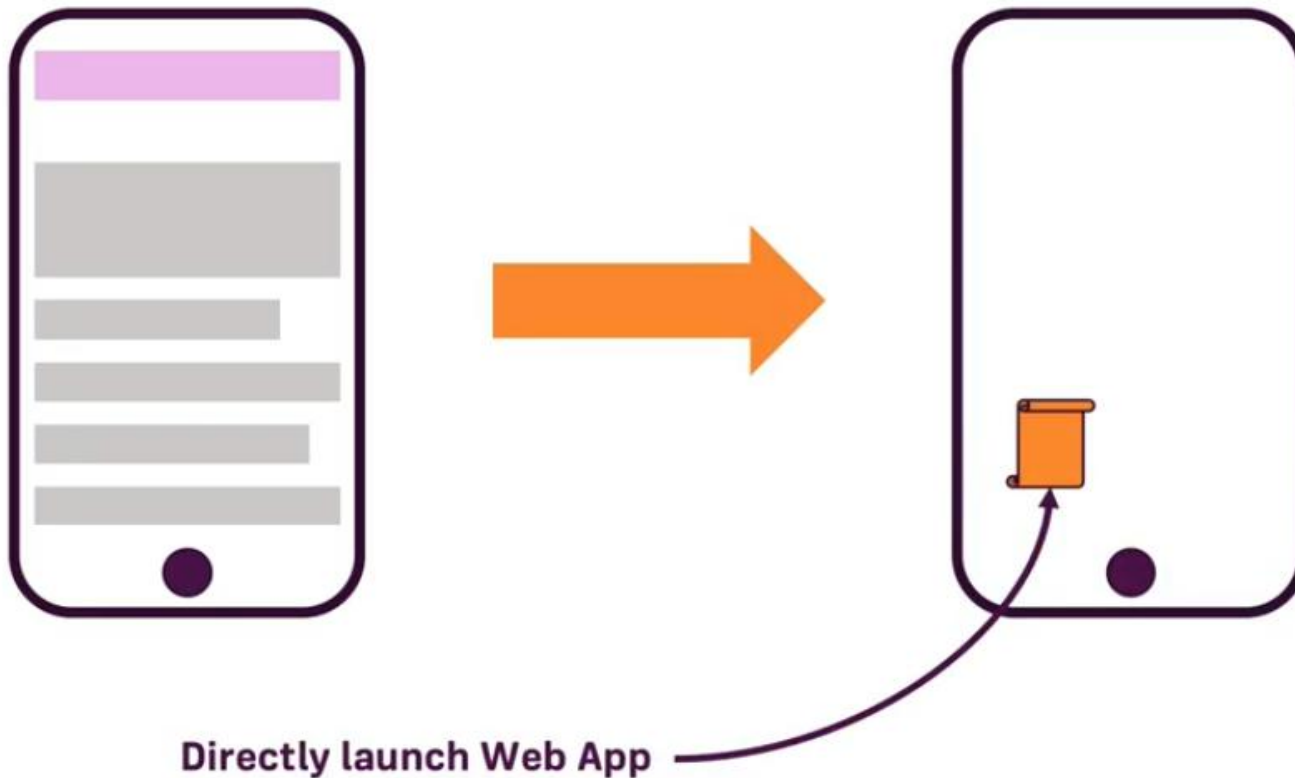


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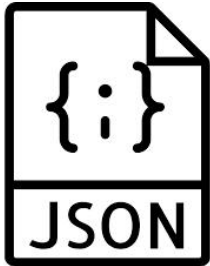
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Web App Manifest

- Make your web app installable



Manifest Properties



{

```
"name": "Pemkab - PWA",
"short_name": "Pemkab",
"start_url": "/index.html",
"scope": ".",
"display": "standalone",
"background_color": "#fff",
"theme_color": "#3f51b5",
"description": "Pemkab APP",
"dir": "ltr",
"lang": "en-US",
"orientation": "portrait-primary",
"icons" : [
  {
    "src": "/src/images/icons/app-icon-48x48.png",
    "type": "image/png",
    "sizes" : "48x48"
  },
  ...
]
```

Support Browsers



Web App Manifest - WD

Usage

% of all users

Global

47.78% + 30.44% = 78.23%

The web app manifest provides information about an application (such as name, author, icon, and description) in a JSON file, which browsers can use to give richer offline experiences.

Current aligned	Usage relative	Date relative	Apply filters	Show all	?										
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	
			4-38												
	12-16		39-66			3.2-11.2									
6-10	2 17	2-62	1 3 67-69	3.1-11.1	10-55	2 11.4		2.1-4.4.4	7	12-12.1			10		
11	2 18	63	1 3 70	12	56	2 12	all	67	10	46	70	2 63	11	11.8	
		64-65	1 3 71-73	TP											

<https://caniuse.com/#feat=web-app-manifest>



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Deploy Manifest

```
1 | <link rel="manifest" href="/manifest.webmanifest">
```

Note: The `.webmanifest` extension is specified in the [Media type registration](#) section of the specification, but browsers generally support manifests with other appropriate extensions like `.json`.

Note: If the manifest needs credentials to fetch you [have](#) to add the `crossorigin` attribute even if the manifest file is in the same origin of the current page.

apple-mobile-web-app-capable

Sets whether a web application runs in full-screen mode.

Syntax

```
<meta name="apple-mobile-web-app-capable" content="yes">
```


Deploy Manifest (Safari)



```
<meta name="apple-mobile-web-app-status-bar-style" content="black">  
<meta name="apple-mobile-web-app-title" content="AppTitle">  
<link rel="apple-touch-icon" href="touch-icon-iphone.png">  
<link rel="apple-touch-icon" sizes="152x152" href="touch-icon-ipad.png">  
<link rel="apple-touch-icon" sizes="180x180" href="touch-icon-iphone-retina.png">  
<link rel="apple-touch-icon" sizes="167x167" href="touch-icon-ipad-retina.png">
```

Useful Links

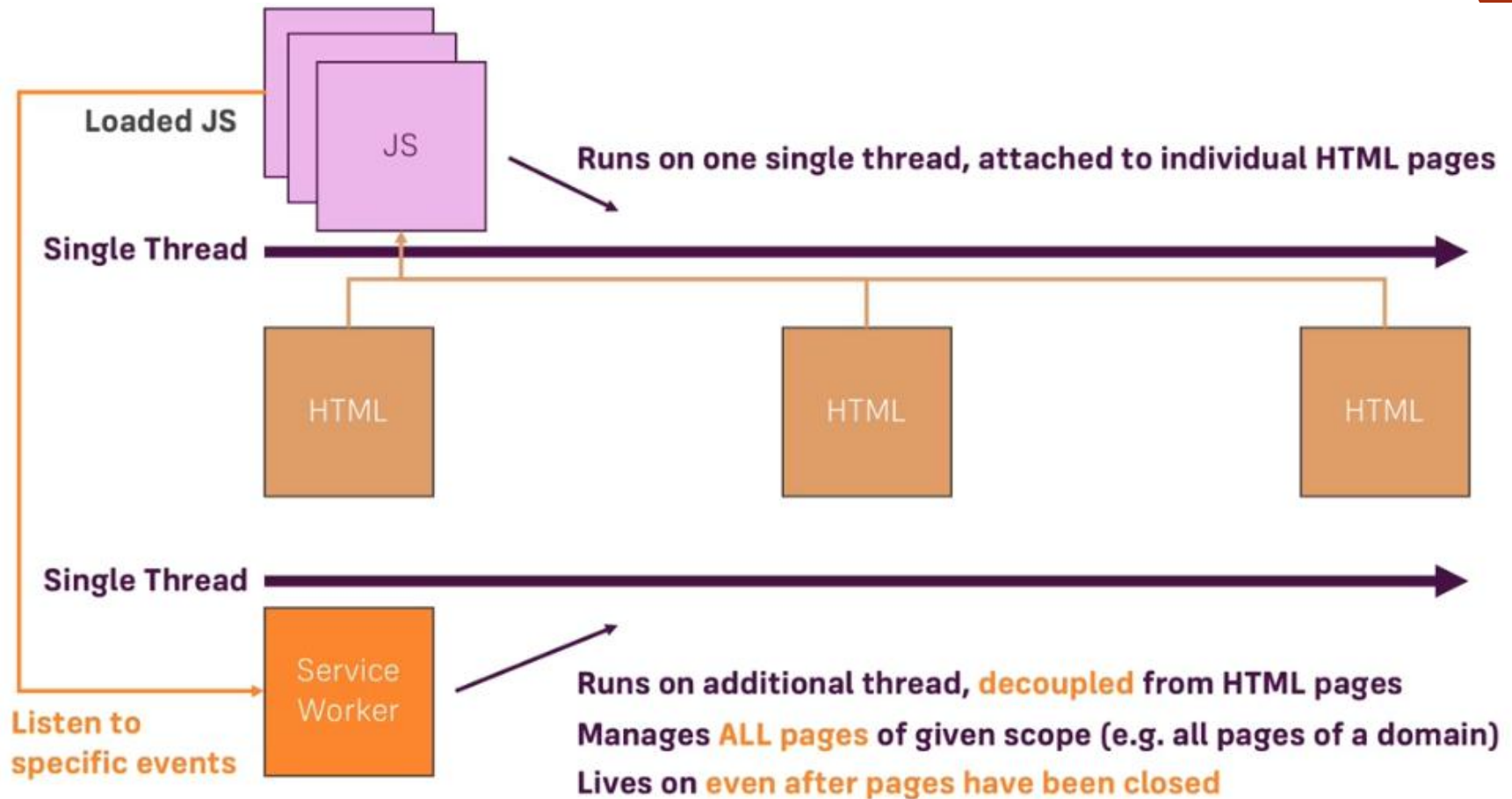


- Web App Manifest - Browser Support:
<http://caniuse.com/#feat=web-app-manifest>
- MDN Article on the Web App Manifest (includes List of all Properties): <https://developer.mozilla.org/en-US/docs/Web/Manifest>
- A detailed Web App Manifest Explanation by Google:
<https://developers.google.com/web/fundamentals/engage-and-retain/web-app-manifest/>
- More about the "Web App Install Banner" (including Requirements):
<https://developers.google.com/web/fundamentals/engage-and-retain/app-install-banners/>

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Doing Work Behind the Scenes

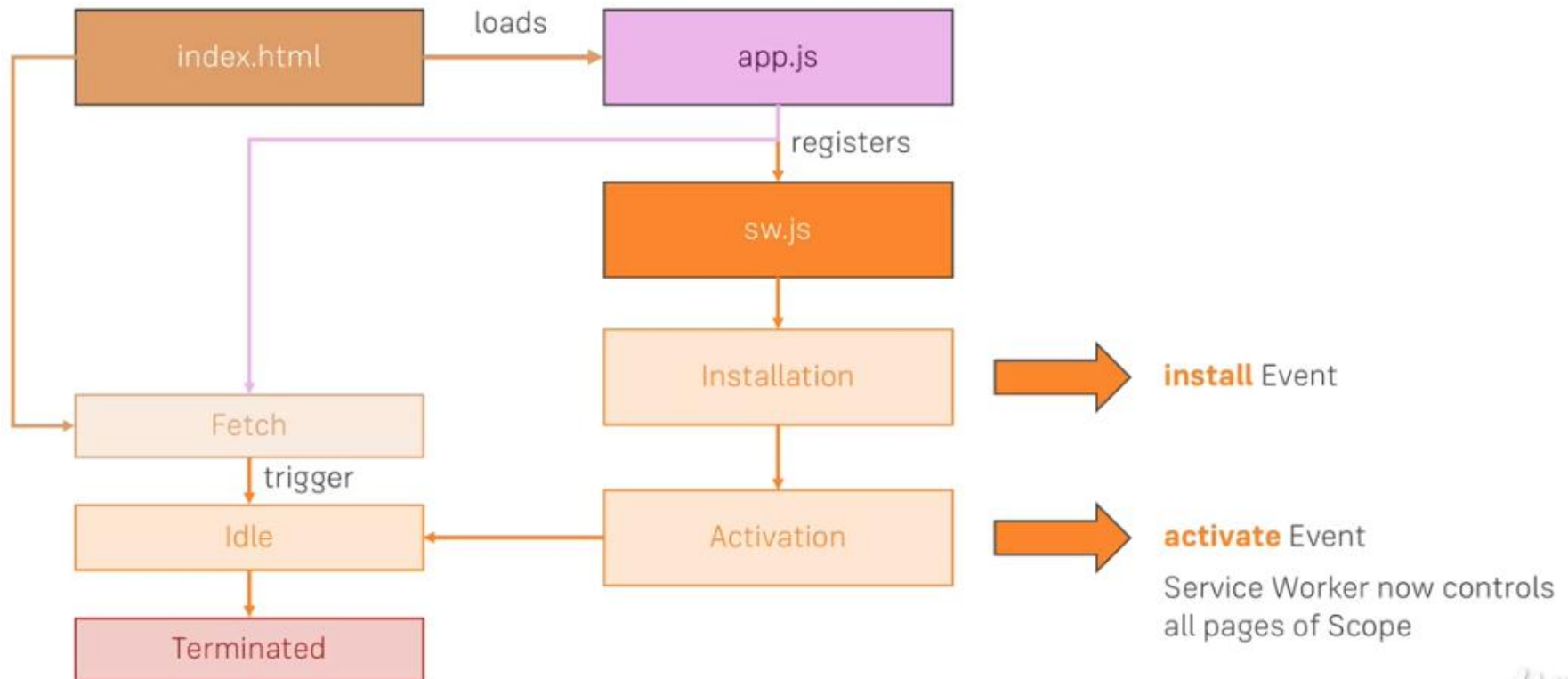


“Listenable” Events in Service Worker



Event	Source
Fetch	Browser or Page-related JavaScript initiates a Fetch (Http request)
Push Notifications	Service Worker receives Web Push Notification (from Server)
Notification Interaction	User interacts with displayed Notification
Background Sync	Service Worker receives Background Sync Event (e.g. Internet Connection was restored)
Service Worker Lifecycle	Service Worker Phase changes

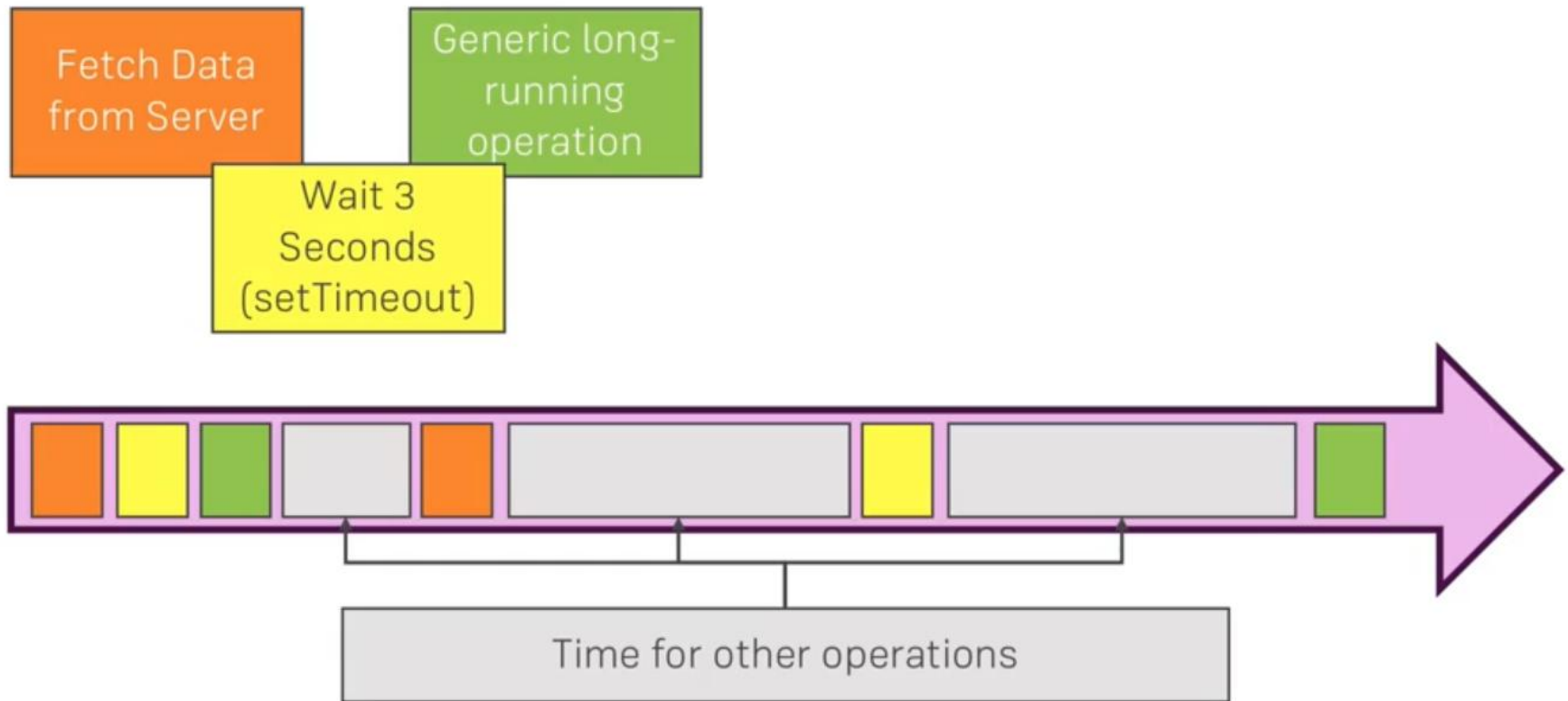
Service Worker Lifecycle



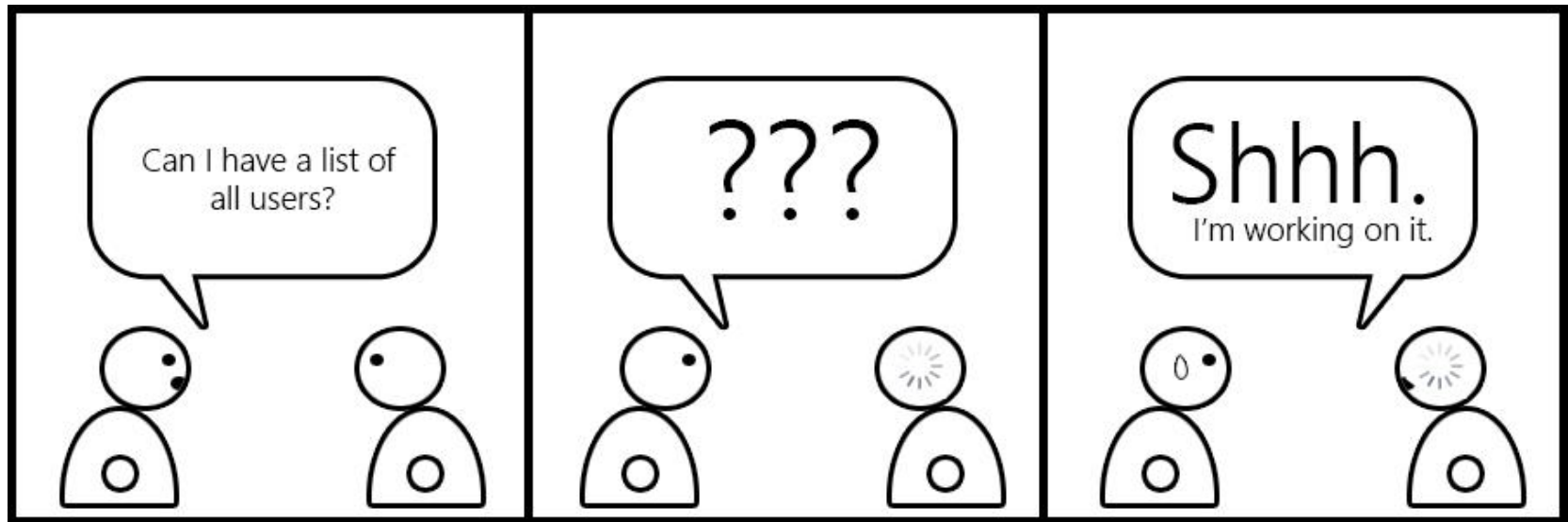
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Foundational Building Blocks



Promise



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Providing Offline Support



Poor Connection

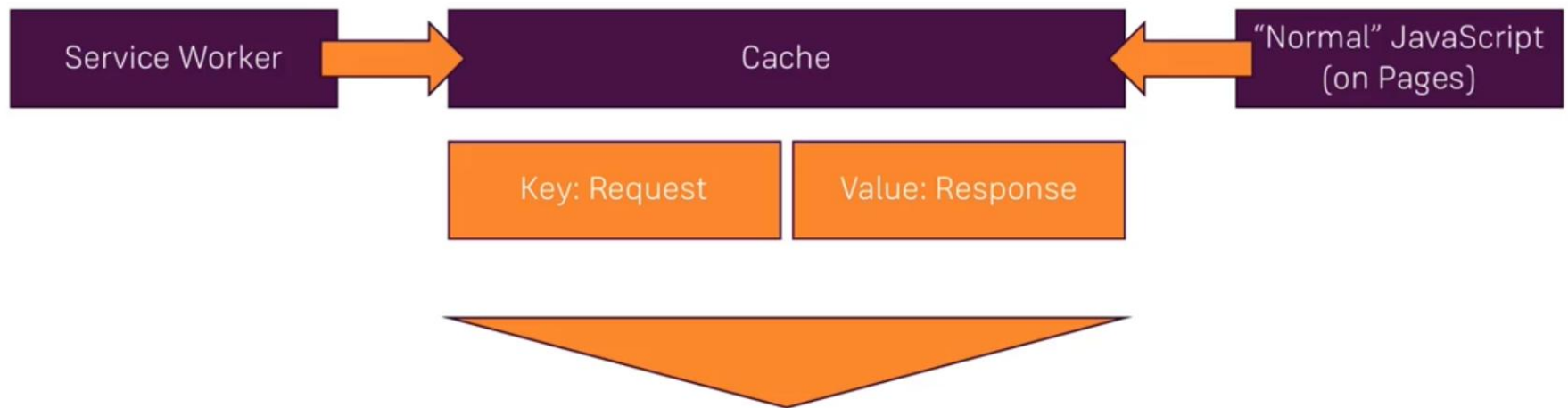


No Connection



Lie-Fie!

Cache API



Cache Data can be retrieved instead of sending Network Request

Dynamic Caching

