

Workshop

Introduction to PWA

22nd March 17

<https://goo.gl/BDcnPX>

The NEXT Academy Coding School | Coding@NEXT

Agenda

7:30PM

Networking

8:00PM

PWA 101

Practices of PWA

Hands-on

Web performance optimization

9:30PM

Workshop ends

```
var message = 'Hello All!';  
message += " I'm SC Kim";
```

Me

- Former Google Student Ambassador SEA
- Former Google Developers Kuala Lumpur Co-Organizer
- Current Master of Computer Science in The National University of Malaysia (UKM)
- Current Freelance Full-Stack Mobile Developer (Web and Mobile)
- FIREBASE - LOVER



Our Problems

1. We're more attached to mobile than desktop.
2. Struggling in open yet unstable WiFi connection to surf (LieFi), dino shows up
3. Running out of mobile data, low connectivity mode
4. We use apps, but how many of us actually use them?



LieFi

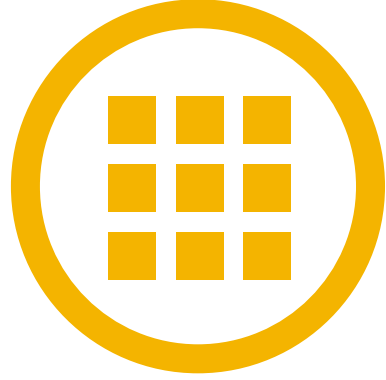


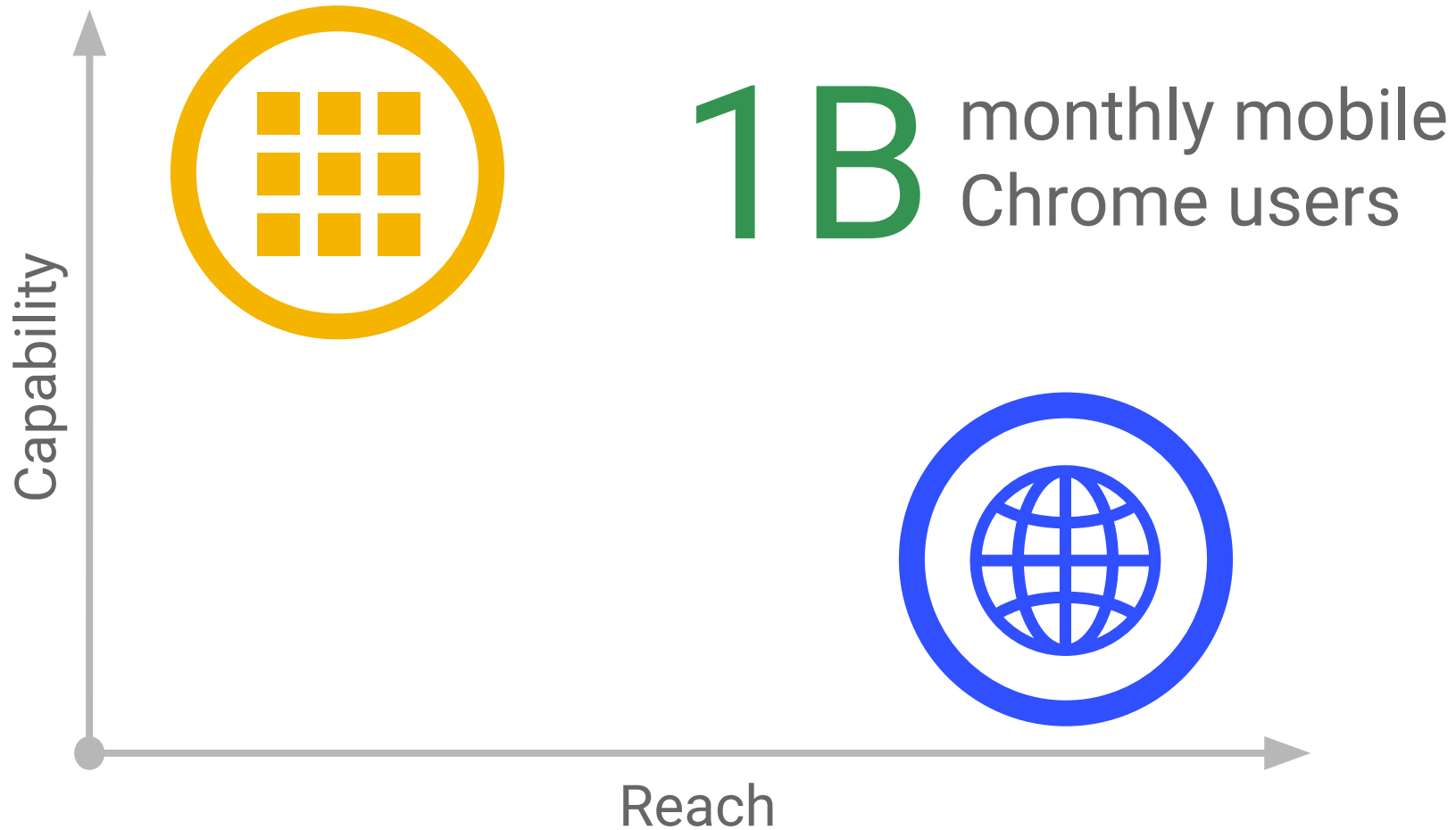
Our Problems + Solution Approach

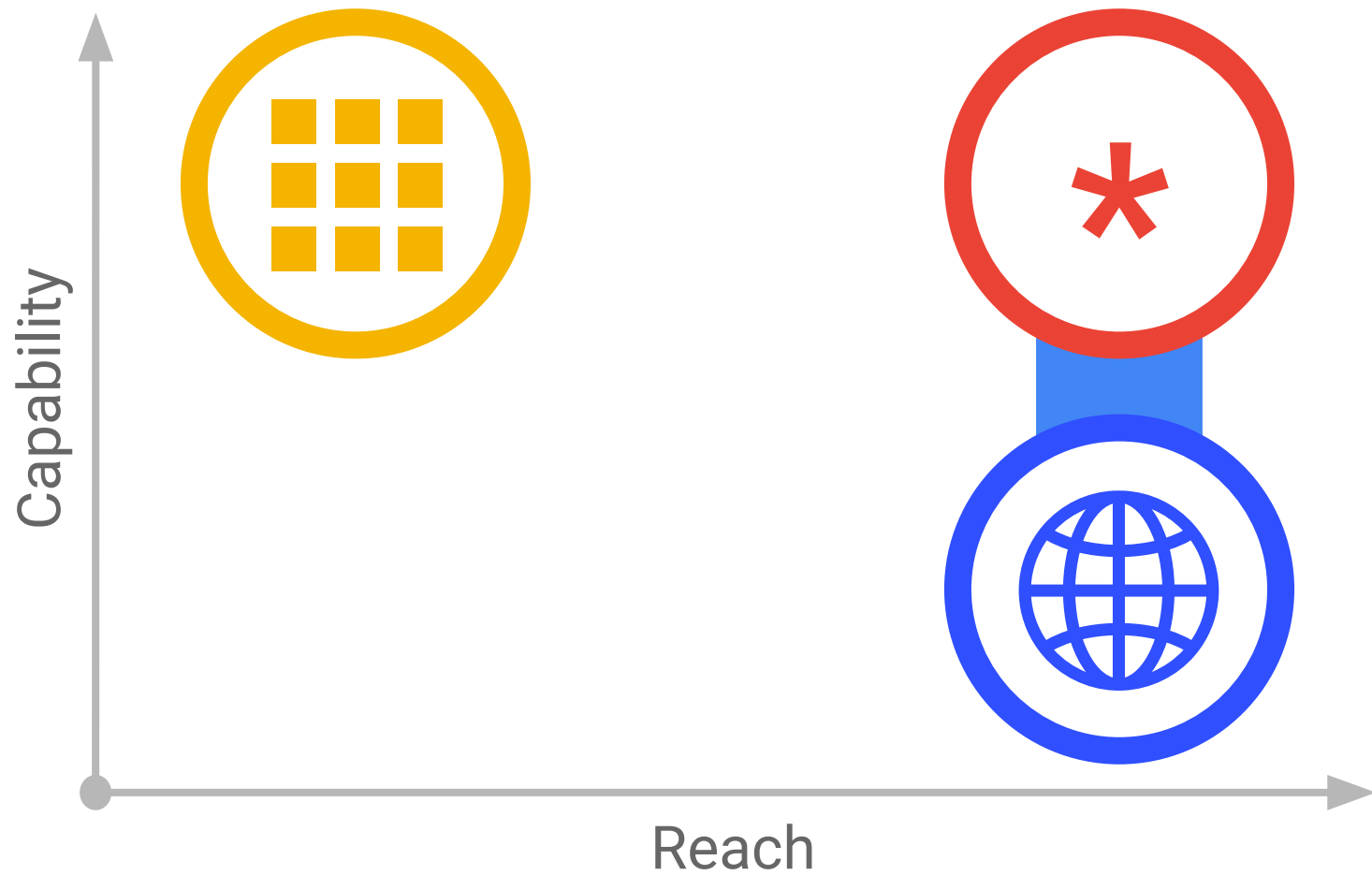
1. We're more attached to mobile than desktop. **Mobile Web-App**
2. Struggling in open yet unstable WiFi connection to surf (LieFi), dino shows up **Data Caching, Web Perf Optimization**
3. Running out of mobile data, low connectivity mode **App Shell & Data Caching**
4. We use apps, but how many of us actually use them? **Add to Homescreen + Push Notifications**

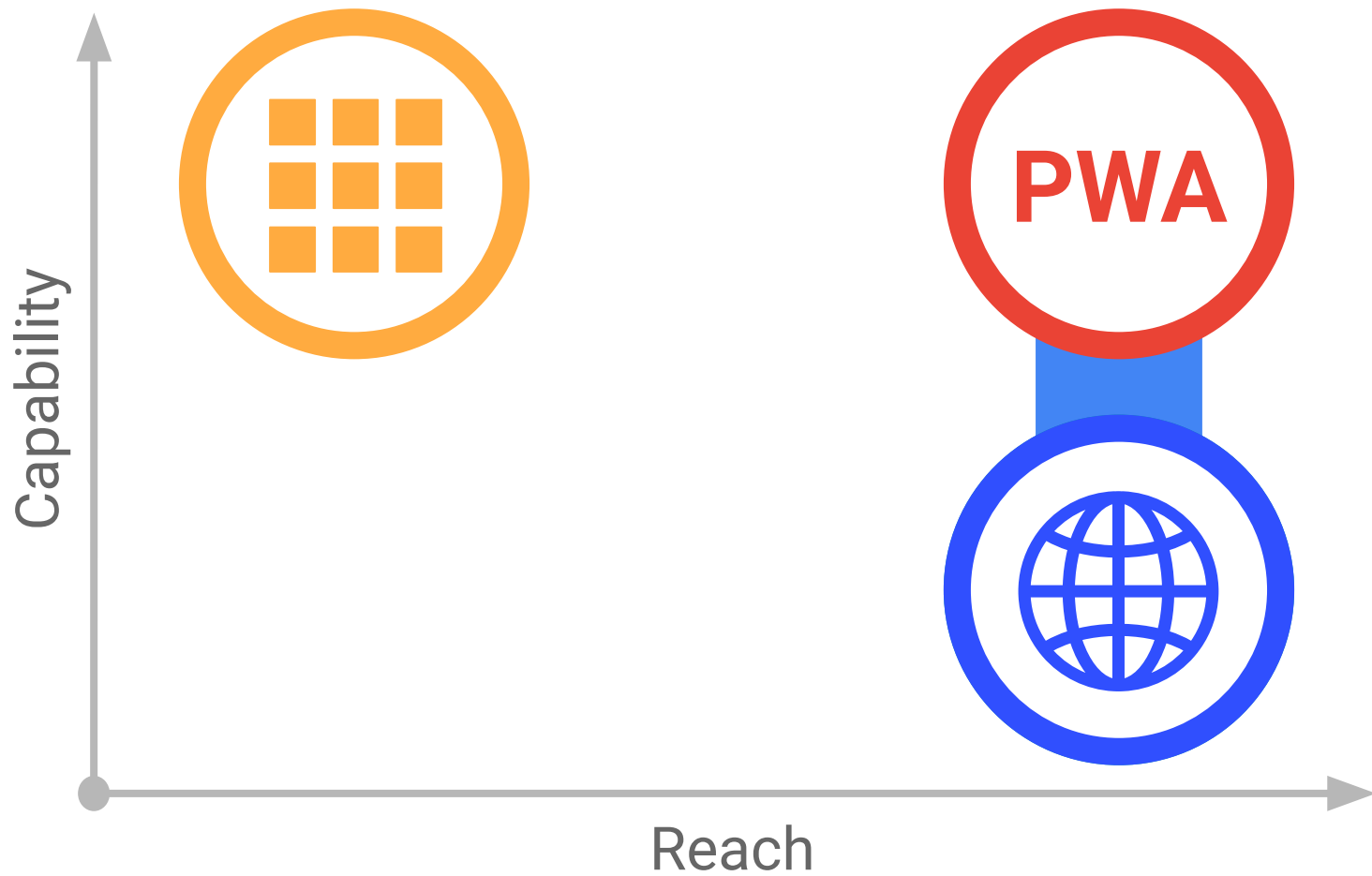


Capability







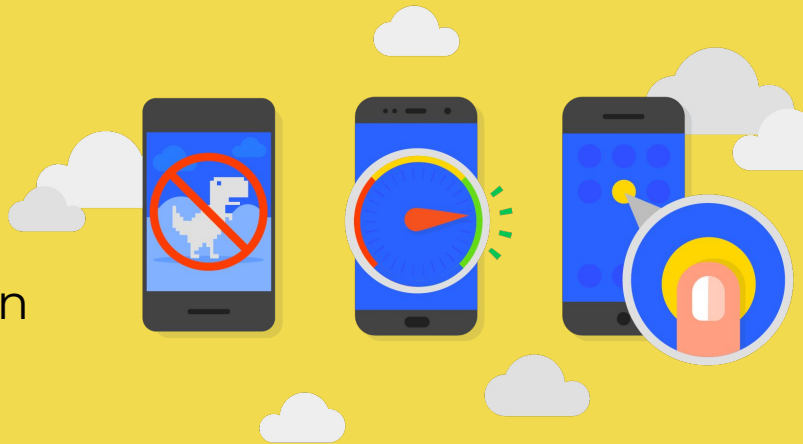


PWA

Reliable: Fast loading, work offline and on flaky networks

Fast: Smooth animation, jank-free scrolling and seamless navigation

Engaging: Launched from the home screen and send push notifications

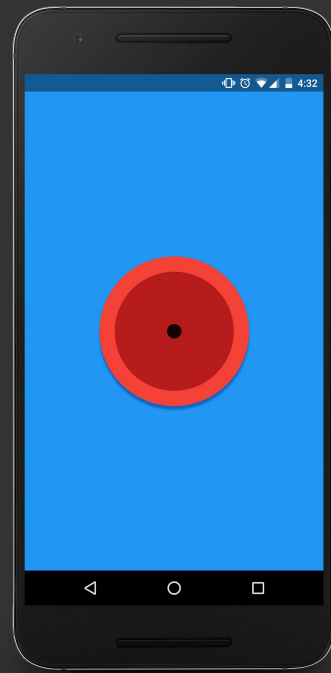


List of PWAs

<https://pwa.rocks/>

Highlighted Apps

- AliExpress
- Washington Post
- Google I/O
- Flipboard, etc.



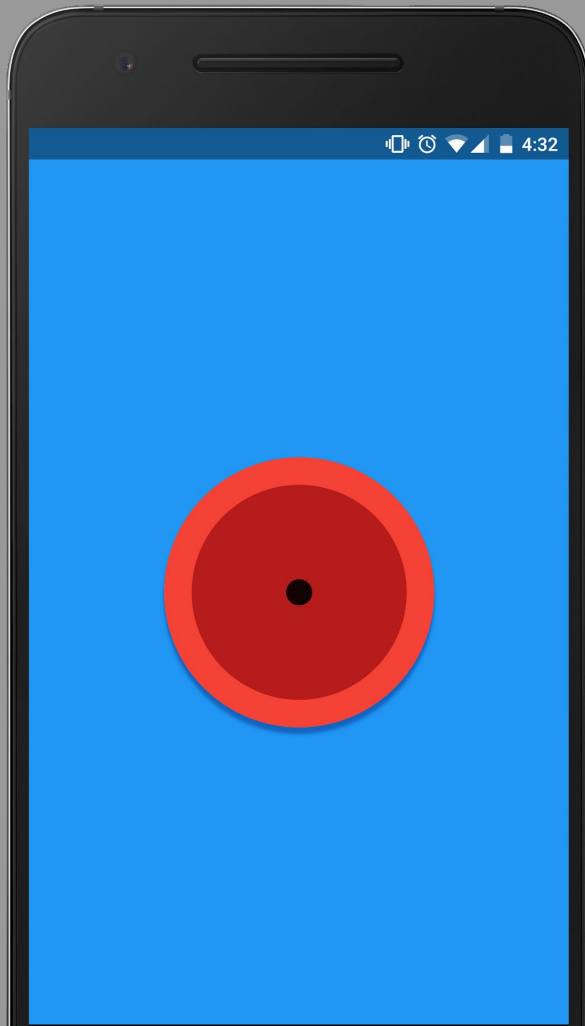
<https://airhorner.com>

Progressive Web Apps

Reliable: Fast loading, work offline and on flaky networks

Fast: Smooth animation, jank-free scrolling and seamless navigation

Engaging: Launched from the home screen and send push notifications



PWA Recipe & Practices

- | | |
|-------------------------------|---------------------|
| 1. HTTPS | SSL |
| 2. Responsive to device width | CSS |
| 3. Service Worker | (service-worker.js) |
| 4. Web App Manifest | (manifest.json) |

Checklist

<https://developers.google.com/web/progressive-web-apps/checklist>

1) HTTPS : Security Matters

- Confidentiality
- Authenticity
- Integrity
- Ranking. As of August 2014, Google uses HTTPS as a ranking signal, which can improve search rankings.
- Higher Level API calls. Geolocation/Push Notifications/GetUserMedia/HTTP2/ServiceWorker

2) RESPONSIVE

- Prevent Resource Rendering Block
- Minified resources (css,js,html)
- Media screen css
- Instant loading resource on loading



3) SERVICE WORKER : Offline & Caching

- A service worker is a script that your browser runs in the background, separate from a web page, opening the door to features that don't need a web page or user interaction.
- Today, they already include features like push notifications and background sync

HELPFUL COOKBOOK <https://jakearchibald.com/2014/offline-cookbook/>

SERVICE WORKER APPROACHES

Few strategies (up to your needs)

APPROACHES

- Cache
- Network
- Cache, falling back to network
- Cache & network race
- Network falling back to cache
- Cache then Network

EXAMPLE CASES

Static Assets

Analytic Ping, non-GET Request

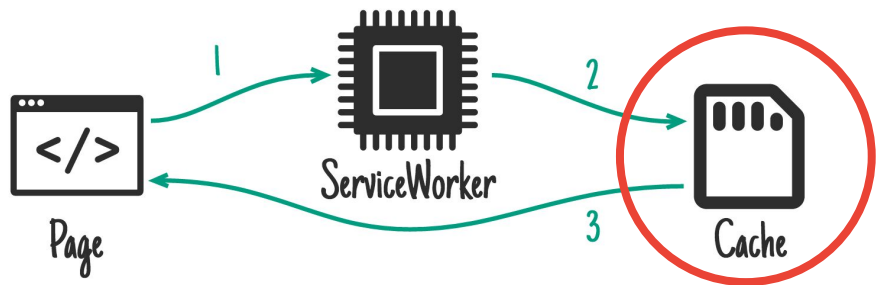
Offline-first

Small assets with Performance

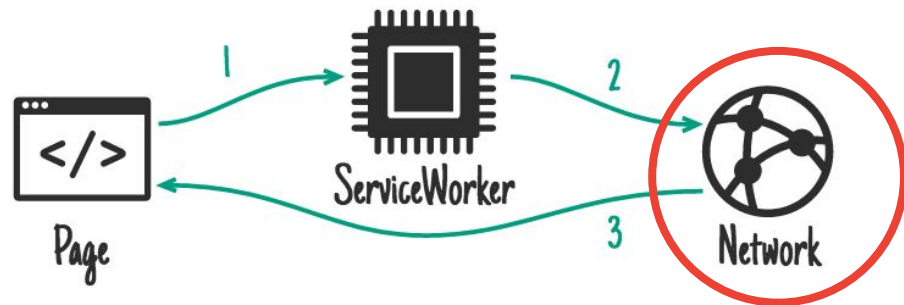
Social timelines assets,resources

Frequent content update

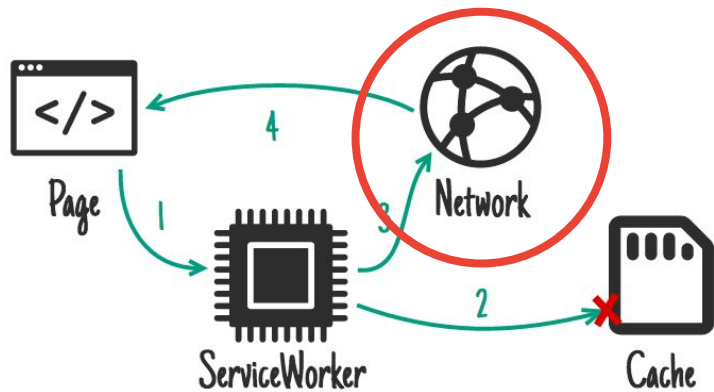
Cache Only



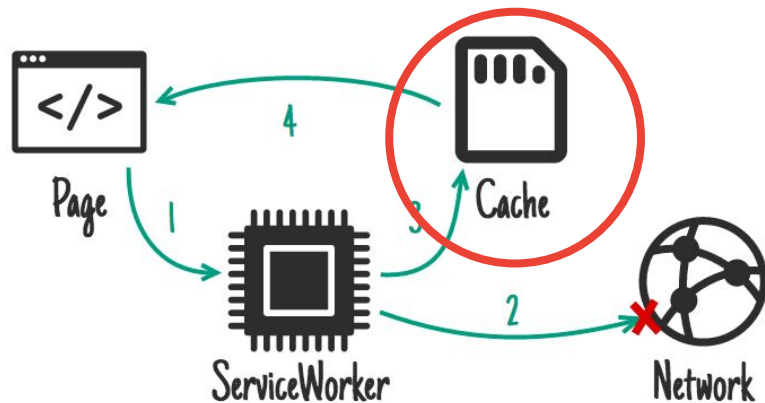
Network Only



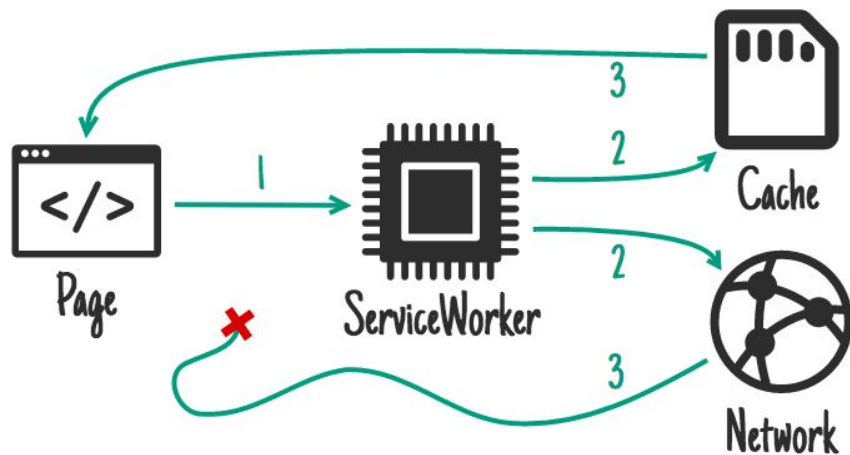
Cache, Falling Back to Network



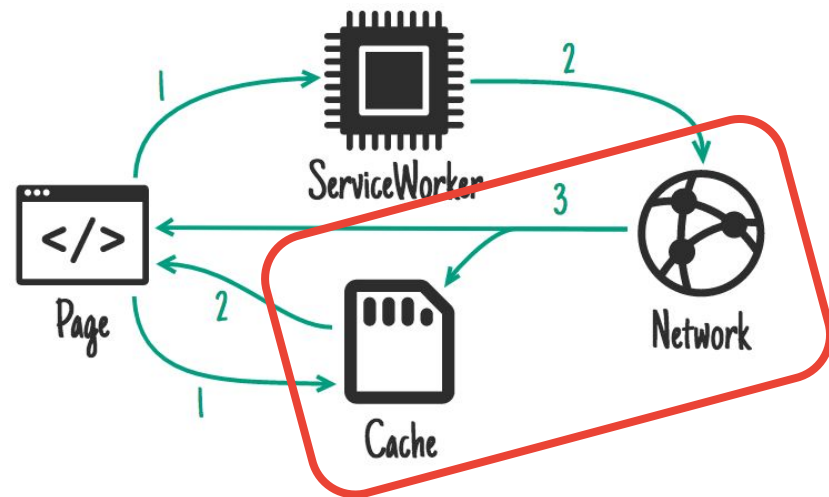
Network, Falling Back to Cache



Cache Network Race



Cache Then Network

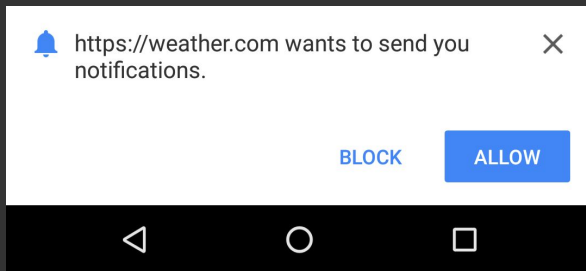


4) Web Manifest (manifest.json)

```
{  
  "name": "The Washington Post",  
  "short_name": "Wash Post",  
  "icons": [{  
    "src": "icon-48x48.png",  
    "sizes": "48x48",  
    "type": "image/png"  
  }, {...}],  
  "start_url": "/index.html",  
  "display": "standalone",  
  "background_color": "#000000",  
  "theme_color": "#000000"  
}
```

Script for alert install banner (web app or native app)

<https://developers.google.com/web/fundamentals/engage-and-retain/app-install-all-banners/>



<https://goo.gl/dvCwUL>

Time for Codelab !

So, what's next?

Implement further with Push Notification with Service Worker (Firebase Cloud Messaging / Google Cloud Platform), and try different offline approaches

Another opportunity: **Physical Web** which web app matches well for engaging audience <https://google.github.io/physical-web/>

Migrate your site and transform into PWA !



MORE COURSES / TUTORIALS ?

Free PWA Course on Udacity

<https://udacity.com/course/ud811>

Free Offline Web Application Course on Udacity (Service Worker)

<https://udacity.com/course/ud899>

K.I.T

<https://saychunkim.github.io>

fb.com/johnny.ksc

@saychun_kim

DONE ?

Keep in Touch and Thank you !