

A detailed botanical illustration serves as the background for the slide. It features various plants: a pink flower with a long tube and stamens in the top left; a large yellow flower with a dark red center in the bottom left; a branch with small white flowers and green leaves in the top right; a branch with small red flowers and green leaves in the bottom left; and a branch with a single yellow lemon and small white flowers in the bottom right. The central text is enclosed in a white rectangular box with a thin black border.

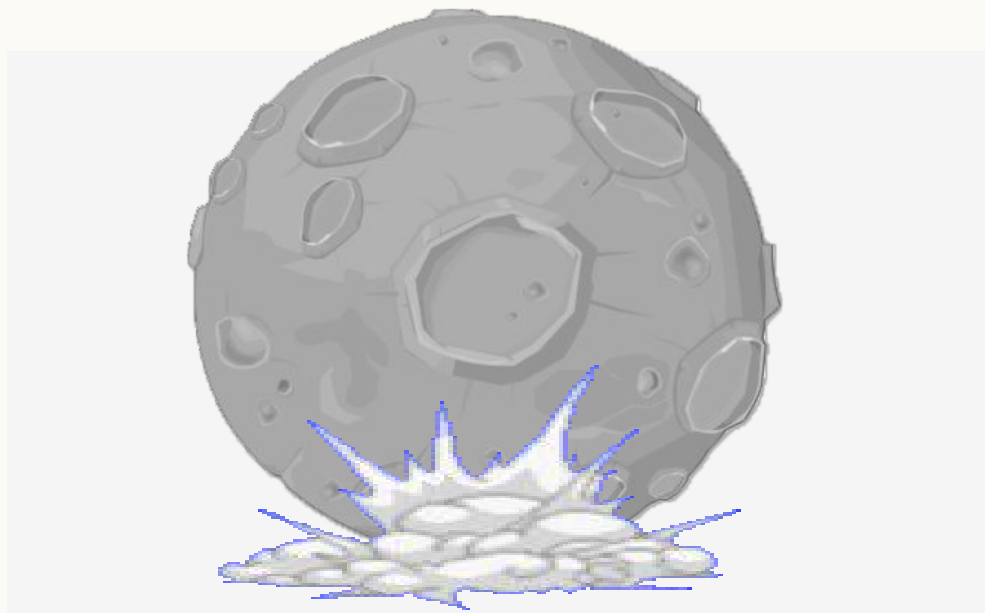
Intro to Progressive Web Apps



Bill Dybas

github.com/billydybas







Brief History Lesson



Static Pages → Dynamic Sites (AJAX) → Single Page Apps





What are PWA's?

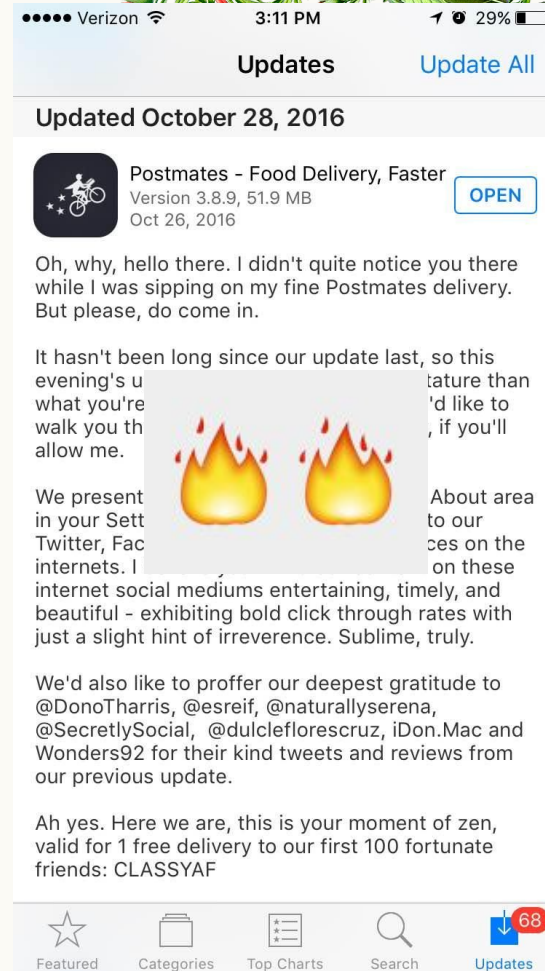
Web Apps that feel like Native Apps



Today's Problems

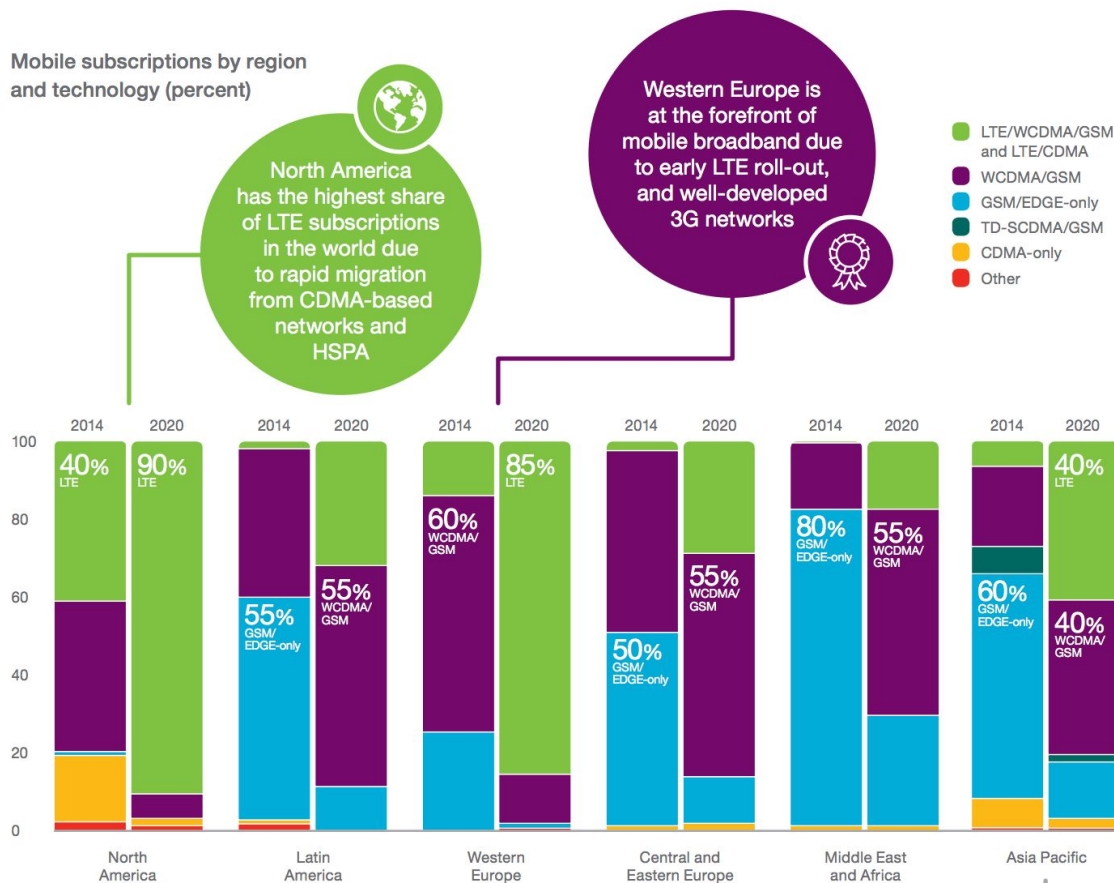
- ◉ App Distribution & Support
- ◉ Global Cellular Networks
- ◉ Zombie Apps

App Distribution & Support



Global Cellular Networks

Mobile subscriptions by region and technology (percent)



Zombie Apps





What are PWA's?

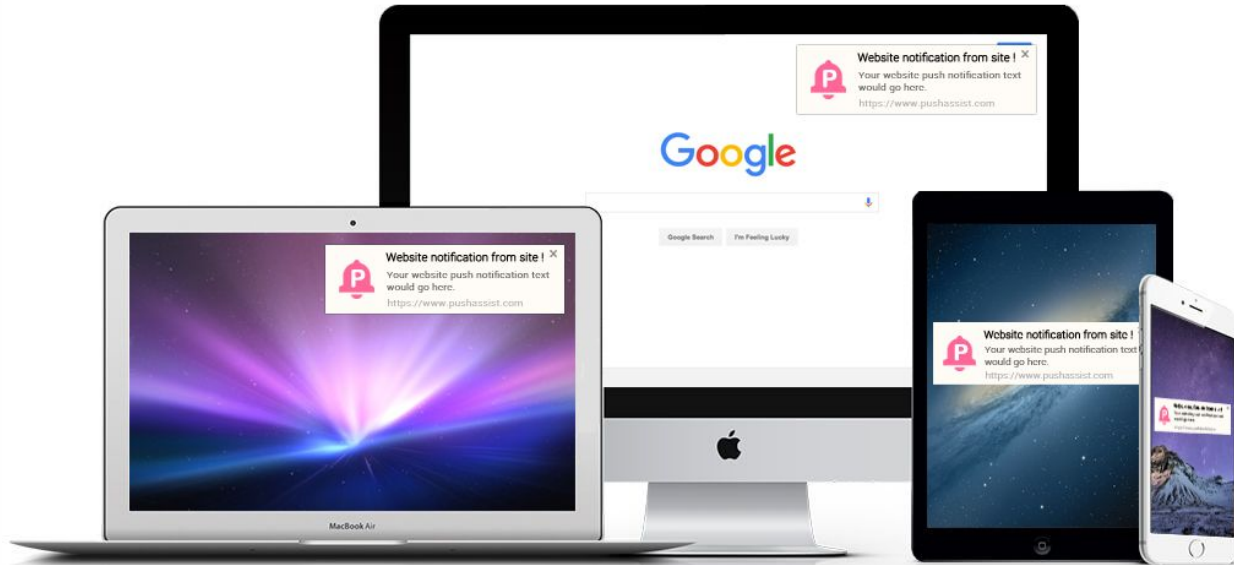
- ◉ Add to Home Screen
- ◉ Push Notifications
- ◉ Work Offline
- ◉ Fast Interactivity



Add to Home Screen

```
1 {
2   "name": "HackerWeb",
3   "short_name": "HackerWeb",
4   "start_url": ".",
5   "display": "standalone",
6   "background_color": "#fff",
7   "description": "A simply readable Hacker News app.",
8   "icons": [{
9     "src": "images/touch/homescreen48.png",
10    "sizes": "48x48",
11    "type": "image/png"
12  }, {
13    "src": "images/touch/homescreen72.png",
14    "sizes": "72x72",
15    "type": "image/png"
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19    "type": "image/png"
20  }, {
21    "src": "images/touch/homescreen144.png",
22    "sizes": "144x144",
23    "type": "image/png"
24  }, {
25    "src": "images/touch/homescreen168.png",
26    "sizes": "168x168",
27    "type": "image/png"
28  }, {
29    "src": "images/touch/homescreen192.png",
30    "sizes": "192x192",
31    "type": "image/png"
32  }],
33   "related_applications": [{
34     "platform": "web"
35   }, {
36     "platform": "play",
37     "url": "https://play.google.com/store/apps/details?id=cheeaun.hackerweb"
38   }]
39 }
```

Push Notifications





Work Offline

- ◉ Content Caching w/ LocalStorage or IndexedDB
 - ◉ Service Workers
- 

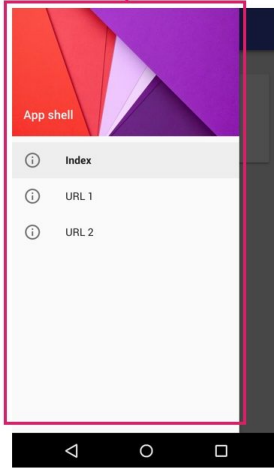
Fast Interactivity

application shell



Cached shell loads **instantly** on repeat visits.

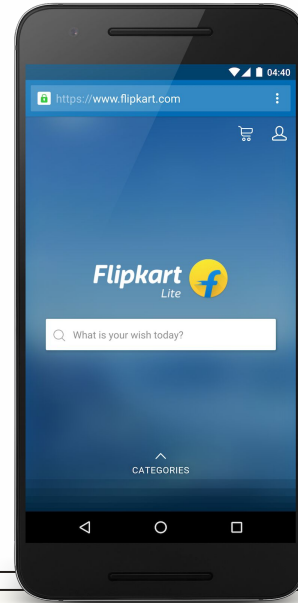
content



Dynamic content then populates the view



PRPL



Tools

Lighthouse build passing coverage 81%

Lighthouse analyzes web apps and web pages, collecting modern performance metrics and insights on developer best practices.

HTML report:

Lighthouse

Version: 1.2.3

Progressive Web App

Best Practices

Performance Metrics

Fancier stuff

Results for: <https://pwa.rock.s/>
Generated on: 12/14/2016, 6:46:04 PM PST

96

100

Progressive Web App

These audits validate the aspects of a Progressive Web App.

[App can load on offline/flaky connections](#)

Ensuring your web app can respond when the network connection is unavailable or flaky is critical to providing your users a good experience. This is achieved through use of a [Service Worker](#).

- ✓ Has a registered Service Worker ⓘ
- ✓ URL responds with a 200 when offline ⓘ

[Page load performance is fast](#)

Users notice if sites and apps don't perform well. These top-level metrics capture the most important perceived performance concerns.

- 98 First meaningful paint: **1329.2ms** (target: 1,600ms) ⓘ
- 100 Perceptual Speed Index: **478** (target: 1,250) ⓘ
 - First Visual Change: **337ms**
 - Last Visual Change: **1343ms**
- 100 Estimated Input Latency: **16.2ms** (target: 50ms) ⓘ
- 99 Time To Interactive (alpha): **1336.4ms** (target: 5,000ms) ⓘ
 - Content scrolls at 60fps (Coming soon)
 - Touch input gets a response in < 150ms (Coming soon)
 - App is interactive without jank after the first meaningful paint (Coming soon)

[Site is progressively enhanced](#)

Progressive enhancement means that everyone can access the basic content and functionality of a page in any browser, and

The background of the slide is decorated with several detailed botanical illustrations. In the top left, there is a pink flower with a yellow center and green leaves. Below it is a large yellow flower with a dark red center. In the top right, there are green leaves and small red and white flowers. In the bottom right, there is a large white flower with a pink center and green leaves. In the bottom left, there are green leaves and small red flowers. The word "Examples" is centered in the middle of the slide, underlined in blue.

Examples

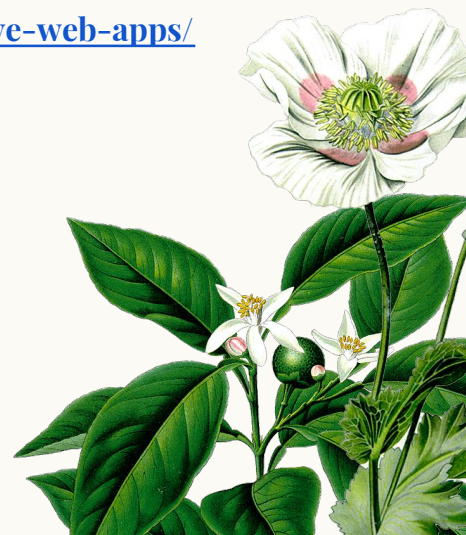
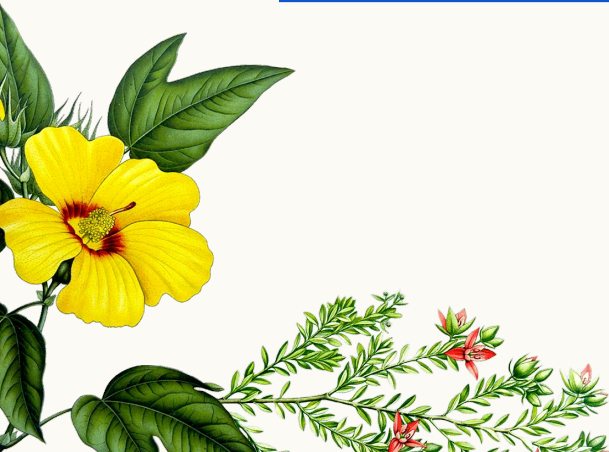


Addy Osmani

- <https://www.youtube.com/watch?v=srdKqoDckXQ>
- <https://www.youtube.com/watch?v=e8XejNt5SZo>
- <https://addyosmani.com/blog/progressive-web-apps-with-react/>

More Resources

- <https://developers.google.com/web/progressive-web-apps/>
- <https://www.smashingmagazine.com/2016/08/a-beginners-guide-to-progressive-web-apps/>
- <http://blog.ionic.io/what-is-a-progressive-web-app/>



A detailed botanical illustration border surrounds the central text. It includes a large yellow hibiscus on the left, a pink flower at the top left, white star-shaped flowers at the top right, a lemon on the bottom right, and a branch with small red flowers at the bottom. Various green leaves of different shapes and sizes are interspersed throughout.

Questions?



Credits

Special thanks to all the people who made and released these awesome resources for free:

- ◉ Presentation template by [SlidesCarnival](#)
- ◉ Plant illustrations from Köhler's Medizinal-Pflanzen in naturgetreuen at [BHL](#)

