# Are Progressive Web Apps the Future of Web Development?



#### What are PWAs

(the developer's version)

- Native-level experience.
- Performance & responsiveness.
- Single codebase.
- Multiple devices, desktop and mobile.

#### What are PWAs

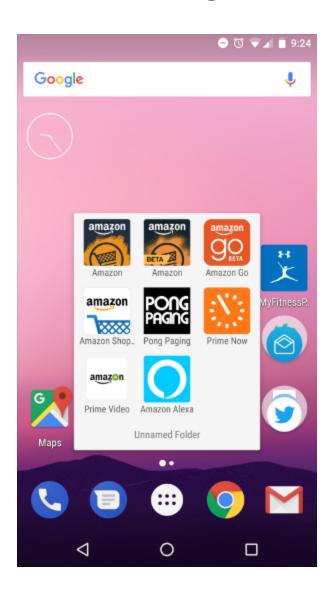
(the product manager version)

A way to improve the following:

- Conversion rate
- Page visits
- User time spent on app
- Quicker time to market
- Business model freedom
- App discovery
- App installation fatigue
- App loyalty
- App reach

https://cloudfour.com/thinks/the-business-case-for-progressive-web-apps/

# **Not Everyone Lives in a Wealthy Nation**



## **Show Case 1 - AliExpress**

AliExpress increases conversion rate for new users by 104% with new Progressive Web App

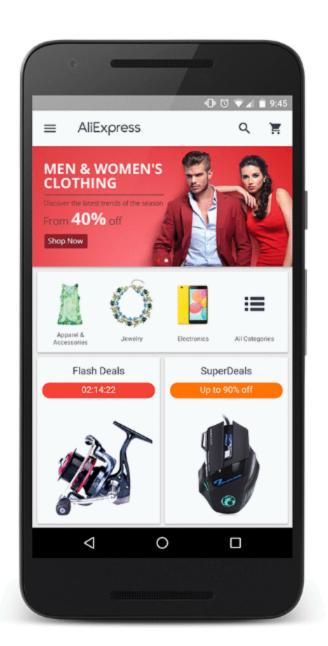
#### Results

- √ 104% for new users across all browsers; 82% increase in iOS conversion rate
- 2X more pages visited per session per user across all browsers
- √ 74% increase in time spent per session across all browsers

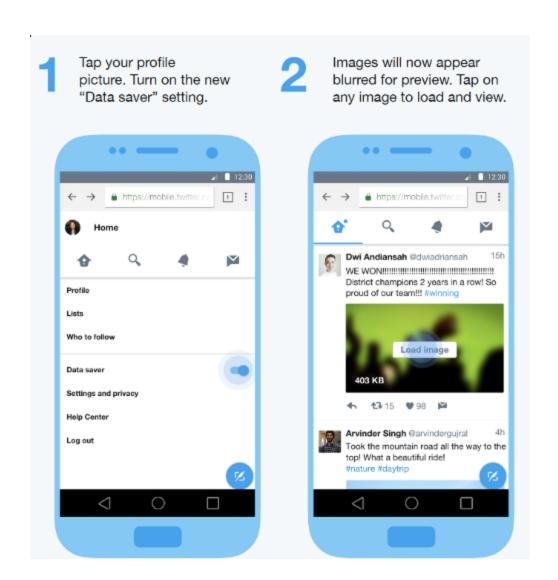
DOWNLOAD PDF CASE STUDY

#### About AliExpress

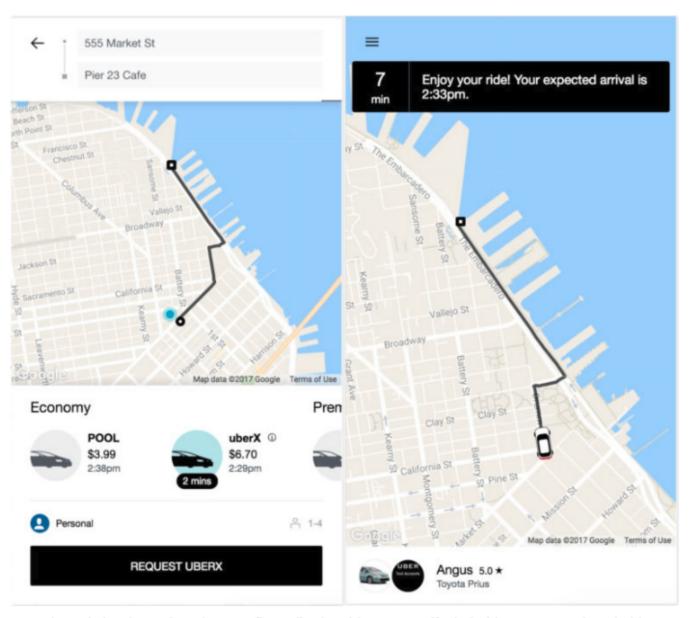
"Smarter shopping, better living!" is the motto of AliExpress, a website where shoppers can buy everything from baby clothes to refrigerators directly from China. Part of the Alibaba Group, the global online retail marketplace is now a popular e-commerce site in America, Russia, and Brazil.



### **Show Case 2 - Twitter**



## **Show Case 3 - UBER**



m.uber mimics the native Uber app flow, allowing riders to specify their ride request and track driver location after being matched.

# How to Achieve a Native-like Experience?

- Available offline/weak network using Service Worker.
- Measure peformance with the tool Lighthouse.
- Icon on home screen.
- (Android/Mozilla/IE) App-like 'loading' page, no URL, push notification and more.

# **Apple**



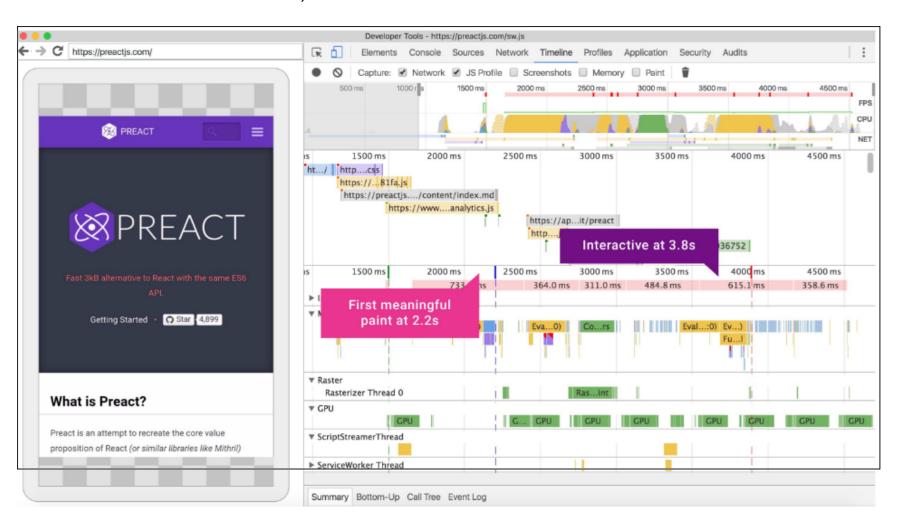
#### The PRPL Pattern

https://developers.google.com/web/fundamentals/performance/prpl -pattern/

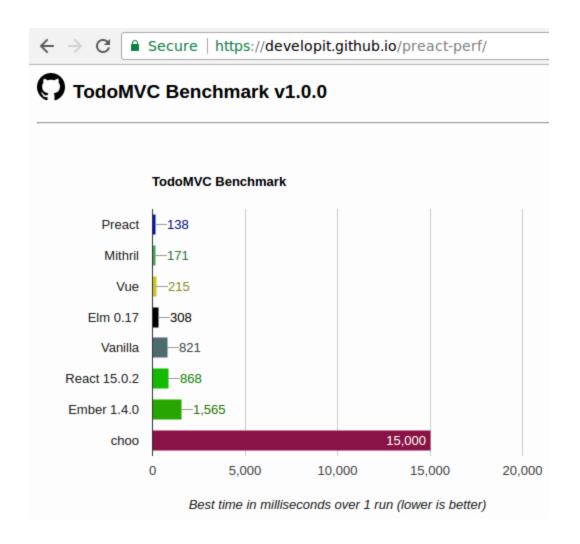
- Precache
- Render initial route
- Push server
- Lazy-load

#### **Preact**

#### React on steroids - 3k, similar API



### **Preact - Performance**



https://developit.github.io/preact-perf

# What does Webpack do for us?

- Creates a single js file from all the JavaScript files.
- Enables a dev server with hot module reloading https://webpack.github.io/docs/hot-module-replacement-withwebpack.html.
- Dynamic bundle splitting https://webpack.js.org/guides/codesplitting-async.
- Tree-shaking capabilities https://webpack.js.org/guides/tree-shaking

#### What does Babel do for us?

Converts ES2015 syntax to ES5 so my browser will be able to render the JavaScript. Things like import, let, require, arrow function, and also converts jsx to JavaScript.

### What are CSS Modules?

index.js

```
import style from "./style"

render() {
    <div class={style.rounded}>
}
```

style.css (or LESS, Sass etc)

```
.rounded {
  display: block;
  background: #FFF;
  margin: 0px auto 0 auto;
  border-radius: 8px;
  padding: 10px;
}
```

## **What are Styled Components?**

```
render(
    <Title>
     Hello World, this is my first styled component!
     </Title>
);
```

```
const Title = styled.h1`
  font-size: 1.5em;
  text-align: center;
  color: blue;
`;
```

#### **Preact CLI**

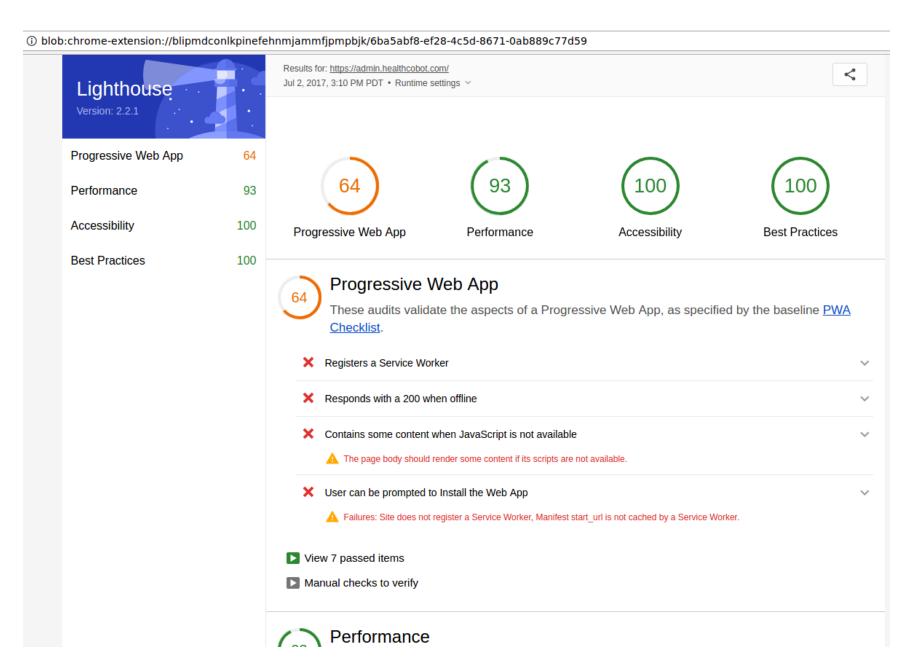
```
npm i -g preact-cli
```

```
preact create app
cd app
preact watch
```

#### **Preact - Baked in PRPL**

- Precache: The service worker is configured for offline use.
- Render initial route: use a tool called prerender.
- HTTP2/Push Server: preact serve creates a simple HTTP2 server.
- Lazy-Load: Automatic code-splitting for routes and shared "chunks" are optimized for reuse. Navigating from /about to /contact will dynamically (or "lazily") load the "contact" bundle and any associated chunks. This is all thanks to webpack.

# Lighthouse



#### Resources

- How Twitter light was built: https://blog.twitter.com/official/en\_us/topics/product/2017/introducing-twitter-lite.html
- How M.UBER was built: https://eng.uber.com/m-uber
- Financial times PWA: https://app.ft.com
- AliExpress PWA: https://m.aliexpress.com
- Preact: https://preactjs.com
- Preact-cli: https://github.com/developit/preact-cli