Progressive Web Apps –The Future of Apps

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Mobile application development has evolved a lot. First, there were native mobile applications developed in Objective C & Swift for IOS and Java & Kotlin for android. Then came the hybrid apps which are mobile apps developed using web technologies like HTML, CSS, & JavaScript, but two years back a new kind of app start immerging called Progressive web apps(PWA), it blurs the line between native & mobile web.

Native apps had very good UI, are very fast & fluent, do things like sending push notifications, work offline, look and feel like an app (as Apple and Google have imagined them), get installed on your device, load on the home screen, and so on. By comparison, Historically Mobile Web Apps are accessed in a mobile browser, doesn't have good UI, they are very slow & unresponsive, no push notification support & doesn't work without internet. Progressive Web Apps fix that with new Web APIs, new design concepts, and new buzzwords.

PWA characteristics

Progressive Web App uses modern web capabilities to deliver a native app like user experience, some of its characteristics are:

1. Progressive - Work for every user, regardless of browser, if your browser doesn't support PWA, then it will work like a normal web app.

2. Responsive - Fit any form factor like desktop, mobile, tablet or any other device.

3. Work offline - A Service Worker can cache the pages so it can work offline also

4. Native App like - Feels like a native app to the user with app-style interactions and navigation.

5. Auto Update - Always up-to-date, Service Worker update it in the background.

6. Safe - PWA can only be served via HTTPS to prevent snooping and ensure content hasn’t been tampered with.

7. Discoverable - Are identifiable as “applications” thanks to W3C manifests & search engines can also find them.

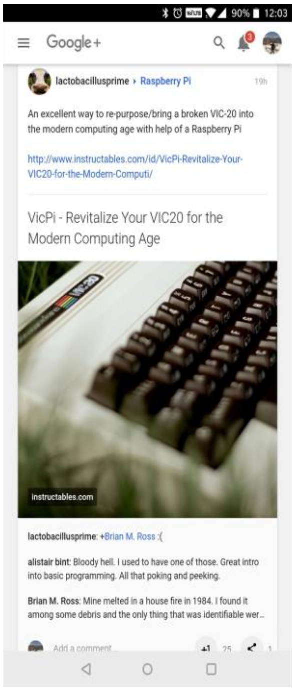
8. Re-engage able - Like Native apps, it supports Push Notifications making user reengagement easy.

9. Installable - They appear on home screen like native installable apps without the hassle of an app store

10. Linkable - Easily shared via a URL and do not require complex installation from an app store or for developer does not require submission to an app store.

11. Platform Independent - Since these are web-based apps, you do not need to develop multiple applications for the various platform, making developers life easy as they need to develop and maintain only one code for all platform. It also takes away the need for separate mobile web development.

PWA is officially Supported by Google on Android, Recently Google & Microsoft both announces the PWA support for the desktop by mid-2018. It’s estimated that by 2020, 70% of the mobile apps will be PWA and only very high-performance app will be native. Some of the best examples of PWA is Flipboard, Twitter, Ali Express, Google+ etc. Almost all major companies are now moving towards PWA. In fact, you can convert any website into PWA with few modifications, by adding support for App Shell, Service worker, App Manifests and few more things, but using the newer web technologies like Angular, React, Node.js will result in much better user experience. Ionic Framework used for hybrid app development is based on Angular & support PWA. Below is the screenshot of some PWA, these are not native apps but feels like native apps.



lactobacillusprime › Raspberry Pi 19h

An excellent way to re-purpose/bring a broken VIC-20 into the modern computing age with help of a Raspberry Pi

http://www.instructables.com/id/VicPi-Revitalize-Your-VIC20-for-the-Modern-Computi/

VicPi - Revitalize Your VIC20 for the Modern Computing Age

instructables.com

lactobacillusprime: +Brian M. Ross :(

alistair bint: Bloody hell. I used to have one of those. Great intro into basic programming. All that poking and peeking.

Brian M. Ross: Mine melted in a house fire in 1984. I found it among some debris and the only thing that was identifiable wer...

Evan Blass @evleaks · 15h
ICYMI.

Evan Blass @evleaks
These are the Samsung Galaxy S9 and S9+ wp.me/p8wLEc-9IY7
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Elon Musk @elonmusk · Jan 28
The rumor that I'm secretly creating a zombie apocalypse to generate demand for flamethrowers is completely false

5.8K 82.5K 309.7K

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Evan Blass @evleaks · 16h
You're about four years too late on this, "Kim."

KimberlyKlemt @KimberlyKlemt
"The new #HTC One will retail for $600 off-contract . Meanwhile, the #gold #color is a #Best..." #android #mobile twitter.com/evleaks/status...

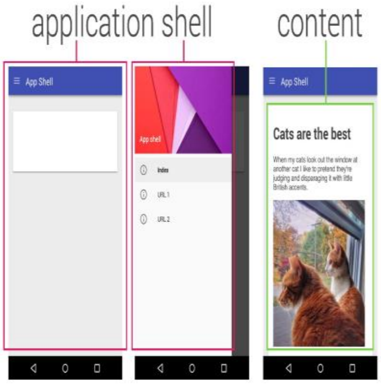
21 9 245

Marques Brownlee @MKBHD · 14h
I'll review the damn thing.

Elon Musk @elonmusk
Obviously, a flamethrower is a super terrible idea. Definitely don't buy one

PWA Architecture

1. **App Shell** - The app's shell is the minimal HTML, CSS, and JavaScript that is required to power the user interface of a progressive web app and is one of the components that ensures reliably good performance. Its first load should be extremely quick and immediately cached. "Cached" means that the shell files are loaded once over the network and then saved to the local device. Every subsequent time that the user opens the app, the shell files are loaded from the local device's cache, which results in blazing-fast startup times. App shell architecture separates the core application infrastructure and UI from the data. All of the UI and infrastructure is cached locally using a service worker so that on subsequent loads, the Progressive Web App only needs to retrieve the necessary data, instead of having to load everything.


application shell
content
App Shell
App shell
Index
URL 1
URL 2
App Shell
Cats are the best
When my cats look out the window at another cat I like to pretend they're judging and disparaging it with little British accents.

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

Dynamic content then populates the view

2.**Service Worker** - 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. They power offline functionality, push notifications, background content updating, content caching, and a whole lot more. Service Worker is a worker script that works behind the scenes, independent of your app, and runs in response to events like network requests, push notifications, connectivity changes, and more. Service Workers are just a JavaScript file like any other, running in the background and triggered via events, and it's up to you to write code to handle caching, push notifications, content fetching, etc.

3.App Manifest - The web app manifest is a W3C specification defining a JSON-based manifest to provide developers a centralized place to put metadata associated with a web application including the name of the web application, links to the web app icons or image objects, preferred URL to launch or open the web app, web app configuration data for a number of characteristics, declaration for default orientation of the web app, enables to set the display mode e.g. full screen. By setting and manipulating the metadata for the web manifest file, developers enable user agents to create seamless native-like mobile experiences through the Progressive Web App, it also enables native install banner, just like the native app banners we're used to.

4.**Secure Host** - The final step is to deploy our Progressive web app to a server that supports HTTPS. PWA can only be served via HTTPS to prevent snooping and ensure content hasn't been tampered with.

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