

Seminar

What are Progressive Web Apps and how do they work?

What are Progressive Web Apps?

- ❑ Progressive Web Apps are traditional websites, that have characteristics of a classic mobile app, it can be loaded through via a browser , indexed by google.
- ❑ They are made out of CSS, HTML and JavaScript and their content can be accessed the same way as with a native app, across different platforms.
- ❑ They're a normal website but look like an application to users.
- ❑ They are hosted directly on their associated website. Developers can update them directly on their web server without submitting those updates to several different app stores, and the same app will run on all browsers and platforms
- ❑ PWAs are likely to play an important role in mobile optimization, they can be traced back to an initiative supported by Google.

Why use Progressive Web Apps?

- **Progressive** - True to the term, these are the apps for every user regardless of their browser choice.
- **Responsive** - Access content on any device: desktop, mobile, tablet, or whatever is next.
- **Connectivity independent** - because of the service workers. They work even in offline and low-quality networks.
- **App-like** - Feels like an app, because the app shell model separates the application *functionality* from application *content* .
- **Fresh** - Always up-to-date thanks to the service worker update process.
- **Safe** - Served via HTTPS to prevent snooping and to ensure content hasn't been tampered with.
- **Discoverable** - Is identifiable as an "application" thanks to W3C manifest and service worker registration scope, allowing search engines to find it.
- **Re-engageable** - Makes re-engagement easy through features like push notifications.
- **Installable** - Allows users to add apps they find most useful to their home screen without the hassle of an app store.
- **Linkable** - Easily share the application via URL, does not require complex installation.

How do Progressive Web Apps work?

The foundation that Progressive Web Apps are built on is “service workers”. These are JavaScript files that make it possible to load cached content in the background. This JavaScript works offline, and does not require an internet connection. Another advantage of service workers is that delays when calling up another page are almost completely eliminated

For a Progressive Web App to work in any browser, it requires the so-called application shell. This ensures that a mobile view of the URL is generated, and that the app is adapted to the functionality of the browser being used. The application shell is also responsible for the design of the PWA reflecting the look of a native app. This means that the app shell is the basis of dynamically loading content. It is loaded into the device’s cache when the PWA is called.

The third important component of a PWA is the web app manifest. This is a JSON file that is saved on the server. This manifest file enables the user to save the PWA, once it has been called, on their device like a native app. In fact, it is not the whole application that is installed, as would be the case with a native app, but just the foundation in the form of (at least) an app shell. With the web app manifest, an icon for saving the PWA can be placed on the home screen. It also makes it possible to define whether the app can be loaded without a browser or in an available browser. The script could also be used to manage the look and/or functions of the app. Finally, it is possible to enable push notifications to be sent to users, providing the users agree to this capability when “installing” the app.

What are the advantages of Progressive Web Apps?

- It is much more cost-effective to develop a PWA than a native app.
- Maintaining a PWA does not require much effort.
- PWAs can be kept continuously up-to-date.
- There is no dependency on app stores. Webmasters can promote their PWAs themselves.
- The contents of a Progressive Web App can be indexed and can therefore rank with search engines.
- There are no platform limitations. This means that users can view the contents of a PWA on any mobile device.
- Web content can be accessed over almost any quality of connection.
- The connection between the user and the web content is strengthened by the “installation” of the PWA.

What are the disadvantages of Progressive Web Apps?

- Progressive web apps are supposed to be the next big thing, but they do have their drawbacks. For example, they don't work on all browsers such as Edge, Internet Explorer, and other custom browsers. PWAs do work on newer versions of browsers such as Samsung's Android browser, Opera, and Chrome.
- The limitation also affects devices since not all of them can support them. Android does support PWAs, but there are some support issues since it's still relatively new.
- They don't work on all browsers such as Edge, Internet Explorer, and other custom browsers.

Conclusion

- ❑ PWAs are predicted to become more mainstream in the future years as these corporations begin pushing them. They are definitely the future since they will only help improve the user's mobile experience.
- ❑ Since moving to PWAs, Forbes has seen a 43 percent increase in users, and those users stay twice as long. Lyft and Uber have also launched PWAs aimed at users with limited data bandwidth and connectivity. The sites do everything the apps do, but within the browser.
- ❑ Progressive Web Apps are experiences that combine the best of the web and the best of apps.
- ❑ They are useful to users from the very first visit in a browser tab, no install required. As the user progressively builds a relationship with the app over time, it becomes more and more powerful. It loads quickly, even on flaky networks, sends relevant push notifications, has an icon on the home screen, and loads as a top-level, full screen experience.

References links

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- ❑ **Progressive Web Apps are here. What's the big deal?**

<https://blog.mozilla.org/firefox/progressive-web-apps-whats-big-deal/>

- ❑ **Why Progressive web apps are better options for your startup?**

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