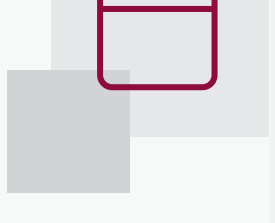


PROGRESSIVE WEB APP (PWA)

01 What is a Progressive Web Apps?

Developed by Google, Progressive Web Apps (PWA) offers the best web and mobile applications by integrating web browser features with the benefits of mobile experience.



02



No separate code base required



Works within the browser



No Installation from Google Play or App Store required



Easy and cheaper than developing native apps

03 Technologies behind PWA

Service Workers
Powerful JavaScript file running in the background, with functionalities like push notifications, content fetching, content caching.

Application Shell Architecture (App Shell)
Forms the frame of PWA (such as toolbar, drop-down menu, modular elements) and loads instantly on repeat visits.

App Manifest
A simple JSON file that allows users to install an app from the browser and pin it to their device's home screen.

04

Progressive Web Apps Checklist

- The website has to be served over https
- The app should contain Web App Manifest file
- The app should include a working Service Worker
- Application Shell Architecture

What Lighthouse checks in a web app?

- Relative speed
- The app is served from a secured origin or not
- Use of accessibility best practices
- Ability to load offline
- Network stability

05 Lighthouse PWA Analysis Tool

Lighthouse is an open-source automated tool from Google that audits a web app for PWA features.

06 Where did Progressive Web Apps come from?

STAGE 1

Early 90s websites- plain collection of links and texts.

STAGE 2

Arrival of scripting languages and frameworks like PHP, ColdFusion, ASP.

STAGE 3

Introducing Ajax

- With Ajax, web applications started behaving truly dynamic.
- Ajax had few shortcomings:-
 - Reduced functionality for JS - incompatible browser
 - Back button functionality problems
 - Inaccessible contents due to poor JS execution

• With continued development of CSS3, JavaScript, and HTML5, more powerful browsers paved the way for hybrid apps.

• Ultimately, it led to Progressive Web Apps.

07 Progressive App vs Native App

PROS

- Zero installation
- Easy to develop
- Remains up-to-date
- Easy sharing via URLs and social platforms
- Can work offline or in low internet connectivity

CONS

- Slow and consumes more battery
- Not supported by iOS web browsers like Safari
- Features like NFC, Proximity sensors, bluetooth not accessible
- Doesn't support cross-application logins

Progressive App

PROS

- More secure and reliable
- Easier integration of new features
- Fast-running native mobile app codes
- Meets UI and UX expectations of customers
- Easy discovery in App stores

CONS

- Intense competition with other apps & App fatigue
- Depends on APIs to power their content and infrastructure
- Higher maintenance cost
- Integrating contents takes time
- Additional costs incurred

Native App

08 Benefits of using Progressive Web Apps

- Brings native app features to the mobile browser experience
- Can run offline and in poor-quality networks
- Works on every phone, every browser, every time
- Navigates like a website, feels and look like an app
- Loads faster and secured than traditional websites
- Makes re-engagement easy with push notifications

09 Progressive Web Apps in action



- Twitter Lite PWA became default mobile web experience for all users in April 2017
- Increase of 75% tweets, 65% pages per sessions, 20% decrease in bounce rates



- 88 percent performance improvement over their traditional mobile website
- PWA technology has also seen a 23 percent increase in the number of mobile search users who return to the site within 7 days



- The PWA strategy helped in 76 percent increase of total conversions
- "Add to HomeScreen" feature increased active user rates by 14% on iOS and 30% on Android.



- Forbes.com mobile apps now loads in 0.8 seconds
- Forbes developed Fluid, in-house advertising for faster loading on mobile devices