PJ Advanced Web Technology
Interoperable PWA for Media Playback

Project Weekly Call I – 12.11.2019

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Contents

Background

This presentation is a highlight of our project status for the Interoperable PWA for Media Playback.

The task is to explore a wide range of PWA projects and reference use case which will answers the following question:

- What is the scientific approach for PWA
- Project organization during execution stage
- Architecture decision for our PWA Project

PWA - Introduction

- **A Progressive Web App is functionally defined by the technical properties that allow the browser to detect that the site meets certain criteria and is worthy of being added to the home screen [2].**

- **Progressive Web Apps (PWA) are a new class of Web applications, enabled for the most part by the Service Workers API [2].**

Background – Goals

- Selecting open source which will be implemented in our product.
- Provide clear documentation with regard to product delivery.
- Developed PWA with video streaming capability.

Electron

Browsers

Mobile Devices

Project Organization

Qutibah Hussein
Computer Science
Project Leader & Developer

Azmi Amiruddin
Information System Management
Coordinator and Developer

Project Schedule

Schedule PWC and Requirement Stage

Project Tracker: https://jazz.net/jts/dashboards/18508/tab_2

PJ AWT - Timeline

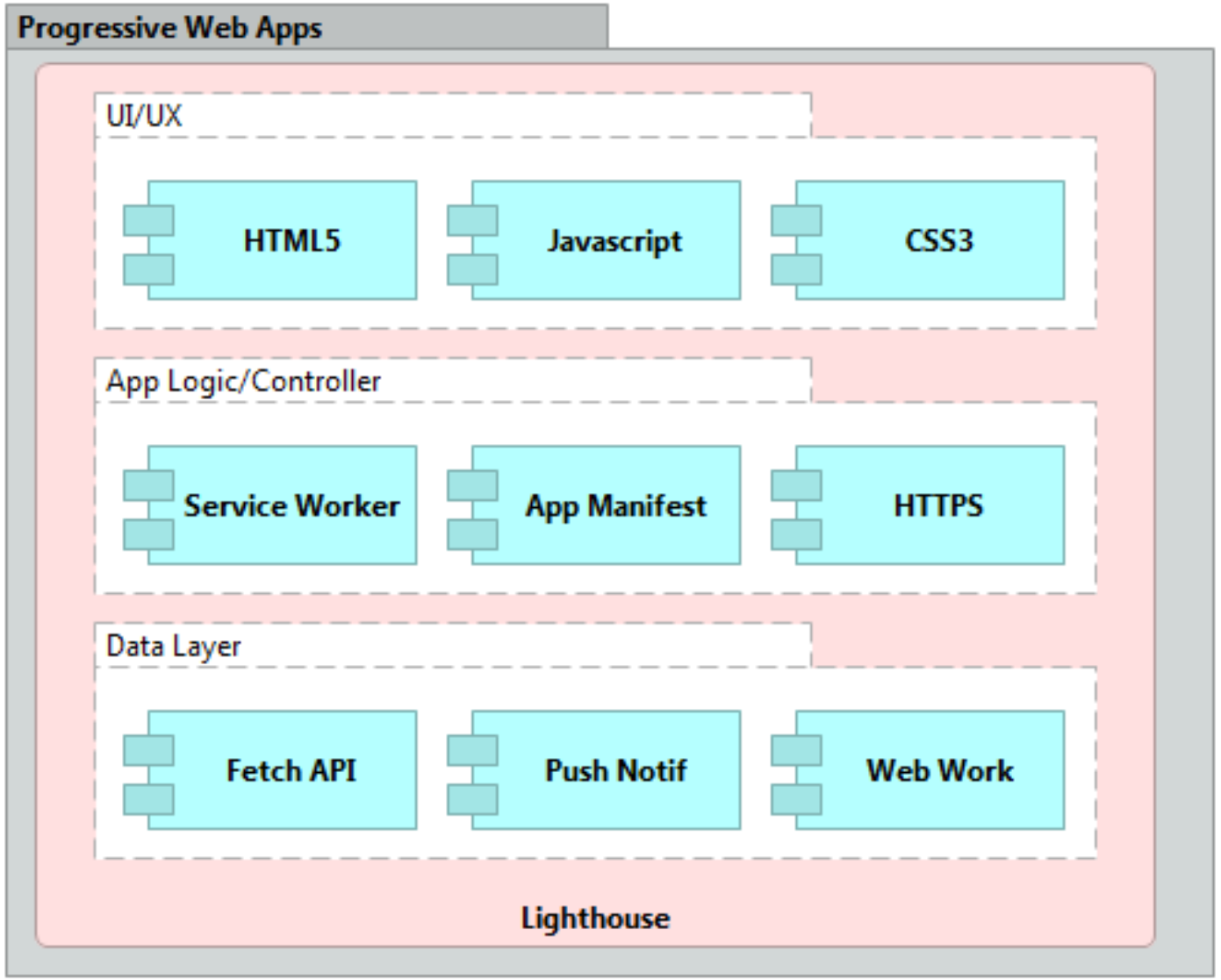
Interoperable PWA for Media Playback

Activity	Project Length																									
	Oct-19				Nov-19				Dec-19				Jan-20				Feb-20				Mar-20				Apr	
	W1	W2	W3	W4	W1	W2	W3	W4	W1	W2	W3	W4	W1	W2	W3	W4	W1	W2	W3	W4	W1	W2	W3	W4	W1	W2
PWC - Project Weekly Call																										
Requirement																										
Development - Sprint 1																										
Development - Sprint 2																										
SIT & UAT Data Preparation																										
UAT																										
Product Documentation																										
Go Live																										

PWC
DEV
PRD

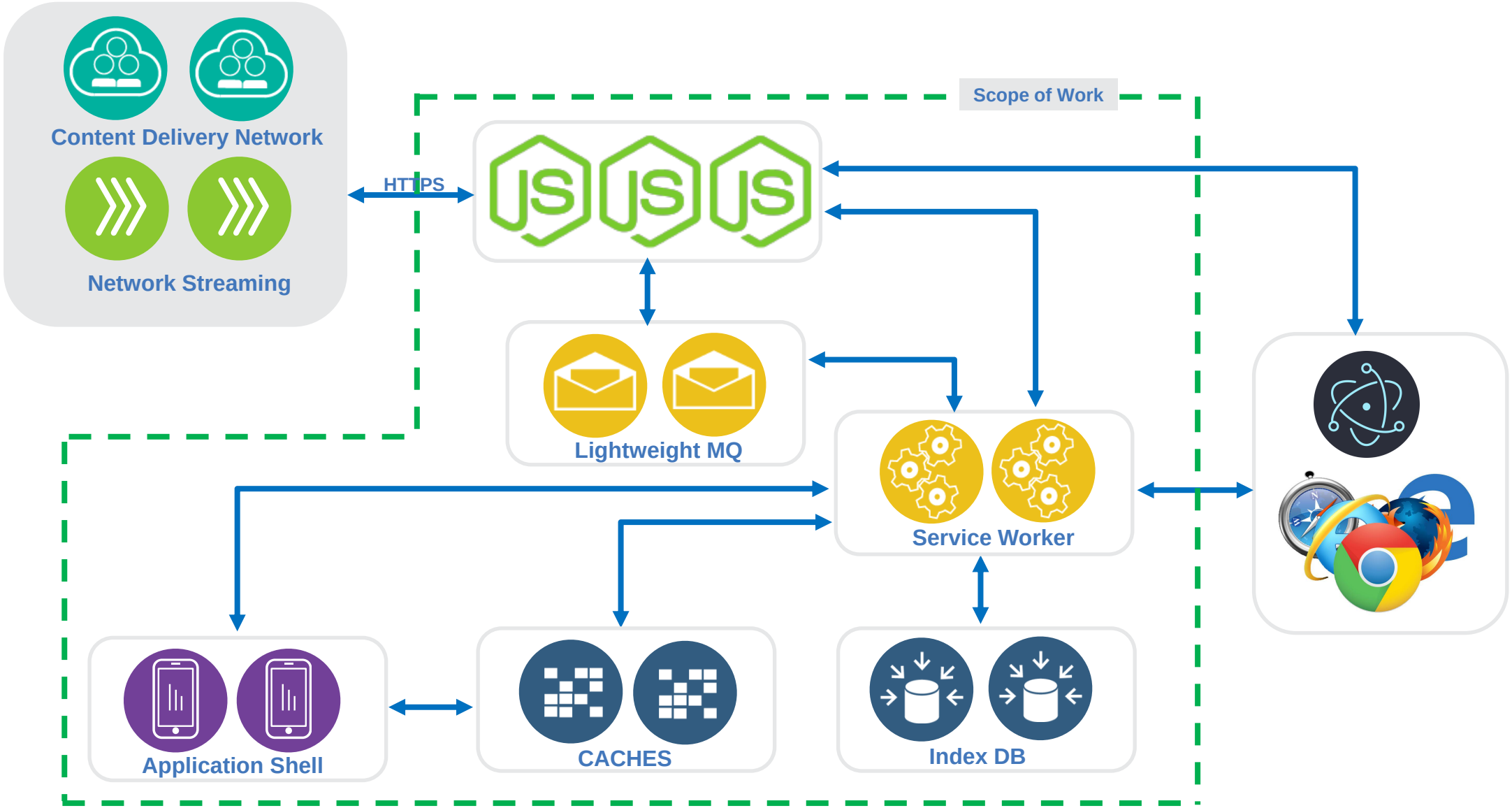
Go Live date 28.02.2020

PWA – Technology Components



*** Own Diagram**

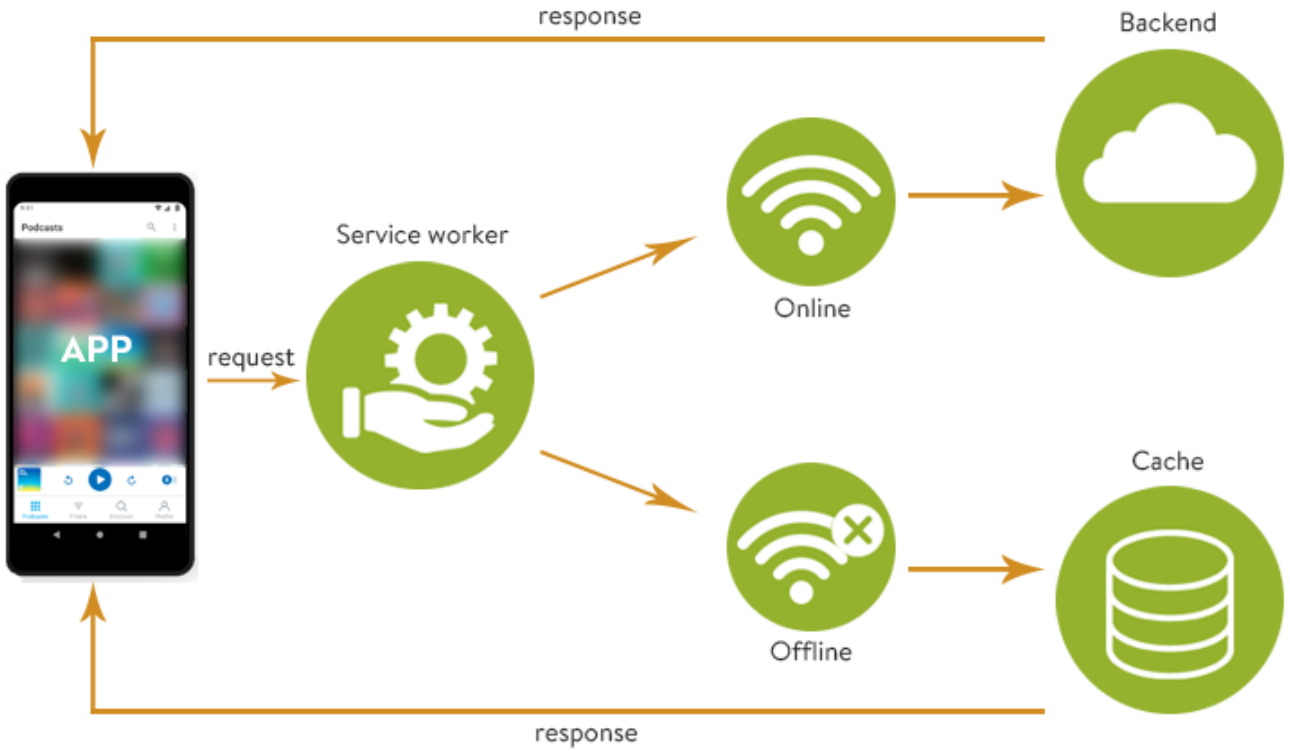
PWA – Architecture



*** Own Diagram**

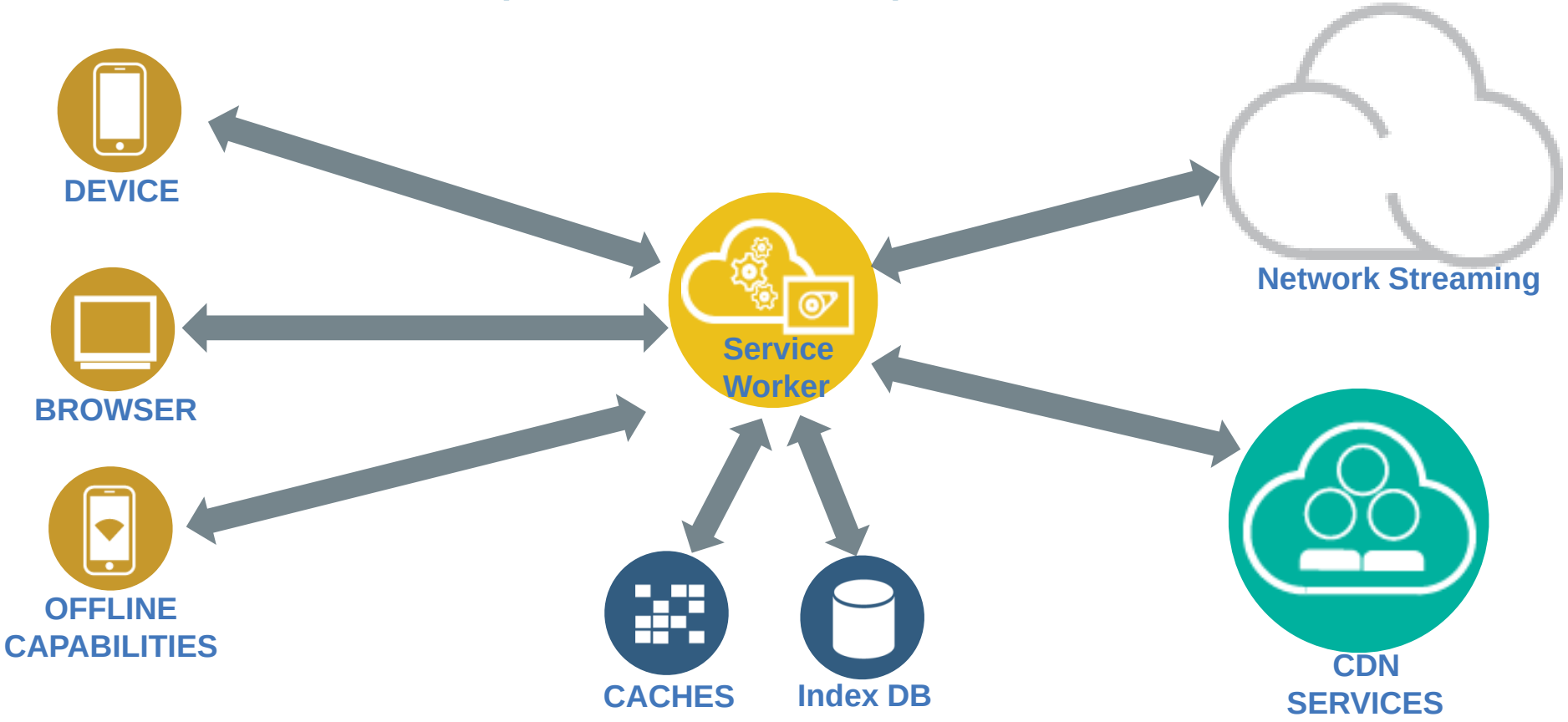
Scope of Work

- **Progressive web emerged as bridge between *native app* development as well as *web application*.**
- **Characteristic of Progressive web apps run on browser just like a traditional web app but they are accessed via *app icon* just like a native app.**
- **Progressive web app provides the user with a *rich ui/ux* even in very slow internet connection or no connection at all.**



Service Worker

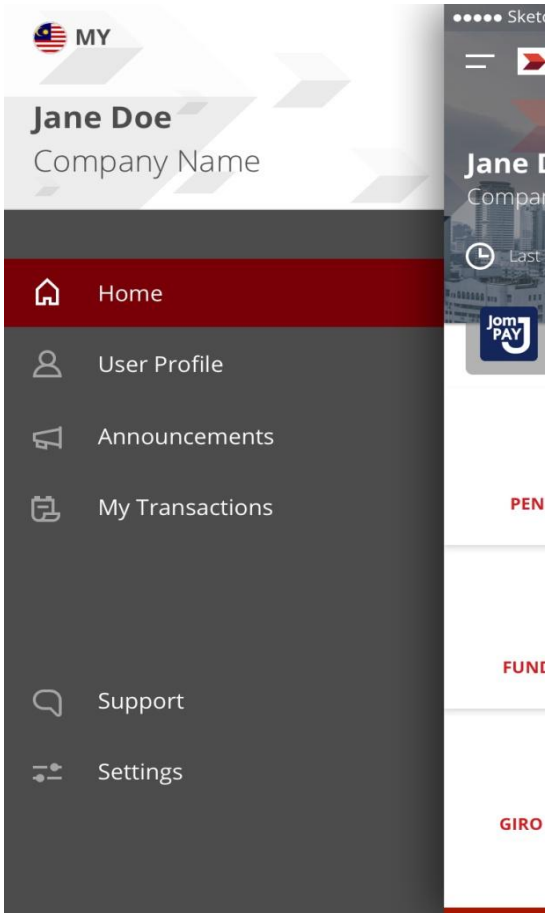
Service Worker enable offline experience and reliable performance.

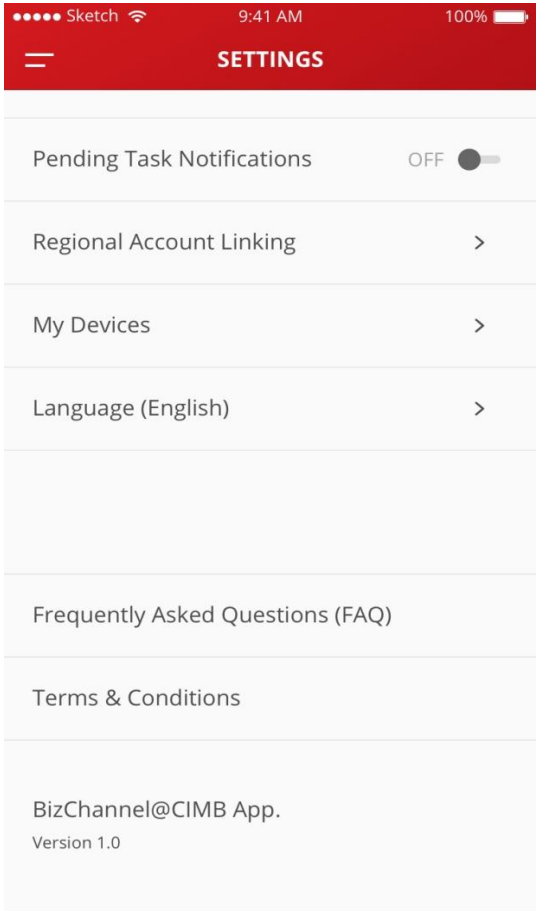


*** Own Diagram**

Application Shell

- **Refers to the local resources that your web app needs to load the skeleton of your user interface (UI).**
- **Minimal static GUI and logic needed to render and display the application without connection dependant on dynamic content, i.e. in an offline setting**





PWA vs. Electron

PWA

- Minimal footprint it leaves on a user's device
- Intended to work on any platform that uses a standards-compliant browser.
- Portable across desktop and mobile platforms
- Provides home screen icons without the use of an App Store or Playstore

Electron

- Pros:
  - Works like an native Application.
  - It is like an Browser for just one Website.
  - All resources are already loaded.
  - Work offline
- Cons:
  - Need to access the movie Web API
  - Required to download and save the movie files

App Shell

User Experience

Service Worker

Content Accessibility

Manifest

```
manifest.json

{

"name" : "Your PWA",
"short_name" : "PWA",
"icons" : [{
   "scr" : "/assets/icon.png",
   "size" : "192*192"
}],
"start_url" : "/index.html",
```

Applike Experience

Shaka Player

- **Shaka Player is an open-source JavaScript library for adaptive media. It plays adaptive media formats (such as DASH and HLS) in a browser, without using plugins or Flash.**
- **Shaka Player also supports offline storage and playback of media using IndexedDB. Content can be stored on any browser.**

Benefits of PWA

* Own Illustration

Conclusion

Progressive Web App is the future of web development without any doubt

Reference

1. Google PWA https://developers.google.com/web/ilt/pwa/introduction-to-progressive-web-app-architectures
2. Biørn-Hansen, A., Majchrzak, T. A., & Grønli, T. M. (2017). Progressive web apps: The possible web-native unifier for mobile development. WEBIST 2017 - Proceedings of the 13th International Conference on Web Information Systems and Technologies, (Webist), 344–351. https://doi.org/10.5220/0006353703440351
3. Gove, Jenny, Heilmann Chris, Dutton Sam, Clark Sarah, Kurtuldu Mustafa, Warrender Ryan, Cassells Shane, Demidova Olga, A. C. (2018). Progressive Web Apps The Future of the Mobile Web.
4. Steiner, T. (2018). What is in a Web View. 789–796. https://doi.org/10.1145/3184558.3188742