

## Progressive Web Apps (PWA)

PWA (Progressive Web App) is not a new term (Google introduced it in 2015), but it is unfamiliar to many people. PWAs are commonly defined as apps that bring together the best of web and native applications, even being seen as a middle ground or an evolved form.

### Connectivity:

- Offline functionality: They can work even when the user is offline thanks to the ability to cache data.
- Progressive recovery: They offer a progressively enhanced experience based on the user's connection.

### Responsive:

- Adaptive design: They adapt to different devices and screen sizes, providing a consistent user experience.

### Navigability:

- Smooth navigation: They provide a seamless browsing experience without constantly reloading the page.

### Installation:

- Home screen installation: Users can add the PWA to their home screen, just like with a native app.

### Automatic Updates:

- Seamless updates: They are updated automatically, ensuring that users always have the latest version without the need to download or install manually.

### Security:

- Secure connections: They run through HTTPS connections to ensure the security of transmitted information.

### Discovery:

- Easy to find: They are indexable by search engines, making them easy to discover by users.

**Direct Links:**

- Shareable: They allow sharing direct links, facilitating distribution and promotion.

**Interactivity:**

- Fast interactivity: They offer an interactive and fast experience, similar to native applications.

**Resource Consumption:**

- Lower consumption: They use less storage space compared to native applications.

In summary, PWAs combine the best of both worlds, providing a rich and native-like user experience while leveraging the flexibility and accessibility of web applications.

## Differences between Web App, Service-Oriented App, and Progressive App

### Web App:

#### Definition:

- A web application is accessible through a web browser and runs entirely on the browser's platform.

#### Advantages:

- Accessibility: Can be used on any device with a browser.
- Ease of development: Does not require installation and can be easily updated.
- Lower cost: Development and maintenance are usually more economical.

#### Disadvantages:

- Connectivity dependence: Works better with an internet connection.
- Hardware access limitations: Limited access to device features such as the camera or sensors.

### Service-Oriented App:

#### Definition:

- Focuses on integrating external services or APIs to provide specific functionalities.

#### Advantages:

- Scalability: Can leverage existing external services.
- Specialized functionalities: Can offer specific features without developing everything from scratch.
- Independent updates: Services can be updated independently.

#### Disadvantages:

- Integration complexity: Integrating and managing multiple services can be complicated.
- External dependence: The application may suffer if external services have issues.

## **Progressive App (PWA):**

### **Definition:**

- A PWA combines features of web and native applications to provide an advanced user experience.

### **Advantages:**

- Offline functionality: Can work offline thanks to caching.
- Native-like user experience: Smooth navigation and advanced features.
- Home screen installation: Can be installed as a native app on mobile devices.

### **Disadvantages:**

- Hardware access limitations: Although more advanced than a web app, it may still have restrictions compared to native applications.
- Requires browser support: Not all browsers offer full support for PWAs.

In summary, the choice between a web application, a service-oriented application, and a progressive application will depend on the specific requirements of the project, the necessary features, and development preferences. Each approach has its own advantages and disadvantages, and the choice will depend on development priorities and goals.

[DIGITAL55, (2020, June 5, Arimetrics, (2020, January 28, Amazon Web Services, Inc., (2023, EmployIT., (2022, November 16]

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