WEB APP OFFLINE
NON ESISTONO PIÙ!

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No internet

Try:

- Checking the network cables, modem, and router
- Reconnecting to Wi-Fi
- Running Windows Network Diagnostics

DNS_PROBE_FINISHED_NO_INTERNET
THEN

NOW

Unable to connect to the internet.
Branded offline pages

Engaging pages
A small test...

NATIVE APP
116 MB

PWA
384 KB
PWA core components
Web manifest

```json
{  
  "name": "angular-pwa",
  "short_name": "my-pwa",
  "display": "standalone",
  "start_url": "./",
  "icons": [
    {
      "src": "assets/icons/icon-192x192.png",
      "sizes": "192x192",
      "type": "image/png",
      "purpose": "maskable any"
    },
    {
      "src": "assets/icons/icon-512x512.png",
      "sizes": "512x512",
      "type": "image/png",
      "purpose": "maskable any"
    }
  ]
}
```
Shortcuts

```json
"shortcuts": [
  {
    "name": "New Tweet",
    "url": "#/new",
    "description": "Create a new message",
    "icons": [
      {
        "src": "#/assets/new.png",
        "purpose": "any"
      }
    ]
  },
  {
    "name": "Explore",
    "url": "#/explore",
    "icons": [
      {
        "src": "#/assets/search.png",
        "purpose": "any"
      }
    ]
  },
  {
    "name": "Notifications",
    "url": "#/notifications",
    "icons": [
      {
        "src": "#/assets/alarm.png",
        "purpose": "any"
      }
    ]
  }
] ...
```
Service worker

Local cache

service worker.js

web
Register a service worker

```javascript
if ('serviceWorker' in navigator) {
  navigator.serviceWorker
    .register('./service-worker.js', {scope: './'})
    .then((registration) => {
      // SW successfully registered
    }).catch((error) => {
      // Failed to register
    });
}
```
Speed Thanks to Caching Strategies
Mobile traffic trend


The height of mobile addiction
Cache First Strategy

Ideal for: offline-first approach and best performance
Network First Strategy

Ideal for: resources that update frequently. Fresh data is required.
Stale While Revalidate Strategy

**Ideal for:** resources updating frequently, but providing the latest version is not so important
Stale While Revalidate Strategy

```javascript
self.addEventListener('fetch', (event) => {
  event.respondWith(
    caches.open('cache-v1').then((cache) => {
      return cache.match(event.request).then((response) => {
        let fetchPromise = fetch(event.request).then((networkResponse) => {
          cache.put(event.request, networkResponse.clone());
          return networkResponse;
        });
        return response || fetchPromise;
      });
    }));
});
```
Cache JavaScript and CSS

```javascript
1  workbox.routing.registerRoute(
2     \.(?:js|css)$/,
3  workbox.strategies.staleWhileRevalidate(),
4 )
```
Angular Service Worker

With angular-cli (1.6+) we can easily turn an existing application into a PWA:

```
ng add @angular/pwa --project myTargetApp
```
A Basic Angular PWA

https://github.com/pacoita/angular-pwa-boilerplate
How can we do better?

CACHE API allows to cache only GET calls...
Background Sync API + IndexedDB

```javascript
1 // main.js
2 // ready resolves when the SW is installed & running
3 navigator.serviceWorker.ready
4 .then(registration => {
5     document.getElementById('submitBtn').addEventListener('click', (event) => {
6         // Save form data into the indexedDB
7
8         registration.sync.register('post-form')
9         .catch(err => { /* Handle error */ })
10     })
11 })
12
13 // service-worker.js
14 self.onsync = (event) => {
15     if (event.tag === 'post-form') {
16         event.waitUntil(submitData())
17     }
18 }
19
20 function submitData() {
21     // Access IDB and execute pending POST requests
22 }
```
Firebase platform

Build better apps
- Cloud Firestore: Store and sync app data at global scale
- ML Kit: Machine learning for mobile developers
- Cloud Functions: Run mobile backend code without managing servers
- Authentication: Authenticate users simply and securely
- Hosting: Deliver web app assets with speed and security
- Cloud Storage: Store and serve files at Google scale
- Realtime Database: Store and sync app data in milliseconds

Improve app quality
- Crashlytics: Prioritize and fix issues with powerful, realtime crash reporting
- Performance Monitoring: Gain insight into your app's performance
- Test Lab: Test your app on devices hosted by Google

Grow your business
- Google Analytics: Get free and unlimited app analytics
- Predictions: Define dynamic user groups based on predicted behavior
- A/B Testing: Optimize your app experience through experimentation
- Cloud Messaging: Send targeted messages and notifications
- Remote Config: Modify your app without deploying a new version
- Dynamic Links: Drive growth by using deep links with attribution
- App Indexing: Drive search traffic to your mobile app
Enable offline persistence

```javascript
1 // Initialize Cloud Firestore through Firebase
2 firebase.initializeApp({
3   apiKey: '### FIREBASE API KEY ###',
4   authDomain: '### FIREBASE AUTH DOMAIN ###',
5   projectId: '### CLOUD FIRESTORE PROJECT ID ###'
6 });
7
8 firebase.firestore().enablePersistence()
9   .catch((err) => {
10     // ...
11   });
12
13 // Subsequent queries will use persistence, if it was enabled successfully
```
NOT SURE IF CONNECTION STILL WORKING

OR THIS IS JUST A PROGRESSIVE WEB APP
More PWA resources

- pwarocks.com
- appsco.pe
- pwastats.com
- so-pwa.firebaseapp.com
- whatpwacando.today
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