

Offline
BY
Heart

Who am I?



- Senior Software Engineer
- Play saxophone
- The Head of BEM police on the project

What?



Нет интернета!

«Медуза» выглядела так 13 марта в 07:41

НОВОСТИ

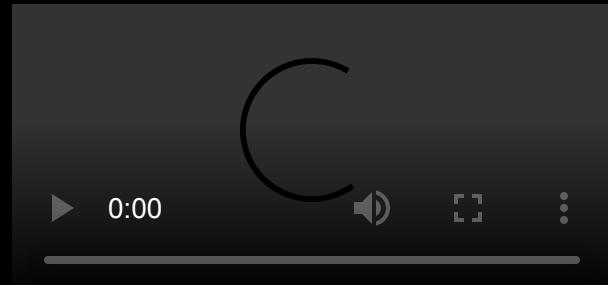
Новости из...
1
✓ 2 часа назад

Бывший...
Ко...
де...
✓ 2 часа назад

Новости из...
3
? 2 часа назад

П...
США приняла
человеческое против
Кремля
✓ 9 часов назад

Хет-трик Криштиану Роналду вывел
«Ювентус» в четвертьфинал Лиги



Why?

1. Devices



iPhone Xs Max

- A12 Bionic chip
- 2436-by-1125-pixel
- FDD-LTE (Bands 1 ... 71)

1449\$

Alcatel Pixi OneTouch

- 1.2 GHz
- 480 x 800 pixels
- 512 MB of RAM

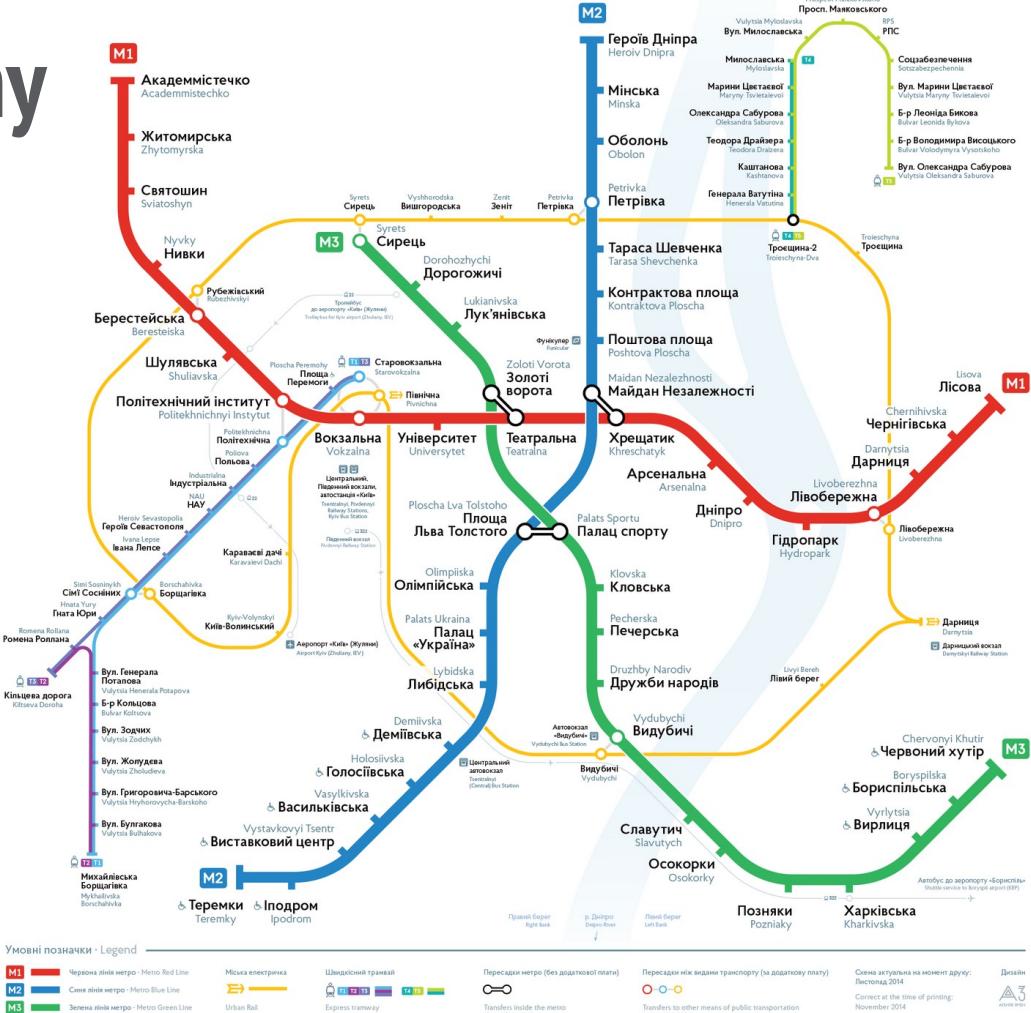
50\$



2014...



2. Murphy (Metro) rule



Recap

- I don't want to make my mother sad
- I personally have iPhone 6 which is a little bit slow in 2k19
- I use subway with EDGE internet

But...

Our project

Tech. specs

- **Angular+**
- **Cordova**
- **Ionic**
- **Only iOS from start**



Our app

The screenshot shows a mobile application interface with a dark background. At the top, there is a navigation bar with icons for search, signal strength, time (20:57), battery level (39%), and a moon icon. On the right side of the screen, there is a red vertical ribbon banner with the number '17' in white.

The main content area displays a list of items under two sections: 'Folders' and 'Files'.

Folders:

- Путешествия
Modified Jan 2, 2019
- Разное-важное
Modified Aug 9, 2018
- Свадьба
Modified Jul 6, 2016

Files:

- !important FE #1
Modified Nov 15, 2018
- [Lecture] CSS Preprocessors & PostCSS
Modified Aug 22, 2017
- 16.07 - 22.07
Modified Jul 23, 2018
- AngularJS Guide
Modified May 18, 2016
- Base principles:
Modified Jun 9, 2016

A large blue circular button with a white plus sign is located at the bottom center of the screen.

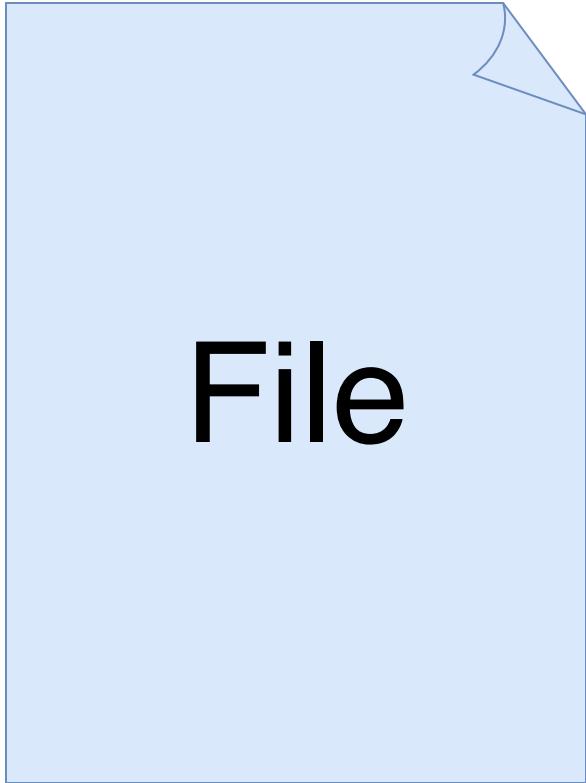
Offline requirements

- Save
- Preview
- Delete

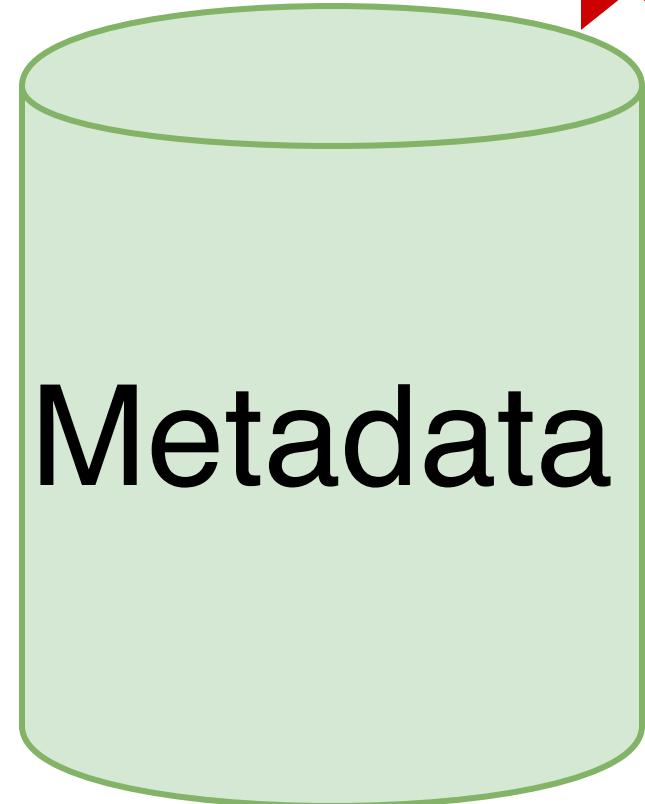
What could possibly go wrong?







File



Metadata

1. File

Cordova plugin for files



File representation





disist commented on Aug 21, 2017

Contributor



...

Hello guys,

It continues of the pull request [#254](#)

I have created a new (clean) pull request with our latest agreements

Guys, @tonyjin, @priyajeet Are you ok with this implementation?

To remind our goal: learn previewer to show files from offline storage when we have no internet.

2. Metadata

Cordova plugin for SQLite DB



Metadata





Metadata

1. Store in memory all responses
2. When user saves file => save to persistent Store



Metadata

Url: /folders **KEY**

Response: **VALUE**

[, , ]

Implementation

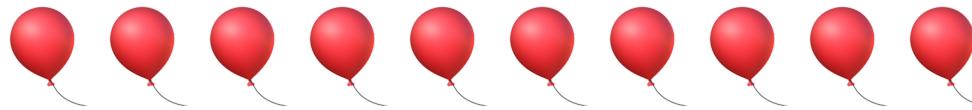


Issues solved:

1. Wrapper for server calls
2. Specific data model for storage
3. Switch between online and offline
4. Data filtering
5. Data deletion
6. ...



Success!



How long?

~4 days

Retro

Advantages

1. Smooth switch to offline
2. Components "don't know" anything about offline

Disadvantages

1. API changes very often
2. Totally unclear what calls you need to save
3. Data filtration is required

Iteration #2

1. Several base stores

- **Store data with no links to BE calls**
- **Cache in memory all requested data**
- **Store data in collections**

Companies store example

Id	Name	firmParticipantId	newDocumentsCount
777	ACME	888	10
968	ZAZ	963	0
111	KIA	222	22
7555	Jeep	1213	11
14141	Ford Co.	33	1

Outdated data

Revelations

1. User don't always update apps
2. Murphy law

2. Migrations

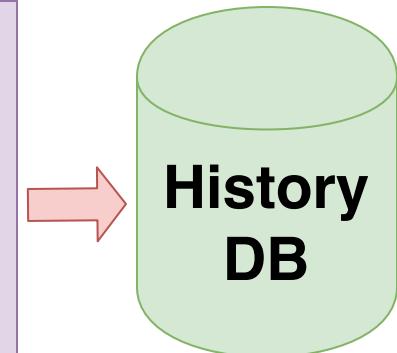
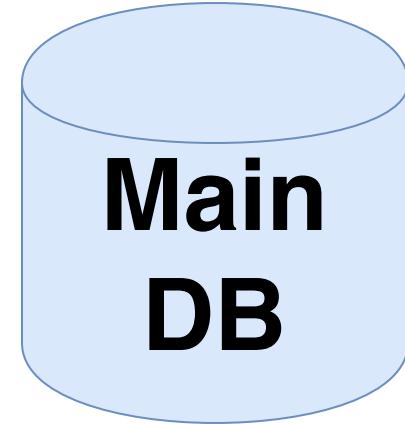
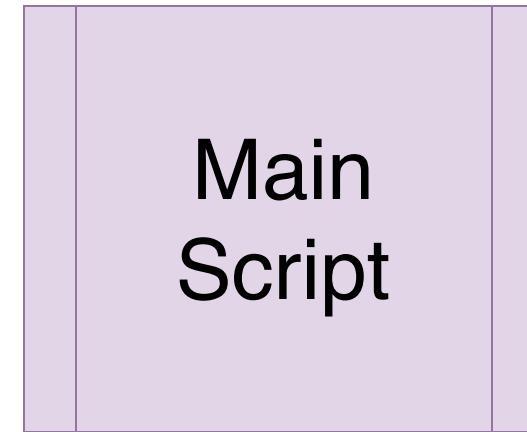
Scripts/Queries

4

3

2

1



3. Synchronization

NgRx effects



3. Synchronization

```
01. @Effect({ dispatch: false })  
02. public syncData: Observable = this.actions$.pipe(  
03.   ofType('SYNC_DATA'),  
04.   tap((action) => {  
05.     this.dataSyncService.sync(action.payload);  
06.   })  
07. );
```

Tips & tricks



Offline is hard

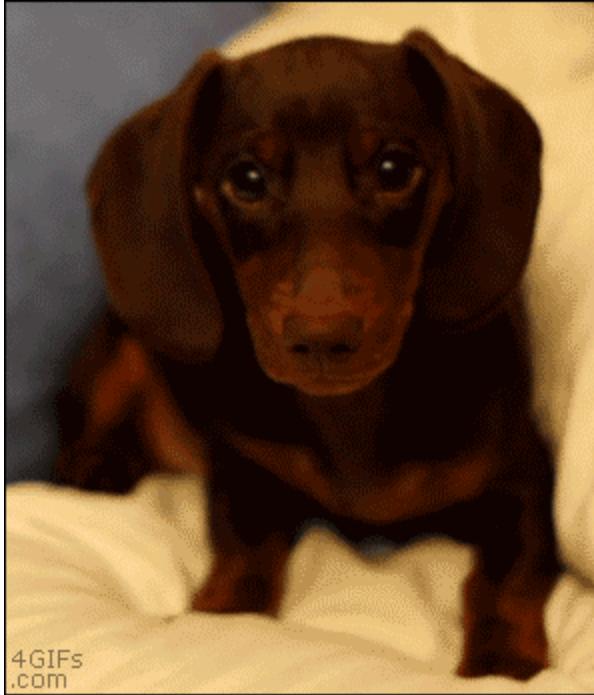


Auth when offline

Deferred actions handling



Display proper UI for offline



Dynamic Cache



Static Cache





The present



The future

File and Directory Entries API **DRAFT**

Q&A