Offline-First Data Dase in Mobile

Mr S. MOHAN[1], Dr T. KALAIKUMARAN[2], Dr M. VARATHARAJ[3]
Professors of Computer Science and Engineering Department & Electrical and Electronics Engineering Department, VSB College of Engineering Technical Campus, (An Autonomous Institution), Ealur Pirivu, Solavampalayam PO, Kinathukadavu, Coimbatore, Tamailnadu, India.

***Abstract*—IN THIS PAPER Discuss about unavailable or un reliable network restored achieve this by storing and managing data locally on the device and synchronized that data with a remote server. when the connection becomes available data is stored primarily on the user device enabling core app functionality to work without network access, this include feature to automatically or maintainability synchronize data with a remote back-end database when connecting is restored and handling protocols conflate during the merge. Many offline first database offer real time data updated reflecting changes instantly with the app across the synchronized device.**

***Index Terms*—MySQL, NoSQL, DB, ORACLE, MANGO, COUCH**

I. INTRODUCTION

This database how to use without network or became a restore synchronization of the access. before store the data at the local device and then connect to the restore networks synchronization,
For example, of mango DB
How to use the offline first - then come to online.
The store has the mango on the box. That is offline. that mango buys the user online that is door delivery, same as the local device used to store the data with the app then available to network. Connect to the online (WEB and MOBILE).in between what is the process are going to offline first. Because local device or app are stored even network are unavailable or un reliable. the database is the stored offline or local device that is cloud basis. the device restored connect to the online still that time either web or mobile because some database is the while restore the network. The database is communication to the others, which is local to the online. Because it is the offline first database.

II. COMMONLY USED IN THE MOBILE DATABAS

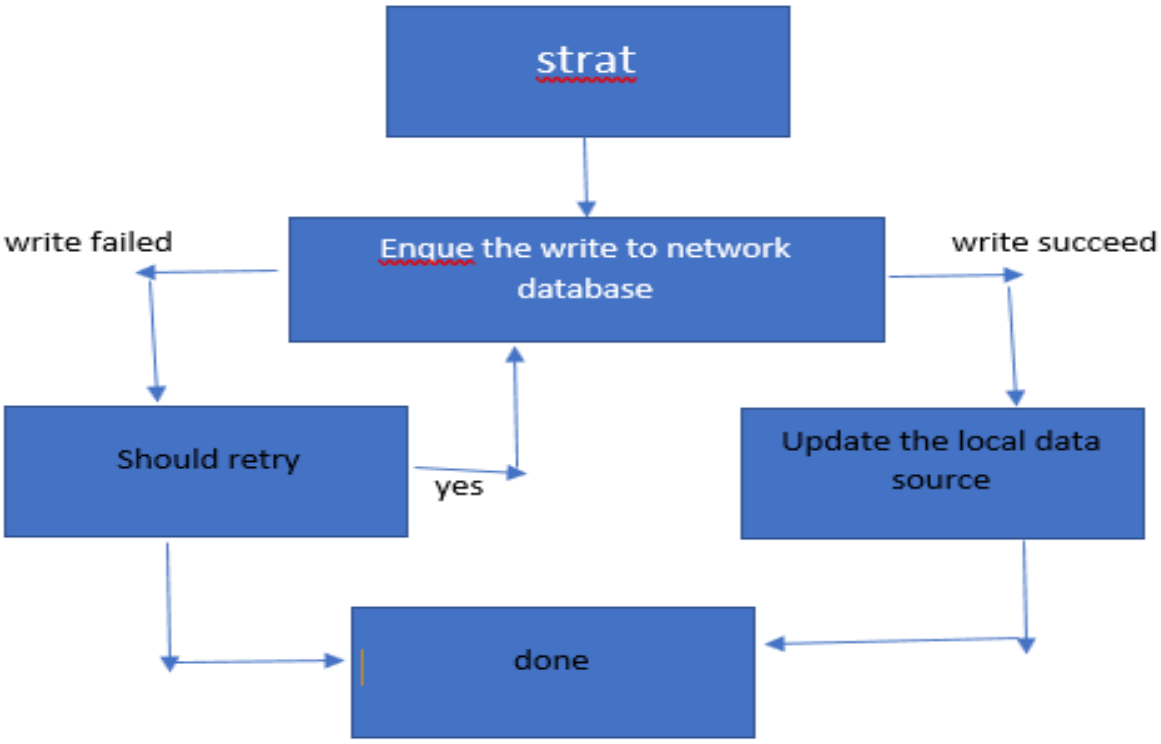
Realm: offline first object-oriented database known for its peed and easy to use with built in synchronized capability.
SQ Lite: this is light weight relational database. Embedded directly with mobile application requiring customs synchronization logic for offline capacity.
COUGH based mobile: offer a full stack solution with local NoSQL database (LITE core) synchronization and cloud based back end.
NoSQL:(Not only structure query languages)
Because it is not relational database, we will used to json and Bson are used language realm to embedded data either cloud database or realm in mobile database it is not always online. so data are stored to the offline which is in local devices and the restore the network then the database will connect.
But it is not relation in before used to the database (sql, MySQL and oracle now No sql. which not relational database vast amount of data used in big data in the storage access from the data and retrieve. Manipulated the help of the NoSQL.
Data are structure and un structure, semi structure so we will use the NoSQL not only used in the structure query language it depends which is suitable that will be select to the access by languages (that is sql, MySQL, oracle and NoSQL) because it is json, bson and xml.
IN MOBILE:
In mango DB and couch DB then realm SQ Lite is used to the offline environment by instantly and running the local instead of the database source. This allow for the development testing and even procedure use in the situation when internet connection is limited r unavailable. For mobile or desk top application design to function without continues internet access. The local mango DB

instant or an embedded database like realm. which can sync with mango DB atlas when online can be employed to store and manage the data on the device local mango DB setup to performs analysis run query and experiment with data storage without relying on the remote server or internet access.
The mango DB shell mango sh and all other DB tool can be installed locally to interact with the offline mango DB instant mango DB shell is a java script and node.js. REPL environmen for interacting with mango DB development in atlas locally or on another remote source.

Mango DB an offline.:
Mango DB connecting edition can run on local machine and can operate entirely offline make it well suited for building developing and testing application in self-managed environment. The mango DB non-relational or NoSQL DB with a flexible data model we can store all type of data as json document for the retrieve and replication and analyzed. in contrast postgre sql in an object retrieval Data base system that can use to store the data as table with rows and columns.

mango DB stored data is easily with our idiomatic device and library. We officially support several languages and we also have storing communicating who equal development additional library and drivers do work with really every program language that exists today.

Building with mango DB realm sync:
realm mobile DB atlas handles other keys concern that come with mobile application development ensuring performers, scalability and security (realm mobile database is fully encrypted SOC-2 certified) additionally it is cross platform solution. the sync protocol is the same across iOS and android when using reaction active node.js.
offline first app architecture is a software design paradigm where an application built to the function primary without required the continued internet connection. It is priorities local data storage and operation, ensuring the seemless use experience even in offline or low connecting environment and the synchronized data with a remote service when connect.



III. CONCLUSION

The light weight embedded relationship database widely used in the mobile development it provide the robust and reliable solution for local data storage can improvements continuous synchronization logic offer a full stack solution for offline application including local NoSQL database and synchronized capability with local based backend in java script database used and retrieve programming principles and offer offline capability and real time synchronization particularly well suited for hybrid app framework like react native and capacitors.

Finally, it used cloud-based storage but unreliable or un available network stoning and managing data locally a database and synchronization within remote sources. the remote back-end back-end database when connecting network is restored the protocol conflite using the merge many offline first database real time data upgraded and reflecting changes instantly app across the synchronization devices. The database stored in offline or local device that is cloud then the app restores connect to the online because same data base is which restore network the database communication to other which is local to the online. So, it is called offline-first database mobile.

REFERENCES

[1] John M Wargo. Learning progressive web apps. Addison-Wesley Professional, 2020.

[2] Andreas Biørn-Hansen, Tim A. Majchrzak, and Tor-Morten Gronli. Progressive web apps: The possible web-native unifier for mobile development. In Proceedings of the 13th International Conference on Web Information Systems and Technologies - Volume 1: WEBIST, pages 344–351. INSTICC, SciTePress, 2017.

[3] VS Magomadov. Exploring the role of progressive web applications in modern web development. In Journal of Physics: Conference Series, volume 1679, page 022043. IOP Publishing, 2020.

[4] Sayali Tandel and Abhishek Jamadar. Impact of progressive web apps on web app development. International Journal of Innovative Research in Science, Engineering and Technology, 7(9):9439–9444, 2018.

[5] Chris Love. Progressive Web Application Development by Example: Develop fast, reliable, and engaging user experiences for the web. Packt Publishing Ltd, 2018.

[6] Tal Ater. Building progressive web apps: bringing the power of native to the browser." O'Reilly Media, Inc.", 2017.

[7] Yerra, S. (2024). The impact of AI-driven data cleansing on supply chain data accuracy and master data management. Smart Computing Systems, 4(1), 187-191. https://doi.org/10.61485/SMCS.27523829/v4n1P1

[8] Alonge Oluwatobi Josephe, Christos Chrysoulas, Taoxin Peng, Brahim El Boudani, Ioannis Iatropoulos, and Nikolaos Pitropakis. Progressive web apps to support (critical) systems in low or no connectivity areas. In 2023 IEEE IAS Global Conference on Emerging Technologies (GlobConET), pages 1–6. IEEE, 2023.

[9] Bayya, Anil Kumar. (2022). Advocating Ethical Data Management and Security. International Journal of Computer Science Engineering Techniques. 8. 396-417. 10.32628/CSEIT225541.

[10] Phunon Koysawat, Chayanon Boonprakob, Khwantri Saengprachatanarug, Arnut Chaosakul, Panupong Wanjantuk, Mahisorn Wongphati, Santawat Santiteerakul, Adulwit Chinapas, and Kanda Runapongsa Saikaew. Progressive web app for crop field data collection. In IOP Conference Series: Materials Science and Engineering, volume 1163, page 012018. IOP Publishing, 2021.