Telegram's Big Picture and Issues

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In this report, we are going to discuss Telegram's big picture: its stakeholders, functionality and key developers, and when necessary, we will discuss Android version specifically, since we are using the Android version's repo on GitHub. Then we are going to take a look at issues in this repo and identify five that we maybe be able to address to.

I. Stakeholders

Stakeholders of Telegram should be people or groups that have an interest or concern in it, or either can affect or be affected by it. Here we will discuss the stakeholders that we think are the most important to Telegram.

 # All quotes are from official website

1. People who need more secure means of communication (Business owners, etc.)

Telegram has a lot of features/policies that contribute to its information security, such as not accepting private funding and message encrypting when being stored on cloud. Thus, it claims that it is a more secure means of communication. So in an ideal world important information would not be sold to or stolen by other organizations. It is said on the official website that all personal information, i.e. "Identity document", is "stored in the Telegram cloud using **End-to-End Encryption".** Secret chats can be extra safe, as they use end-to-end encryption, thanks to which we don't have any data to disclose." For the rest of the data that does not depict such encryption, "Telegram uses a distributed infrastructure". (Source: https://telegram.org/faq)

2. Vendors and any of those who have daily small-amount transactions

The bots payment api allows for users to accept payments, and the platform does not regulate the type of product that are sold. Thus, it can serve as a nice platform for vendors to get more customers. Meanwhile, one can simply use the service as a Telegram-plugin version of Venmo, which eliminates the need for multiple applications. (Source: https://core.telegram.org/bots/payments)

3. Website/other content creators

Similar to all other social networking tools, Telegram allows for sharing of web contents in/out of the application. This is also one of the features which they directly profit from. The sharing feature naturally helps content creators with getting their work better advertised.

4. Developers/managers/marketers/anyone who participates in running the organization

The better the developers are doing their jobs, the more powerful the application will be. The amount of both users and donations will in turn increase. Similarly, fundraisers and marketers need to ensure the organization, which keeps them employed and paid, is sufficiently funded. Individual developers can also utilize the apis provided by Telegram to code for their own purposes.

5. People who chat on a daily basis (and find that they like Telegram better for their reasons)/ people who need to collaborate

The most basic functionalities of Telegram, despite all the fancy bots and apis, is to enhance the efficiency and effectiveness of (remote) communication. People who choose Telegram as their major communication app are certainly the major stakeholders. Same applies to those who need to collaborate on their works.

6. Google, and any other software product owners whose software is used by/can be integrated by Telegram

Telegram, first of all, works on multiple platforms. For the Android project we have been discussing here only, Android's owner Google serves as a stakeholder. Similarly, other applications and web services can equally be integrated into Telegram as Telegram "also have a Bot API, a platform for developers that allows anyone to easily build specialized tools for Telegram, integrate any services, and even accept payments from users around the world." Thus, there exits numerous potential stakeholders. (Source: https://telegram.org/faq)

II. Functionalities

Telegram is an app in the domain of cloud-based mobile and desktop messaging with a unique focus on security and speed. The essential functionalities are actually partially covered in the previous section, as only the users who have the need for one or more specific functional and non-functional aspects provided by Telegram can be counted as stakeholders. Below is a list of stand-out essential functional aspects which are user-driven, as well as some non-functional properties that achieve user's need.

For people who need a more secure means of communication, Telegram provides end-to-end encryption algorithms for their messages sent and stored in cloud. User can also choose to have their messages self-destructed for security reasons. The implementation provides timer for users to customize the time they want the message to be alive. Moreover, the application provides various security and privacy settings, including blocking other users to stop them from reaching out and accessing one's profile, enabling two-step verification, and making various profile items non-public. User can even configure the system to delete his account if not used for too long.

Telegram also supports group chat of massive capacity. A normal group allows 200 members to join. But as the number reaches the limit, the group can be upgraded to a “Super Group”, which has capacity of 200,000. Administrators, who have multiple privileges, can be further added. Groups can also be configured to be private, while bots can be added to the group to automate certain processes. Messages can also be pinned to the top to serve as group notifications.

A huge advantage of Telegram over many other similar tools is that Telegram supports sharing of large files with size up to 1.5 GB. Users can also access them from any of their devices, which provides conveniences to their studies and works. In “Shared Media” and “Files", users can find and search for all their uploaded pictures, videos and files.

In “Contacts”, user can tap on “Find People Nearby”, which uses location service to display nearby Telegram users who allow themselves to be detected. This provides users with adventure-like experience to expand their social network.

Telegram also takes pride in many non-functional features. The system is highly scalable and customizable as individual developers are provided with APIs to work with. Supported by globally distributed servers, connection and file transfer speed is high globally. Being completely free of charge, Telegram is totally affordable for people of all income classes and needs. It is also free of ads, thus largely improves user experience.

III. Key developers

The founder and initial developer of Telegram is Pavel Durov and Nikolai Durov. The Telegram development team is originally from St. Petersburg and currently based in Dubai. There is a group of volunteers named Telegram Support Force helping on the application. They could be described as the developers and testers of this application.
The contributors on GitHub have all made no more than 2 commits, which are all very trivial.

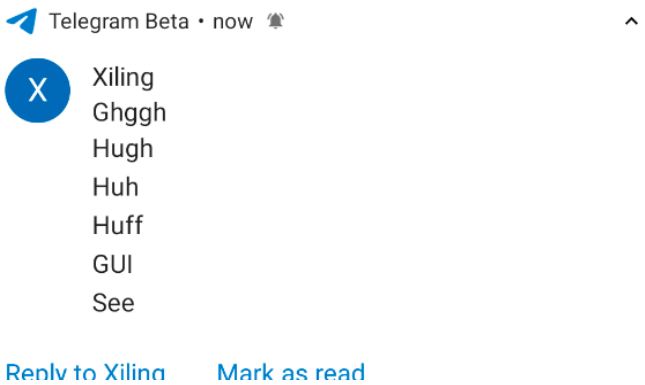
As for the Android version particularly, it was built by DrKLO, who is also currently the maintainer of the Android version repo. DrKLO’s real name is Nikolai Kudashov and he is the sole developer of the Android version. He participated in the contest of building the Android version of Telegram and won. According to all the information we currently found, it seems that he is still working on the application mostly by himself.

IV. Issues

Since the project has no open issues on GitHub, we chose five issues from the unmerged pull request we think we can work on. Some pull requests we chose may be old, however, we checked the code and functionality and they have not been solved yet.

The first one is to add choices when sharing location with other apps. Currently, it only shares location information with Google Map by default. If the user prefers other map services, there is no option to choose. Thus, it could be better to add a selection of location service when users would like to share location with other apps.

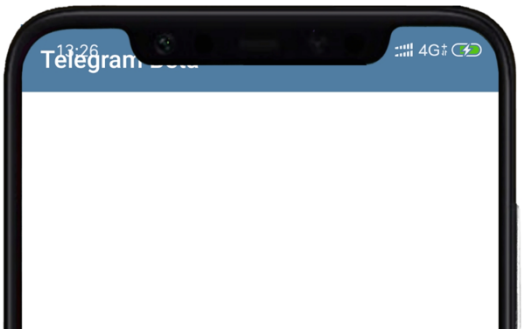
The second one is that Telegram inverts the order of the messages in the notifications. It is weird if the user is familiar with notifications of other applications. Also, the Android version we focus on works differently with the iOS version. Thus, it could be better to add an option in the setting page so that users could set which order of notification messages they would like to work on.



The third one is to add a code to clear all secret chats history. As security and privacy are essential features of this application, adding this function could make the app more reliable. Suppose the users are forced to unlock the app and show their secret, they could use this code to unlock and their secret would be deleted at once to protect the user.

The fourth one is about the cache. Currently the application is using external cache to store all thumbnails and images now. However, considering the security, the secret chat should use internal cache instead of the external cache. If the external cache is used, other apps may have access to the images from the secret chat, which damages the security and privacy of the app.

The fifth one is related to the application UI. When working on some newest model of phones, like Xiaomi MI 8, part of the application header is overlapped by the phone camera. To solve this problem, the UI of the app should be updated based on different phone models.



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