

Telemetry for getting statistics for which features are used the most in Krita

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1. CONTACT INFORMATION

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2. PROBLEM

Krita contains a large number of tools for painters, a large number of settings and features. Their number increases every year, but not all of them are popular. More precisely, the critics want to know which of the options are popular. Based on this information, you can determine the vector of further work, finalize popular, but not too well-implemented features, remove old, useless functions. The collection of statistics will help to create achievements to the Steam. Achievements for Krita is good marketing solution, which help us to find new users. It would be reasonable to make two versions: Steam version and non-Steam version.

3. IMPLEMENTATION

3.1 Client-side

The main idea is to use Google Protobuf logs to write out necessary information. All information is stored in the logs and as necessary (too large log file, not sent for a long time, etc.) is sent to the server. Sending in the original form the information is irrational, so before sending, the information from the log is analyzed and only the "squeeze" from this information is sent to the server.

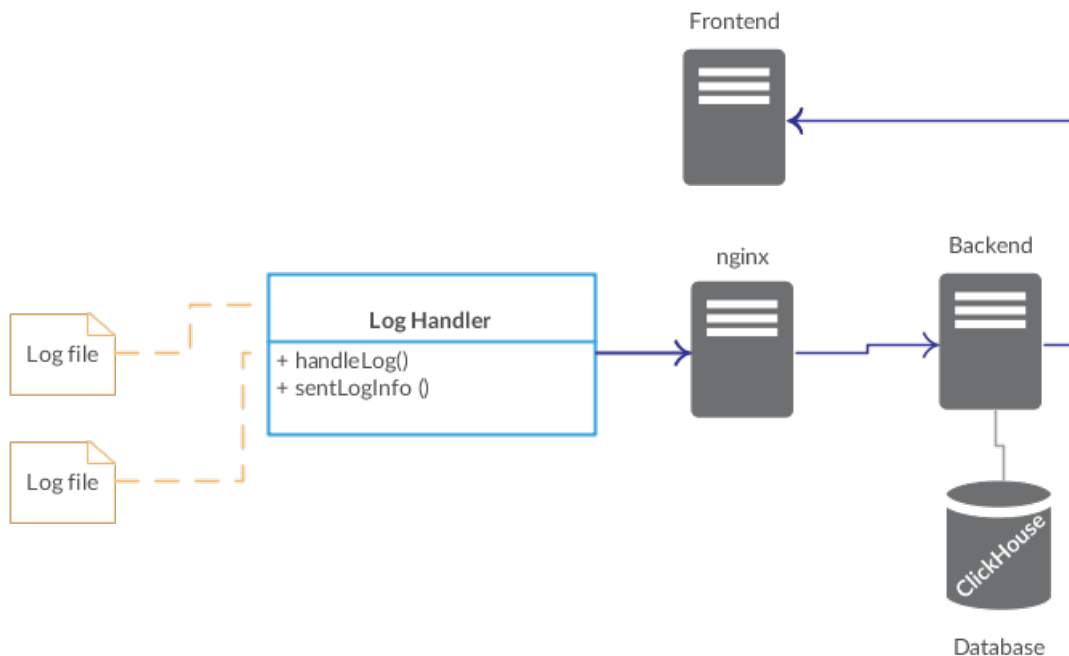
Main data that we want to analyze:

| Information about | Source | Data |
|-------------------|---|--|
| Tools | KisTool::activate, KisTool::deactivate, etc, overloaded in specific tools | int32 activationTime; int32 useTime; int32 kindTool; |
| Strokes | KisToolFreehandHelper::initPaintImpl KisToolFreehandHelper::endPaint etc | int32 distance; int32 time; int32 opacity; string currentFgColor; FillStyle fillStyle; StrokeStyle strokeStyle; |
| Presets | KisToolFreehandHelper::initPaintImpl | string koid; OutlineMode outlinemode; double paintOpFlow; string compositeMode; double savedBrushSize; int32 hashCode;[1] |

| | | |
|---------|-----------------------------------|--|
| Actions | KisMainWindows actioncollection() | string name; string actionSource ;[2] |
|---------|-----------------------------------|--|

[1]: It is required to save presets into map structure for less size of log. [2]: Hotkey, menu of something else

3.2 Server-side



3.2.1 Own stats

Unfortunately, clickstream services are focused on gathering information from websites. Own implementation allows you to create a convenient api for yourself, and also leaves room for further development and expansion.

Scheme description: The data from the user is serialized and sent to our nginx, which proxy requests to the backend. On the backend, there is deserialization and recording of information in the database. The information from the database returns to the backend, where it then goes to the front-line. This scheme seems somewhat redundant, but it has an extensible architecture and is capable of withstanding highloads. Nginx is an optional element, but with increasing load, this architecture will allow you to scale horizontally

3.2.2 Steam achivments

It is required to add Steam Sdk. We should to create achievements via Steam web interface. Filling in the list of achievements will be discussed with community. Before any functions can be used, first `SteamAPI_Init()` must be called. After that we can call `SteamUserStats()->SetAchievement("Draw_the_length_of_the_equator")` and set specific achivment.

3.3 Technologies

Nginx is widespread server, which is used by nearby 70% percents of top-100 worldwide side. ClickHouse allows you to perform analytical queries interactively on real-time data. The system is scalable to very large amounts of data.

4. TIMELINE

| Work schedule | |
|--------------------|--|
| Period | Work |
| 22 May - 4 June | End of the academic year. I can to work 7-10 hours per week. |
| 4 June - 18 June | Exams in university. I can start working 25-30 hours per week. |
| 18 June - 29 Aug. | During this period I can work full-time on the project. |
| 29 June - 15 Sept. | During this period I can work full-time on the project and this period serves as compensation for the first periods. |

| Implementation timeline | |
|-------------------------|--|
| Period | Work |
| 22 May - 4 June | I study a code of a client part, I begin to do system of logging. |
| 4 June - 15 June | Impelementing logging system for tools. |
| 15 June - 29 June. | Impelementing logging system for strokes and presets without taking care of memory. Unstable work is possible |
| 29 June - 20 Jul. | End of the implementation of the logging system. Memory optimizations. Investigate communication between server and client |
| 20 Jul - 1 Aug. | Creation of Steam-version. Discussion of achievements with community. |
| 1 Aug - 29 Aug. | Creatiion of server-side. Load testing. |
| 29 Aug - 15 Sept. | Buffer time for issues that may take longer than expected. |

5. ABOUT ME

I'm Alexey Kapustin, a 3rd year student of Bauman Moscow State Technical University of Software Engineering Faculty. I'm interested in C ++, Python, Javascript, web development. I also study at the Technopark Mail.ru in the 3rd semester. (Russian School of Web Architects).

I did projects using Django, Nodejs. Within the semester project in the second year of education, I made a simple tower-defense game on SFML C++ library. In the third year I made an API for working with the "Forums" database, which withstood high loads. To create this api, I used the libraries Wt, Qt, Libzdb. Since last summer I have committed to Krita. You can also see my [github](#). I also live in the same city as Krita maintainer so I am available for meeting and sprints.