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Version 0.7-web

water-fountains.org | work package 1

Project transposition

FEATURES

- Open-source water-fountain web app
- Fixed bugs
- 5 years of server and domain name maintenance
- 5 years of Map services

TASKS

1	Implement usability fixes	
1.a	"Find route" button not clear - should make clear that the route to nearest station will be calculated. (Place a call for contribution if someone can get the same with "graphhopper" or "project-osrm.org" – e.g. in "About" or "route" related help page)	-
1.b	The "map" menu item does not reactivate even when scrolling back up to the map	fixed
1.c	Fix localization feature	Fixed
1.d	Better icons for spring water vs tap water?	-
2	Set up specific Mapbox account and transfer map styles	Account setup. Map style version too old to transfer
3	Deployment	Done
3.a	create a repo on Github, upload the files, attach license from MY-D, CC-SA, ODC_ODBL, … deployment to the web server is automated with a git web hook that tells the server to sync as soon as a commit is made (equivalent to a one-liner "mvn build")	done
3.b	Code review and repo transfer (Oleg)	In progress
3.c	Self-hosted analytics with Piwik	done
4.d	Map services 5 years	
4.e	HTTPS encryption with Let'sEncrypt	

APPENDIX A: MAP USAGE ESTIMATE

Method

The assumption of the number of users per day (see table below) are based on an estimate of visits to a similar app: http://www.statshow.com/www/wc-guide.ch (144 page views per day). The map views and directions usage per user is estimated based on own interactions with the map. These ranges

were used to generate uniform probability distributions from which 100 random samples were taken to estimate possible monthly usages of the mapping and directions APIs.

Spreadsheet

Assumptions

	low	high
users/day	50	200
Map views/user	4	20
Directions/user	1	5

Usage forecast results

The map and navigation usage should stay within the free tier for the first year at least. If costs become bothersome, alternatives are available (see Appendix B).
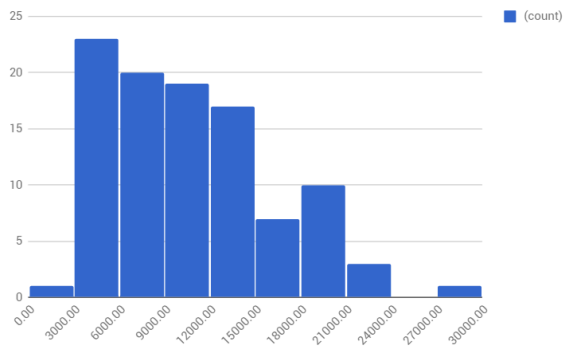
Directions API:

The maximum usage event modeled by the simulation only amounts to 30k/month, which is within the free tier of Mapbox's service. If we start searching for the nearest fountain with a time/distance, the limit should still not be reached

Maps API

The most common model outcomes lie between 10k and 50k map views/month, for which there would be no cost. However, there is the possibility of reaching nearly 110k/month.

- **Worst case**: In the app was to hit such a level of success, the cost of this API would come to (110k-50k)*0.5$/k*5y*12mo/y = $1 800 over 5 years.
- An intermediate worst case of 70k/month would result in a cost of $ 600 over 5 years.
- **Probable case**: For the estimate in the WP we use the average monthly overshooting of the free 50k limit estimated by the Monte Carlo Model to be 5984/mo. Over 5 years, this corresponds to the sum of 5.984k*0.5$/k*5y*12mo/y = $ 179 over 5 years. This is viewed as a conservative estimate.

Monte Carlo simulation for directions API: mean=10.8k
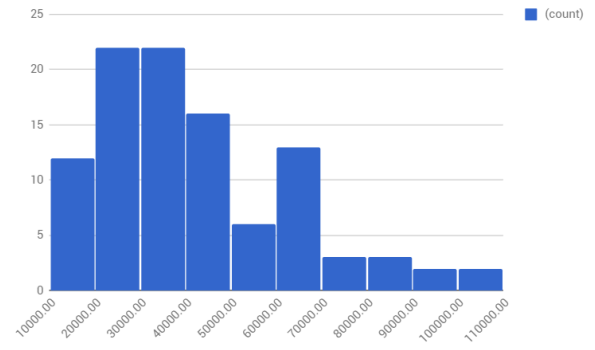
Monte Carlo simulation for map view API: mean=42.5k

APPENDIX B: ALTERNATIVES TO MAPBOX

Free TMS without usage policy

Stamen

Commercial Map Tile servers

I recommend sticking with Mapbox until cost becomes an issue. The cost of switching providers is less than 1h, provided we don't need a custom map style. There are multiple alternatives, including self-hosted map tiles. I do not recommend self-hosting map tiles, as it requires several weeks to set up and would incur high running costs if we were to scale the app globally.

Mapbox	Mapzen	Google	HERE
Free: 50k/mo map views, 50k/mo directions $0.5/1k map views $0.5/1k directions	**Free**: 50k/mo vector tiles 5k/mo directions 1k/mo matrix $0.05/1k vector tiles $0.5/1k directions $1/1k matrix	**free**: 25k/day map loads 2.5k/day directions/distance matrix $0.5/1k map views/directions	**Free**: 15k/mo transactions $49/mo 100k transactions $120/mo 250k transactions

Routing service options (apart from ones mentioned above)

Again, we should start with mapbox (an open data friendly company) only look into this if the costs start to be noticed. The cost of switching providers is in the order of 2-3h.

Self-hosted	ESRI	Bing	Mapquest
https://github.com/graphhopper/graphhopper http://project-osrm.org/ Self-hosting a routing service is too far outside of my area of expertise for me to make a reliable time estimate. I can only guess the effort to be in the order of weeks-months.	Subscription plan, unclear pricing	On quote	free 15k/mo directions/matrix/map $99/mo 30k