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Subject Area	Internet-Technologien und -Anwendungen

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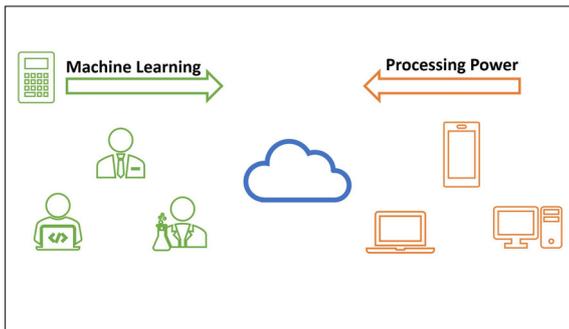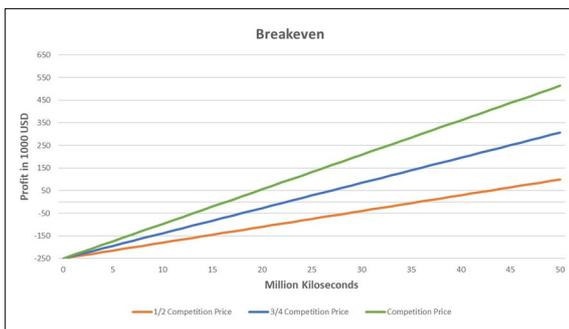
Shared Processing Unit

Improving Web Experience
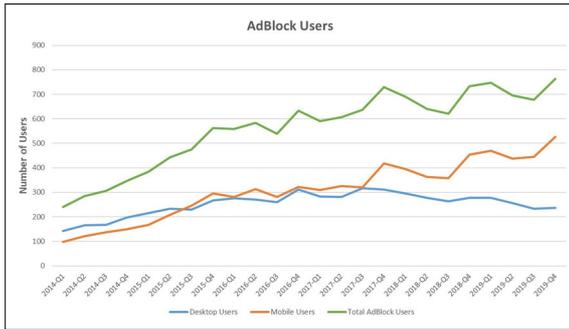
AdBlock user development 2014-2019
M. Katz, "2020 pagefair adblock report," Blockthrough, 2020.

Proposed web monetising solution
Own presentment

The necessary amount of processing time to achieve a breakeven
Own presentment

Problem: AdBlock has become an increasingly popular browser plugin over the last decade. It keeps all those annoying ads away and lets you browse the internet in peace. Unfortunately, by blocking the ads, the content providers will earn less for their service. Aside from advertisements, they have few other options for making money. Websites can deal with AdBlock users in three different ways. They can ignore AdBlock users and increase the number of ads for the rest of the users. Another option is only to allow users to browse their website if they disable AdBlock. Alternatively, they can use a paywall. All those solutions are not ideal since they do not solve the underlying problem for users as it is in their interest to surf without disturbances. On a given webpage, the users see something from a third party that paid for it. Which is to say: I, the user, pay to use the site by seeing something. It would be better, however, if there were a form of "payment" that is less intrusive. What we aim to do in this thesis is to discuss a revenue model that does not disrupt your web experience.

Approach: The idea is to use the processing power from the device of the user while he is surfing. Hence, the user would be paying with battery power and data consumption. The resources the user-provided would then be used by data scientists to run machine learning algorithms. We are developing a distributed network that allows us to tap into processing power – with the consent of the user. The solution involves implementing a backend, that handles all the connected devices as well as a suitable algorithm which can make good use of simultaneous execution. The idea is to use the processing power from the user's device while he is surfing. Hence, the user would be paying with energy, CPU time, and data consumption. The resources the user-provided would then be used by, e.g., data scientists to run machine learning algorithms. The solution involves a full-stack application, that can manage all the connected devices as well as a suitable algorithm which can make good use of simultaneous execution. Furthermore, we developed an algorithm that allows websites to predict user actions. Using the implemented algorithm, we can run performance tests and compare the results with other, similar solutions.

Conclusion: Users can connect to the distributed network and run calculations that were sent to them. Executing the algorithms in a browser poses challenges since browsers are limiting resources, which becomes an issue with bigger datasets. The predicting algorithm works with anonymous data, which is essential from a privacy perspective as the data is accessible from the user's computer. Consequently, we analysed the cost of the solution and compared it to advertising on websites. Results showed that it is a viable alternative to advertisements on the website. However, replacing ads would place us in the same price category as other cloud-based machine learning solutions. We expected a more competitive price. In conclusion, by replacing ads for AdBlock users, we can offer websites an alternative revenue option.