

Peer review: group 8 for group 3

Summary

This report is about security vulnerabilities in Internet of Things. Firstly, the countermeasures taken by different actors is discussed. For vendors, the countermeasure is about requiring users to use unique passwords and usernames, and disabling settings by default. For service providers tracking devices with default credentials and notifying the users to change the credential. The countermeasure for DDoS victims are mainly focusing on protection programs.

Secondly, an analysis of the costs and benefits of the countermeasure is done. For vendors, investment is needed, which gives more security. Service providers should invest in powerful servers and large bandwidth, but to protect a DDOS attack from happening, protection is not realized yet. Thus, also implementing costs plays an important role. The costs for DDoS victims are the most clear, such as buying a DDoS mitigation appliance.

Thirdly, the incentives of the actors to implement the countermeasure is explored. There is shown vendors not investing in security will make them outsiders, with vulnerable devices. The main incentive for SPs is that without investments victim investments will not be fully effective. DDoS victims can face huge losses if they do not invest.

Fourthly, the role of externalities is looked at. There are positive externalities such as the more vendors invest, the more vendors are likely to invest as well, and negative externalities such as the increase in sale of DDoS protection providers as the number of DDoS attacks grow.

Lastly, the security performance of vendors is analyzed. A linear regression test was done, which shows us there R^2 between age of the vendor and breach probability is 0.038, meaning there is almost no correlation.

Strengths

- The report is very well structured. Although there was not really a thesis, in the introduction was well described which topics would be discussed, and they were all answered in the conclusion.
- Clear visual support such as tables and graphs
- Well written, despite of some small grammar and spelling mistakes, strong reasoning
- Strong, complete analysis of the externalities, which is a difficult part.

Major issues

- Although the part of the externalities is very extensive, in my opinion it misses the real point. A few incentives are discussed, but it is much more interesting to discussed the *lack* of incentives. For example: you state in the countermeasures that working together between vendors and SPs is a good option. Why aren't they doing that? Is there a lack of incentive to?
 - o For vendors is stated that the incentive to invest is that otherwise they will lay behind. But, as said by yourselves, this lag do not occur every time. Then why is this a real incentive? Could be discussed more.
 - o The main statement is that all actors should invest money, and then they get better protection. Why aren't they all fully protected if this is so important: which incentives

makes the actors investing more in other things and not enough in the countermeasures. I think these issues are much more interesting to discuss.

Minor issues

- I wrote this down as a minor issue because I am not familiar with your dataset, but the findings of the statistical analysis are not very interesting. It is well performed, but I miss connection with the previous topics. Besides that, the results are not really of added value because the R square is very small, but that can happen or depend of your dataset. But the analysis of the dataset if you look at the thesis (topics discussed in the introduction), is not very useful.
- The costs/benefits analysis for vendors is too short. It is simply saying 'the costs are investing and the benefit is security'. Some figures would be nice, to give us an idea in what they should invest, and if that is about hundreds, thousands or millions of dollars. The evidence to support the argument is not very strong.
- The cost/benefit analysis for all actors do not fully connect with the countermeasures proposed before. Would be more interesting if the specific countermeasures would be analyzed.
- I do not fully understand the incentive for SPs, you state they should invest because the victim investments will not be effective? If this is true, the incentive could be much more explored, why do they not want to prevent victims from becoming victims in the first place, isn't that in the end much cheaper?