



Design of a Honeypot for Smart Home

Zwischenbericht | Call 16 | Stipendium ID 5776

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1 Introduction

This short interim report contains of the current progress of my master thesis and will explain the steps already taken as well as compare the actual time to complete with the expected calculations. It includes the two finished milestones as well as the milestone I am currently working on.

2 Status

2.1 Milestone 1 – Literature Research, Design of the Proof of Concept

In this first milestone the design of the practical part was made. It has to be decided which device should be simulated and which hardware and software should be used to build the honeypot.

During the design phase the number of available devices for simulation has to be significantly reduced. In the beginning a variety of different devices such as IP cameras, heating/cooling controls or other smart home equipment was planned. Due to the complexity of installation of these devices the final plan was to start with the easiest one, the IP camera. Retrospective this limitation was pivotal for the success of the next milestone. All the other devices are not operational without a complete installation of the hardware, which means that the required analysis is not possible.

This milestone could be finished in time on the 26th of October 2021.

2.2 Milestone 2 – Implementing the Proof of Concept

The next step after creating the design of the honeypot was to find a suitable IP camera and analyse the functionality of it. The analysis could be performed quickly without any noticeable problems but recreating and coping the functions was not as easy as expected. Although it was a relatively cheap camera with less security features, the applications running were minified which means that more effort is needed to understand the logic behind. Luckily other components of the honeypot such as the identification of an attack and the alerting worked straight forward without issues.

Unfortunately, I was hit by a car on the 9th of January during a training ride with my bike. I was unable to work for two weeks, which means that the previously calculated time schedule was not possible anymore.

This milestone was originally planned for the 25th of January but was delayed till the 15th of February. The extra effort needed for simulating the IP camera and the accident led to this delay.

2.3 Milestone 3 – Identifying Attack Vectors

Milestone 3 is currently in progress. The current status is, that the PoC honeypot is exposed to the internet for data gathering. Which means that is a very interesting target for hackers and I am able to analyse their behaviour for further fine tuning of the honeypot as well as to identify the most common used attack vectors. This information will then be used for the improvement of the overall security strategy.

2.4 Milestone 4 – Writing Intermediate Report

Writing the intermediate report was originally planned to be completed in March, but it was also delayed to the beginning of April.

2.5 Milestone 5 – Finalizing the Master Thesis

The last milestone of this project is to finalize the master thesis. This milestone includes proof reading as well as checking all references and citations. The completion is planned for May.

2.6 Milestone 6 – Submission Master Thesis

The submission of the master thesis will be on the 25th of May 2022.

3 Summary of Project Plan changes

Although the implementation of the honeypot took longer than expected, the overall time schedule is not affected. The deadline for two milestones had to be adjusted, but the final date for the submission of the master thesis is still the 25th of May.