



# Supervisor's statement of a final thesis

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**Thesis title:** Botnets and Distributed Denial-of-Service attacks  
**Branch / specialization:** Computer Security and Information technology  
**Created on:** 9 June 2023

## Evaluation criteria

### 1. Fulfillment of the assignment

- ▶ [1] assignment fulfilled
- [2] assignment fulfilled with minor objections
- [3] assignment fulfilled with major objections
- [4] assignment not fulfilled

The topic of DDoS, being one single type of attack, may seem trivial however, because it is a distributed attack which may be performed in various ways, it quickly expanded into a huge variation set, as it can be seen from the extensive classification the student made at the beginning of the work. Also, by taking into account the powerful computers we have today, it is not easy to measure in a consistent way the effects of a DDoS attack without having a lot of processing and networking power. To conclude: building up a test rig for DDoS is not an easy task and this is why it was interesting to be done as part of such a project.

### 2. Main written part

90 /100 (A)

The written part is well explained, easy to read and understand. What I would remark is the progress in English by the student throughout the running of this project. From a formal perspective, in my opinion, the diagrams (from the classification of DDoS flavours) could have been better correlated with the text (to find which flavour is on which branch), however I would say this is a purely subjective remark.

### 3. Non-written part, attachments

85 /100 (B)

I think that the student did his best with the lab which could have been used for this project, with the limitations of the hardware, software and security policies - meaning that the project was somewhat limited in depth by the low speed (FastEthernet - 100 Mbps) connections we could offer in the networking lab for such tests.

#### **4. Evaluation of results, publication outputs and awards**

85 /100 (B)

I do not think the results may be published (they do not have the required academic or scientific level), however the rig can be used for demos, limited tests and future expansion under better lab conditions.

#### **5. Activity of the student**

- ▶ [1] **excellent activity**
- [2] very good activity
- [3] average activity
- [4] weaker, but still sufficient activity
- [5] insufficient activity

This I would praise. The student was really involved in the project, a pleasure to cooperate with.

#### **6. Self-reliance of the student**

- ▶ [1] **excellent self-reliance**
- [2] very good self-reliance
- [3] average self-reliance
- [4] weaker, but still sufficient self-reliance
- [5] insufficient self-reliance

Already mentioned as part of 5.

### **The overall evaluation**

85 /100 (B)

My grade is limited in fact by external factors and is awarded in an objective way for the outcomes. I once more emphasise the fact that the project could have been more interesting if the hardware on which the tests were performed was more powerful, more modern (as well as the network). The project is a scaled-down version of what could have been achieved with more modern tools.

## **Instructions**

### **Fulfillment of the assignment**

Assess whether the submitted FT defines the objectives sufficiently and in line with the assignment; whether the objectives are formulated correctly and fulfilled sufficiently. In the comment, specify the points of the assignment that have not been met, assess the severity, impact, and, if appropriate, also the cause of the deficiencies. If the assignment differs substantially from the standards for the FT or if the student has developed the FT beyond the assignment, describe the way it got reflected on the quality of the assignment's fulfilment and the way it affected your final evaluation.

### **Main written part**

Evaluate whether the extent of the FT is adequate to its content and scope: are all the parts of the FT contentful and necessary? Next, consider whether the submitted FT is actually correct – are there factual errors or inaccuracies?

Evaluate the logical structure of the FT, the thematic flow between chapters and whether the text is comprehensible to the reader. Assess whether the formal notations in the FT are used correctly. Assess the typographic and language aspects of the FT, follow the Dean's Directive No. 52/2021, Art. 3.

Evaluate whether the relevant sources are properly used, quoted and cited. Verify that all quotes are properly distinguished from the results achieved in the FT, thus, that the citation ethics has not been violated and that the citations are complete and in accordance with citation practices and standards. Finally, evaluate whether the software and other copyrighted works have been used in accordance with their license terms.

### **Non-written part, attachments**

Depending on the nature of the FT, comment on the non-written part of the thesis. For example: SW work – the overall quality of the program. Is the technology used (from the development to deployment) suitable and adequate? HW – functional sample. Evaluate the technology and tools used. Research and experimental work – repeatability of the experiment.

### **Evaluation of results, publication outputs and awards**

Depending on the nature of the thesis, estimate whether the thesis results could be deployed in practice; alternatively, evaluate whether the results of the FT extend the already published/known results or whether they bring in completely new findings.

### **Activity of the student**

From your experience with the course of the work on the thesis and its outcome, review the student's activity while working on the thesis, his/her punctuality when meeting the deadlines and whether he/she consulted you as he/she went along and also, whether he/she was well prepared for these consultations.

### **Self-reliance of the student**

From your experience with the course of the work on the thesis and its outcome, assess the student's ability to develop independent creative work.

### **The overall evaluation**

Summarize which of the aspects of the FT affected your grading process the most. The overall grade does not need to be an arithmetic mean (or other value) calculated from the evaluation in the previous criteria. Generally, a well-fulfilled assignment is assessed by grade A.