Hacettepe University Computer Enginnering Department, BBM 465 Information Security Laboratory

## Assignment 4

Subject: IP Tables/Firewall
Due Date: 25/12/2020

Introduction

The purpose of this experiment is to learn the use of the iptables service, which provides a firewall configuration of a device. For this purpose, some questions about the system shown in Figure 1 will be answered. All devices on the shelf have their own safety wall. The device, called Firewall, separately provides its own local network and servers to interact with the real world. Each question will be solved independently of each other. The "default policy" attributes of all chains of iptables tables will be considered DROP. At the end of each configuration process, iptables tables will be saved
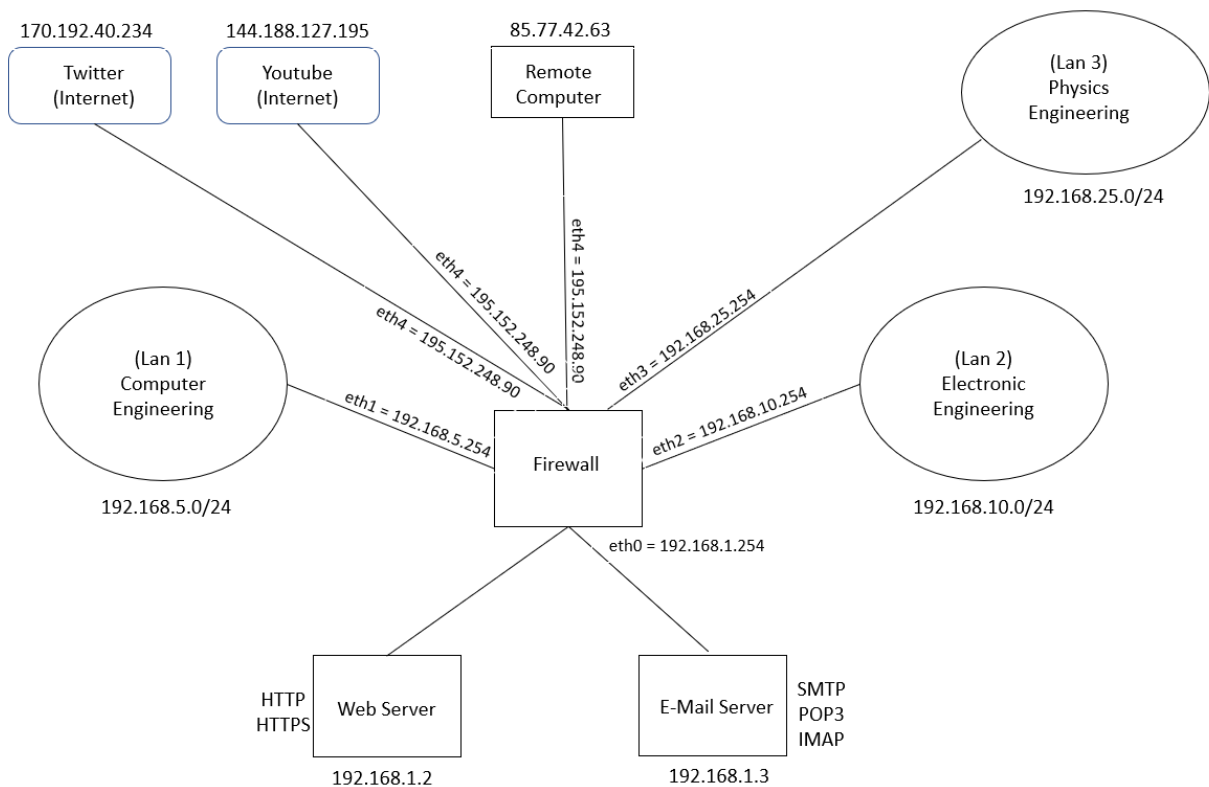
Questions

Question 1: Write the iptables configurations to enable that computers in Computer Engineering Lan and Electronic Engineering Lan can communicate with each other.

Question 2: Write the necessary configurations for all computers inside of campus (Lan1,Lan2,Lan3) to be able to start HTTP/HTTPS communication to the Twitter and Youtube machines.

Question 3: Write the iptables configurations to enable that all computers inside of campus (Lan1,Lan2,Lan3) and outside of campus can start HTTP/HTTPS communication to Web Server and SMTP communication to E-mail Server machine.

Question 4: Write the iptables configurations to enable that all computers inside of campus (Lan1,Lan2,Lan3) can start POP3 and IMAP communication to E-mail Server machine.

Question 5: Write the necessary configurations for that the remote computer can ping computers in Computer Engineering Lan, Electronic Engineering Lan, and Physics Engineering Lan.

Question 6: Write the necessary configurations so that more than 100 computers cannot access HTTPS port of the Web Server simultaneously. (The configuration will be done on the Firewall device, not on the Web Server.)

Notes:

- You can ask questions about the experiment via Piazza group (piazza.com/hacettepe.edu.tr/fall2020/bbm465).

- The purpose of the iptables rules used to solve each question must be explained individually. It should also be mentioned in the theoretical conventions. For example, what is the Firewall? what iptables tables are and what chains they contain; such as which chains of incoming, outgoing, and forwarded packets passed through the iptables tables, respectively.
- Late submission will not be accepted!

- You will make your submissions via submit system (https://submit.cs.hacettepe.edu.tr)

- The solution for each problem will be in the file "iptables_QuestionNo". These 6 files will be delivered with the report. Submission format is given below:

```
<Group id>.zip
        conf/
                iptables 1
                iptables 2
                iptables 3
                iptables 4
                iptables 5
                iptables 6

        report/
```

Policy

All work on assignments must be done with your own group unless stated otherwise. You are encouraged to discuss with your classmates about the given assignments, but these discussions should be carried out in an abstract way. That is, discussions related to a particular solution to a specific problem (either in actual code or in the pseudocode) will not be tolerated. In short, turning in someone else's work (from internet), in whole or in part, as your own will be considered as a violation of academic integrity. Please note that the former condition also holds for the material found on the web as everything on the web has been written by someone else.

References

1- http://www.iptables.info/
2- http://www.thegeekstuff.com/2011/06/iptables-rules-examples/
3- http://www.cyberciti.biz/tips/linux-iptables-examples.html