NETWORK MAP

1. INTRODUCTION

1.1 OBJECTIVES

During the class you should test a network, correct configuration errors and make the network operate correctly.

1.2 LEARNING OUTCOMES

At the end of this assignment, you should know:

- How to create a network map.
- How to debug a network.
- How to demonstrate how your network is working.

2. GENERAL GUIDELINES

2.1 PREPARATION

No preparation is required, besides reading the assignment.

3. LAB ACTIVITIES

3.1 LAB MAP

Draw a network map of the network composed of MikroTik routers you were assigned:

- Identify the IP addresses and network masks of every interface of every router; for each address, register if it is a static address or a dynamic address;
- Draw a network map with the links between the different router ports; identify the existing networks;
- For each router, check the DNS server configuration, the routing table, default route, and existing DHCP servers.

To achieve this, you should successively enter each router by connecting to its eth1 interface through the preconfigured IP address.

3.2 CONFIGURATION DEBUG

Identify and correct the configuration errors, so that you can get Internet access through the MikroTik routers network.

Use the information of MikroTik-configuration.pdf manual (section 2.7 about traffic analysis) to troubleshoot the network.

This is a no rule game. You have to follow the guidelines and discover the problems in order to accomplish the goals. Some suggestions are:

- Clean the browser cache and access Google webpage;
- In the router connected to the IST network, check that you have Internet connectivity, by pinging Google by name and by IP address (ping 8.8.8.8). If you do not have Internet connectivity, check for the DHCP client configuration, and the corresponding IP address and DNS configuration that should be acquired from the IST network.
- In the router connected to the IST network, check that you have connectivity to every interface of every other router by pinging the IP address of each one, according to your network map.
- Connecting the PC to the appropriate MikroTik interface, check the PC network configuration for an appropriate IP address, default gateway and DNS server.

3.3 Network Demonstration

Demonstrate to the teacher that the network is working properly and that you can have Internet access in the PC connected to the Internet through the network of Mikrotik routers.

Modify the network so that the path to the Internet is longer. Demonstrate the difference in the paths to the teacher.

4. Report

A report should be delivered through the Fenix project Delivery System in PDF format, until 48h before the next laboratory class.

The report should include:

- The network map;
- The routing protocol being used;
- The errors that were discovery in the network configuration;
- The corrections that have been implemented;
- The path followed by packets from the PC in the lab to the Internet;
- The modification performed to have a longer path and the corresponding path.