

Computer networks - Administration 1DV202 – Lab 2

Monitoring a small network

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Instructions

Organisation and implementation

The lab consists of a number of steps that should be fulfilled and questions that should be answered. The lab is to be done individually.

Preparations

Before the lab is implemented, it must be read through and relevant preparations made. This may include, but is not limited to, the following:

- An understanding of the techniques used during the laboratory
- The look-up of terms
- Planning the implementation

Presentation

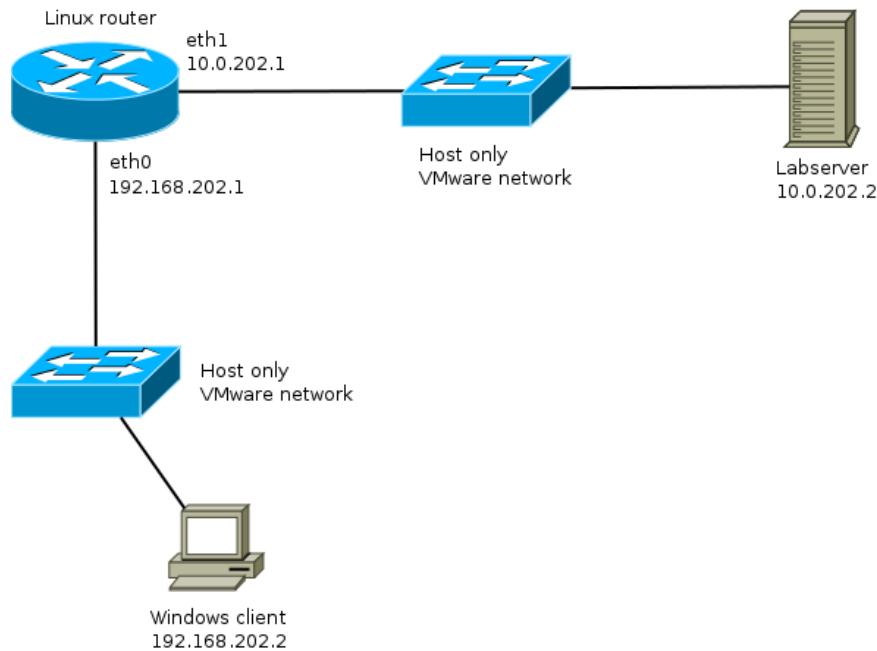
Presentation of the lab will be in the form of a written report. The report shall consist of a cover page, table of contents, ideas and paths to the matters covered in the lab. Where it is possible to reason about a problem or come up with different solutions, it is especially important that these interpretations are included in the report and how you have motivated them. The text should be readable and cohesive text that can be read without having access to this laboratory-PM, a bulleted list or the like with short answer is not permitted.

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1 Introduction

The aim of this lab is to get an understanding of SNMP and how it can be utilized to monitor a network, its systems and the traffic flowing in the network.



1.1 The virtual lab network

The network will be set up using VMware or VirtualBox. The two Linux machines, with SNMP already installed and enabled, are provided on the course page as OVF files. These can be imported in VMware and VirtualBox. Make sure you set them to the correct virtual network. If you, for some reason, need to log in to the Linux machines the credentials are *user* and *password*. You can then use `sudo` to gain root privileges. The Windows machine isn't downloadable, you'll have to install it yourself. You can download a trial version of Windows from Microsoft, which version of Windows you choose does not matter. Before you continue, make sure you can ping all the addresses in the network from your Windows client.

2 Basic SNMP monitoring

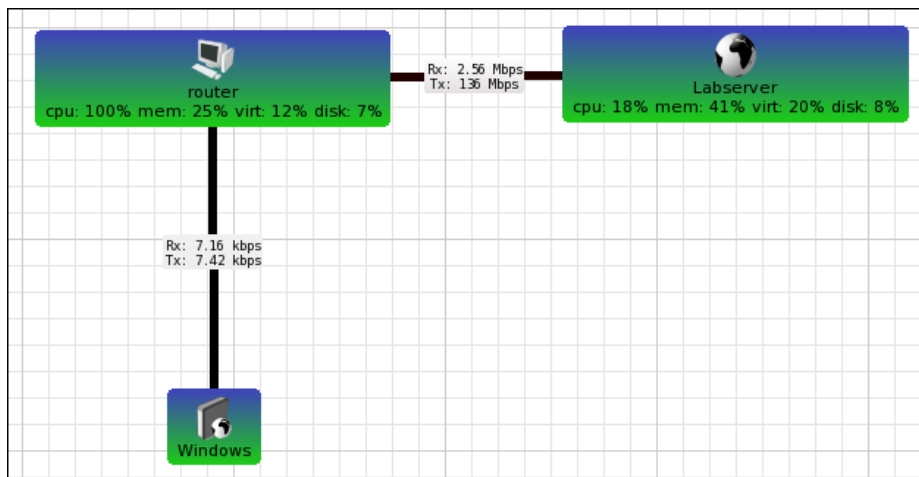
To get an understanding of how basic SNMP work and how to monitor network equipment and computers using SNMP you'll be using a program called *The Dude*. You'll monitor a Linux based router and a web server called *Labserver*.

2.1 Installation and configuration of the Dude

1. Download the Dude from <http://download.mikrotik.com/dude-install-3.6.exe> and install it in your virtual Windows client.

2. Scan the appropriate networks to add Labserver and the router. You can choose to add the router and Labserver manually by its IP address if you don't want to scan that entire network.
3. Connect Links in the Dude between the appropriate devices according to the network diagram.

When finished, your network in the Dude should look something like this:



2.1 The Dude

2.2 Monitoring the Labserver

Labserver is used as a web server on the Network. In this section you'll be monitoring Labserver.

1. Answer the following questions:
 - (a) How many network interfaces are present on Labserver? Which are their IP numbers?
 - (b) How much hard drive space does Labserver have? How much of it is in use?
 - (c) How can you see the traffic on each link as in picture 2.1? What is the source of the Rx/Tx values?

As you can see Labserver isn't in the same network as your Windows client. What implications can this have with the monitoring of Labserver? How can you prevent any problems with monitoring remote hosts on other networks or in other cities?

3 Report

Write a report containing the following:

1. A brief Introduction to what you have done (90-110 words).

2. A description of how SNMP is used to monitor a host and any problems with network monitoring in general based on the section called *Basic SNMP monitoring* and the questions in that section. (150-200 words).
3. A documentation of the network. What computers are used, their settings, configurations and software. (150-200 words)

The report is an individual effort and each student writes and sends in his or her own. The report will be graded as “Pass” or “Fail” and a “Pass” is required in order to complete the course. Team work is considered cheating and will be reported as such if discovered. References should be written in the IEEE style. The report should be sent as a PDF to *marcus.wilhelmsson@lnu.se* no later than May 1 2013. The lab will be discussed during the seminar on the 3rd of May.