Assignment - 1

Probe based operations – Applied Network Management, ET2536

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***Abstract*— This is an individual report, which shows how to install and configure Multi Router Traffic Grapher. It also describes the comparison between MRTG and the tool developed as a task for the assignment 1 for the course Applied Network Management.**

I. INTRODUCTION

The Multi Router Traffic Grapher (MRTG) is a tool to monitor the traffic load on network links. MRTG generates HTML pages containing PNG images which provide a LIVE visual representation of this traffic. MRTG works on most UNIX platforms and Windows NT. MRTG is written in Perl and comes with full source. It uses a highly portable SNMP implementation written entirely in Perl. There is no need to install any external SNMP package. The router interfaces can be identified by IP address, description and Ethernet address, in addition to the normal interface number. MRTG has built-in hooks for using RRDtool. In addition to a detailed daily view, MRTG also creates visual representations of the traffic seen during the last seven days, the last five weeks and the last twelve months. The traffic is displayed in terms of Bytes per Second for both the incoming as well as an outgoing stream for each interface.

In this course, we develop a tool which is similar to MRTG and compare the results of the developed tool with that of MRTG.

II. INSTALLATION & CONFIGURATION OF MRTG

The following steps were followed to install and configure MRTG in Ubuntu 14.04 LTS operating system:

- sudo apt-get install mrtg
- sudo mkdir /etc/mrtg && sudo mv /etc/mrtg.cfg /etc/mrtg
- sudo cfgmaker –output=/etc/mrtg/filename.cfg public@IPaddress-device
- sudo indexmaker --output /var/www/mrtg/index.html /etc/mrtg/filename.cfg
- sudo env LANG=C /usr/bin/mrtg /etc/mrtg/filename.cfg

In your .cfg file include RunAsDaemom:Yes and Interval:5 in global defaults section. Now, view in the browser with the URL as localhost/mrtg/. Make sure that "WorkDir: /var/www/html/mrtg" (under Debian) is uncommented.

III. REPLICATION OF MRTG - TOOL

A tool working similar to MRTG was developed as per the requirement for assignment 1 for this course. This tool uses SNMP and RRDtool. The source code for the backend part was written entirely in Perl. CPAN modules are available to interface with SNMP and RRD through Perl scripting. SNMP & Object Identifiers were used to filter the interfaces for the devices whose credentials were stored in a MySQL database as done by MRTG. RRDtool was used to store the inoctet and outoctet values for each device. MySQL database was used to store the device information and the interfaces that were filtered. The data stored in MySQL was used to display the device credentials in web dashboard. The front end was developed using PHP and HTML.

IV. COMPARISON BETWEEN MRTG & TOOL

The interfaces filtered by MRTG and the tool developed for each device were exactly the same. The traffic observed by MRTG and tool are not exactly the same, there are variations and can be seen in the screenshots given below for a device provided at the laboratory of the university with the IP address – 192.168.186.100; Port – 161, Community – public. Figure 1 shows the graph for interface 99 produced by the developed tool. Figure 2 shows the graph for interface 52 produced by MRTG.

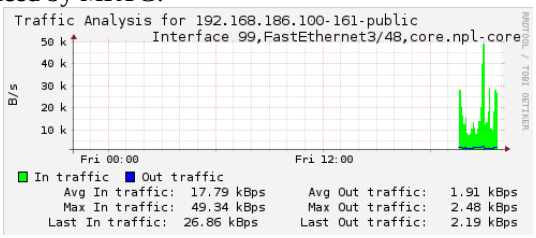

Fig. 1

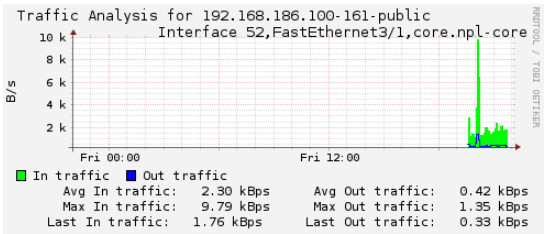

Fig. 2