Report on Comparison between MRTG and developed tool

Assignment 1

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Abstract— **This report describes the steps to be executed in order to install and configure Multi Router Traffic Grapher (MRTG). It also describes the comparison between MRTG and the Network Traffic Monitoring tool. This tool generates daily, weekly, monthly and yearly graphs of the requested network device.**

I.   INTRODUCTION

The Multi Router Traffic Grapher (MRTG) is a tool that is used to monitor 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. The router interfaces can be easily identified by IP address, description and Ethernet address in addition to the normal interface number. In addition to a detailed daily view, MRTG also creates visual representations of the traffic weekly, monthly and yearly basis on the web interface. The traffic is displayed in terms of Bytes per Second for both the incoming as well as outgoing stream for each interface.

We develop a network monitoring tool which is similar to MRTG and compare the results of the developed tool with that of MRTG. SNMP is used to poll the device and gather the information and presented on web interface.

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 built. This tool uses SNMP and RRDtool. The source code for the backend part was written entirely in Perl to retrieve the data. 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 interface. 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 – 192.168.184.25; Port – 1161, Community – testanml. Figure 1 shows the graph for interface 11 produced by the developed tool. Figure 2 shows the graph for interface 11 produced by MRTG.
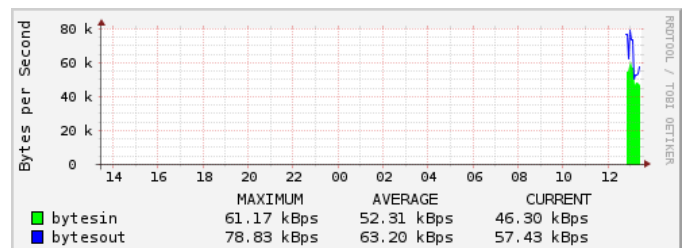

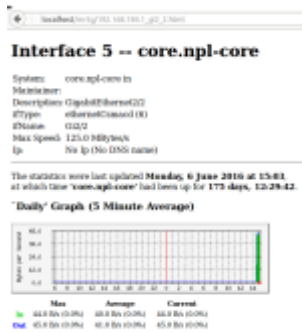Fig. 1 Statistics for interface 05 produced by the tool developed

Fig. 2 Statistics for interface 05 produced by MRTG

While executing the assignment in demo, Huge variations for the values of MRTG and the developed tool were observed. The reason which i understood for this is bit rate of stream will be very high to the tune of 100Mbps. The tool which i developed uses OIDs with 32-bit counters. MRTG has no ability to handle such high bit streams, therefore values of 2 Mbps were observed Instead of 32-bit counters, 64-bit counters can be used. MRTG and my tool will not read the counters at the same time. This asynchronization between the updating of MIB counter values and sample time leads to different results in both the case of MRTG and developed tool.