# Applied Network Management Laboratory 1 Report

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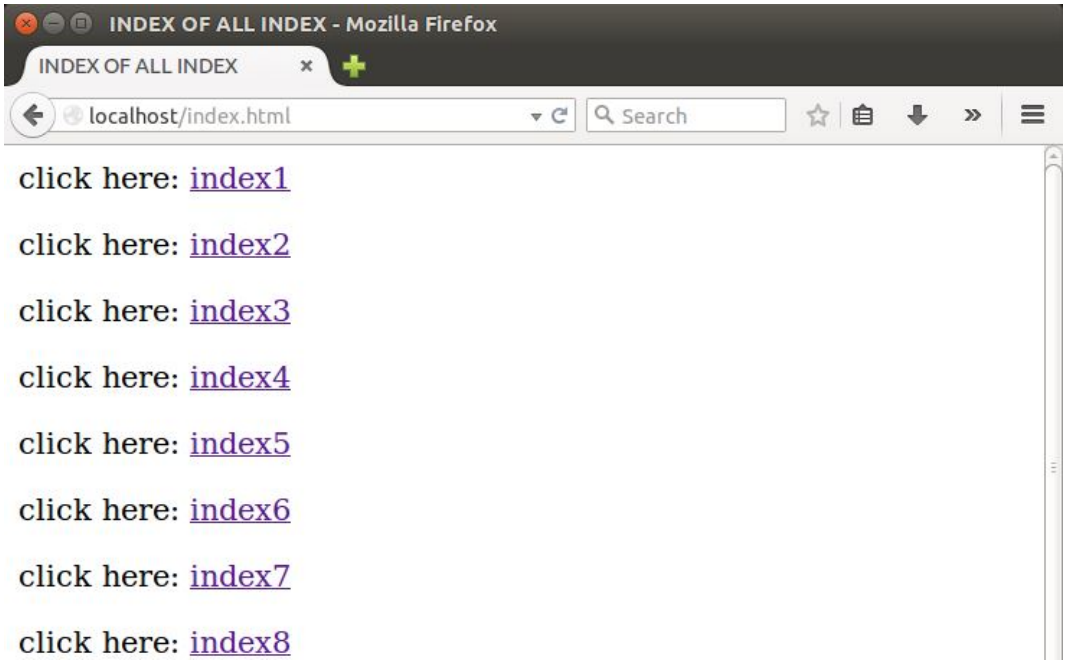
## 1 Assignment part 1

Installation of MRTG can be done using repositories. Open terminal and type the following command "sudo apt-get install mrtg". This installs MRTG and several configuration tools which come with it. You can install (PHP, MySQL & Apache web server) from one package using command "sudo apt-get install lamp-server^". To configure MRTG for database of devices follow the instructions as follows.

- Download perl DBI module from http://search.cpan.org/ timb/DBI-1.633/DBI.pm, extract the tar ball.
- Use "cd" command to go into the DBI folder whichwas extracted. Run command "perl Makefile.PL".
- Use command "sudo make install", this installs perl DBI module.
- Download et2536-nsku14.tar.gz from itslearning.
- Extract et2536-nsku14.tar.gz file using command "tar -xvf et2536-nsku14.tar.gz".
- Go to folder et2536-nsku14. Open db.conf using any editor. Give database credentials.
- Use "cd" command to go to assignment1 folder. Run command "sudo perl mrtgconf.pl".
- Enter the server directory when prompted default in Ubuntu 14.04 is "/var/www/html" and hit return key.

- Wait till the configuration files are generated. When the prompt returns it indicated completion of task.
- Open webrowser to go to URL (default is http://localhost/index.html). you will see the html page as shown below. Each hyperlink redirects to each html file generated by mrtg, convention is index[ID]. ID is device ID in DEVICES table.

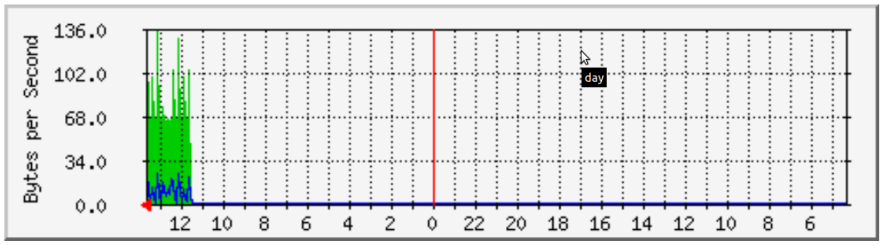



## 2 Assigment part2 Report

Use of rrdtool for bitrate measurement on all interface of network devices. These devices are also monitored in parllel using MRTG. Comparing the results thus obtained using MRTG and the RRDTOOL is the theme of this report. Although the graphs are produced for every interface, for every device, only one interface is compared in this report. All the other interface graphs reflected the same.

# 3 Visual Comparison of results

## `Daily' Graph (5 Minute Average)

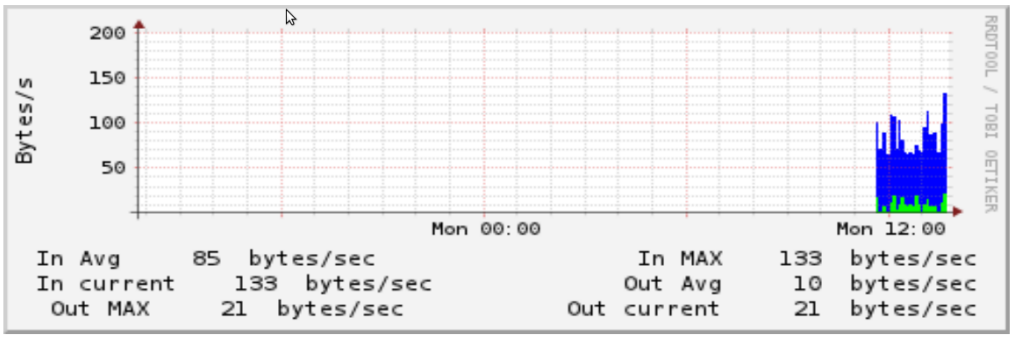



| | Max | Average | Current |
|---|---|---|---|
| In | 136.0 B/s (0.0%) | 84.0 B/s (0.0%) | 137.0 B/s (0.0%) |
| Out | 23.0 B/s (0.0%) | 9.0 B/s (0.0%) | 22.0 B/s (0.0%) |

This section displays the obtained results using MRTG and RRDTOOL. MRTG gives four graphs with daily, weekly, monthly and yearly resolution. Assignment 2 used RRDtool which also gives all the four graphs with same resolution which helps in ease of comparision with MRTG results. But in this report only daily resolution graphs of MRTG and RRDTOOL are compared. The above figure is the daily resolution graph obtained from MRTG for monitoring bitrate on a device interface. The same device interface is also monitored with snmp and RRD(Round Robin Database ) is used to store and display daily graph this is shown in the figure below. Both MRTG and Assignment part 1 are performed parllelly so the results can be compared.

# RRD results

# Daily



MRTG tool graphs from left to right while RRD tool graphs from right to left as time passes. Although the above two graphs are obtained by monitoring in parllel they are not started at same time instant.

By Viewing the above figures both MRTG and RRDtool graphs are quite similar (not taking the graphs spatial orientation into consideration). Coming to the statistics entries thus obtained by MRTG and RRD , all entries Average,Max,Current almost identical. the slightest variations in these statistics are probably because of RRD adjusted to fitting poll interval and also the non ideality in experimentation(couldn't start MRTG and RRD at same time). Comparing the tools usability MRTG offers configuration file which user can edit based on his needs. Where as RRDtool doesn't use that but offers more flexibility in terms of options it provides. The usability comparision can be thought as GUI(MRTG) and CLI(RRDTOOL).

# 4 Appendix

MRTG - Multi Router Traffic Grapher
RRD - Round Robin Database
CLI - Command Line Interface
GUI - Graphical User Interface