Assignment 2

For both tasks I created altogether 5 shell scripts and ran them with crontab.

For 4 of the 5 scripts I was able to run on the university’s linux machines. For some reason I could run the shell script doing domain information lookup only on Kosh.aalto. The two crontabs I used were respectively:

6,16,26,36,46,56 \* \* \* \* /u/17/nikulam2/unix/Desktop/ITM/Week2/researchserver.sh >> /u/17/nikulam2/unix/Desktop/ITM/Week2/rs.txt

6,16,26,36,46,56 \* \* \* \* /u/17/nikulam2/unix/Desktop/ITM/Week2/iperfserver.sh >> /u/17/nikulam2/unix/Desktop/ITM/Week2/is.txt

6 \* \* \* \* /u/17/nikulam2/unix/Desktop/ITM/Week2/specialmeasure.sh >> /u/17/nikulam2/unix/Desktop/ITM/Week2/sm.txt

6 \* \* \* \* /u/17/nikulam2/unix/Desktop/ITM/Week2/filetransfer.sh >> /u/17/nikulam2/unix/Desktop/ITM/Week2/ft.txt

And

6 \* \* \* \* /u/17/nikulam2/unix/Desktop/ITM/Week2/nameserver.sh >> /u/17/nikulam2/unix/Desktop/ITM/Week2/ns.txt

The shell scripts can be found in the zip-file.

Task1

After receiving output of measurements using ping, dig and curl I processed the data using simple Python functions for text files. In addition Statistics-library was used to get the mean and median, Numpy’s percentile-function for calculating delay spread and Pandas for outputting the csv-file. The ping results were very clear and straightforward. For the nameservers I used dig command after finding that my ccTLD is Madagascar.

“The nameservers I received with mycountry-command were: mg OK (Madagascar): ns.dts.mg, ns-mg.malagasy.com, censvrns0001.ird.fr, pch.nic.mg, ns.nic.mg

Your UID is 1505617, thus your ccTLD is mg (Madagascar)”

With **ns.nic.mg** and **ns.dts.mg** I could get reasonable results as the latencies were > 200ms but with **pch.nic.mg** I couldn’t. When tracerouting the server, I noticed that the query never left the .fi-domain and therefore the latencies were only about 4ms. In addition when recording the TCP-connect time with curl, I forgot to subtract the DNS-lookup time.

Here is the final table I put together displaying the latencies of 8 servers:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | ServerName | Median | Mean | LossRatio | Spreads |
| 0 | nameserver1 | 3.12 | 3.147381 | 0 | 1.01 |
| 1 | nameserver2 | 229 | 236.881 | 0 | 16 |
| 2 | nameserver3 | 237 | 239.9048 | 0 | 8 |
| 3 | researchserver1 | 83.1 | 83.0014 | 0.483645 | 0.7 |
| 4 | researchserver2 | 304 | 304.6409 | 0 | 2 |
| 5 | researchserver3 | inf | 0 | 1 | inf |
| 6 | iperfserver1 | 316 | 374.6782 | 0 | 7 |
| 7 | iperfserver1 | 0.8695 | 2.027147 | 0 | 2.2535 |

Where the values are milliseconds(ms).

With nameservers the results were even, with little spread and variation. Also there was no remarkable variation due to daytime difference.

With research servers server 1 had almost a 50 % loss ratio, where as server 2 had 0% and server 3 had 100%. Here we can see a lot of variation between the latencies due to the differences in geographic locations. Researchserver1 is **pna-es.ark.caida.org** which I believe is located in Spain and researchserver2 is **hlz-nz.ark.caida.org** which seems to be in New Zealand. With researchserver3 **jfk-us.ark.caida.org** I could not make a connection during this assignment.