Lab Exercise 1: Tools of the Trade

There are 7 labs during this course. For each student, the 5 best performing labs will contribute to your final lab mark.

Objectives:

- Get familiar with the basic networking tools: ping, traceroute, ifconfig, netstat, nslookup
- Gain insights into evaluating network performance and understanding network topology

Prerequisites:

- Week 1 Lectures
- Relevant Parts of Chapter 1 of the textbook
- Introduction to Tools of the Trade (https://webcms3.cse.unsw.edu.au/COMP3331/18s2/resources/17358)
- runping.sh (https://webcms3.cse.unsw.edu.au/COMP3331/18s2/resources/17310)
- plot.sh (https://webcms3.cse.unsw.edu.au/COMP3331/18s2/resources/17312)
- Basic understanding of Linux. A good resource is here (http://www.ee.surrey.ac.uk/Teaching/Unix/) but there are several other resources online

Marks: 10 marks

- This is a submission based lab that does not require a demonstration
- You can only attend your allocated lab slot. The tutors will not allow students of other labs to attend their lab slot, and they will ask you to leave the lab.
- This lab comprises of a number of exercises. Pl note that not all the exercises for this lab are marked. However, you have to submit a report containing answers for all of the lab exercises.
- We expect the students to go through as much of the lab exercises as they can at home and come to the lab for clarifying any doubts in procedure/specifications.

Deadline:

Midnight on the day your lab is scheduled. For example, if you go to the Monday 14 hours lab, then your submission is due before 12 midnight on the same day. You can submit as many times as you wish before the deadline. A later submission will override the earlier submission, so make sure you submit the correct file. Do not leave until the last moment to submit, as there may be technical or communications error and you will not have time to rectify it.

Late Penalty:

Late penalty will be applied as follows:

- 1 day after deadline: 20% reduction
- 2 days after deadline: 40% reduction
- 3 days after deadline: 60% reduction
- 4 or more days late: NOT accepted

Note that the above penalty is applied to your final mark. For example, if you submit your lab work 2 days late and your score on the lab is 8, then your final mark will be 8 - 3.2 (40% penalty) = 4.8.

Submission Instructions:

Submit a PDF document **Lab1.pdf** with answers to all questions for all exercises. To include all supporting documents, create a tar archive of all the files called **Lab1.tar.** Submit the archive using give. You can submit from a lab machine or ssh into the CSE login server. Instructions to ssh into CSE login servers are here (https://taggi.cse.unsw.edu.au/FAQ/Logging_In_With_SSH/) .

1. Type “tar –cvf Lab1.tar filenames” e.g. tar -cvf Lab1.tar Lab1.pdf output.txt
2. When you are ready to submit, at the bash prompt type 3331
3. Next, type: give cs3331 Lab1 Lab1.tar

- The submission system will also accept a PDF called Lab1.pdf. So, if you only have a single PDF file, you can submit the PDF directly (no need to tar).
- Please make sure that the tar archive is not corrupted. You can untar (use tar –xvf Lab1.tar) the created archive to check that all the files are intact.
- Max file size for submission is **3MB** .

Original Work Only:

You are strongly encouraged to discuss the questions with other students in your lab. However, each student must submit his or her own work. You may need to refer to the material indicated above (particularly Tools of the Trade document) and also conduct your own research to answer the questions.

OS Compatibility:

Please note that the instructions provided herein assume that you are running the exercises on a Linux machine (similar to the CSE lab machines). These commands (and the scripts provided) may not work as prescribed on other OSes (Windows, OS X, etc.). We strongly recommend that you run these experiments on CSE machines. If you are running from off-campus, you can ssh into a CSE server. We will be unable to help you diagnose any issues that may arise with OSes other than Linux.

Exercise 1: nslookup

Use the nslookup command from the "Tools of the Trade" and answer the following questions:

1. Which is the IP address of the Google site (www.google.com (http://www.google.com))? In your opinion, what is the reason of having several IP addresses as an output?
2. Find out name of the IP address 127.0.0.1. What is special about this IP address?

Exercise 2: Use ping to test host reachability

Are the following hosts reachable from your machine by using ping:

- www.cse.unsw.edu.au (http://www.cse.unsw.edu.au)
- (http://www.cse.unsw.edu.au) www.getfittest.com.au (http://www.getfittest.com.au)
- www.mit.edu (http://www.mit.edu)
- www.intel.com.au (http://www.intel.com.au)
- (http://www.intel.com.au) www.tpg.com.au (http://www.tpg.com.au)

- (http://www.telstra.com.au) www.hola.hp (http://www.hola.hp)
- (http://www.hola.hp) www.amazon.com (http://www.amazon.com)
- (http://www.wikileaks.org) www.tsinghua.edu.cn (http://www.tsinghua.edu.cn)
- (http://www.tsinghua.edu.cn) www.kremlin.ru (http://www.kremlin.ru)
- 8.8.8.8 (8.8.8.8)

If you observe that some hosts are not reachable, then can you explain why? Check if the addresses unreachable by the ping command are reachable from the Web browser.

Exercise 3: Use traceroute to understand network topology

Note: Include all traceroute outputs in your report.

1. Run traceroute on your machine to www.columbia.edu (http://www.columbia.edu) . How many routers are there between your workstation and www.columbia.edu (http://www.columbia.edu) ? How many routers along the path are part of the UNSW network? Between which two routers do packets cross the Pacific Ocean? Hint: compare the round trip times from your machine to the routers using ping.
2. Run traceroute from your machine to the following destinations: (i) www.ucla.edu (http://www.ucla.edu) (ii) www.u-tokyo.ac.jp (http://www.u-tokyo.ac.jp) and (iii) www.lancaster.ac.uk (http://www.lancaster.ac.uk) . At which router do the paths from your machine to these three destinations diverge? Find out further details about this router. (HINT: You can find out more about a router by running the whois command: whois router-IP-address). Is the number of hops on each path proportional the physical distance? HINT: You can find out geographical location of a server using the following tool - http://www.yougetsignal.com/tools/network-location/ (http://www.yougetsignal.com/tools/network-location/)
3. Several servers distributed around the world provide a web interface from which you can perform a traceroute to any other host in the Internet. Here are two examples: (i) http://www.speedtest.com.sg/tr.php (http://www.speedtest.com.sg/tr.php) and (ii) https://www.telstra.net/cgi-bin/trace (https://www.telstra.net/cgi-bin/trace) . Run traceroute from both these servers towards your machine and in the reverse direction (i.e. from your machine to these servers). You may also try other traceroute servers from the list at www.traceroute.org (http://www.traceroute.org) . What are the IP addresses of the two servers that you have chosen. Does the reverse path go through the same routers as the forward path? If you observe common routers between the forward and the reverse path, do you also observe the same IP addresses? Why or why not?

Exercise 4: Use ping to gain insights into network performance

Note: Include all graphs in your report.

We now use the ping utility to investigate network delay and its implications on network performance. In particular, we will analyze the dependency of packet size and delay.

There is a shell script, runping.sh (https://webcms3.cse.unsw.edu.au/COMP3331/18s2/resources/17310) , provided that you can use instead of running many pings with different packet sizes by hand. After downloading this script on your machine make sure you can execute it. If not, you will have to execute the following command in the command line: chmod u+x runping.sh. To run the ping traces you may use the runping.sh script as follows: ./runping.sh www.abc.net (http://www.abc.net) (or whatever other destination you want to ping). It will automatically run ping for different packet sizes and with 50 ping packets per size. Note, since a ping is sent once per second, this script will take a few minutes to finish. Basically, this script only executes the commands:

```
$ ping -s 22 -c 50 -i 1 www.abc.net > www.abc.net-p50
...
$ ping -s 1472 -c 50 -i 1 www.abc.net > www.abc.net-p1500
```

and writes the output of the pings to the corresponding files.

Use this script for the following destinations:

(i) www.uq.edu.au (http://www.uq.edu.au) (ii) www.nus.edu.sg (http://www.nus.edu.sg) and (iii) www.tu-berlin.de (http://www.tu-berlin.de)

In othe words, execute the following commands

```
$ ./runping.sh www.uq.edu.au
$ ./runping.sh www.nus.edu.sg
$ ./runping.sh www.tu-berlin.de
```

In case you notice one of the hosts above is not responsive, select the following alternate destinations: (i) within Australia (www.uow.edu.au (http://www.uow.edu.au) , www.flinders.edu.au (http://www.flinders.edu.au) , www.uws.edu.au (http://www.uws.edu.au)) (ii) Asia (www.tsinghua.edu.cn (http://www.tsinghua.edu.cn) , www.sutd.edu.sg (http://www.sutd.edu.sg) , www.iit.ac.in (http://www.iit.ac.in)) (iii) Europe (www.epfl.ch (http://www.epfl.ch) , www.aau.dk (http://www.aau.dk) , www.uio.no (http://www.uio.no))

Note that all delay values reported are in milliseconds (ms) and reflect the round trip time (RTT) between your host and the destinations.

When the runping.sh script is finished for all destinations, you can plot the results using another provided script, plot.sh (https://webcms3.cse.unsw.edu.au/COMP3331/18s2/resources/17312) *,* as follows:

```
$ ./plot.sh www.uq.edu.au-p*
$ ./plot.sh www.nus.edu.sg-p*
$ ./plot.sh www.tu-berlin.de-p*
```

If you cannot execute plot.sh, then fix the permissions by executing the following command in the command line:

```
$ chmod u+x plot.sh
```

The script plot.sh will produce the following files: destination_delay.pdf, destination_scatter.pdf, and destination_avg.txt for each of the destinations (e.g., for www.nus.edu.sg (http://www.nus.edu.sg) we have *www.nus.edu.sg_delay.pdf (http://www.nus.edu.sg_delay.pdf)* , *www.nus.edu.sg_scatter.pdf (http://www.nus.edu.sg_scatter.pdf)* and *www.nus.edu.sug_avg.txt (http://www.nus.edu.sug_avg.txt)*).

The graph *destination_delay.pdf* shows how delay varies over time (different colours correspond to different packet sizes), and *destination_scatter.pdf* shows delay vs. packet size as a scatter plot. *destination_avg.txt* contains the average (2nd column) and minimum (3rd column) delay values corresponding to each packet size (1st column).

1. For each of these locations find the (approximate) physical distance from UNSW using Google Maps and compute the shortest possible time T for a packet to reach that location from UNSW. You should assume that the packet moves (i.e. propagates) at the speed of light, 3 x 10^8 m/s. Note that the shortest possible time will simply be the distance divided by the propagation speed. Plot a graph where the x-axis represents the distance to each city (i.e. ~~Adelaide~~ Brisbane, Singapore and Berlin), and the y-axis represents the ratio between the minimum delay (i.e. RTT) as measured by the ping program (select the values for 50 byte packets) and the shortest possible time T to reach that city from UNSW. (Note that the y-values are no smaller than 2 since it takes at least 2*T time for any packet to reach the destination from UNSW and get back). Can you think of at least two reasons why the y-axis values that you plot are greater than 2?
2. Is the delay to the destinations constant or does it vary over time? Explain why.

3. The measured delay (i.e., the delay you can see in the graphs) is composed of propagation delay, transmission delay, processing delay and queuing delay. Which of these delays depend on the packet size and which do not?

Resource created 4 months ago (Monday 16 July 2018, 02:50:39 PM), last modified 4 months ago (Tuesday 31 July 2018, 09:57:04 AM).

Comments

(/COMP3331/18s2/forums/search?forum_choice=resource/17352) (/COMP3331/18s2/forums/resource/17352)

Add a comment

Xiang Chen (/users/z5100438) 3 months ago (Fri Aug 17 2018 23:40:18 GMT+1000 (澳大利亚东部标准时间)), last modified 3 months ago (Fri Aug 17 2018 23:40:28 GMT+1000 (澳大利亚东部标准时间))

Hi, it seems that we could not submit lab3.

```
   class: cs3331
last system error: Disk quota exceeded
NO submission made.
```

Reply

Ali Dorri (/users/z5095883) 3 months ago (Sat Aug 18 2018 00:22:14 GMT+1000 (澳大利亚东部标准时间))

Sorry, this is a system error persisting. Can you please email me and your tutor your submission?You can find your tutor name from "timetable" in the left side menu.
Reply

Mirette Saleh (/users/z5116827) 4 months ago (Thu Aug 02 2018 21:30:01 GMT+1000 (澳大利亚东部标准时间))

Hi,

What is meant by "Is the delay to the destinations constant or does it vary over time?"?????

How can time (delay) vary over time and I don't understand how I can relate the graphs given to us in the question to help us find this.

Can someone please clarify the wording??

Thank you!

Reply

Ali Dorri (/users/z5095883) 4 months ago (Fri Aug 03 2018 10:25:18 GMT+1000 (澳大利亚东部标准时间))

Look at the plots and see if the by passing time, delay changes or it remains constant. Hope it clarifies.

Reply

Yu Wang (/users/z5204026) 4 months ago (Thu Aug 02 2018 15:27:05 GMT+1000 (澳大利亚东部标准时间))

Hi,

I tried to run command./runping.sh www.uq.edu.au (http://www.uq.edu.au) but I got a message 'Text file busy'. Can someone let me know that is the problem? (B.t.w I am using vlab.)

```
204026@vx4:/tmp_amd/glass/export/glass/3/z5204026/Desktop$ ./runping.sh www.nus.edu.sg
sh: ./runping.sh: Text file busy
```

Thx

Reply

Ali Dorri (/users/z5095883) 4 months ago (Thu Aug 02 2018 19:39:32 GMT+1000 (澳大利亚东部标准时间))

Probability the file is being used by another program. Maybe check lsof and kill them.
Reply

Josephine Anugerah (/users/z5163989) 4 months ago (Wed Aug 01 2018 19:09:50 GMT+1000 (澳大利亚东部标准时间))

Hi Ali,

I'm thinking of changing my lab to a different day in the week due to a timetable clash. My lab is tomorrow. Will I be penalised for late submission if I submit before tomorrow, but then change my lab to an earlier day in the week?

Reply

Ali Dorri (/users/z5095883) 4 months ago (Wed Aug 01 2018 19:49:34 GMT+1000 (澳大利亚东部标准时间))

Hi, for this week you must attend your regular lab. We have too many such requests of students to change lab slot. We accept only if this is serious issue. Email me with the reason and I will see if we can change **from next week.**

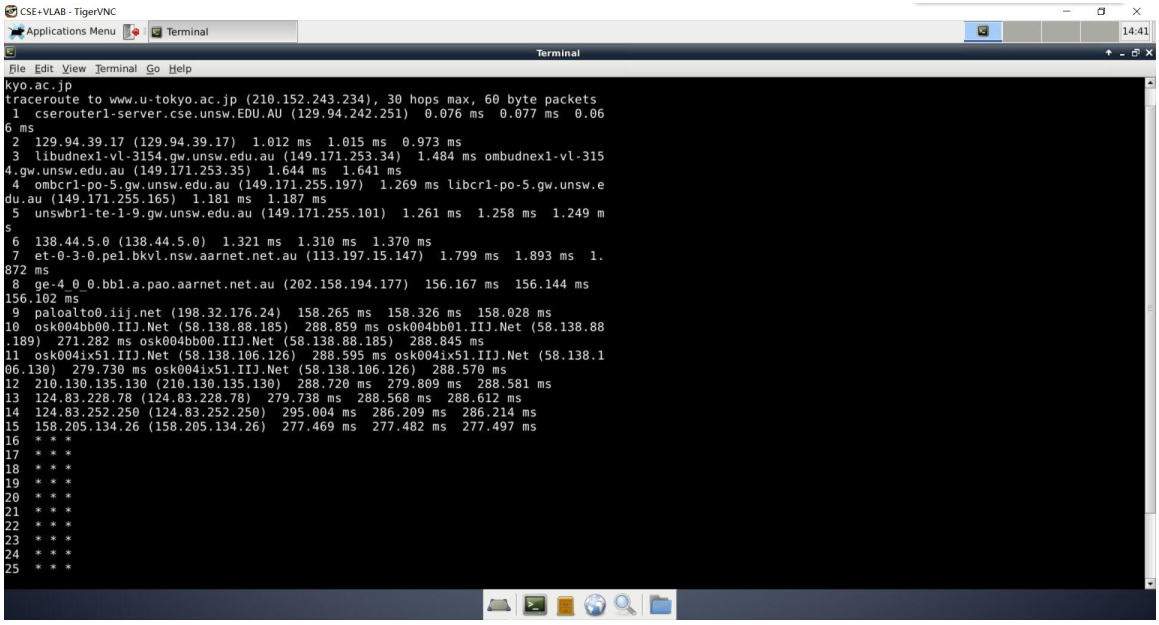
Reply

Zhuang Li (/users/z5188950) 4 months ago (Wed Aug 01 2018 14:44:23 GMT+1000 (澳大利亚东部标准时间))

Hi Ali, for the question in exercise 3 "Is the number of hops on each path proportional the physical distance?

After traceroute www.u-tokyo.ac.jp (http://www.u-tokyo.ac.jp/) (210.152.243.234) ,there is no reply since line 15 (158.205.134.26) line 30 as attached, which means i did not receive reply from www.u-tokyo.ac (http://www.u-tokyo.ac.jp/) .jp . Then I cannot get the number of hops along the path to that website because I am not sure if i reach the destination, in this case i cannot answer the relationship between the number of hops and physical distance.

Could you please tell me where I was wrong?



Reply

Ali Dorri (/users/z5095883) 4 months ago (Wed Aug 01 2018 15:15:07 GMT+1000 (澳大利亚东部标准时间))

Traceroute always shows 30 outputs. Thus, there would be 15 routers between you and the destination.

Reply

Zhuang Li (/users/z5188950) 4 months ago (Wed Aug 01 2018 18:45:08 GMT+1000 (澳大利亚东部标准时间))

Thanks Ali!

Reply

Zefeng Liao (/users/z5029978) 4 months ago (Wed Aug 01 2018 00:07:15 GMT+1000 (澳大利亚东部标准时间))

May I use tracert on Windows with my own computer for exercise 3?
Reply

Ali Dorri (/users/z5095883) 4 months ago (Wed Aug 01 2018 09:41:07 GMT+1000 (澳大利亚东部标准时间))

We suggest you to run the exercise while you are connected to UNSW network as the output would be different when you are connecting to your home network. You may use vlab in your own machine.

Reply

Semisi Taufa (/users/z5192989) 4 months ago (Tue Jul 31 2018 22:31:41 GMT+1000 (澳大利亚东部标准时间))

For 9331 students do we still use the Submission instruction (give cs3331 Lab1 Lab1.pdf) or do we change 3331 to 9331? Or does it matter

Reply

Ali Dorri (/users/z5095883) 4 months ago (Wed Aug 01 2018 09:38:54 GMT+1000 (澳大利亚东部标准时间))

Use 3331.

Reply

Aniket Ranjan (/users/z5167351) 4 months ago (Wed Aug 01 2018 15:06:55 GMT+1000 (澳大利亚东部标准时间))

Ali, my lab was on Monday, and I did submit 1 hour before the deadline, but I used 9331 to give the report. Does this incur a late submission penalty? There was no instruction given for the course code 9331. So we submitted using 9331 and not 3331.

Reply

Ali Dorri (/users/z5095883) 4 months ago (Wed Aug 01 2018 15:15:58 GMT+1000 (澳大利亚东部标准时间))

That should be fine, if you received a successful submission message.

Reply

Aniket Ranjan (/users/z5167351) 4 months ago (Wed Aug 01 2018 16:00:02 GMT+1000 (澳大利亚东部标准时间))

Thanks Ali!

Reply

Aniket Ranjan (/users/z5167351) 4 months ago (Wed Aug 01 2018 15:22:52 GMT+1000 (澳大利亚东部标准时间))

I did. So, do I need to submit again via 3331 or not?

Reply

Ali Dorri (/users/z5095883) 4 months ago (Wed Aug 01 2018 15:29:39 GMT+1000 (澳大利亚东部标准时间))

No

Reply

Jansen Malem (/users/z5141970) 4 months ago (Tue Jul 31 2018 21:33:56 GMT+1000 (澳大利亚东部标准时间))

Hi, how do I solve this problem in Linux?

./plot.sh www.tu-berlin.de (http://www.tu-berlin.de) -p*
www.tu-berlin.de (http://www.tu-berlin.de)
processing www.tu-berlin.de (http://www.tu-berlin.de) -p1000
377.279 317.584
processing www.tu-berlin.de (http://www.tu-berlin.de) -p1250

374.174 317.829
processing www.tu-berlin.de (http://www.tu-berlin.de) -p1500
376.609 317.455
processing www.tu-berlin.de (http://www.tu-berlin.de) -p250
370.182 316.597
processing www.tu-berlin.de (http://www.tu-berlin.de) -p50
379.375 317.462
processing www.tu-berlin.de (http://www.tu-berlin.de) -p500
376.179 316.857
processing www.tu-berlin.de (http://www.tu-berlin.de) -p750
392.587 317.567
ps2pdf www.tu-berlin.de_delay.ps (http://www.tu-berlin.de_delay.ps)
Error: /undefinedfilename in (www.tu-berlin.de_delay.ps (http://www.tu-berlin.de_delay.ps))
Operand stack:

Execution stack:
%interp_exit .runexec2 --nostringval-- --nostringval-- --nostringval-- 2 %stopped_push --nostringval-- --nostringval-- --nostringval-- false 1 %stopped_push
Dictionary stack:
--dict:1212/1684(ro)(G)-- --dict:0/20(G)-- --dict:78/200(L)--
Current allocation mode is local
Last OS error: No such file or directory
GPL Ghostscript 9.21: Unrecoverable error, exit code 1
ps2pdf www.tu-berlin.de_scatter.ps (http://www.tu-berlin.de_scatter.ps)
Error: /undefinedfilename in (www.tu-berlin.de_scatter.ps (http://www.tu-berlin.de_scatter.ps))
Operand stack:

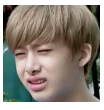
Execution stack:
%interp_exit .runexec2 --nostringval-- --nostringval-- --nostringval-- 2 %stopped_push --nostringval-- --nostringval-- --nostringval-- false 1 %stopped_push
Dictionary stack:
--dict:1212/1684(ro)(G)-- --dict:0/20(G)-- --dict:78/200(L)--
Current allocation mode is local
Last OS error: No such file or directory
GPL Ghostscript 9.21: Unrecoverable error, exit code 1

Reply

Ali Dorri (/users/z5095883) 4 months ago (Tue Jul 31 2018 21:39:53 GMT+1000 (澳大利亚东部标准时间))

I believe you are running this on your local machine. It will require you to install all the libraries needed. The easiest way is to use vlab instead.

Reply



Brandon Duong (/users/z5112732) 4 months ago (Tue Jul 31 2018 19:45:50 GMT+1000 (澳大利亚东部标准时间))

Would this be considered as "1 router" or as 3? I would assume it's 3 but traceroute puts it on one single line. Is it because the 3 routers are technically under 1 host?

unswbr1-te-2-13.gw.unsw.edu.au (149.171.255.105) 1.251 ms

unswbr1-te-1-9.gw.unsw.edu.au (149.171.255.101) 1.264 ms

unswbr1-te-2-13.gw.unsw.edu.au (149.171.255.105) 1.259 ms

Reply

Ali Dorri (/users/z5095883) 4 months ago (Tue Jul 31 2018 21:38:51 GMT+1000 (澳大利亚东部标准时间))

Were these at the same line? I am confused how these appeared in the output, just post all of the output here so I can help.

Reply

Brandon Duong (/users/z5112732) 4 months ago (Tue Jul 31 2018 21:53:01 GMT+1000 (澳大利亚东部标准时间))

Yes they were on the same line, my bad. Specifically line 5

traceroute to www.columbia.edu (http://www.columbia.edu) (128.59.105.24), 30 hops max, 60 byte packets

1 cserouter1-server.cse.unsw.EDU.AU (129.94.242.251) 0.106 ms 0.085 ms 0.066 ms

2 129.94.39.17 (129.94.39.17) 1.035 ms 1.034 ms 1.030 ms

3 libudnex1-vl-3154.gw.unsw.edu.au (149.171.253.34) 2.722 ms 2.681 ms 2.684 ms

4 libcr1-po-5.gw.unsw.edu.au (149.171.255.165) 122.262 ms 122.273 ms ombcr1-po-5.gw.unsw.edu.au (149.171.255.197) 1.151 ms

5 unswbr1-te-2-13.gw.unsw.edu.au (149.171.255.105) 1.251 ms unswbr1-te-1-9.gw.unsw.edu.au (149.171.255.101) 1.264 ms unswbr1-te-2-13.gw.unsw.edu.au (149.171.255.105) 1.259 ms

6 138.44.5.0 (138.44.5.0) 1.293 ms 1.293 ms 1.308 ms

7 et-1-3-0.pe1.sxt.bkvl.nsw.aarnet.net.au (113.197.15.149) 2.392 ms 2.340 ms 2.288 ms

8 et-0-0-0.pe1.a.hnl.aarnet.net.au (113.197.15.99) 95.310 ms 95.305 ms 95.237 ms

9 et-2-1-0.bdr1.a.sea.aarnet.net.au (113.197.15.201) 146.446 ms 146.445 ms 146.428 ms

10 abilene-1-lo-jmb-706.sttlwa.pacificwave.net (207.231.240.8) 146.482 ms 146.525 ms 146.431 ms

11 et-4-0-0.4079.rtsw.miss2.net.internet2.edu (162.252.70.0) 157.256 ms 157.280 ms 157.309 ms

12 et-4-0-0.4079.rtsw.minn.net.internet2.edu (162.252.70.58) 180.614 ms 180.599 ms 180.499 ms

13 et-1-1-2.4079.rtsw.eqch.net.internet2.edu (162.252.70.106) 188.580 ms 188.527 ms 188.402 ms

14 ae-1.4079.rtsw.clev.net.internet2.edu (162.252.70.130) 196.945 ms 197.047 ms 196.990 ms

15 buf-9208-I2-CLEV.nysernet.net (199.109.11.33) 201.162 ms 201.170 ms 201.092 ms

16 syr-9208-buf-9208.nysernet.net (199.109.7.193) 205.134 ms 204.851 ms 205.446 ms

17 nyc-9208-syr-9208.nysernet.net (199.109.7.162) 210.269 ms 210.488 ms 210.476 ms

18 columbia.nyc-9208.nysernet.net (199.109.4.14) 218.581 ms 210.522 ms 210.464 ms

19 cc-core-1-x-nyser32-gw-1.net.columbia.edu (128.59.255.5) 210.742 ms 210.562 ms 210.670 ms

20 cc-conc-1-x-cc-core-1.net.columbia.edu (128.59.255.210) 210.875 ms 210.878 ms 210.830 ms

21 neurotheory.columbia.edu (128.59.105.24) 210.445 ms 210.469 ms 210.546 ms

Reply

Ali Dorri (/users/z5095883) 4 months ago (Tue Jul 31 2018 21:57:55 GMT+1000 (澳大利亚东部标准时间))

So, in this case it is counted as 21 router. Note that traceroute sends 3 packets and if different routers response it will show all of them

Reply

Thomas Ly (/users/z5113795) 4 months ago (Tue Jul 31 2018 11:37:17 GMT+1000 (澳大利亚东部标准时间))

Hello, for exercise 3 question 3, the traceroute from my machine to the server for the two given websites are returning unknown name or service as shown in the attached image. I tried to use nslookup to get their IP addresses to use for the host name but nslookup is returning NXDOMAIN (non-existing domain), is there something that I am doing wrong?

```
wagner % traceroute http://www.speedtest.com.sg/tr.php
http://www.speedtest.com.sg/tr.php: Name or service not known
Cannot handle "host" cmdline arg `http://www.speedtest.com.sg/tr.php' on position 1 (argc 1)
wagner % traceroute https://www.telstra.net/cgi-bin/trace
https://www.telstra.net/cgi-bin/trace: Name or service not known
Cannot handle "host" cmdline arg `https://www.telstra.net/cgi-bin/trace' on position 1 (argc 1)
```

Reply

Ali Dorri (/users/z5095883) 4 months ago (Tue Jul 31 2018 12:57:14 GMT+1000 (澳大利亚东部标准时间))

Can you remove "tr.php" from the end of the address and try again?

Reply

Thomas Ly (/users/z5113795) 4 months ago (Tue Jul 31 2018 16:21:39 GMT+1000 (澳大利亚东部标准时间))

Hi Ali, I tried running traceroute `http://www.speedtest.com.sg/` but am stilll getting the same error.

Reply

Karan Kaushik (/users/z5196025) 4 months ago (Tue Jul 31 2018 16:30:03 GMT+1000 (澳大利亚东部标准时间))

Just do a traceroute www.speedtest.com.sg (http://www.speedtest.com.sg) . remove the http as well

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