Lab 01

Nan Zhou
z5111593

q1. 129.24.242.2 is the IP address of www.kola.com.au.
nslookup gives several IP address. Since a host may have multiple servers, nslookup return IP addresses of all its servers. When users want to visit the website, they will go to different server under the same IP address.

q2. Unreachable URL: www.getfittest.com
www.hola.hp

www.unsw.edu.au (Reachable)
www.getfittest.com.au (Unreachable)
www.mit.edu (Reachable)
www.intel.com.au (Reachable)
www.tpg.com.au (Reachable)
www.hola.hp (Reachable)
www.amazon.com (Reachable)
www.tsinghua.edu.cn (Reachable)
www.kremlin.ru (Ureachable)
8.8.8.8 (Reachable)

www.hola.hp:Unknown host, perhaps configuration is not right for this website

www.getfittest.com.au:Unknown host.

www.kremlin.ru. don't return back any packet. But this website do exist. One possible reason is they block ICMP packet for security reason.

q3.(1). 22 routers between my workstation to www.columbia.edu. And 5 routers are part of UNSW network.

```
 7 et-1-3-0.pe1.sxt.bkvl.nsw.aarnet.net.au (113.197.15.149)  2.244 ms  2.273 ms  2.124 ms
 8  et-0-0-0.pe1.a.hnl.aarnet.net.au (113.197.15.99)  95.197 ms  95.047 ms  95.065 ms
 9  et-2-1-0.bdr1.a.sea.aarnet.net.au (113.197.15.201)  146.489 ms  146.507 ms  146.498 ms
```

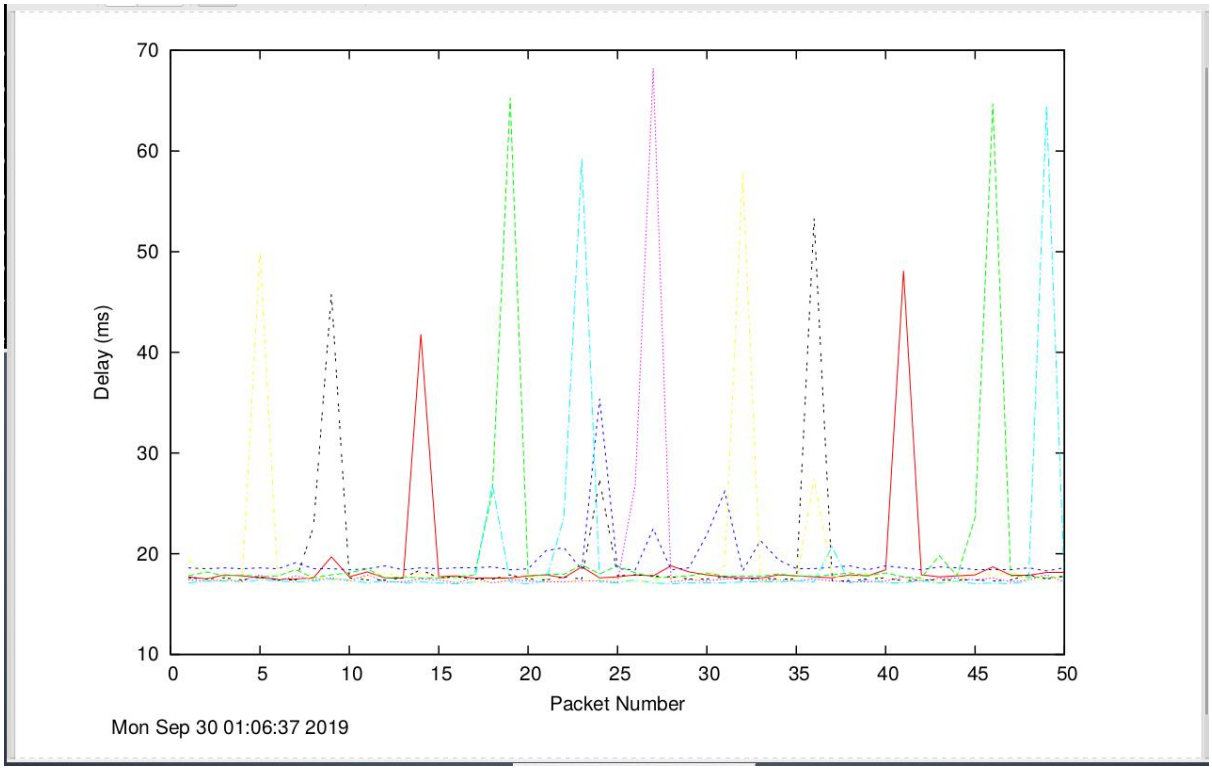
from output above. We can find that packet cross the pacific ocean from router 113.197.15.149 to 113.197.15.201 Because respond time of routers have a huge a difference between these routers.

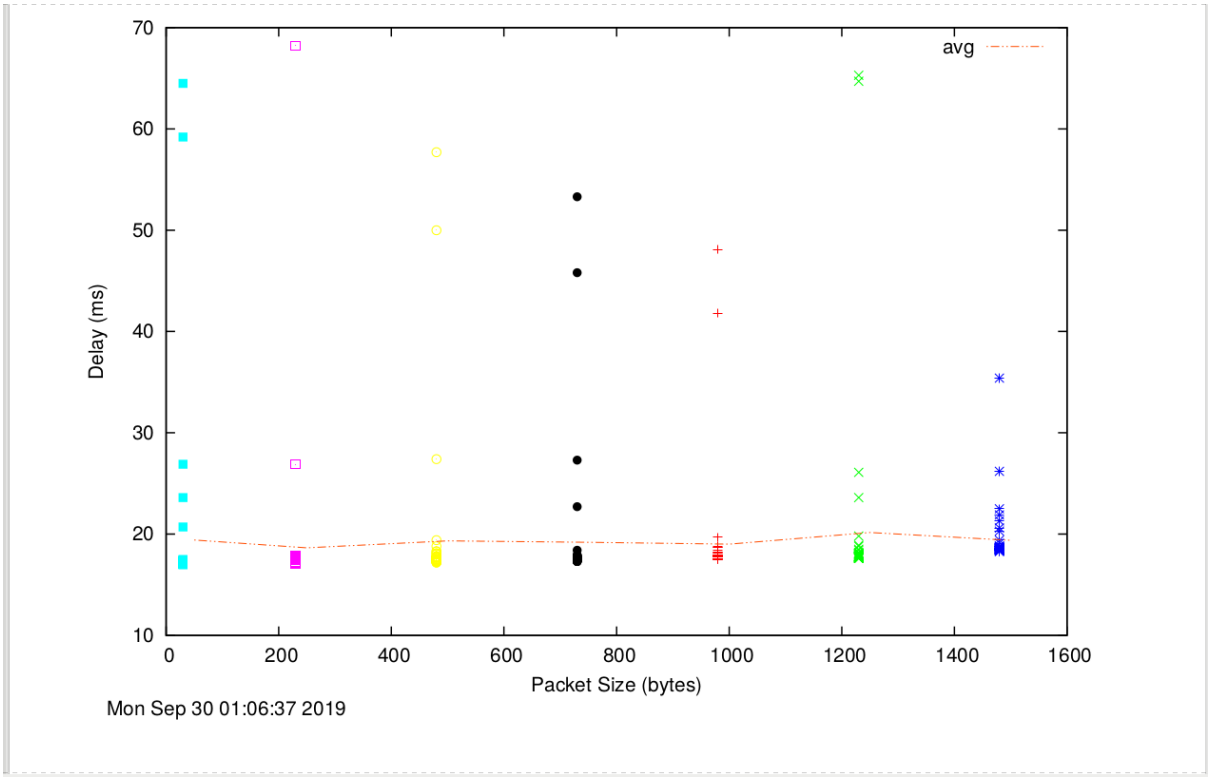
(2). 138.44.5.0 This router is somewhere near Perth. And distance does not affect route numbers.

(3) Not exactly the same, some router is different. For common routers in both forward and reserve direction, they have different IP address. That might because of different server under the same router.

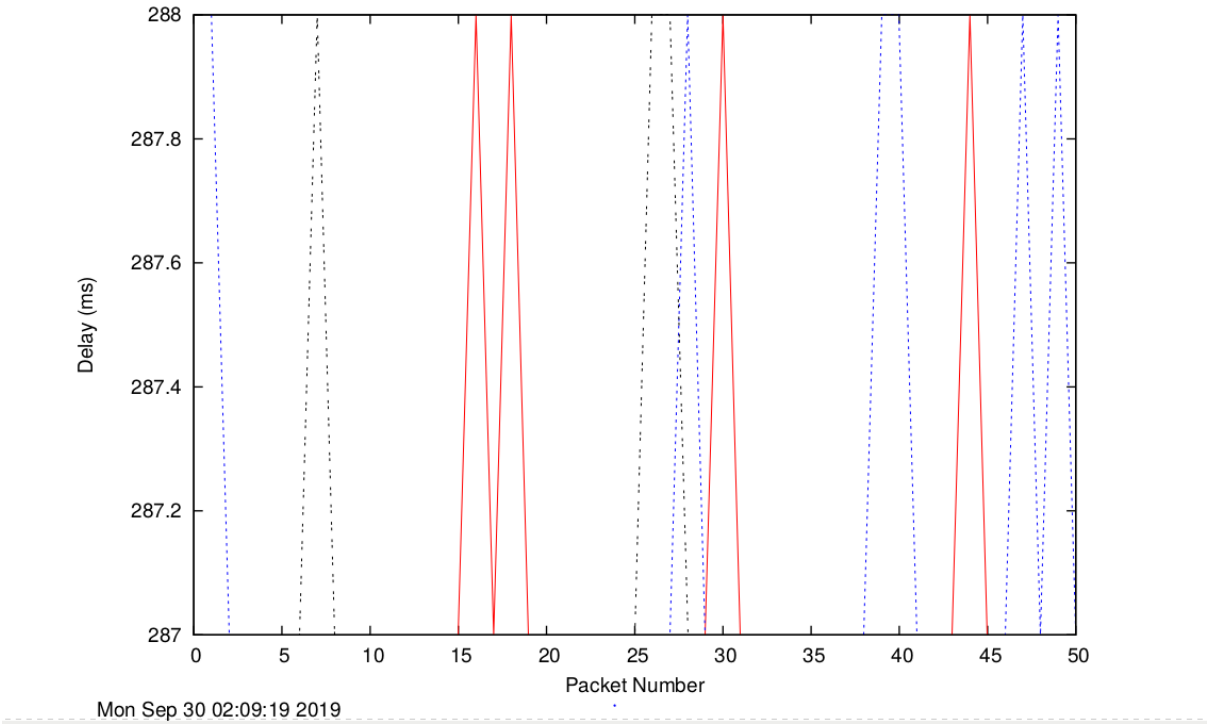
q4.

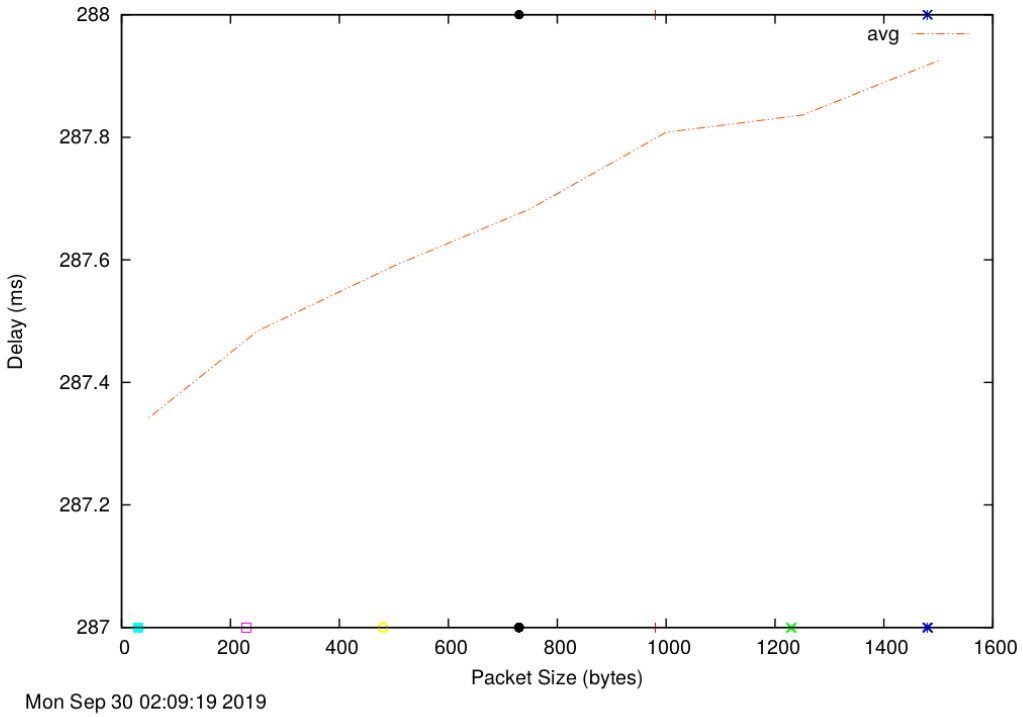
www.uq.edu.au





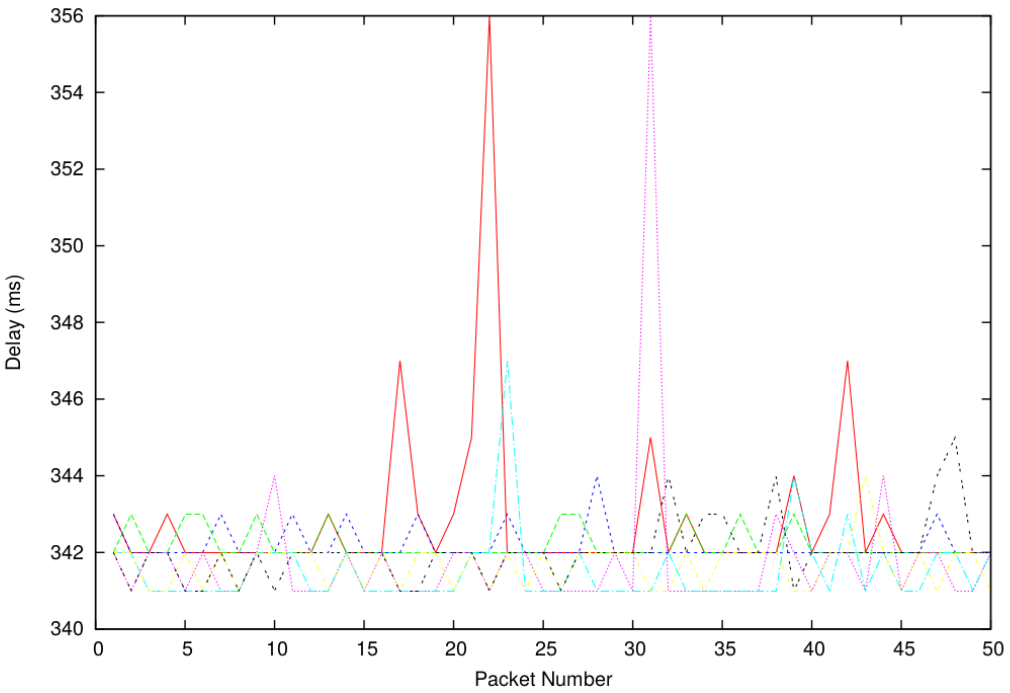
www.tu-berlin.de



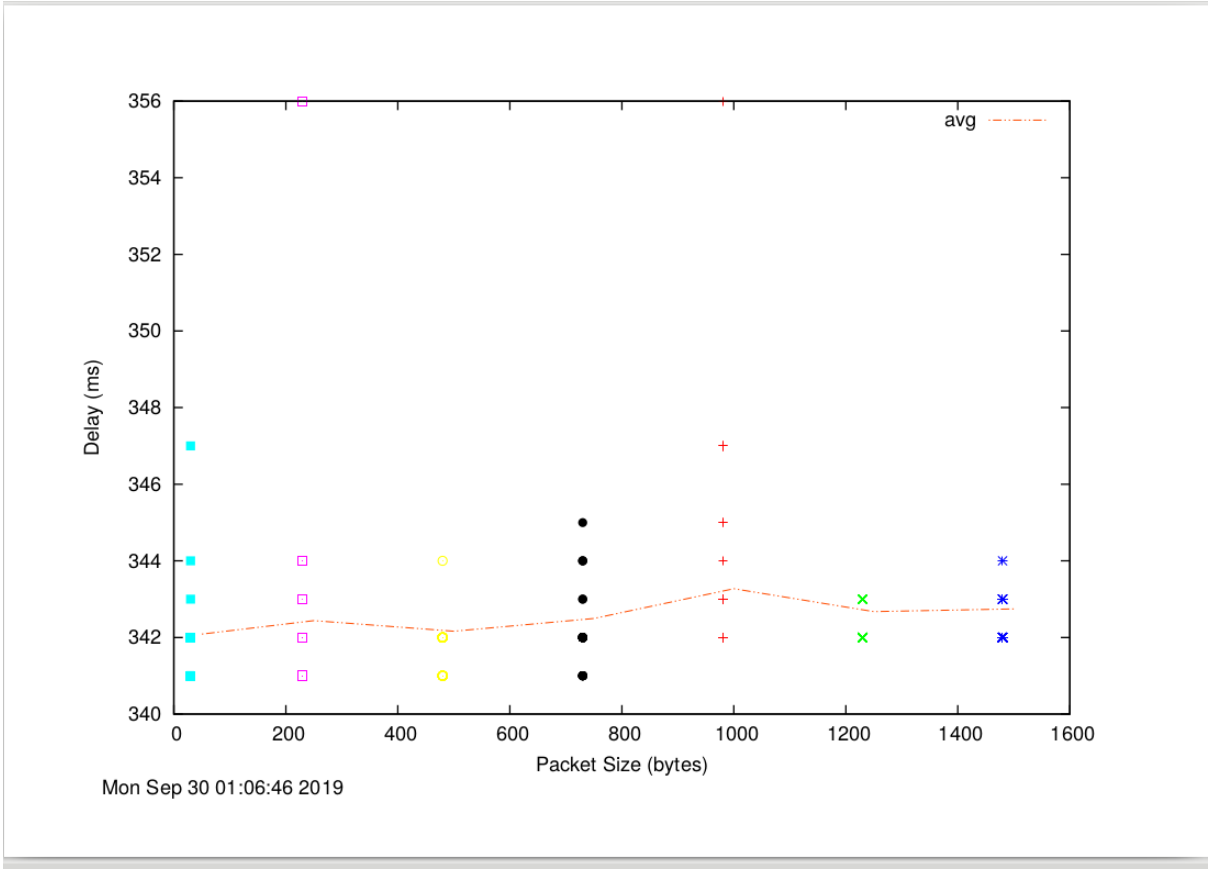


Mon Sep 30 02:09:19 2019

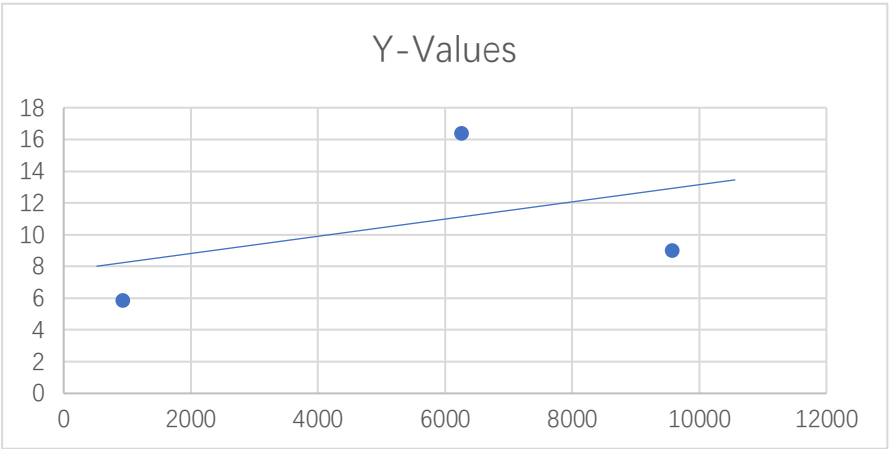
www.dlsu.edu.ph



Mon Sep 30 01:06:46 2019



	www.dlsu.edu.ph	www.tu-berlin.de	www.uq.edu.au
Distance to Syd(km)	6257	9570.19	930
Time Taken(ms)	20.85	31.90	3.1
Shortest Ping Time(ms)	342	287.3	18.2
Ratio	16.40	9,0	5.87



(1).X axis is ratio while Y axis is distance from Sydney to destination by km. One possible reason is that RTT is time taken by package going to destination then coming back. Even though we can imagine that package run in routers by light speed, it still needs 2 times greater time than single trip to

destination.

(2). It vary over time. Since servers will not receive on package only. If there are other packages waiting to be sent on server, package we send must wait in the queue. Delay will change because we cannot guarantee package is in the same position of queue when routers receive it.

(3.) No. It is in US.
(4). Processing delay and transmission delay depend on packet size Propagation delay and queuing delay are not.