

# COMP3331 Lab1

Ruofei HUANG

February 27, 2019

## 1 Exercise 1

### 1.1

129.94.242.2 More than one output is for DNS side of load balancing.

### 1.2

localhost All the connection to this device is actual to current computer. Every connection go through this address will go through a hardware loopback to this device.

## 2 Exercise 2

### 2.1 Ping Reachability

Reachable	Hostname	Reason
No	www.cse.unsw.edu.au	Host IP is setted to not answering the ping request.
No	www.getfittest.com.au	No result from dns.
Yes	www.mit.edu	
Yes	www.intel.com.au	
Yes	www.tpg.com.au	
No	www.hola.hp	Invalid domain name.
Yes	www.amazon.com	
Yes	www.tsinghua.edu.cn	
No	www.kremlin.ru	Host doesn't answer the request.
Yes	8.8.8.8	

## 2.2 Ping Unreachable Host, Test by Browser

Hostname	Web Reachable
www.cse.unsw.edu.au	Yes
www.getfittest.com.au	No
www.hola.hp	No
www.kremlin.ru	Yes

## 3 Exercise 3

### 3.1

20 routers.

3rd and 4th router

Traceroute data:

3 49.255.42.221 (49.255.42.221) 5.812 ms 6.023 ms 6.209 ms

4 BE-100.cor02.syd04.nsw.VOCUS.net.au (114.31.192.50) 156.761 ms 156.771 ms 156.765 ms

### 3.2

Diverge at 49.255.42.221

Or Diverge from a router group? BE-100.cor02.syd04.nsw.VOCUS.net.au

49.255.42.221 is belong to VOCUS PTY LTD

BE-100.cor02.syd04.nsw.VOCUS.net.au is belong to Vocus Communications Ltd

Both routers are belong to vocus Communications which is a ISP for small ISP, in my point of view. They're business is target to datacenter, ISP, etc. And they have national wide optical caples and cable go aboard.

I couldn't find out the geological location about both network.

No, Uk is further than japan but I observed less hops in www.lancaster.ac.uk

## Domain to IP or Host name lookup

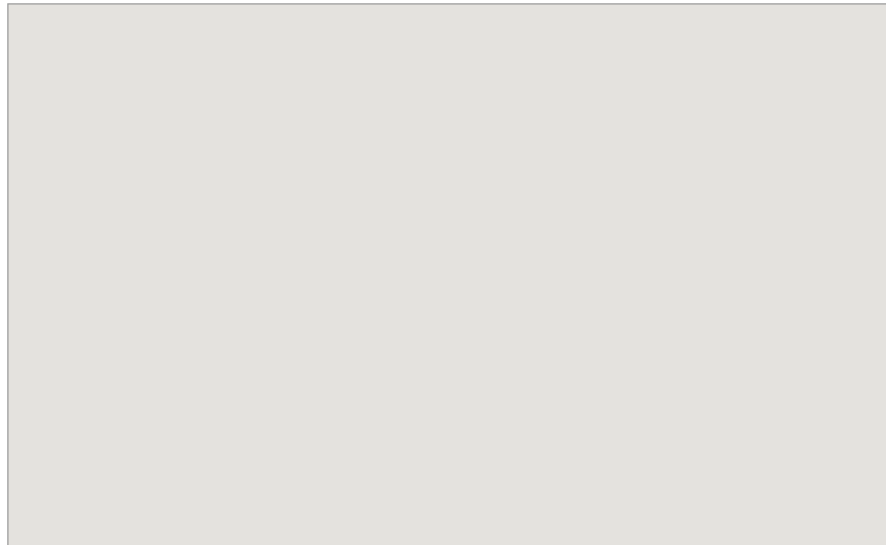
Host name: **49.255.42.221**

IP address: **49.255.42.221**

Location: ... **actually we haven't a clue.**

# Network Location Tool

approximate geophysical location



## locate a network

Remote Address

[Use Current IP](#)

[Locate](#)

Unable to locate network.

Source ☒ MaxMind ☐ Hostip.info

[about](#)

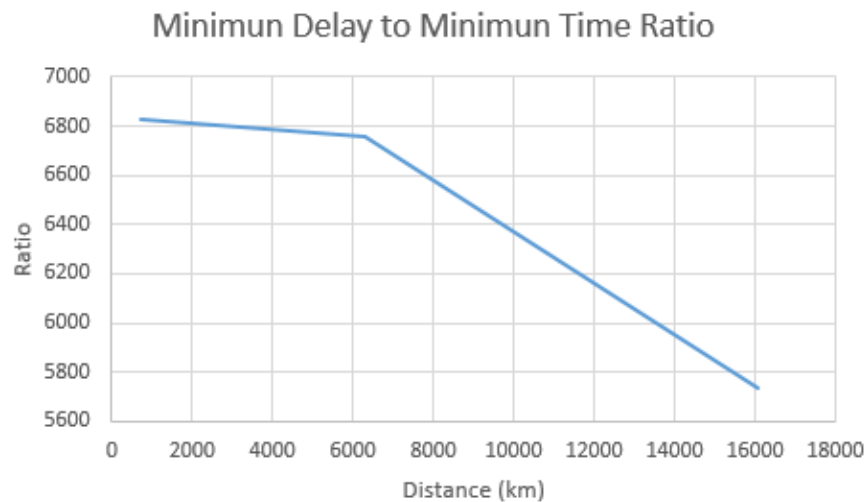
### 3.3

I choose speedtest.com.sg and telstra.net No, they didn't go through same route. I haven't observe any ip is same, but it has a lots of router is belong to vocus. In my opinion, the router have load balancing. Furthermroe, the advantage of package routing is each package can choose the best route when they arrived torouter, which is one of the advantage of package switching.

## 4 Exercise 4

### 4.1 Shortest Distance and Time

Hostname	Distance	Time (T) (ms)	Min. Delay
uq.edu.au	732.13km	0.002440433	16.669
nus.edu.sg	6309.72km	0.0210324	142.162
tu-berlin.de	16076.11km	0.053587033	307.132



#### 4.1.1 Reasons

The phisycal wire couldn't be placed at the shortest path.

The light or signal in the transfer medium won't neccessary as fast as light (only could be slower than speed of light).

The Delay is the sum of {processing,queueing,transmission,propagation} delay, no only the proproagation delay, and all of the other dalay couldn't be 0.

#### 4.2

It vary over time, because there's a different waiting time (queueing delay) when the package go through a same router each time (because the load of the router is vary). So the sum of all the queueing dalay is vary from time to time.

#### 4.3

Depend on the package size	transmission delay
May depend on the package size	processing,
	if the processing is all base on software and has
	not accleration from hardware
Not depend on package size	queueing, propagation dalay

Further explain, such as checksum, if we all calculated in software, only the  $O(n)$  algorithm could be developed, so it will depend on the package size.