

Answers IaS-Exercise 2

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Exercise 1

a) IP: 130.59.31.80

ADDRESS: CH-8021 Zürich

OWNER: SWITCH-LAN

b)

| Address | Ping | Browser | Comment |
|----------------------|------|---------|---|
| informatik.unibas.ch | yes | yes | The IBM-Server isn't pingable for security reasons as a ping can be used to test if a server exists and responds. |
| www.zurich.ibm.com | no | yes | |
| www.tik.ee.ethz.ch | yes | yes | |
| www.amazon.com | yes | yes | |

Exercise 2

i)

| | 56 byte | 112 byte | 224 byte |
|--------------|---------|----------|----------|
| min [ms] | 8.204 | 9.646 | 17.084 |
| average [ms] | 8.246 | 9.120 | 10.290 |
| max [ms] | 8.176 | 10.992 | 29.849 |

Command and output for 56 byte ping:

```
ping web.mit.edu -c 10
ING e9566.dscb.akamaiedge.net (23.37.44.254) 56(84) bytes of data.
64 bytes from a23-37-44-254.deploy.static.akamaitechnologies.com (23.37.44.254):
icmp_seq=1 ttl=59 time=9.10 ms
64 bytes from a23-37-44-254.deploy.static.akamaitechnologies.com (23.37.44.254):
icmp_seq=2 ttl=59 time=8.79 ms
64 bytes from a23-37-44-254.deploy.static.akamaitechnologies.com (23.37.44.254):
icmp_seq=3 ttl=59 time=8.63 ms
64 bytes from a23-37-44-254.deploy.static.akamaitechnologies.com (23.37.44.254):
```

```
icmp_seq=4 ttl=59 time=8.20 ms
64 bytes from a23-37-44-254.deploy.static.akamaitechnologies.com (23.37.44.254):
icmp_seq=5 ttl=59 time=8.26 ms
64 bytes from a23-37-44-254.deploy.static.akamaitechnologies.com (23.37.44.254):
icmp_seq=6 ttl=59 time=9.06 ms
64 bytes from a23-37-44-254.deploy.static.akamaitechnologies.com (23.37.44.254):
icmp_seq=7 ttl=59 time=9.09 ms
64 bytes from a23-37-44-254.deploy.static.akamaitechnologies.com (23.37.44.254):
icmp_seq=8 ttl=59 time=8.52 ms
64 bytes from a23-37-44-254.deploy.static.akamaitechnologies.com (23.37.44.254):
icmp_seq=9 ttl=59 time=9.74 ms
64 bytes from a23-37-44-254.deploy.static.akamaitechnologies.com (23.37.44.254):
icmp_seq=10 ttl=59 time=17.1 ms
```

```
--- e9566.dscb.akamaiedge.net ping statistics ---
10 packets transmitted, 10 received, 0% packet loss, time 9016ms
rtt min/avg/max/mdev = 8.204/9.646/17.084/2.516 ms
```

Command and output for 112 byte ping:

```
ping web.mit.edu -c 10 -s 112
PING e9566.dscb.akamaiedge.net (23.37.44.254) 112(140) bytes of data.
120 bytes from a23-37-44-254.deploy.static.akamaitechnologies.com (23.37.44.254):
icmp_seq=1 ttl=59 time=10.1 ms
120 bytes from a23-37-44-254.deploy.static.akamaitechnologies.com (23.37.44.254):
icmp_seq=2 ttl=59 time=9.42 ms
120 bytes from a23-37-44-254.deploy.static.akamaitechnologies.com (23.37.44.254):
icmp_seq=3 ttl=59 time=9.80 ms
120 bytes from a23-37-44-254.deploy.static.akamaitechnologies.com (23.37.44.254):
icmp_seq=4 ttl=59 time=8.62 ms
120 bytes from a23-37-44-254.deploy.static.akamaitechnologies.com (23.37.44.254):
icmp_seq=5 ttl=59 time=10.3 ms
120 bytes from a23-37-44-254.deploy.static.akamaitechnologies.com (23.37.44.254):
icmp_seq=6 ttl=59 time=8.25 ms
120 bytes from a23-37-44-254.deploy.static.akamaitechnologies.com (23.37.44.254):
icmp_seq=7 ttl=59 time=8.50 ms
120 bytes from a23-37-44-254.deploy.static.akamaitechnologies.com (23.37.44.254):
icmp_seq=8 ttl=59 time=9.03 ms
120 bytes from a23-37-44-254.deploy.static.akamaitechnologies.com (23.37.44.254):
icmp_seq=9 ttl=59 time=8.70 ms
120 bytes from a23-37-44-254.deploy.static.akamaitechnologies.com (23.37.44.254):
icmp_seq=10 ttl=59 time=8.54 ms
```

```
--- e9566.dscb.akamaiedge.net ping statistics ---
10 packets transmitted, 10 received, 0% packet loss, time 9015ms
rtt min/avg/max/mdev = 8.246/9.120/10.290/0.685 ms
```

Command and output for 224 byte ping:

```
ping web.mit.edu -c 10 -s 224
PING e9566.dscb.akamaiedge.net (23.37.44.254) 224(252) bytes of data.
232 bytes from a23-37-44-254.deploy.static.akamaitechnologies.com (23.37.44.254):
icmp_seq=1 ttl=59 time=29.8 ms
232 bytes from a23-37-44-254.deploy.static.akamaitechnologies.com (23.37.44.254):
icmp_seq=2 ttl=59 time=8.69 ms
232 bytes from a23-37-44-254.deploy.static.akamaitechnologies.com (23.37.44.254):
icmp_seq=3 ttl=59 time=8.44 ms
232 bytes from a23-37-44-254.deploy.static.akamaitechnologies.com (23.37.44.254):
icmp_seq=4 ttl=59 time=8.53 ms
232 bytes from a23-37-44-254.deploy.static.akamaitechnologies.com (23.37.44.254):
icmp_seq=5 ttl=59 time=8.99 ms
232 bytes from a23-37-44-254.deploy.static.akamaitechnologies.com (23.37.44.254):
icmp_seq=6 ttl=59 time=8.67 ms
232 bytes from a23-37-44-254.deploy.static.akamaitechnologies.com (23.37.44.254):
icmp_seq=7 ttl=59 time=9.26 ms
232 bytes from a23-37-44-254.deploy.static.akamaitechnologies.com (23.37.44.254):
icmp_seq=8 ttl=59 time=9.02 ms
232 bytes from a23-37-44-254.deploy.static.akamaitechnologies.com (23.37.44.254):
icmp_seq=9 ttl=59 time=10.3 ms
232 bytes from a23-37-44-254.deploy.static.akamaitechnologies.com (23.37.44.254):
icmp_seq=10 ttl=59 time=8.18 ms

--- e9566.dscb.akamaiedge.net ping statistics ---
10 packets transmitted, 10 received, 0% packet loss, time 9013ms
rtt min/avg/max/mdev = 8.176/10.992/29.845/6.309 ms
```

Conclusion: The packagesize doesn't seem to have a significant effect on the Round-Trip-Time.

- ii) As "Sheldon's Office" is at CALTEC we use traceroute to find that there are 11 hops from unibas to www.caltech.edu.

Command and output:

```
ruben@debian:~$ traceroute www.caltech.edu
traceroute to www.caltech.edu (104.18.14.60), 30 hops max, 60 byte packets
 1 _gateway (192.168.122.1) 0.405 ms 0.337 ms 0.311 ms
 2 10.172.255.254 (10.172.255.254) 5.635 ms 5.606 ms 5.584 ms
 3 10.36.253.6 (10.36.253.6) 5.560 ms 5.540 ms 5.505 ms
 4 * * *
 5 192.43.192.196 (192.43.192.196) 7.118 ms 7.096 ms 7.021 ms
 6 swiBS1-100GE-0-0-0-0.switch.ch (130.59.37.34) 8.176 ms 4.013 ms 3.927 ms
 7 swiPS1-100GE-0-0-1-3.switch.ch (130.59.37.190) 5.530 ms 4.536 ms 4.418 ms
 8 swiPS2-100GE-0-0-1-4.switch.ch (130.59.37.58) 4.374 ms 4.727 ms 4.682 ms
 9 swiZH3-100GE-0-0-0-2.switch.ch (130.59.36.170) 5.302 ms 5.237 ms 5.194 ms
```

```
10  as13335.swissix.ch (91.206.52.192)  6.055 ms  6.529 ms  6.378 ms
11  104.18.14.60 (104.18.14.60)  5.724 ms  6.185 ms  5.262 ms
```

iii) Los Angeles - CA - US Los Angeles - CA - US Los Angeles - CA - US
Amsterdam - NL Basel, Switzerland - CH Zurich, Switzerland - CH Zurich,
Switzerland - CH Zurich, Switzerland - CH Zurich, Switzerland - CH San
Francisco - CA - US

The signal travels through the United States, the Netherlands and Switzerland.

iv)