

NA hw2 b05902086

1.

如果兩台機器間的 ping 過高的話，很容易因為沒有檢測到對面已經發送訊息，所以也同時發送訊息出去造成碰撞。另一個原因則是當使用者增加時，碰撞的機率也會大福的增加。

2.

(a)

$K = \text{random}(0, 1, 2, \dots, (2^m) - 1)$

$m = \min(n, 10)$

$n = 5$

$m = 5$

$K = \text{random}(0, 1, 2, \dots, 31)$

probability that a node chooses $K = 4$?

$\Rightarrow 1/32$

(b)

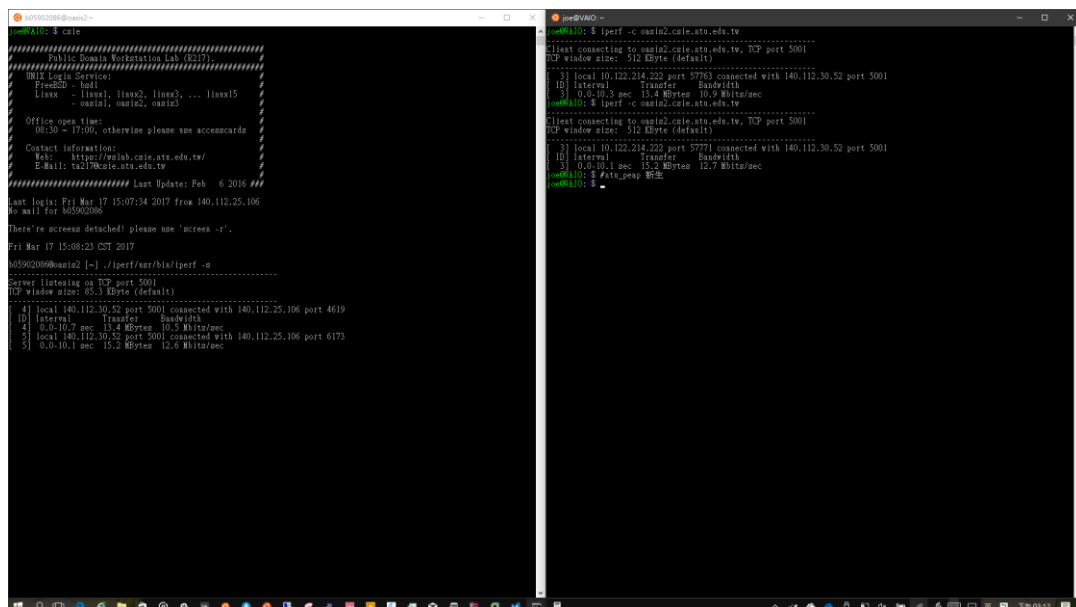
Carrier Sensing: 96-bit

Collision Detection: 48-bit

Exponential Backoff: $K * 512$ -bit

$4 * 512 / (10 * 1024 * 1024) = 1/5120 \approx 0.2\text{ms}$

(c)



The image shows two terminal windows. The left window is the iPerf server running on a Raspberry Pi. It shows the server listening on TCP port 5001 and receiving connections from two clients. The right window is the iPerf client running on a Raspberry Pi. It shows the client connecting to the server on TCP port 5001 and performing a throughput test. The output shows a transfer of 15.4 Mbytes at 10.9 Mbits/sec over a 0.0-10.3 second interval.

iperf

-s # 代表 server 端

-c # 代表 client 端

-p # 代表使用的 port

使用的 binary 為 <https://iperf.fr/iperf-download.php> 中

Arch Linux 64 bits 的 iPerf 2.0.5 - PKGBUILD package 版本

[illegible]

```

root@kali:~# ./bin/case & case
Public Domain Workstation Lab (K217)
=====
Mail Login Service:
FreeS/S - bad!
linux -- linux1, linux2, linux3 ... linux15
-- casmln, casm2n, casm3n

Office open time:
08:30 ~ 17:00, otherwise please use accesscards

Contact information:
Web: http://web.cnie.ats.edu.tw/
E-Mail: ta217@cnie.ats.edu.tw

===== Last Update: Feb 6 2016 =====

Last login: Fri Mar 17 16:50:08 2017 from 140.112.16.173
No mail for h0902086

There're access detached! please use 'acres -r'.

Fri Mar 17 16:50:05 CST 2017

[AI05902080@casmln2 (~)] ./iperf/run/bin/iperf -s -p 5491
Server listening on TCP port 5491
TCP window size: 85.3 Kbyte (default)

[1] local 140.112.30.52 port 5491 connected with 140.112.16.173 port 14274
[0] Internal Transfer Bandwidth
[1] 0.0-10.1 sec: 33.9 MByte/sec
[1] local 140.112.30.52 port 5491 connected with 140.112.16.173 port 26759
[0] 0.0-10.1 sec: 28.5 MByte/sec 23.7 Mbits/sec
```

```

root@kali:~# ssh oasia2 & cat
oasia2@kali:~$ iperf -c oasia2.cslie.ats.edu.tw -p 5491
iperf connecting to oasia2.cslie.ats.edu.tw, TCP port 5491
TCP window size: 512 KByte (default)

[ 3] local 10.8.0.0 port 59039 connected with 140.112.30.52 port 5491
ID Internal Transfer Bandwidth
[ 3] 0.0-10.4 sec 15.1 MBytes 10.9 Mbits/sec
root@kali:~$ iperf -c oasia2.cslie.ats.edu.tw -p 5491
iperf connecting to oasia2.cslie.ats.edu.tw, TCP port 5491
TCP window size: 512 KByte (default)

[ 3] local 10.8.0.0 port 59033 connected with 140.112.30.52 port 5491
ID Internal Transfer Bandwidth
[ 3] 0.0-10.3 sec 16.6 MBytes 13.6 Mbits/sec
root@kali:~$ cat /etc/passwd | grep root
root:x:0:0:root:/root:/bin/bash
root@kali:~#

Last login: Fri Mar 17 16:50:05 2017 from 140.112.16.173
No mail for root@kali.ats.edu.tw

There're screens detached! please use 'screen -r'.

Fri Mar 17 16:51:37 CST 2017

root@kali:~$ ssh oasia2 [-] ./iperf@nar/har/iperf -s -p 5491
Server listening on TCP port 5491
TCP window size: 85.3 KByte (default)

[ 4] local 140.112.30.52 port 5491 connected with 122.116.29.29 port 59030
ID Internal Transfer Bandwidth
[ 4] 0.0-10.4 sec 13.1 MBytes 10.5 Mbits/sec
[ 5] local 140.112.30.52 port 5491 connected with 122.116.29.29 port 59033
[ 5] 0.0-10.5 sec 16.6 MBytes 13.3 Mbits/sec

```