



題目 = a.zip 密碼保護 破解

output.png 裡面有東西

虛擬機 ip 192.168.60.3

登入 root 有密碼 flag.txt.

60.61.62 員工系統網路

ssh 192.168.61.3

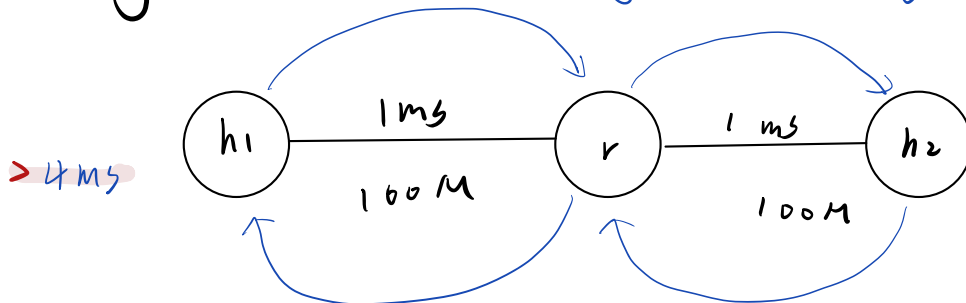
user@ ip

bw, delay, loss

傳遞延遲 = 距離
propagation delay

佇列擁不擁擠
queueing delay

接受端
processing time

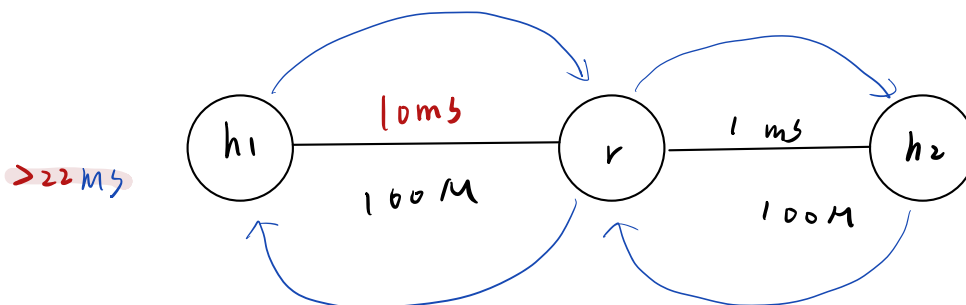


python 3-1.py

> xterm h1

> ping 192.168.2.1

time: 13
1
5
5
:
propagation delay
不是 4ms



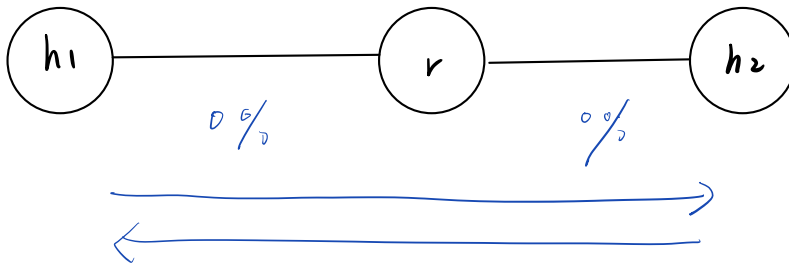
python 3-1.py

> xterm h1

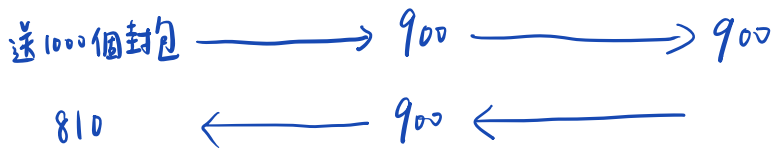
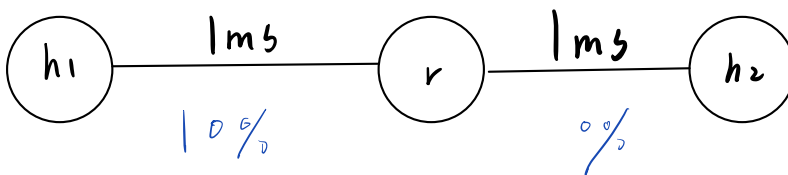
> ping 192.168.2.1

time: 23
24
26
:
> 22ms

loss rate 多媒体傳輸 影响大
queue



100 封包送过去, 不一定会有 100 封包送回来,
如果有太多资料在传递, 路由器 queue 有固定长度,
queue 满了, 封包就会被丢弃



$$(1 - 0.1) \times 1 \times 1 \times (1 - 0.1)$$

$$= 0.9 \times 0.9$$

$$= 0.81 \Rightarrow \text{成功率}$$

$$0.19 \Rightarrow \text{loss rate}$$

案作

```
# python 3-1.py
```

```
> xterm h1
```

h1

```
# ping -i 0.01 -c 1000 192.168.2.1
```

1000 packets trasnitted, 796 received, 20% packets loss
831
806 19%

iperf 靜態

```
h2
# iperf -s -i 1 > a
# cat a | grep sec | head -n 30
| tr "-" " " | awk '{print $4,
$8}' > tcp

# gunplot
> plot "tcp" with linespoints
```

資料還在傳就可以製作圖表

```
> xterm h1 h2 h2 h2
h2
# gedit process.sh 空白行 gunplot-plot plot-throughput.sh
# sed -i '/^#/d' process.sh
# sed -i '/^#/d' gunplot-plot
# sed -i '/^#/d' plot-throughput.sh
# chmod +x process.sh
# chmod +x gunplot-plot
# chmod +x plot-throughput.sh
```

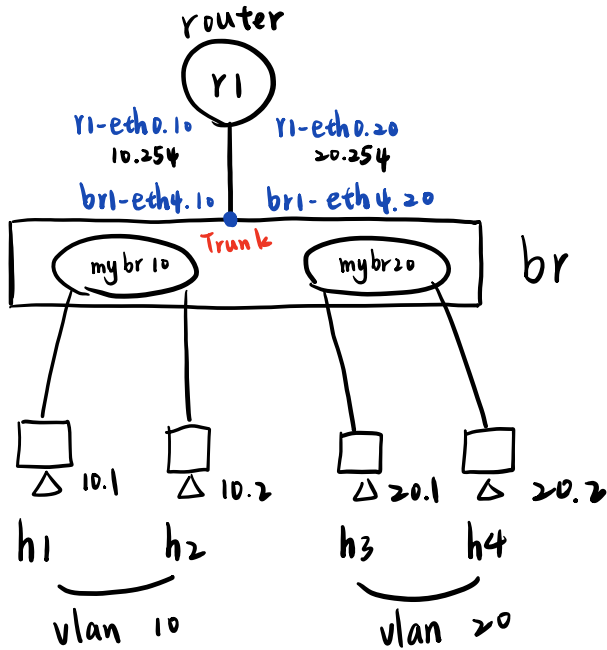
```
h2
# ./ process.sh
```

```
h2
# ./ plot-throughput.sh
```

h2
iperf -s -i 1 > a

h1
iperf -c 192.168.2.1 -t 100

Vlan



python test3.py

> net

> h1 ping h2

> h1 ping h3, h4

> h3 ping h4

r1
ifconfig

1個實體介面 : r1-eth0

2個虛擬介面 : r1-eth0.10, r1-eth0.20

modprobe 8021q 把模組載入

lsmod, rmmod

cd /boot

可以用

ls -lh vmlinuz-4.15.0-*

長格式 MG

7.9M

7.9M

7.8M

Linux kernel 都很小