

0. Environmental introduction

controller1: 172.18.0.3

controller2: 172.18.0.4

vm1 fip: 172.18.0.139

router_gateway fip: 172.18.0.143

1. Set mtu value to 64kb

1.1 vm ingress bandwidth tests, the bandwidth is 500M:

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^Ciperf3: interrupt - the server has terminated
[root@node-1 ~]# iperf3 -c 172.18.0.139 -i 1
Connecting to host 172.18.0.139, port 5201
[ 4] local 172.18.0.3 port 39508 connected to 172.18.0.139 port 5201
[ ID] Interval      Transfer    Bandwidth  Retr  Cwnd
[ 4] 0.00-1.00    sec   103 MBytes  865 Mbits/sec  765   457 KBytes
[ 4] 1.00-2.00    sec   57.1 MBytes  479 Mbits/sec  996   1.41 KBytes
[ 4] 2.00-3.00    sec   62.1 MBytes  521 Mbits/sec  1001  1.41 KBytes
[ 4] 3.00-4.00    sec   72.4 MBytes  607 Mbits/sec  1546   437 KBytes
[ 4] 4.00-5.00    sec   61.5 MBytes  516 Mbits/sec  1139   358 KBytes
[ 4] 5.00-6.00    sec   49.8 MBytes  417 Mbits/sec  512   163 KBytes
[ 4] 6.00-7.00    sec   60.5 MBytes  507 Mbits/sec  1030   230 KBytes
[ 4] 7.00-8.00    sec   62.2 MBytes  522 Mbits/sec  640   194 KBytes
[ 4] 8.00-9.00    sec   62.4 MBytes  523 Mbits/sec  1064   475 KBytes
[ 4] 9.00-10.00   sec   63.1 MBytes  530 Mbits/sec  1015   182 KBytes
-----
[ ID] Interval      Transfer    Bandwidth  Retr
[ 4] 0.00-10.00   sec   654 MBytes  549 Mbits/sec  9708
[ 4] 0.00-10.00   sec   651 MBytes  546 Mbits/sec
-----
iperf Done.
```

1.2 vm egress bandwidth tests, the bandwidth is 500M:

```
iperf Done.
[root@vm-1 ~]# iperf3 -c 172.18.0.3 -i 1
Connecting to host 172.18.0.3, port 5201
[ 4] local 192.168.78.12 port 42766 connected to 172.18.0.3 port 5201
[ ID] Interval      Transfer    Bandwidth  Retr  Cwnd
[ 4] 0.00-1.00    sec   26.9 MBytes  225 Mbits/sec  133   8.48 KBytes
[ 4] 1.00-2.00    sec   77.3 MBytes  648 Mbits/sec  270   62.2 KBytes
[ 4] 2.00-3.00    sec   23.5 MBytes  197 Mbits/sec  134   63.6 KBytes
[ 4] 3.00-4.00    sec   78.6 MBytes  659 Mbits/sec  267   62.2 KBytes
[ 4] 4.00-5.00    sec   25.6 MBytes  215 Mbits/sec  134   63.6 KBytes
[ 4] 5.00-6.00    sec   47.2 MBytes  396 Mbits/sec  222   62.2 KBytes
[ 4] 6.00-7.00    sec   36.8 MBytes  309 Mbits/sec  180   63.6 KBytes
[ 4] 7.00-8.00    sec   58.9 MBytes  427 Mbits/sec  177   62.2 KBytes
[ 4] 8.00-9.00    sec   72.4 MBytes  608 Mbits/sec  224   62.2 KBytes
[ 4] 9.00-10.00   sec   22.9 MBytes  192 Mbits/sec  133   63.6 KBytes
-----
[ ID] Interval      Transfer    Bandwidth  Retr
[ 4] 0.00-10.00   sec   462 MBytes  388 Mbits/sec  1874
[ 4] 0.00-10.00   sec   462 MBytes  387 Mbits/sec
-----
```

1.3 router gateway egress bandwidth tests, the bandwidth is 1000M:

```
[root@node-1 ~]# ip netns exec qrouter-bf800d13-9ce6-4aa7-9259-fab54ec5ac05 tc -s -p filter show
dev qg-d2e58140-fa
filter parent 1: protocol ip pref 1 u32
filter parent 1: protocol ip pref 1 u32 fh 800: ht divisor 1
filter parent 1: protocol ip pref 1 u32 fh 800::800 order 2048 key ht 800 bkt 0 flowid :1 (rule hit 7557
success 7525)
  match IP src 172.18.0.143/32 (success 7525 )
  police 0x15a rate 1024Mbit burst 100Mb mtu 64Kb action drop overhead 0b
ref 1 bind 1
```

```
Sent 12795449 bytes 8549 pkts (dropped 969, overlimits 969)
```

iperf tests, the bandwidth limit is invalid.

```
[root@node-1 ~]# ip netns exec qrouter-bf800d13-9ce6-4aa7-9259-fab54ec5ac05 iperf3 -c 172.18.0.4 -i 1
```

```
Connecting to host 172.18.0.4, port 5201
```

```
[ 4] local 172.18.0.143 port 51674 connected to 172.18.0.4 port 5201
```

[ID]	Interval	Transfer	Bandwidth	Retr	Cwnd
[4]	0.00-1.00	sec 119 KBytes	972 Kbits/sec	18	2.83 KBytes
[4]	1.00-2.00	sec 0.00 Bytes	0.00 bits/sec	5	2.83 KBytes
[4]	2.00-3.00	sec 0.00 Bytes	0.00 bits/sec	5	2.83 KBytes
[4]	3.00-4.00	sec 0.00 Bytes	0.00 bits/sec	5	2.83 KBytes
[4]	4.00-5.00	sec 0.00 Bytes	0.00 bits/sec	5	2.83 KBytes
[4]	5.00-6.00	sec 63.6 KBytes	522 Kbits/sec	37	2.83 KBytes
[4]	6.00-7.00	sec 1.64 MBytes	13.7 Mbites/sec	336	4.24 KBytes
[4]	7.00-8.00	sec 1.34 MBytes	11.2 Mbites/sec	279	2.83 KBytes
[4]	8.00-9.00	sec 1.96 MBytes	16.5 Mbites/sec	406	2.83 KBytes
[4]	9.00-10.00	sec 334 KBytes	2.73 Mbites/sec	75	2.83 KBytes

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[ID]	Interval	Transfer	Bandwidth	Retr	
[4]	0.00-10.00	sec 5.44 MBytes	4.56 Mbites/sec	1171	sender
[4]	0.00-10.00	sec 5.34 MBytes	4.48 Mbites/sec		receiver

```
iperf Done.
```

when removes tc rule, everything is ok.

```
[root@node-1 ~]# ip netns exec qrouter-bf800d13-9ce6-4aa7-9259-fab54ec5ac05 tc filter del dev qg-d2e58140-fa parent 1: prio 1 handle 800::800 u32
```

```
[root@node-1 ~]# ip netns exec qrouter-bf800d13-9ce6-4aa7-9259-fab54ec5ac05 tc -s -p filter show dev qg-d2e58140-fa
```

```
[root@node-1 ~]# ip netns exec qrouter-bf800d13-9ce6-4aa7-9259-fab54ec5ac05 iperf3 -c 172.18.0.4 -i 1
```

```
Connecting to host 172.18.0.4, port 5201
```

```
[ 4] local 172.18.0.143 port 47530 connected to 172.18.0.4 port 5201
```

[ID]	Interval	Transfer	Bandwidth	Retr	Cwnd
[4]	0.00-1.00	sec 88.2 MBytes	740 Mbites/sec	1	407 KBytes
[4]	1.00-2.00	sec 287 MBytes	2.41 Gbits/sec	354	491 KBytes
[4]	2.00-3.00	sec 1.04 GBytes	8.94 Gbits/sec	1695	932 KBytes
[4]	3.00-4.00	sec 1008 MBytes	8.45 Gbits/sec	4233	475 KBytes
[4]	4.00-5.00	sec 1.03 GBytes	8.85 Gbits/sec	1542	925 KBytes
[4]	5.00-6.00	sec 1008 MBytes	8.45 Gbits/sec	4507	748 KBytes
[4]	6.00-7.00	sec 1.05 GBytes	9.06 Gbits/sec	1550	798 KBytes
[4]	7.00-8.00	sec 1.06 GBytes	9.08 Gbits/sec	1251	933 KBytes
[4]	8.00-9.00	sec 1.02 GBytes	8.77 Gbits/sec	3595	942 KBytes
[4]	9.00-10.00	sec 1024 MBytes	8.59 Gbits/sec	3867	897 KBytes

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[ ID] Interval          Transfer      Bandwidth      Retr
[ 4]  0.00-10.00 sec  8.54 GBytes  7.33 Gbits/sec  22595          sender
[ 4]  0.00-10.00 sec  8.54 GBytes  7.33 Gbits/sec          receiver

```

iperf Done.

So the conclusion is that the mtu value of 64 kb has a great influence on the egress bandwidth, especially the influence of the gateway qg port.

2. Set mtu value to 70kb:

2.1 vm ingress bandwidth tests, the bandwidth is 500M

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iperf Done.
[root@node-1 ~]# iperf3 -c 172.18.0.139 -i 1
Connecting to host 172.18.0.139, port 5201
[ 4] local 172.18.0.3 port 33756 connected to 172.18.0.139 port 5201
[ ID] Interval          Transfer      Bandwidth      Retr  Cwnd
[ 4]  0.00-1.00 sec    103 MBytes    868 Mbits/sec   582   403 KBytes
[ 4]  1.00-2.00 sec    63.8 MBytes   536 Mbits/sec  1215   519 KBytes
[ 4]  2.00-3.00 sec    60.1 MBytes   504 Mbits/sec  1326   297 KBytes
[ 4]  3.00-4.00 sec    61.0 MBytes   512 Mbits/sec  1125   542 KBytes
[ 4]  4.00-5.00 sec    60.7 MBytes   510 Mbits/sec  1856   160 KBytes
[ 4]  5.00-6.00 sec    56.8 MBytes   476 Mbits/sec  1064   2.83 KBytes
[ 4]  6.00-7.00 sec    72.4 MBytes   607 Mbits/sec   789   218 KBytes
[ 4]  7.00-8.00 sec    50.9 MBytes   427 Mbits/sec   721   259 KBytes
[ 4]  8.00-9.00 sec    61.5 MBytes   516 Mbits/sec   784   363 KBytes
[ 4]  9.00-10.00 sec   62.0 MBytes   520 Mbits/sec   935   380 KBytes
-----
[ ID] Interval          Transfer      Bandwidth      Retr
[ 4]  0.00-10.00 sec   653 MBytes    548 Mbits/sec  10397          sender
[ 4]  0.00-10.00 sec   650 MBytes    545 Mbits/sec          receiver

```

2.2 vm egress bandwidth tests, the bandwidth is 500M

```

iperf Done.
[root@vm-1 ~]# iperf3 -c 172.18.0.3 -i 1
Connecting to host 172.18.0.3, port 5201
[ 4] local 192.168.70.12 port 42772 connected to 172.18.0.3 port 5201
[ ID] Interval          Transfer      Bandwidth      Retr  Cwnd
[ 4]  0.00-1.00 sec    98.6 MBytes    827 Mbits/sec   686   105 KBytes
[ 4]  1.00-2.00 sec    64.6 MBytes    542 Mbits/sec   662   58.0 KBytes
[ 4]  2.00-3.00 sec    55.1 MBytes    462 Mbits/sec   555   32.5 KBytes
[ 4]  3.00-4.00 sec    54.6 MBytes    458 Mbits/sec   538   31.1 KBytes
[ 4]  4.00-5.00 sec    64.8 MBytes    544 Mbits/sec   621   177 KBytes
[ 4]  5.00-6.00 sec    58.3 MBytes    489 Mbits/sec   599   194 KBytes
[ 4]  6.00-7.00 sec    60.7 MBytes    509 Mbits/sec   552   204 KBytes
[ 4]  7.00-8.00 sec    57.7 MBytes    484 Mbits/sec   732   91.9 KBytes
[ 4]  8.00-9.00 sec    54.4 MBytes    456 Mbits/sec   629   56.6 KBytes
[ 4]  9.00-10.00 sec   57.8 MBytes    485 Mbits/sec   492   133 KBytes
-----
[ ID] Interval          Transfer      Bandwidth      Retr
[ 4]  0.00-10.00 sec   626 MBytes    526 Mbits/sec  6066          sender
[ 4]  0.00-10.00 sec   625 MBytes    525 Mbits/sec          receiver
iperf Done.

```

2.3 router gateway egress bandwidth tests, the bandwidth is 800M

```

iperf Done.
[root@vm-1 ~]# iperf3 -c 172.18.0.3 -i 1
Connecting to host 172.18.0.3, port 5201
[ 4] local 192.168.70.12 port 42780 connected to 172.18.0.3 port 5201
[ ID] Interval      Transfer      Bandwidth      Retr  Cwnd
[ 4] 0.00-1.00    sec    156 MBytes    1.31 Gbits/sec  168   132 KBytes
[ 4] 1.00-2.00    sec    88.5 MBytes    743 Mbits/sec  447   49.5 KBytes
[ 4] 2.00-3.00    sec    91.9 MBytes    771 Mbits/sec  796   56.6 KBytes
[ 4] 3.00-4.00    sec    95.1 MBytes    798 Mbits/sec  745   79.2 KBytes
[ 4] 4.00-5.00    sec    90.3 MBytes    757 Mbits/sec  829   72.1 KBytes
[ 4] 5.00-6.00    sec    91.5 MBytes    768 Mbits/sec  866   48.1 KBytes
[ 4] 6.00-7.00    sec    88.6 MBytes    743 Mbits/sec  729   38.2 KBytes
[ 4] 7.00-8.00    sec    89.0 MBytes    747 Mbits/sec  770   300 KBytes
[ 4] 8.00-9.00    sec    95.7 MBytes    803 Mbits/sec  984   80.6 KBytes
[ 4] 9.00-10.00   sec    90.2 MBytes    756 Mbits/sec  806   102 KBytes
-----
[ ID] Interval      Transfer      Bandwidth      Retr
[ 4] 0.00-10.00   sec    977 MBytes    819 Mbits/sec  7140
[ 4] 0.00-10.00   sec    976 MBytes    819 Mbits/sec
                                     sender
                                     receiver

iperf Done.

```

2.4 router gateway egress bandwidth tests, the bandwidth is 800M

```

iperf Done.
[root@node-1 ~]# iperf3 -c 172.18.0.143 -i 1
Connecting to host 172.18.0.143, port 5201
[ 4] local 172.18.0.3 port 58510 connected to 172.18.0.143 port 5201
[ ID] Interval      Transfer      Bandwidth      Retr  Cwnd
[ 4] 0.00-1.00    sec    166 MBytes    1.39 Gbits/sec  1141  112 KBytes
[ 4] 1.00-2.00    sec    98.5 MBytes    827 Mbits/sec  1015  63.6 KBytes
[ 4] 2.00-3.00    sec    83.7 MBytes    702 Mbits/sec  915   223 KBytes
[ 4] 3.00-4.00    sec    99.1 MBytes    831 Mbits/sec  1299  311 KBytes
[ 4] 4.00-5.00    sec    107 MBytes    895 Mbits/sec  1187  191 KBytes
[ 4] 5.00-6.00    sec    84.2 MBytes    706 Mbits/sec  578   230 KBytes
[ 4] 6.00-7.00    sec    87.2 MBytes    731 Mbits/sec  709   1.41 KBytes
[ 4] 7.00-8.00    sec    107 MBytes    899 Mbits/sec  1230  337 KBytes
[ 4] 8.00-9.00    sec    87.5 MBytes    734 Mbits/sec  1139  129 KBytes
[ 4] 9.00-10.00   sec    99.6 MBytes    835 Mbits/sec  726   182 KBytes
-----
[ ID] Interval      Transfer      Bandwidth      Retr
[ 4] 0.00-10.00   sec    1020 MBytes  855 Mbits/sec  9939
[ 4] 0.00-10.00   sec    1017 MBytes  853 Mbits/sec
                                     sender
                                     receiver

iperf Done.
[root@node-1 ~]# █

```

Here, Here you will see that all bandwidth limits are normal.