

# APV Performance Test Spec

## TCP Performance Test

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## UDP Performance Test

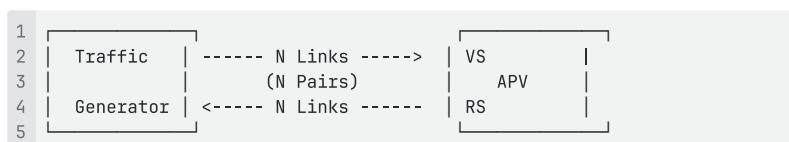
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## HTTP Performance Test

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## TCP Performance Test

### Topology



### APV Configuration

```
1 #configure slb real service
2 AN(config)#slb real tcp tcp_rs_1 xxx.xxx.xxx.xxx
3 ...
4 AN(config)#slb real tcp tcp_rs_N ooo.ooo.ooo.ooo
5
6 #configure slb group
7 AN(config)#slb group method tcp_slb_rs_group rr
8 AN(config)#slb group member tcp_slb_rs_group tcp_rs_1
9 ...
10 AN(config)#slb group member tcp_slb_rs_group tcp_rs_N
11 AN(config)#slb group enable tcp_slb_rs_group
12
13 #configure slb virtual service
14 AN(config)#slb virtual tcp tcp_slb_vs
15 AN(config)#slb virtual enable tcp_slb_vs
16 AN(config)#slb policy default tcp_slb_vs tcp_slb_rs_group
```

### Python Script Spec

#### Features

- The script should be able to login APV to configure/clear TCP SLB configurations
- The script should be able to login Traffic Generator to configure Dperf and start/stop traffic
- The script should be able to read a configuration file in yaml format which allow user to specify:

- a. Management IP to login through SSH
- b. PCI address of each NICs on Traffic Generator
- c. IP address of each NICs on Traffic Generator and APV
- d. Dperf traffic start value of Source IP, Source Ports, Destination IP, and Destination Ports
- e. SLB rules for each pair

e.g.

```

1 - test:
2   apv_management_ip: xxx.xxx.xxx.xxx
3   traffic_generator:
4     management_ip: xxx.xxx.xxx.xxx
5     pairs:
6       - client_nic_pci: 0000:xx:xx.x
7         client_ip: xxx.xxx.xxx.xxx
8         source_ip_nums: xx
9         client_gw: <vs_IP>
10        server_nic_pci: 0000:xx:xx.x
11        server_ip: <rs_IP>
12        server_gw: xxx.xxx.xxx.xxx
13        listen_start_port: <port>
14        slb_port_nums: xx
15        protocol: tcp
16      - ...

```

- The script should be able to control test by giving following parameters from user
  - a. yaml files for test settings
  - b. Test Duration
  - c. Packet Size
  - d. Session Number
  - e. Packet Interval
  - f. File name for output data storing (default to STDOUT if no file name specified)
- The script should be able to provide following information as output for **each pairs** and also **accumulation of all pairs:**
  - a. Maximum received bits number from APV per second value unit in Gigabits(bps)
  - b. Average received bits number from APV per second value unit in Gigabits(bps)
  - c. Maximum received packet number from APV per second (pps)
  - d. Average received packet number from APV per second (pps)
  - e. Maximum connection open from Dperf per second (CPS)
  - f. Average connection open from Dperf per second (CPS)
  - g. Maximum concurrent connection from Dperf (CC)
- The script should be able to provide:
  - a. VS statistic data from APV
  - b. RS statistic data from APV

#### Input

```
1 ./tcp_performance_test -config test.yaml -duration 86400 -size 128 -sess
```

#### Output

```

1 Test duration: xxx (seconds)
2 Sessions number: M (Single pairs), M*N (total number)
3 Max Throughput: xxxxx (Gbps), ooooo (pps)

```

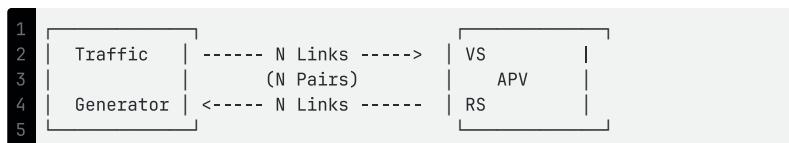
```

4 Average Throughput: xxxxx (Gbps), ooooo (pps)
5 Max Concurrent Connection: xxxxx
6 Max Connection Per Second: xxxxx (cps)
7 Average Connection Per Second: xxxxx (cps)
8 Pairs:
9   - Traffic generator PCI: xxx.xx.x
10    APV port name: port1
11    Sessions number: M
12    Pair Max Throughput: xxxxx (Gbps), ooooo (pps)
13    Pair Average Throughput: xxxxx (Gbps), ooooo (pps)
14    Pair Max Connection: xxxxx
15    Pair Max Connection Per Second: xxxxx (cps)
16    Pair Average Connection Per Second: xxxxx (cps)
17    SLB statistics data:
18      VS: xxx.xxx.xxx.xxx
19        Max Connection Count: 0
20        Current Connection Count: 0
21        Total Connection Count: 0
22        Total Bytes In: 0
23        Total Bytes Out: 0
24        Total Packets In: 0
25        Total Packets Out: 0
26        Average Bandwidth In: 0 bps
27        Average Bandwidth Out: 0 bps
28        Average Packets In Rate: 0 pps
29        Average Packets Out Rate: 0 pps
30        Average client connection RTT: 0.000 ms
31        MSS: chosen by system
32        qos clientport hits : 0
33        qos network hits : 0
34        default hits : 0
35        doh hits : 0
36        static hits : 0
37        backup hits : 0
38      RS: ooo.ooo.ooo.ooo
39        Max Conn Count: 0
40        Current Connection Count: 0
41        Outstanding Request Count: 0
42        Total Hits: 0
43        Total Bytes In: 0
44        Total Bytes Out: 0
45        Total Packets In: 0
46        Total Packets Out: 0
47        Average Bandwidth In: 0 bps
48        Average Bandwidth Out: 0 bps
49        Average Response time: 0.000 ms
50        Average Packets In Rate: 0 pps
51        Average Packets Out Rate: 0 pps

```

## UDP Performance Test

### Topology



### APV Configuration

```

1 #configure slb real service
2 AN(config)#slb real udp udp_rs_1 xxx.xxx.xxxx.xxx
3 ...
4 AN(config)#slb real udp udp_rs_N ooo.ooo.ooo.ooo
5
6 #configure slb group
7 AN(config)#slb group method udp_slb_rs_group rr
8 AN(config)#slb group member udp_slb_rs_group udp_rs_1
9 ...

```

```

10 AN(config)#slb group member udp_slb_rs_group udp_rs_N
11 AN(config)#slb group enable udp_slb_rs_group
12
13 #configure slb virtual service
14 AN(config)#slb virtual udp udp_slb_vs
15 AN(config)#slb virtual enable udp_slb_vs
16 AN(config)#slb policy default udp_slb_vs udp_slb_rs_group

```

## Python Script Spec

### Features

- The script should be able to login APV to configure/clear UDP SLB configurations
- The script should be able to login Traffic Generator to configure Dperf and start/stop traffic
- The script should be able to read a configuration file in yaml format which allow user to specify:
  - a. Management IP to login through SSH
  - b. PCI address of each NICs on Traffic Generator
  - c. IP address of each NICs on Traffic Generator and APV
  - d. Dperf traffic start value of Source IP, Source Ports, Destination IP, and Destination Ports
  - e. SLB rules for each pair

e.g.

```

1 - test:
2   apv_management_ip: xxx.xxx.xxx.xxx
3   traffic_generator:
4     management_ip: xxxx.xxx.xxx.xxx
5     pairs:
6       - client_nic_pci: 0000:xx:xx.x
7         client_ip: xxx.xxx.xxx.xxx
8         source_ip_nums: xx
9         client_gw: <vs_IP>
10        server_nic_pci: 0000:xx:xx.x
11        server_ip: <rs_IP>
12        server_gw: xxx.xxx.xxx.xxx
13        listen_start_port: <port>
14        slb_port_nums: xx
15        protocol: udp
16       - ...

```

- The script should be able to control test by giving following parameters from user
  - a. yaml files for test settings
  - b. Test Duration
  - c. Packet Size
  - d. Session Number
  - e. Packet Interval
  - f. File name for output data storing (default to STDOUT if no file name specified)
- The script should be able to provide following information as output for **each pairs** and also **accumulation of all pairs:**
  - a. Maximum received bits number from APV per second value unit in Gigabits(bps)
  - b. Average received bits number from APV per second value unit in Gigabits(bps)
  - c. Maximum received packet number from APV per second (pps)
  - d. Average received packet number from APV per second (pps)
  - e. Maximum connection open from Dperf per second (CPS)
  - f. Average connection open from Dperf per second (CPS)

g. Maximum concurrent connection from Dperf (CC)

- The script should be able to provide:

a. VS statistic data from APV

b. RS statistic data from APV

#### Input

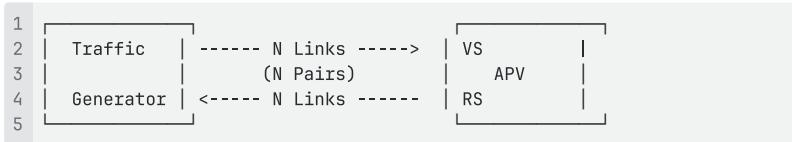
```
1 ./udp_performance_test -config test.yaml -duration 86400 -size 128 -sess
```

#### Output

```
1 Test duration: xxx (seconds)
2 Sessions number: M (Single pairs), M*N (total number)
3 Max Throughput:xxxxx (Gbps), ooooo (pps)
4 Average Throughput:xxxxx (Gbps), ooooo (pps)
5 Max Concurrent Connection:xxxxx
6 Max Connection Per Second:xxxxx (cps)
7 Average Connection Per Second:xxxxx (cps)
8 Pairs:
9   - Traffic generator PCI: xxx.xx.x
10    APV port name: port1
11    Sessions number: M
12    Pair Max Throughput:xxxxx (Gbps), ooooo (pps)
13    Pair Average Throughput:xxxxx (Gbps), ooooo (pps)
14    Pair Max Connection:xxxxx
15    Pair Max Connection Per Second:xxxxx (cps)
16    Pair Average Connection Per Second:xxxxx (cps)
17 SLB statistics data:
18   VS: xxx.xxx.xxx.xxx
19     Max Connection Count: 0
20     Current Connection Count: 0
21     Total Connection Count: 0
22     Total Bytes In: 0
23     Total Bytes Out: 0
24     Total Packets In: 0
25     Total Packets Out: 0
26     Average Bandwidth In: 0 bps
27     Average Bandwidth Out: 0 bps
28     Average Packets In Rate: 0 pps
29     Average Packets Out Rate: 0 pps
30     Average client connection RTT: 0.000 ms
31     MSS: chosen by system
32     qos clientport hits : 0
33     qos network hits : 0
34     default hits : 0
35     doh hits : 0
36     static hits : 0
37     backup hits : 0
38 RS: ooo.ooo.ooo.ooo
39   Max Conn Count: 0
40   Current Connection Count: 0
41   Outstanding Request Count: 0
42   Total Hits: 0
43   Total Bytes In: 0
44   Total Bytes Out: 0
45   Total Packets In: 0
46   Total Packets Out: 0
47   Average Bandwidth In: 0 bps
48   Average Bandwidth Out: 0 bps
49   Average Response time: 0.000 ms
50   Average Packets In Rate: 0 pps
51   Average Packets Out Rate: 0 pps
52   - ...
```

## HTTP Performance Test

#### Topology



### APV Configuration

```

1 #configure slb real service
2 AN(config)#slb real http http_rs_1 <rs_IP> <port> 0 none
3 ...
4 AN(config)#slb real http http_rs_N <rs_IP> <port> 0 none
5
6 #configure slb group
7 AN(config)#slb group method http_slb_rs_group rr
8 AN(config)#slb group member http_slb_rs_group http_rs_1
9 ...
10 AN(config)#slb group member http_slb_rs_group http_rs_N
11 AN(config)#slb group enable http_slb_rs_group
12
13 #configure slb virtual service
14 AN(config)#slb virtual http http_slb_vs <vs_IP> <port>
15 AN(config)#slb virtual enable http_slb_vs
16 AN(config)#slb policy default http_slb_vs http_slb_rs_group

```

### Python Script Spec

#### Features

- The script should be able to login APV to configure/clear HTTP SLB configurations
- The script should be able to login Traffic Generator to configure Dperf and start/stop traffic
- The script should be able to read a configuration file in yaml format which allow user to specify:
  - Management IP to login through SSH
  - PCI address of each NICs on Traffic Generator
  - IP address of each NICs on Traffic Generator and APV
  - Dperf traffic start value of Source IP, Source Ports, Destination IP, and Destination Ports
  - SLB rules for each pair

e.g.

```

1 - test:
2   apv_management_ip: xxx.xxx.xxx.xxx
3   traffic_generator:
4     management_ip: xxx.xxx.xxx.xxx
5     pairs:
6       - client_nic_pci: 0000:xx:xx.x
7         client_ip: xxx.xxx.xxx.xxx
8         source_ip_nums: xx
9         client_gw: <vs_IP>
10        server_nic_pci: 0000:xx:xx.x
11        server_ip: <rs_IP>
12        server_gw: xxx.xxx.xxx.xxx
13        listen_start_port: <port>
14        slb_port_nums: xx
15        protocol: http
16       - ...

```

- The script should be able to control test by giving following parameters from user
  - yaml files for test settings
  - Test Duration
  - Packet Size

- d. Session Number
- e. Packet Interval
- f. File name for output data storing (default to STDOUT if no file name specified)
- The script should be able to provide following information as output for **each pairs** and also **accumulation of all pairs**:
  - a. Maximum received bits number from APV per second value unit in Gigabits(bps)
  - b. Average received bits number from APV per second value unit in Gigabits(bps)
  - c. Maximum received packet number from APV per second (pps)
  - d. Average received packet number from APV per second (pps)
  - e. Maximum connection open from Dperf per second (CPS)
  - f. Average connection open from Dperf per second (CPS)
  - g. Maximum concurrent connection from Dperf (CC)
- The script should be able to provide:
  - a. VS statistic data from APV
  - b. RS statistic data from APV

#### Input

```
1 ./http_performance_test -config test.yaml -duration 86400 -size 128 -ses
```

#### Output

```

1 Test duration: xxx (seconds)
2 Sessions number: M (Single pairs), M*N (total number)
3 Max Throughput:xxxxx (Gbps), ooooo (pps)
4 Average Throughput:xxxxx (Gbps), ooooo (pps)
5 Max Concurrent Connection:xxxxx
6 Max Connection Per Second:xxxxx (cps)
7 Average Connection Per Second:xxxxx (cps)
8 Pairs:
9   - Traffic generator PCI: xxx.xx.x
10    APV port name: port1
11    Sessions number: M
12    Pair Max Throughput:xxxxx (Gbps), ooooo (pps)
13    Pair Average Throughput:xxxxx (Gbps), ooooo (pps)
14    Pair Max Connection:xxxxx
15    Pair Max Connection Per Second:xxxxx (cps)
16    Pair Average Connection Per Second:xxxxx (cps)
17    SLB statistics data:
18      VS: xxx.xxx.xxx.xxx
19        Max Connection Count: 0
20        Current Connection Count: 0
21        Total Connection Count: 0
22        Total Bytes In: 0
23        Total Bytes Out: 0
24        Total Packets In: 0
25        Total Packets Out: 0
26        Average Bandwidth In: 0 bps
27        Average Bandwidth Out: 0 bps
28        Average Packets In Rate: 0 pps
29        Average Packets Out Rate: 0 pps
30        Average client connection RTT: 0.000 ms
31        MSS: chosen by system
32        qos clientport hits : 0
33        qos network hits : 0
34        default hits : 0
35        doh hits : 0
36        static hits : 0
37        backup hits : 0
38    RS: ooo.ooo.ooo.ooo

```

```
39      Max Conn Count:      0
40      Current Connection Count: 0
41      Outstanding Request Count: 0
42      Total Hits:          0
43      Total Bytes In:       0
44      Total Bytes Out:      0
45      Total Packets In:     0
46      Total Packets Out:    0
47      Average Bandwidth In: 0 bps
48      Average Bandwidth Out: 0 bps
49      Average Response time: 0.000 ms
50      Average Packets In Rate: 0 pps
51      Average Packets Out Rate: 0 pps
52      - ...
```