## OpenWrt: iperf test network performance

It is the University of Illinois ( University of Illinoisan open source) to develop a network performance testing tool. It can be used to test the network between the nodes (including loops) TCPor UDPconnection properties, including bandwidth, jitter, and packet loss rate, jitter and packet loss rate which is adapted to UDPtest, and adapted to the bandwidth test TCPand UDP. The use of iperfthis feature can be used to test the performance of some network devices, such as routers, firewalls, switches and the like.

The main performance parameters of the network, including bandwidth, delay, jitter and packet loss rate, which instead of using a noun, is the QOS(quality of service). For delay, iperfpowerless. But iperfcan be calculated jitter, packet needs to send a large amount of the test, the jitter value thus calculated is the average continuous transmission delay difference.

Usually bandwidth test UDPmode, as can be measured limit the bandwidth, delay jitter, packet loss rate. When performing the test, the first to link the theoretical bandwidth as the data transmission rate of the test, for example, the theoretical bandwidth from the client to the server for the link between 100Mbps, first -b 100Mtest, and according to test results (including actual bandwidth, delay jitter and packet loss), then the actual bandwidth testing as a data transmission rate, you will find jitter and packet loss rate much better than the first time, repeat the test several times, will be able to obtain stable real bandwidth.

# Compile and install

Performing make menuconfig, arranged as follows:

Network --->

<M> iperf3.............. Internet Protocol bandwidth measuring tool

Performing make -j8 V=99 compile, copied to the installation:

# mount -t nfs -o nolock 192.168.0.103:/opt/nfs/mnt/nfs

# opkg install/mnt/nfs/iperf3\_3.0.11-1\_ramips\_24kec.ipk

Installing iperf3 (3.0.11-1) to root...

Configuring iperf3.

# UDP mode

Service-Terminal:

$ iperf3 -s

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Server listening on 5201

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Accepted connection from 192.168.0.102, port 36420

[ 5] local 192.168.0.103 port 5201 connected to 192.168.0.102 port 47568

[ ID] Interval Transfer Bandwidth Jitter Lost/Total Datagrams

[ 5] 0.00-1.00 sec 192 KBytes 1.57 Mbits/sec 11.425 ms 39/63 (62%)

[ 5] 1.00-2.00 sec 2.73 MBytes 22.9 Mbits/sec 6.296 ms 0/350 (0%)

[ 5] 2.00-3.00 sec 3.03 MBytes 25.4 Mbits/sec 3.376 ms 0/388 (0%)

[ 5] 3.00-4.00 sec 3.11 MBytes 26.1 Mbits/sec 2.895 ms 0/398 (0%)

[ 5] 4.00-5.00 sec 2.90 MBytes 24.3 Mbits/sec 3.027 ms 0/371 (0%)

[ 5] 5.00-6.00 sec 3.07 MBytes 25.8 Mbits/sec 3.963 ms 0/393 (0%)

[ 5] 6.00-7.00 sec 3.19 MBytes 26.7 Mbits/sec 4.895 ms 0/408 (0%)

[ 5] 7.00-8.00 sec 3.11 MBytes 26.1 Mbits/sec 2.836 ms 0/398 (0%)

[ 5] 8.00-9.00 sec 3.10 MBytes 26.0 Mbits/sec 3.510 ms 0/397 (0%)

[ 5] 9.00-10.00 sec 1.74 MBytes 14.6 Mbits/sec 6.831 ms 171/394 (43%)

[ 5] 10.00-10.06 sec 160 KBytes 21.3 Mbits/sec 5.124 ms 0/20 (0%)

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[ ID] Interval Transfer Bandwidth Jitter Lost/Total Datagrams

[ 5] 0.00-10.06 sec 0.00 Bytes 0.00 bits/sec 5.124 ms 210/3580 (5.9%)

Client:

# iperf3 -u -c 192.168.0.103 -b 50M -t 10

Connecting to host 192.168.0.103, port 5201

[ 4] local 192.168.0.102 port 47568 connected to 192.168.0.103 port 5201

[ ID] Interval Transfer Bandwidth Total Datagrams

[ 4] 0.00-1.00 sec 704 KBytes 5.77 Mbits/sec 88

[ 4] 1.00-2.00 sec 2.77 MBytes 23.2 Mbits/sec 354

[ 4] 2.00-3.00 sec 3.03 MBytes 25.4 Mbits/sec 388

[ 4] 3.00-4.00 sec 3.09 MBytes 25.9 Mbits/sec 395

[ 4] 4.00-5.00 sec 2.92 MBytes 24.5 Mbits/sec 374

[ 4] 5.00-6.00 sec 3.09 MBytes 25.9 Mbits/sec 395

[ 4] 6.00-7.00 sec 3.20 MBytes 26.9 Mbits/sec 410

[ 4] 7.00-8.00 sec 3.08 MBytes 25.8 Mbits/sec 394

[ 4] 8.00-9.00 sec 3.09 MBytes 26.0 Mbits/sec 396

[ 4] 9.00-10.00 sec 3.04 MBytes 25.5 Mbits/sec 389

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[ ID] Interval Transfer Bandwidth Jitter Lost/Total Datagrams

[ 4] 0.00-10.00 sec 28.0 MBytes 23.5 Mbits/sec 5.124 ms 210/3580 (5.9%)

[ 4] Sent 3580 datagrams

iperf Done.

In udpthe mode to 50Mbpsa data transmission rate, client to server 192.168.0.103upload bandwidth test, test time 10in seconds.

# iperf3 -u -c 192.168.0.103 -b 5M -P 10 -t 10

While the client to the server initiates 10a connection thread, to 5Mbpsa data transmission rate.

# iperf3 -u -c 192.168.0.103 -b 50M -d -t 10

In 50Mthe data transmission rate, uplink and downlink bandwidth test.

# TCP mode

Service-Terminal:

$ iperf3 -s

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Server listening on 5201

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Accepted connection from 192.168.0.102, port 36424

[ 5] local 192.168.0.103 port 5201 connected to 192.168.0.102 port 36425

[ ID] Interval Transfer Bandwidth

[ 5] 0.00-1.00 sec 116 KBytes 949 Kbits/sec

[ 5] 1.00-2.00 sec 642 KBytes 5.26 Mbits/sec

[ 5] 2.00-3.00 sec 2.25 MBytes 18.9 Mbits/sec

[ 5] 3.00-4.00 sec 2.61 MBytes 21.9 Mbits/sec

[ 5] 4.00-5.00 sec 2.74 MBytes 23.0 Mbits/sec

[ 5] 5.00-6.00 sec 2.94 MBytes 24.7 Mbits/sec

[ 5] 6.00-7.00 sec 2.77 MBytes 23.3 Mbits/sec

[ 5] 7.00-8.00 sec 2.97 MBytes 24.9 Mbits/sec

[ 5] 8.00-9.00 sec 3.29 MBytes 27.6 Mbits/sec

[ 5] 9.00-10.00 sec 3.11 MBytes 26.1 Mbits/sec

[ 5] 10.00-10.15 sec 369 KBytes 20.9 Mbits/sec

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[ ID] Interval Transfer Bandwidth

[ 5] 0.00-10.15 sec 0.00 Bytes 0.00 bits/sec sender

[ 5] 0.00-10.15 sec 23.8 MBytes 19.7 Mbits/sec receiver

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Client:

# iperf3 -c 192.168.0.103 -t 10

Connecting to host 192.168.0.103, port 5201

[ 4] local 192.168.0.102 port 36425 connected to 192.168.0.103 port 5201

[ ID] Interval Transfer Bandwidth Retr Cwnd

[ 4] 0.00-1.00 sec 184 KBytes 1.51 Mbits/sec 20 24.0 KBytes

[ 4] 1.00-2.00 sec 735 KBytes 6.02 Mbits/sec 17 43.8 KBytes

[ 4] 2.00-3.00 sec 2.29 MBytes 19.2 Mbits/sec 0 76.4 KBytes

[ 4] 3.00-4.00 sec 2.69 MBytes 22.5 Mbits/sec 0 123 KBytes

[ 4] 4.00-5.00 sec 2.88 MBytes 24.2 Mbits/sec 0 215 KBytes

[ 4] 5.00-6.00 sec 3.04 MBytes 25.5 Mbits/sec 0 338 KBytes

[ 4] 6.00-7.00 sec 2.75 MBytes 23.1 Mbits/sec 0 417 KBytes

[ 4] 7.00-8.00 sec 3.03 MBytes 25.4 Mbits/sec 0 457 KBytes

[ 4] 8.00-9.00 sec 3.36 MBytes 28.2 Mbits/sec 0 499 KBytes

[ 4] 9.00-10.00 sec 3.14 MBytes 26.3 Mbits/sec 0 522 KBytes

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[ ID] Interval Transfer Bandwidth Retr

[ 4] 0.00-10.00 sec 24.1 MBytes 20.2 Mbits/sec 37 sender

[ 4] 0.00-10.00 sec 23.8 MBytes 20.0 Mbits/sec receiver

iperf Done.

In tcpmode, client to server 192.168.0.103upload bandwidth testing, test time is 10seconds.

# iperf3 -c 192.168.0.103 -P 10 -t 10

At the same time the client to the server to initiate 10a connection thread.

# iperf3 -c 192.168.0.103 -d -t 10

Uplink and downlink bandwidth test.