An Introduction to iPerf3

IPerf3 is a network performance tool that tests bandwidth, latency, and packet loss on a network between two computers. IPerf3 is mainly used for diagnosing network issues, stress testing connections, and benchmarking network performance. Within iPerf3, the two computers act in a client-server relationship. The server listens to the traffic that the client sends to it, and outputs network data based on the flow of traffic. Below will be a guide on how to install and use iPerf3.

The Network

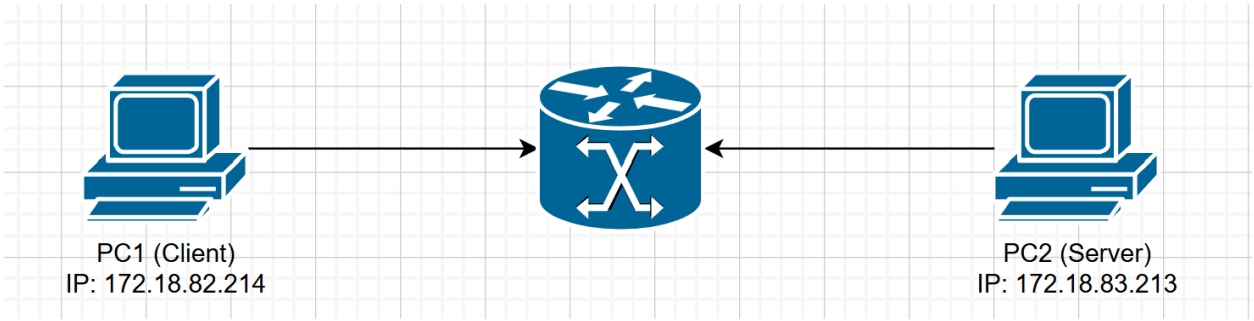

Figure 1

As shown in Figure 1, the network consists of two PCs and a multiservice switch. Both PCs are on the same network and can ping each other.

```
rishmani@srv1:~$ ifconfig
eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
        inet 172.18.82.214  netmask 255.255.240.0  broadcast 172.18.95.255
        inet6 fe80::215:5dff:fe38:101  prefixlen 64  scopeid 0x20<link>
        ether 00:15:5d:38:01:01  txqueuelen 1000  (Ethernet)
        RX packets 67  bytes 8835 (8.8 KB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 25  bytes 2416 (2.4 KB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING>  mtu 65536
        inet 127.0.0.1  netmask 255.0.0.0
        inet6 ::1  prefixlen 128  scopeid 0x10<host>
        loop  txqueuelen 1000  (Local Loopback)
        RX packets 84  bytes 6352 (6.3 KB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 84  bytes 6352 (6.3 KB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

rishmani@srv1:~$ _
```

Figure 2

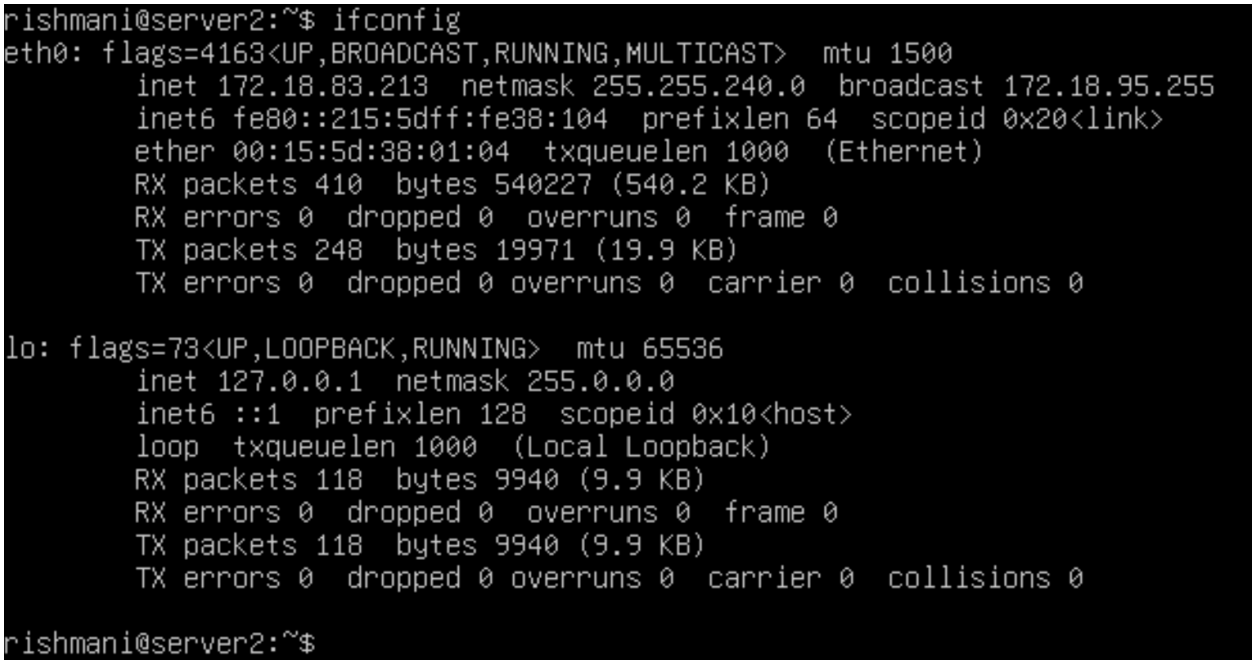

Figure 3

The IP info for PC1 and PC2 are shown in Figure 2 and Figure 3 respectively.

Installing iPerf3

Figure 4

The command to install iPerf3 is detailed in Figure 4. Both computers need to have iPerf3 installed in order for the network tests to properly function.

Setting Up Client and Server

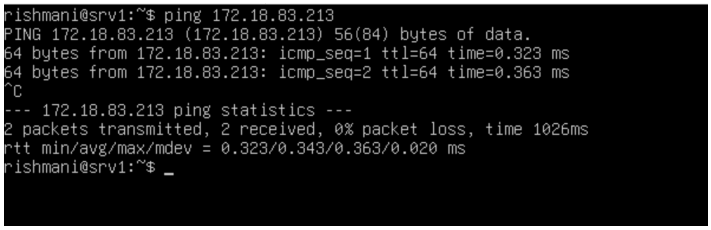

Figure 5

As shown in Figure 5, it imperative that the client PC can ping the server PC.

```
rishmani@server2:~$ iperf3 -s
-----------------------------------------------------------
Server listening on 5201 (test #1)
-----------------------------------------------------------
```

Figure 6

Figure 6 shows the command to set up PC2 as the iPerf3 server. This computer will be responsible for analyzing and outputting traffic data from the client.

```
rishmani@srv1:~$ iperf3 -c 172.18.83.213
```

Figure 7

Figure 7 shows the command to set up PC1 as the client. This computer will be responsible for sending traffic to the server.

Results

```
[ ID] Interval           Transfer     Bandwidth       Retr  Cwnd
[  4]   0.00-1.00   sec  26.5 MBytes   222 Mbits/sec    0   1.16 MBytes
[  4]   1.00-2.00   sec  23.8 MBytes   199 Mbits/sec   71   1.07 MBytes
[  4]   2.00-3.00   sec  25.0 MBytes   210 Mbits/sec    0   1.15 MBytes
[  4]   3.00-4.00   sec  25.0 MBytes   210 Mbits/sec    0   1.21 MBytes
[  4]   4.00-5.00   sec  23.8 MBytes   199 Mbits/sec    0   1.25 MBytes
[  4]   5.00-6.00   sec  23.8 MBytes   199 Mbits/sec    0   1.28 MBytes
[  4]   6.00-7.00   sec  26.2 MBytes   220 Mbits/sec    0   1.30 MBytes
[  4]   7.00-8.00   sec  23.8 MBytes   199 Mbits/sec    0   1.30 MBytes
[  4]   8.00-9.00   sec  23.8 MBytes   199 Mbits/sec    0   1.30 MBytes
[  4]   9.00-10.00  sec  23.8 MBytes   199 Mbits/sec    0   1.30 MBytes
- - - - - - - - - - - - - - - - - - - - - - - - -
[ ID] Interval           Transfer     Bandwidth       Retr
[  4]   0.00-10.00  sec   245 MBytes   206 Mbits/sec   71             sender
[  4]   0.00-10.00  sec   243 MBytes   204 Mbits/sec                  receiver

iperf Done.
```

Figure 8

Figure 8 shows the results of the iPerf3 testing process. Some key pieces of information that are shown are bandwidth and transfer speed.