

Netstat

```
Command Prompt
Microsoft Windows
C:\Users\Admin> netstat

Active Connections

    Proto Local Address          Foreign Address         State
    TCP    192.168.0.12 : 52913                74.125.44.25 : https    ESTABLISHED
    TCP    192.168.0.12 : 62976                22.134.45.78 : https    ESTABLISHED
    TCP    192.168.0.12 : 63510                42.33.44.55 : ftp      ESTABLISHED
    TCP    192.168.0.12 : 63562                BobPC : 445          ESTABLISHED
    TCP    192.168.0.12 : 63037                MikePC : 65137       ESTABLISHED
```

Ping

```
Command Prompt
Microsoft Windows
C:\Users\Admin> ping google.com

Reply from 143.250.64.206 : bytes=32 time=20ms TTL=53
Reply from 143.250.64.206 : bytes=32 time=20ms TTL=53
Reply from 143.250.64.206 : bytes=32 time=21ms TTL=53
Reply from 143.250.64.206 : bytes=32 time=22ms TTL=53

Ping statistics for 143.250.64.206 :
    Packets: Sent = 4, Received = 4, Lost = 0
    Minimum = 20ms, Maximum = 22ms, Average = 21ms
```

Traceroute

```
Command Prompt
Microsoft Windows
C:\Users\Admin> tracert google.com

 1  <1 ms    <1 ms    <1 ms    192.168.0.1
 2   8 ms     7 ms     8 ms     96.120.36.133
 3   8 ms     8 ms     9 ms     96.110.110.209
 4   9 ms     9 ms     9 ms     fl.pompano.comcast. [16.2.151.122.2]
 5  11 ms    12 ms    10 ms    68.86.90.205
 6  12 ms    14 ms    14 ms    miami.fl.ibone. [68.86.8.7]
 7  15 ms    17 ms    16 ms    108.170.249.17
 8  20 ms    21 ms    22 ms    mia07s56-in-fl [143.250.64.206]

Trace complete.
```

Where hop count = 8

```
Command Prompt
Microsoft Windows
C:\Users\Admin> tracert google.com

 1  <1 ms    <1 ms    <1 ms    192.168.0.1
 2   8 ms     7 ms     8 ms     96.120.36.133
 3   8 ms     8 ms     9 ms     96.110.110.209
 4   9 ms     9 ms     9 ms     fl.pompano.comcast. [16.2.151.122.2]
 5  200 ms    201 ms    202 ms    68.86.90.205
 6  200 ms    210 ms    204 ms    miami.fl.ibone. [68.86.8.7]
 7  210 ms    215 ms    220 ms    108.170.249.17
 8  220 ms    221 ms    222 ms    mia07s56-in-fl [143.250.64.206]

Trace complete.
```

In this case, trip time taken by data packets at 5th hop is near 200ms and thus 5th router from the source router can be the bottleneck and may resulting into the lag. Thus, using traceroute we can easily pinpoint the exact location where a down link or an issue is occurring.

```
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C:\Users\Admin> tracert google.com

 1  <1 ms    <1 ms    <1 ms    192.168.0.1
 2   8 ms     7 ms     8 ms     96.120.36.133
 3   8 ms     8 ms     9 ms     96.110.110.209
 4   *        *        *        Request timed out.
 5  11 ms     12 ms    10 ms     68.86.90.205
 6  12 ms     14 ms    14 ms     miami.fl.ibone. [68.86.8.7]
 7  15 ms     17 ms    16 ms     108.170.249.17
 8  20 ms     21 ms    22 ms     mia07s56-in-fl [143.250.64.206]

Trace complete.
```

Another case where it wont show us the trip time by data packets this could be due to the fact that the 4th router didn't send the packets back but routed them to the next router. This could be a possible down link.