

Solve the real problem with the Network Diagnostic function

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Internet2 Group developed the 'End to End Performance Initiative' package called PIPES (*Performance Improvement Performance Environment System*). And we will look at a useful component of PIPES, NDT (*Network Diagnostic Tester*).

NDT was developed by Richard Carlson, an engineer of Internet2. Carlson has developed a signature-based mechanism for NDT cores and integrated into the system. The result is a reliable, stable, and different option with other popular options. It is a great support for network administrators to solve network diagnostics problems.

You should use some utilities on the website to check throughput such as McAfee's Internet Speedometer or DSLreports.com to check the bandwidth. However, these websites are only as accurate as the type of connection between the client and server. That means you always have to connect to the internet during the checkout process. The usefulness of this method becomes useless when measuring bandwidth levels in a local area network.

Another useful method is to use the File Transfer Protocol, also known as the FPT protocol. FPT recorded the average throughput in each transmission. However, FPT cannot do anything if the congested network or links are improperly configured and eventually cause the results to be inaccurate.

NDT handles these problems, and more. Install NDT option on Linux server with simple web100-patched kernel. More importantly, the web interface is easy to use with end users. It only requires one click on the ' *Start* ' button and cut and paste the results in the e-mail and send it to the network staff.

NDT is designed to work effectively as a component of the LAN support structure. Carlson said he envisioned NDT ' *being integrated into the help area (network enforcement center); So when a help call is sent, the first thing the NOC employee does is point the user to their local NDT server area and say: 'Run the test program and send it to us. fruit* ' '.

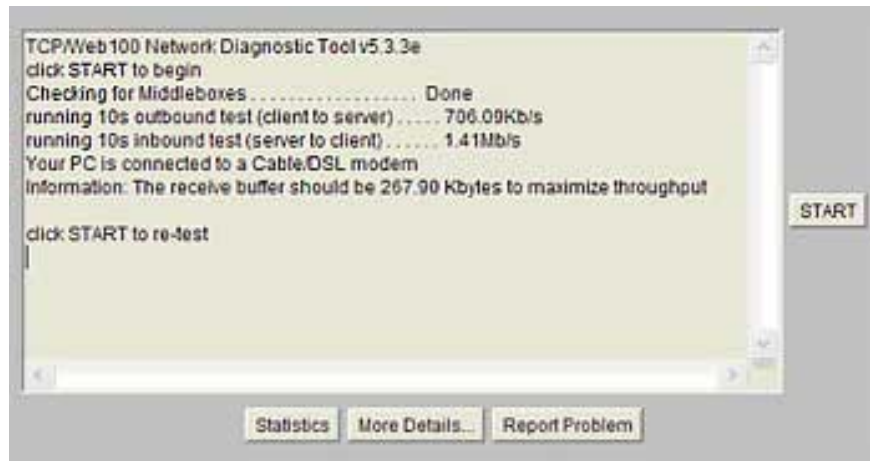


Figure 1. An example of testing NDT from a wireless 'hot spot'

Use NDT

NDT is designed to be installed on a server but is capable of upgrading to install it on mobile devices such as laptops. With this configuration, a laptop using NDT can be easily brought to the network in the largest test areas. In other words, by eliminating the area constraints of the NDT server, you can check throughput without adding variables of the router and intermediate switches.

The following example illustrates the cases of NDT as an indispensable support tool in finding out the causes of network enforcement problems.

Case 1: LAN

Let's try to predict connectivity problems on a LAN, namely connecting from a client to a server on the same subnet but not with the switch. Users are convinced that this is a problem of bandwidth congestion. However, it can be a physical problem or a link when the statistics of the switches do not indicate the type of traffic, because it is different from the basic line measurements.

First, check the ping statement to switch operations from the client to the server. The result is 5% loss of the packet. However, switches that work on this specific network have a low priority level 'component' for the Internet Control Message protocol to signal back packets. The ping command is not normally used in a standalone configuration to clear the low percentage of packets. This test command does not give convincing results.

Now put the mobile NDT server on the same switch as the client server. Run the NDT test command on the client's machine. NDT will record the duplicated error in the path between client and server. Searching for mismatch and fixing will solve the problem.

Case 2: ISP

We try to conduct an Internet-based communications session from DS3 to Gigabit Metro Ethernet at 100Mb / s. We need to locate the mobile NDT server that will be located on the switch that Metro Ethernet has a terminal limit.

This is a special case. Metro Ethernet's final limit is in the same router that provides remote internet services like DS3. By simultaneously executing both links before cutting through, you can see a test program on the client, outside of DS3 and inside Metro Ethernet.

The NDT test program described above shows a flux of about 5Mbit / s and accurately identifies the slowest link as DS3. Results may be higher because DS3 has very little production during this period. But the ping command through the links shows that there is no loss at all.

NDT's lower flux values ??have something unusual, but not related to network channels.

After the above cutting process, the current Metro Ethernet network is at almost negligible traffic with a load rate of approximately 4%. Try running the ping test again and see a packet lost 3%. While Internet service providers say their network channels are strong, the low-throughput test results are enough to call the reverse cut.

At the end, there appears to be a significant amount of mismatched setup between the two links Metro Ethernet provides the equipment of Internet service providers. Gigabit Ethernet works very well with automatic sorting options. When one side is installed and the other is not, odd errors may appear.

In this example, if you didn't execute the NDT bandwidth test before you cut it, you might be mistaken that the network channel works well. The result is execution errors for the next working day when the network channel is below the ready load level. Recognizing this problem before implementing the program is indispensable.

Future plan

Carlson also said that he plans to improve NDT in IPv6 support component and some components that check the firewall. In addition, NDT as well as other components of the PIPES set are now ISO images, so download and install steps are reduced.

NDT is an indispensable function for network administrators. In addition, many other components of PIPES are also useful. The development is still ongoing. For each function, the previous statistics are no longer relevant. Today's integrated network environment supports many programs that manage the ability to link, select, use firewalls and bandwidth. The above options can help solve problems on specific points, the possibility of not having traditional methods before.

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