

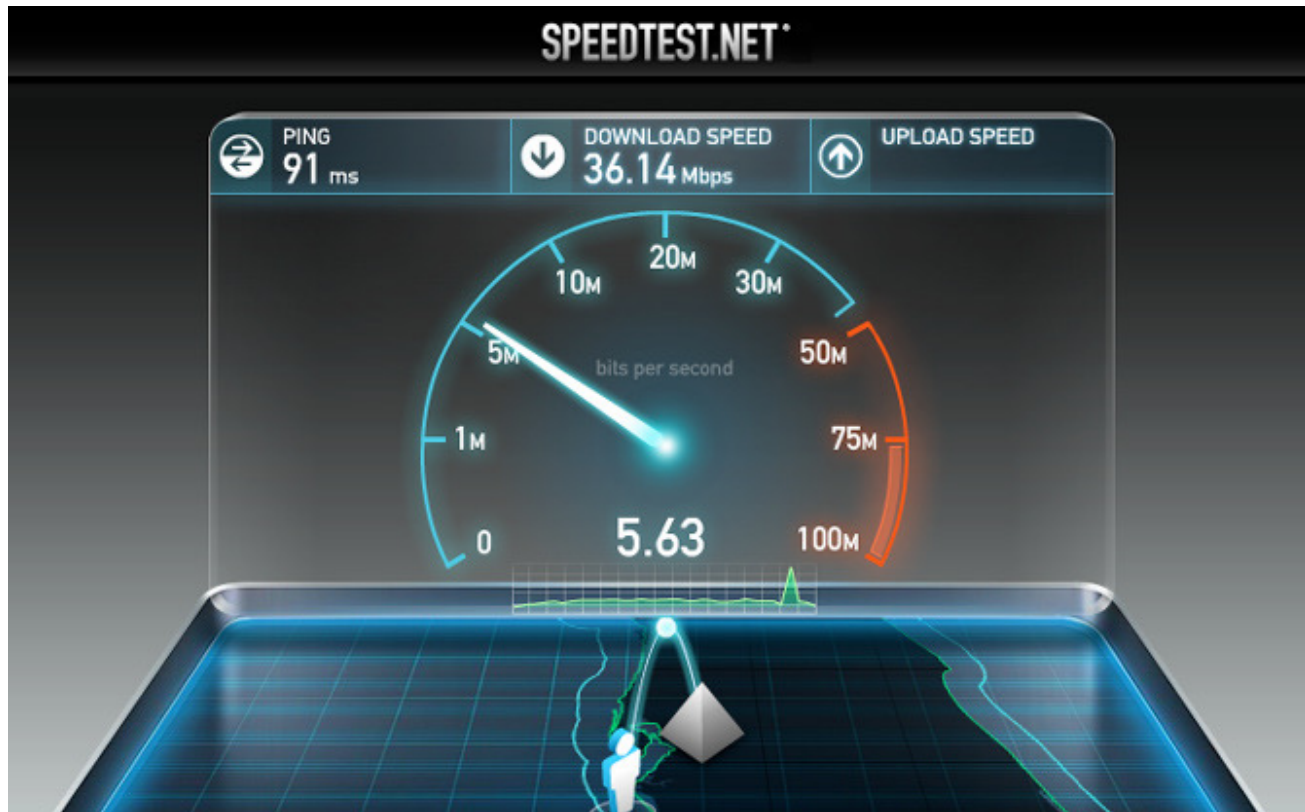
Hardware and Networking Troubleshooting

How Networks Work

Network Troubleshooting

Check your Speed

- <http://www.speedtest.net>



Troubleshooting Methodology

Given a scenario, implement the following network troubleshooting methodology:

1. Information gathering—identify symptoms and problems.
2. Identify the affected areas of the network.
3. Determine if anything has changed.
4. Establish the most probable cause.
5. Determine if escalation is necessary.
6. Create an action plan and solution identifying potential effects.
7. Implement and test the solution.
8. Identify the results and effects of the solution.
9. Document the solution and the entire process.

TCP/IP Troubleshooting Utilities

| TCP/IP Utility | Function | When to Use |
|----------------------------------|--|--|
| netstat | Displays current TCP/IP and port statistics | To determine network problems, monitor connections, and check for open ports |
| nbtstat | Displays NetBIOS over TCP statistics | To see a list of computers currently connected to the network |
| ping | Sends a packet from one host to another and then echoes a return reply | To quickly check the state of network media between two hosts |
| tracert or tracert | Sends a packet from one host to another and gathers statistics and information along the way | To troubleshoot the path to a distant destination |
| arp | Maps the host MAC address to the host IP address | To verify IP address and MAC address assignments |
| nslookup | Resolves domain names to IP addresses | To find information about domain names and IP addresses |

Pros and Cons

| Advantages | Disadvantages |
|--|--|
| Share software, data, equipment, and communications quickly, easily, and inexpensively | Losing access to files Need additional personnel |
| Secure data | Vulnerability to hackers, viruses, and disgruntled workers |