
Introduction to Networking

CCNA 1 v3 – Module 1

Requirements for Internet Connection

Connection to the Internet can be broken down into:

Physical connection:

- connects modem or NIC from PC to network
- transfer signals between PCs and remote devices

Logical connection:

- uses standards called protocols - rules and conventions that govern how devices on a network communicate
- TCP/IP suite are the primary protocols used on the Internet

Application:

- Interprets data and displays information in an understandable form. Example: web browsers display HTML as a web page.

PC basics – The System Unit



Floppy disk drive

CD-ROM drive

Hard disk drive

LEDs

NIC

Power

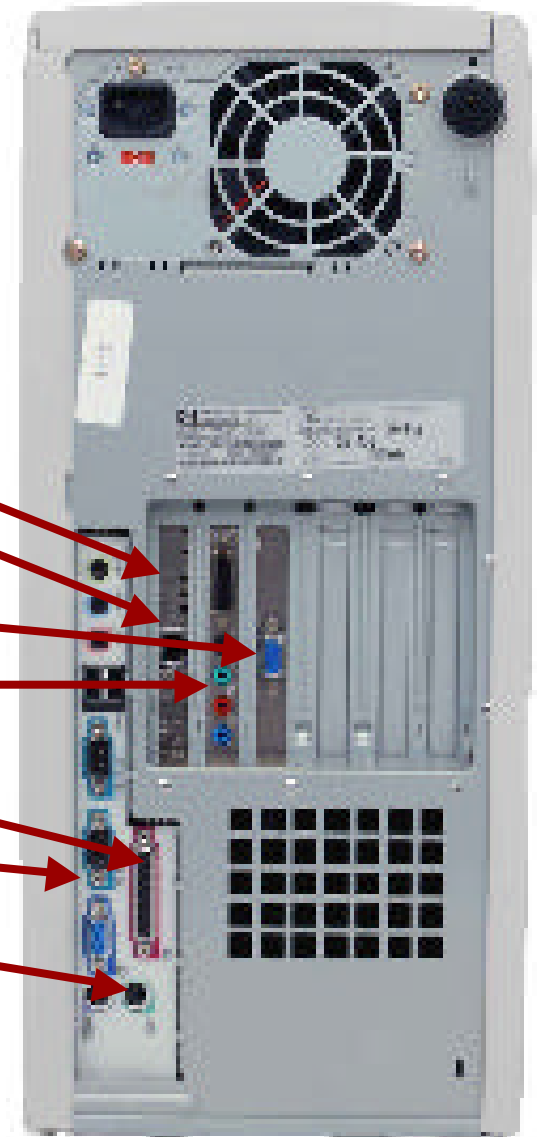
Video card

Audio card

Parallel port

Serial port

Mouse Port



Network Interface Card



NIC is a printed circuit board that provides network communication capabilities

NIC must match the media and protocol used on the local network

The NIC uses an IRQ, an I/O address, and upper memory space to work with the operating system

When selecting a NIC, consider the following factors:

- **Protocols** – Ethernet, Token Ring, FDDI
- **Types of media** – UTP/STP, coaxial, wireless, or fiber-optic
- **Type of system bus** – PCI or ISA

TCP/IP

- Transmission Control Protocol/Internet Protocol
- Set of protocols or rules developed to allow cooperating computers to share resources across a network
- To enable TCP/IP on the workstation, it must be configured using the operating system tools
- WINIPCFG and **IPCONFIG** are tools used to discover a Windows PC's network configuration

- **Ping** is a utility used to verify Internet connectivity
- **Tracert** is used to find determine the path data is taking between two hosts

```
C:\> ping 127.0.0.1

Pinging 127.0.0.1 with 32 bytes of data:

Reply from 127.0.0.1: bytes=32 time<10ms TTL=128
Reply from 127.0.0.1: bytes=32 time<10ms TTL=128
Reply from 127.0.0.1: bytes=32 time<10ms TTL=128
Reply from 127.0.0.1: bytes=32 time<10ms TTL=128

Ping statistics for 127.0.0.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>
```

Web Browser and Plug-ins

- A web browser contacts a web server, requests information, receives information and displays the results on the screen
- Interprets HTML and other mark-up languages with more advanced features

Netscape Navigator - first popular browser uses less disk space

Internet Explorer - integrated with Microsoft products

Plug-ins - applications work in conjunction with the browser to launch the program required to view the following special files:

- **Flash** – plays multimedia files created by Macromedia Flash
- **Quicktime** – plays video files, created by Apple
- **Real Player** – plays audio and video files

Troubleshooting Internet connection problems

The Eight Basic Steps for PC and Network Troubleshooting Process

1. Define the problem
2. Gather the facts
3. Consider the possibilities
4. Create an action plan
5. Implement the plan
6. Observe the results
7. Document the results
8. Introduce problems and troubleshoot

Questions

Q – Which three factors should be considered when selecting a NIC?

A – Protocols, types of media, type of system bus

Q – What three areas can connection to the Internet can be broken down into?

A – Physical connection, Logical connection, Application

Q – What is the purpose of the TCP/IP suite of protocols?

A - to allow cooperating computers to share resources across a network

Q – Which technologies allow home users access speeds greater than 56 kbps?

A – DSL, Cable modems

Q – Which tool can be used to troubleshoot network connectivity?

A - Ping