

# Applet

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ITEC 57430  
Fall 2009

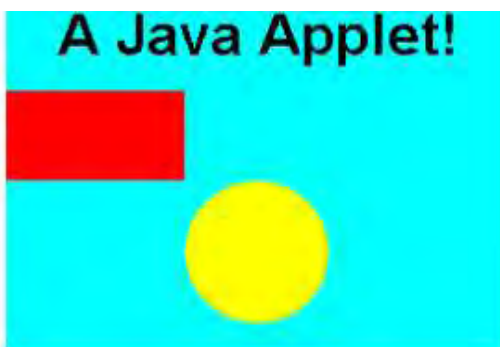


After the applet code has been written, it needs to be compiled.

Compilation turns the code into a format (bytecode) understood by the Java plug-in used by the web browser (for example Internet Explorer).

The compiled version of the code would need to be uploaded to a web server, and included in a web page.

When the applet code shown in the green box executes, the picture shown below would appear on the web page that has embedded the applet:



An applet is a Java program designed for inclusion on a web page. Java is a platform independent programming language, which means that code written on a PC could be run on a Mac computer. An example of Java code that creates an applet is shown below:

```
import java.awt.*;
import java.applet.*;
public class AppletEx extends Applet {

    public void paint(Graphics g){
        setBackground (Color.cyan);
        setSize(280,200);
        g.setFont(new Font("Arial", Font.BOLD, 32));
        g.drawString("A Java Applet!", 30, 30 );

        g.setColor (Color.red);
        g.fillRect (0, 50, 100, 50);
        g.setColor (Color.yellow);
        g.fillOval (100, 100, 80, 80);
    }
}
```

Web browsers interpret the applet using a Java virtual machine plug-in.

### Relationship to networking:

When you view a page that contains an embedded Java applet, the code is transferred to your computer and executed in the safety of the security sandbox, which limits the applet's access to the user's computer and local network.

The sandbox prevents the applet from performing any malicious actions, which allows people to feel confident when browsing the web and running Java applets through their web browser.

Usually applets are used to make a web page interactive. Many examples of Java applets can be found on [Sun Microsystems](#) site. Sun developed the Java programming language.

An example of Java code with an interactive applet can be found [here](#).

Vista uses Java applets.

You need to have a current Java plug-in downloaded to use the applet launched by the  button.

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from <https://vista8.kent.edu/webct/>

# Bandwidth

What is Bandwidth?

Bandwidth is the amount of information that can be passed through a communications channel in a given amount of time; that is, the capacity of the channel. The bandwidth is usually expressed in 'bits per second'.

Example:

A T1 line has a bandwidth of 1.544 Mbps; a 56k baud modem has a nominal bandwidth of 0.056 Mbps. With more bytes of information traveling per second through the wire the faster the speed of the connection. To compare this to a highway, travel is made faster by making wider roads, increasing the speed limit, straightening the road, and limiting the traffic on the road will make the travel faster. Bandwidth works much like this.

Connection Speed	Connection Type
28.8 Kbps	Dial-up 28.8k
22.6 Kbps	Dial-up 33.6k
53.3 Kbps	Dial-up 56k
384.0 Kbps	DSL/Cable 384k
768.0 Kbps	DSL/Cable 768k
1195.4 Kbps	Cable/DSL 1195.4 Kbps
1500.0 Kbps	Cable/DSL 1.5 Mbps
1544.0 Kbps	Full T1 1.544 Mbps
3000.0 Kbps	High Speed Internet 6.0 Mbps
6000.0 Kbps	High Speed Internet 6.0 Mbps
15000.0 Kbps	High Speed Internet 15 Mbps
30000.0 Kbps	High Speed Internet 30 Mbps

Bandwidth Meter:

<http://reviews.cnet.com/internet-speed-test/>

## **References:**

Ard, S., (2009). CNET reviews: bandwidth meter online speed test. Retrieved from: <http://reviews.cnet.com/internet-speed-test/>

Bandwidth Issues (“Bandwidth for dummies”). Retrieved from: [http://www.gocsc.com/uploads/white\\_papers/F992769EE7DF478F8253DD E3BBE56746.pdf](http://www.gocsc.com/uploads/white_papers/F992769EE7DF478F8253DD E3BBE56746.pdf)

# BLUETOOTH

## wireless

Bluetooth wireless creates a connection between devices that allows the sharing of information and files over short distances through radio waves.

Laptop

Computer

(Shared information through radio waves)

Cell Phone

- ~ Eliminates the need for ethernet wires
- ~ Automatically connects and synchronizes devices
- ~ Does not need a direct line of sight like infrared connections (ex. your remote to TV)
- ~ Can connect up to 8 devices at a time
- ~ Creates a shared network between connected devices
- ~ Uses constantly changing radio frequencies to avoid mixing signals while devices on the same network use the same frequencies
- ~ Requires little battery power

**CONNECTS...**  
 cell phones & computers  
 GPS, automobile, & cell  
 mouse & computer  
 camera & printer  
 printer and computer  
 cell phone & house phone  
**ALL WITHOUT WIRES**

#### References:

Bluetooth SIG, Inc. (2009). *Fast facts blue technology 101*. Retrieved September 17, 2009, from [http://bluetooth.com/Bluetooth/Fast\\_Facts.htm](http://bluetooth.com/Bluetooth/Fast_Facts.htm)

Franklin, C., & Layton, J. (2000). *How Bluetooth works*. Retrieved September 17, 2009, from <http://www.howstuffworks.com/bluetooth>

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# Just Like Riding a



Just like a bus carries passengers on a route from one destination to another making stops along the way, a computer's internal network bus carries information on a route making stops, dropping off and picking up information at stops along the way.

## Types of buses:

**System Buses** (see diagram below)

**Front side Bus** – connects the hard drives, main memory + PCI slots

**Backside Bus** – has evolved out of the definition of a bus and has now become a connection between the CPU and a "cache" (a device designed to make your computer run faster)

**PCI Bus** – Peripheral Component Interconnect connects to the non-vital computer components such as sound cards and hard disks.

**USB** – Universal Serial Bus allows you to connect fun things like mice, flash drives (USB Keys) and Flip cameras to your computer.

Buses connect computer components together. They make it easier to upgrade parts by allowing you to unplug + remove old technology and plug in + replace with new technology. (Plug and Play or PnP)

A bus is necessary to a network because it connects everything together not only inside the computer itself, but outside the computer also.

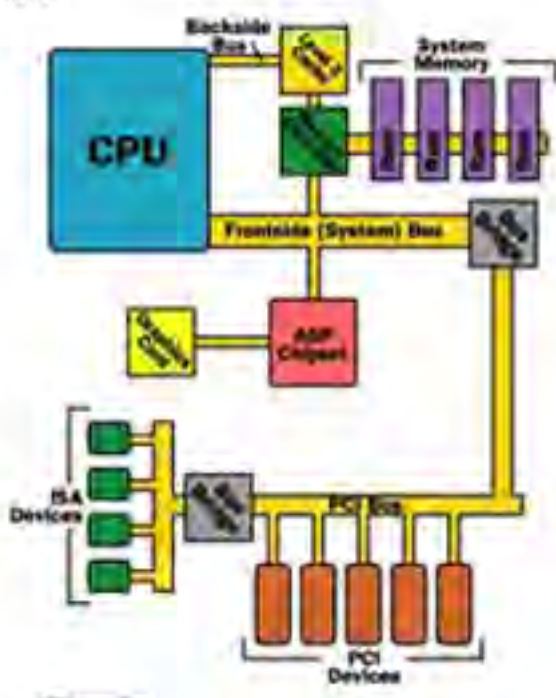
Buses come in many formats or makes/models just like the bus you ride to work or school come in many makes and models – Volvo, Mack, GMC

## References:

De Micheli, G., + Benini, L., 2000. Networks on Chips: Technology and Tools. San Francisco: Morgan Kaufmann. Retrieved September 20, 2009, from Kent State University <http://proquest.safaribooksonline.com.proxy.ohiolink.edu:9099/9780223705222>.

Mitchell, Bradley, M. d.l. About.com Wireless Networking. USB – (Universal Serial Bus). Retrieved September 9, 2009, from [http://compnetworking.about.com/cs/canonly/g/idef\\_usb.html](http://compnetworking.about.com/cs/canonly/g/idef_usb.html).

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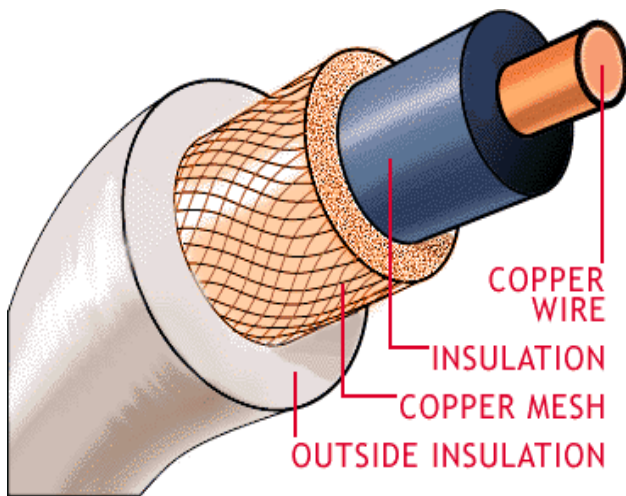
Key players (IBM, Sonics etc.) are currently developing industry standards for accepted protocol and hierarchy for such things as speed and transaction order. The most advanced version of these is currently AMBA for Advanced Microcontroller Bus Architecture and was created by ARM.

# Coaxial Cable

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Melissa Rodhe

**Coaxial Cable** *noun* (kō āk sē uhl) a type of cable that is used to transmit information such as data, voice and video. The cable is made up of four layers. The outer layer and third layer insulate and protect the second layer which is the copper mesh and the inner layer which is copper wire.



## What is the purpose of coaxial cable?

The purpose for using coaxial cable is to transmit high frequency signals. The cable is highly insulated to keep from any outside interference. Coaxial cable is a lot more expensive than telephone wire but doesn't have as much interference and can carry much more data. Coaxial cable does away with the effects magnetic fields can cause. When there is a wire with a current

flowing through it, that current will cause a magnetic field. With coaxial cable, you would have a current on the inside layer (the copper wire) and the outside layers (the copper mesh) and these currents are flowing in opposite directions. This causes the magnetic field to be canceled out.



## References

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Coax Cable. (n.d.). Retrieved September 13, 2009, from <http://www.comptechdoc.org/independent/networking/terms/coax.html>

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Coaxial Cable (illustrated). 2000. Retrieved September 6, 2009, from [http://searchnetworking.techtarget.com/sDefinition/0,,sid7\\_gci344289,00.html](http://searchnetworking.techtarget.com/sDefinition/0,,sid7_gci344289,00.html)

Radio Cables, Connectors and Accessories. 2004-2009. Retrieved September 13, 2009 from <http://www.rfwel.com/shop/product.php?productid=789&cat=62&page=1>

# WHAT'S A COOKIE?



www.howstuffworks.com

SOMETHING FOR YOUR MOUSE TO NIBBLE ON!

(TRUE...BUT NOT IN "COMPUTER SPEAK.")



www.icanhascheezburger.files.wordpress.com

In the computer world, "cookie" has a very different meaning. Cookies are text files. They are just an ID tag from a website that you have visited. This ID tag is stored in the memory of your computer; but not forever. Cookies have an expiration date (...just like real cookies!).

Is there only one kind of cookie?

No, there are two main kinds of cookies.

**Session Cookie:** This type of cookie expires as soon as your browser is closed. The website only "recognizes" you while you are visiting.

**Persistent Cookie:** This type of cookie is placed on your hard drive. It will stay there until its expiration date or you delete the cookie. The website will "recognize" you for a much longer period of time.

Why are cookies used?

Cookies make it easier for us to navigate the web.

- Cookies have the ability to personalize information. (like on Yahoo or AOL)
- Cookies help with on-line sales and service. (think Amazon or E-Bay)
- Cookies collect demographic information. (KSU website users are from *where?*)



Cookies are **not** like Big Brother wandering around your computer. They are just a simple text file stored in either short term or long

term memory that a website uses to identify you on your visits to their "store".

It's much like a preferred customer card.

Image from [www.technofile.com/images/big\\_brother.jpg](http://www.technofile.com/images/big_brother.jpg)

01100011100101001110001110101000100

This simple text is an example of a cookie placed on your computer's memory.



# BIBLIOGRAPHY

More facts about cookies can be found at the following websites. (It's where I looked!)

Brain, M. (n.d.). *HowStuffWorks "How Internet Cookies Work"*. Retrieved September 14, 2009, from <http://www.howstuffworks.com/cookie.htm>

Marshall Brain with HowStuffWorks gives the user easy-to-understand vocabulary, but he also gets a little more technical if you are interested.

*Cookie Central*. (n.d.). Retrieved September 15, 2009, from <http://www.cookiecentral.com>

This website covers the basics, but also gives a lot of information about the history of cookies. Pros and cons of cookies are also discussed here.

*What are Computer Cookies?*. (n.d.). Retrieved September 14, 2009, from <http://www.wisageek.com/what-are-computer-cookies.htm>

WiseGeek uses plain English to explain what a cookie is and how it got onto your computer. He also offers a message board to ask questions or post comments.

*What is cookie? - A Word Definition From the Webopedia Computer Dictionary*.

(n.d.). Retrieved September 15, 2009, from <http://www.webopedia.com/term/cookie.html>

Webopedia is set up like a wiki page. A lot of useful links are given as you read through the definition and history of computer cookies.

# Dongle

## What is a dongle?

### Definition:

A dongle is used to refer to a networking cable or a piece of hardware that connects to a computer. Its purpose is to serve as a copy protection. They are designed to provide people with security for their computer software. They were created as a safety measure to prevent prohibited copying of software.



- Is your computer software protected?
- Do you need a dongle?
- What you may not know about protecting you computer software.

### How does a dongle relate to Networking?

A dongle is an imports piece of hardware that can and should be used to protect the software on a computer. The dongle acts as a key to the software on the computer or within a network and without it the software cannot be accessed locally or across a network. In other words you cannot log on to the computers software without the dongle designed for that software. This is important today with all the advancements in networking people need way to keep their computer software safe.

### Organizational Policies

- Centralized Personalization
- User Repository
- Group Policies
- Token Inventory
- Backup/Restore Profiles



Active Directory

- Auditing
- Reporting

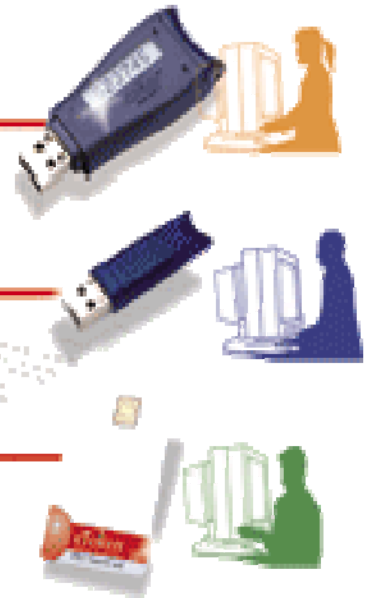


- MS CA
- OTP Authentication
- Network Logon
- More

### Security Applications

### Users & Devices

WEB/ LAN



## Reference list

McGuigan, B. (2009, September 16). *What is a Dongle*, Retrieved from [www.wisegeek.com/what-is-a-dongle.htm](http://www.wisegeek.com/what-is-a-dongle.htm)

Mitchell, B. (2009, September 17). *Dongle*. Retrieved from [http://www.compnetworking.about.com/cs/ethernetcards/g/bldef\\_dongle.htm](http://www.compnetworking.about.com/cs/ethernetcards/g/bldef_dongle.htm)

(2009, September 19). *Wikipedia*. Retrieved from <http://www.wikipedia.org/wiki/Dongle>

## Images

(2009, September 19). *eToken*. Retrieved from <http://www.vistawiz.com/products/etoken/tms.php>

(2009, September 19). Retrieved from [http://www.picstop.co.uk/images/products/uploaded/bluetooth\\_dongle\\_adapter-214x184.jpg](http://www.picstop.co.uk/images/products/uploaded/bluetooth_dongle_adapter-214x184.jpg)

What is the difference between 1.5 and 128?

A Faster Internet Connection



## DSL

### What?! Digital Subscriber Line

DSL is a technology that provides transfers of high bandwidth data through a phone network. It is a digital alternative to analog services. This service is made available by local telephone companies to subscribers (homes and businesses) in order to use the internet and communicate electronically. DSL transmissions travel through an existing copper wire telephone line to any other user's computer.

### Why?

DSL is necessary for a successful network because it allows data to be exchanged through an interconnected system of computers through phone lines. It is an example of networking because it allows for telecommunications through any connected computer. DSL makes a local area network (LAN) possible. It enables users to link to one another quickly and easily.

### So what?

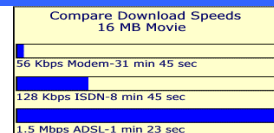
- Faster than a regular phone line connection.
- Transfers 1.5 Mbps and up
- Continuously available
- Carries both data and voice communications
- Does not interfere with the phone line it is connected to

### Okay Fine, but how is digital service different from my analog service?

Analog systems are less efficient than digital because analog systems need to convert digital data into the analog form phone lines use. Digital systems do not have to convert the information to analog and back, they simply arrive in digital form which allows for a larger bandwidth (speed at which the data travels). A leased line (POTS; Plain Old Telephone Service) is a simple telephone connection that transmits data through phone wires. It is an analog system that only allows about 56 kilobits of information per second to travel. Integrated Services Digital Network (ISDN) is another form of analogue form of transmission. While ISDN is faster than a traditional phone line because it mixes analogue and digital, it still only allows data to travel at about 128 kbps. Digital Subscriber Lines can allow 1.5 megabits or more per second because the digital form it uses allows a broader bandwidth.

### Still not convinced?! Why DSL is better than my analog ISDN and Leased Lines

- Faster (up to 7 times!)
- Cheaper
- Always on
- Can make phone calls while surfing net
- No dial up which means no waiting and NO BUSY SIGNAL!
- Uses regular telephone lines- easy to install- already in place
- More reliable
- More secure
- Can compete with even the cable modem
- Many experts believe that DSL will soon be the leading provider of internet service
- It is splitter less! With new technology G Lite, DSL can be easily installed. Installation can be done remotely without a technician coming to your house and splitting your phone line.
- Can always use analogue, if you really want to!



DSL speeds compared to other ISDN and modems

	50k web page	2 Mb image	72 Mb movie
56 Kbps Modem	7.1 sec	4min 48sec	2hr 54min
128 Kbps ISDN	3.1 sec	2min 4sec	1hr 28min
1.5 Mbps DSL	0.3 sec	21sec	6min

### So You're Ready!

Here is a list of companies in the US that can provide you with all your telecommunication needs!

\*Sprint  
\*BellSouth  
\*ATT

\*SBC Communications  
\*Ameritech  
\*Bell Atlantic

## Resources

The Tech Terms Computer Dictionary. (2009) *DSL (Digital Subscriber Line)*. Retrieved September 13, 2009 from <http://www.techterms.com/definition/dsl>

WhatIs?com (2008). *Fast Guide to DSL*. Retrieved September 14, 2009 from [http://whatis.techtarget.com/definition/0,,sid9\\_gci213915,00.html](http://whatis.techtarget.com/definition/0,,sid9_gci213915,00.html)

*Digital Subscriber Line- a definition from Wikipedia*. (2009) Retrieved September 14, 2009 from [http://en.wikipedia.org/wiki/Digital\\_subscriber\\_line](http://en.wikipedia.org/wiki/Digital_subscriber_line)

How Stuff Works. (2009) *How DSL Work*. Retrieved September 15, 2009 from <http://www.howstuffworks.com/dsl.htm>

# What is the ETHERNET?



- Ethernet is a Local Area Network (LAN) and a way to transport data. Its cheap and fast. An Ethernet LAN usually uses a coaxial cable(pictured in back round), special twisted pair wire or fiber optics. Ethernet can also be used in wireless LANs. Once you've attached a device to this cable, it can communicate with any of the other attached devices. The network can expand to make room for new devices without having to change the devices already on the network.

- Ethernet is one of the main ways to connect people to a Local Area Network and the main way to send data. It connects you to the internet as well as other computers. So when you want to make a network covering a small physical area, Ethernet is one of the common ways to connect everything together.

To watch a video on Ethernet visit the link below:

<http://www.youtube.com/watch?v=BNkVv69G78>

# Reference List

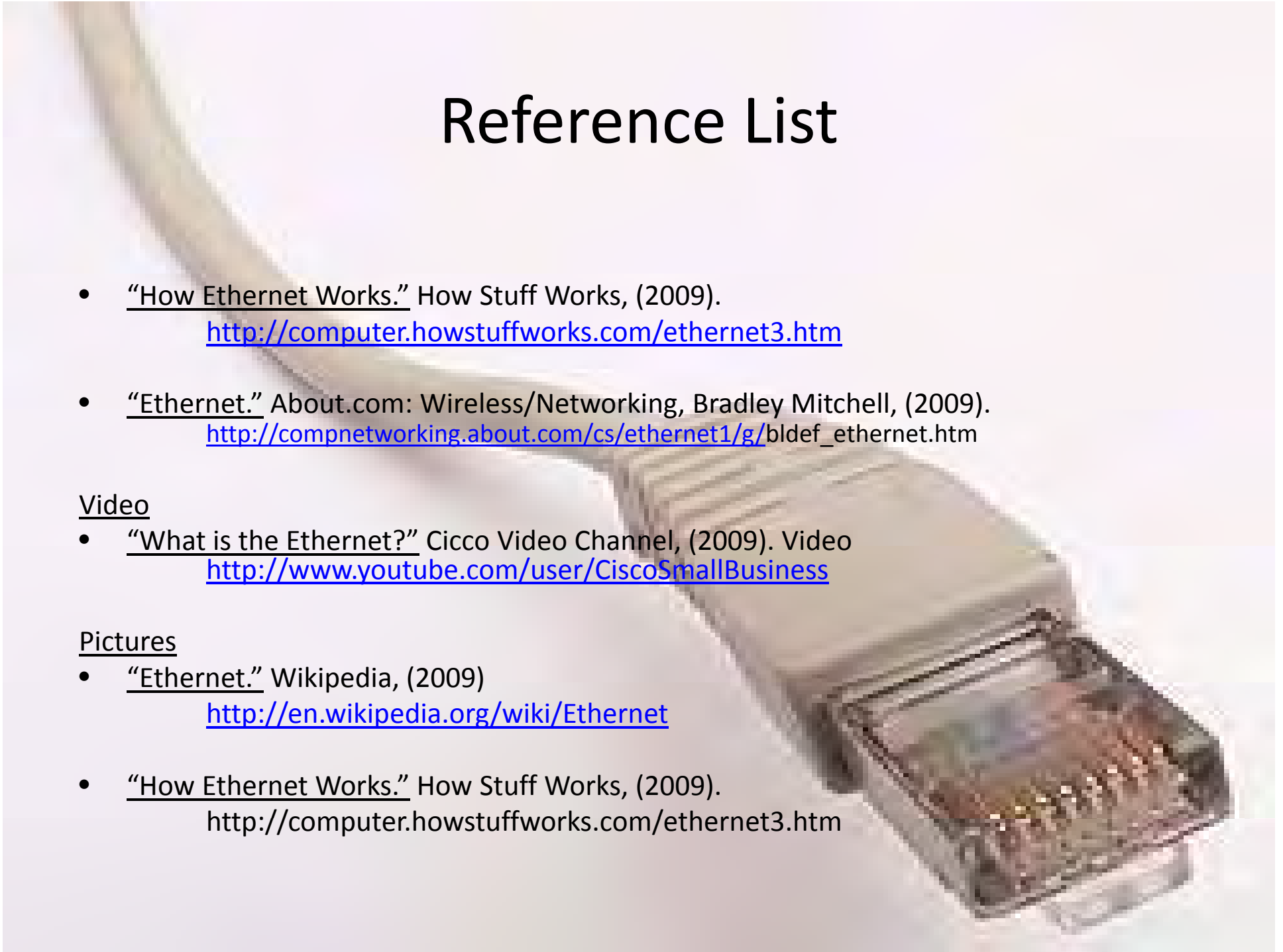
- “How Ethernet Works.” How Stuff Works, (2009).  
<http://computer.howstuffworks.com/ethernet3.htm>
- “Ethernet.” About.com: Wireless/Networking, Bradley Mitchell, (2009).  
[http://compnetworking.about.com/cs/ethernet1/g/bldef\\_ethernet.htm](http://compnetworking.about.com/cs/ethernet1/g/bldef_ethernet.htm)

## Video

- “What is the Ethernet?” Cisco Video Channel, (2009). Video  
<http://www.youtube.com/user/CiscoSmallBusiness>

## Pictures

- “Ethernet.” Wikipedia, (2009)  
<http://en.wikipedia.org/wiki/Ethernet>
- “How Ethernet Works.” How Stuff Works, (2009).  
<http://computer.howstuffworks.com/ethernet3.htm>





# where's the fire?

**Question:** I know that a **firewall** is actually a wall that is used to prevent a fire from spreading from one room to another or from one building to another. However, what is a **firewall** in the computer world? Why are **firewalls** important in networking?

**Answer:** Connecting a local area network (LAN) or even a single computer to a wide area network (WAN), such as the Internet, can be risky business in terms of data security. A **firewall** protects computer information shared through networking from unauthorized or malicious users, unwanted websites, emails, and other information by filtering the data packets as they cross inbound and outbound through the network layer of the hierarchy stack of an OSI (Open Systems Interconnection) model system. Sound a bit technical? Here's a simple analogy of how a **firewall** works:

**Guard: "Halt! Who Goes There? Friend or Foe?"**



**Visitor: "May I Pass through?"**

**Guard: "Only if you have the right security clearance. I need to see your IP address, destination and port connection. I may need some additional information as well."**

The **firewall** acts as a "security guard" at the entry point where data enters and exits your network. The security guard asks the right questions, checks credentials, scans for dangerous perpetrators, and either allows or rejects the incoming and outgoing requests. This "security guard" can be very particular in allowing and disallowing information from moving from one point to another even within a LAN. Port assignments can even be restricted, i.e., allowing only one user access to an FTP (file transfer port), or a few particular users access to the Internet. Restrictions on network traffic and other filtering particulars are set through **firewall** rules (configurations set up in the network system).

A **firewall** can be:

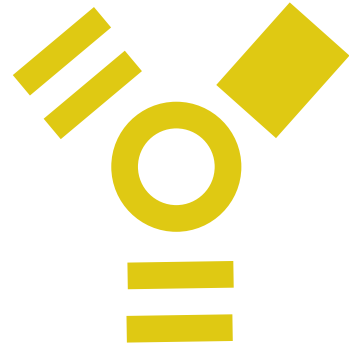
- Hardware or software or a combination of the two.
- Also called a **gateway** when it is a physical device incorporated in a router, or installed as part of a software package.
- Also called a **proxy server** when it acts as a physical intermediate between the external world (WAN) and the internal world (LAN). A **proxy server** can provide extra security by hiding LAN addresses from the outside by taking over as the catch all for all internal IP addresses.
- Usually disabled/turned off when needed to perform a particular task.
- Compromised and it is not 100% foolproof. IP addresses can be duped, and sometimes data packets get through that may contain viruses that target web servers. However, a **firewall** is one of the best sources of computer security for most businesses, schools, and homes.



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- Wilson, T. V., & Fuller, J. (2001). *How home networking works*. Retrieved September 14, 2009 from HowStuffWorks.com. <<http://computer.howstuffworks.com/home-network.htm>>
- Fraze, W. (2001). *Lower level hardware help*. Retrieved September 16, 2009 from [http://www.epinions.com/content\\_2027004036](http://www.epinions.com/content_2027004036)
- Unknown. *Networking basics - key concepts in computer networking*. Retrieved September 14, 2006 from About.com. <<http://computernetworking.about.com/od/basicnetworkingconcepts/1/blglossary.htm>>

*A standard port located on the back of a MAC computer*



# FireWire

*A FireWire cable used in connecting a peripheral to an Apple computer*



**FireWire** is a connection used from a peripheral to an Apple computer.

The **high performance** connection wire was created by Apple Computers in the mid 1990's. The **FireWire** is used to connect devices such as digital camcorders, cameras, hard drives, storage devices, audio interfaces to name a few. FireWire connections use a standard independent port built in to MACcomputers.

The technical name for FireWire is IEEE (Institute of Electrical and Electronics Engineers). The standard wire transfer was 400Mbps as shown in the sample. Apple computers has since come out with a FireWire of 800Mbps.

# Hotspot

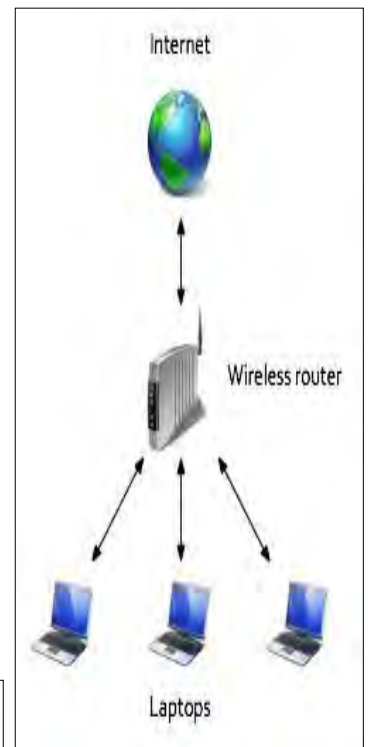
It is time to rethink your local hotspot!



Whereas, a hotspot may indeed be a cool hip place to hang out with friends. A more current definition suggests that **it is where one can connect with online friends from the friendly confines of restaurants, coffee shops, hotels, libraries, or even one's own city via the Internet through the use of a wireless router.** A hotspot provides an alternative location to connect to the high speed Internet world at a free or relatively low cost.

## *Hotspots relationship to networking*

At the heart of a hotspot is a wireless router. A router has built in access points which in turn can connect to the Wi-Fi adapters built into one's wireless device. Sometimes signals can carry up to 100 feet. This allows people who are walking by or parked in the lot of a hotspot establishment access to the Internet without authorization. Apartments, where many wireless signals exist, also share this problem. To prevent Internet theft people and companies can create Wireless Encryption Protocol/WEP or Wi-Fi Protected Access/WPA to eliminate potential risks of theft. Customers and users generally have to enter a username and an access code to prevent theft of Internet access at hotspots.



**Beware when Wi-Fi Leeching!**



By: Anthony Forfia



## Resources

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<http://compnetworking.about.com/od/wirelesshotspots/a/wifihotspots.htm>

Sweeley, C., *WiFi Theft- Is it on the Rise?* Retrieved September 19, 2009 from

<http://www.windowhaxor.net/?p=135>

### **Pictures from:**

<http://www.swingodyssey.com/studiobios.htm> (Nightclub hot spot)

[http://www.ehow.com/about\\_4655458\\_tmobile-wireless-hotspots.html](http://www.ehow.com/about_4655458_tmobile-wireless-hotspots.html) (Internet/Wireless Router Image)

<http://www.techshout.com/internet/2007/24/wi-fi-stealing-london-man-arrested-over-broadband-theft/> (Wi-Fi and handcuffs)

<http://gigaom.com/2009/08/31/wi-fi-cafe-users-love-apple-and-like-to-spend/> (Man sitting)

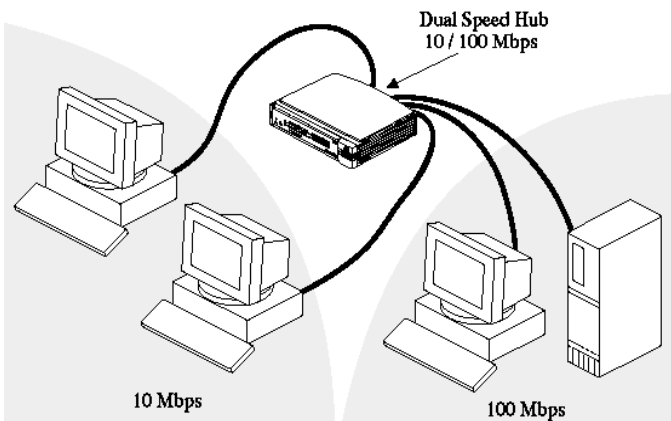
# Hub



Picture © plugwash

## Definition

A hub is a hardware device that joins multiple computers together, allowing them to communicate with one another. Hubs are typically inexpensive costing around 30 US dollars. They are typically rectangular and made of plastic.



## Hubs and Networking

Hubs typically have ports or connection points for four or five computers but can allow as many as twenty-four computers to connect to one another. Information is passed through the hub and sent to all computers in the network, even the source. This allows all connected computers to communicate directly with each other.

Picture © [http://www.windownetworking.com/articles\\_tutorials/autoslct.html](http://www.windownetworking.com/articles_tutorials/autoslct.html)

## Three types of Hubs

### *Passive*

- No power source
- Acts as an extension to the cable

### *Active*

- Power source

### *Intelligent*

- Power source
- As information enters the hub, it detects errors

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# Intranet

Have you ever come across the word **I N T R A N E T** and thought it was misspelled?

What a huge difference 2 letters can make!

## Definition:

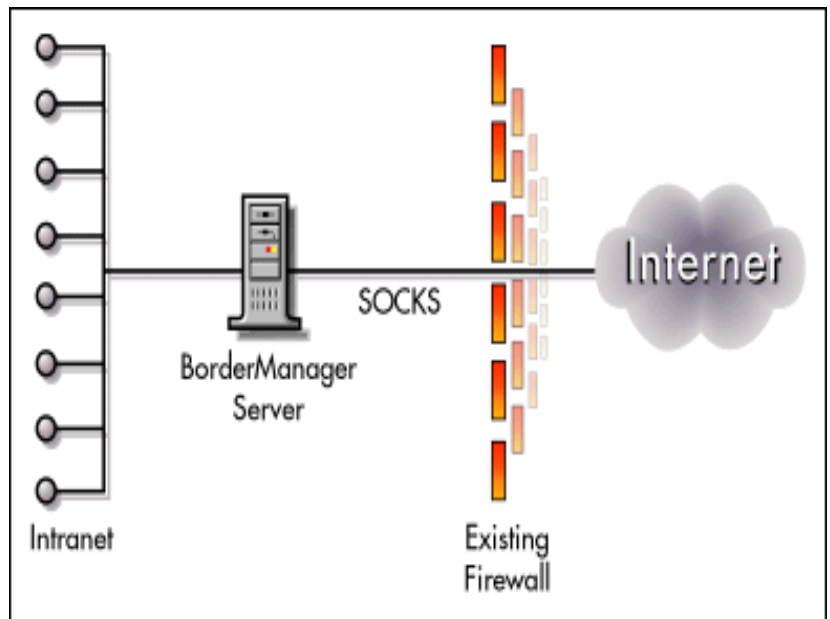
A company, school, government, or organization will use an intranet to confine important classified information within its private network. This network works much like the [internet](#) in the way it is used to access information between several computers. Information can be received from the Internet within the network by the use of a firewall to protect information coming in and going out of the network. Information is scanned by the firewall, both coming in and going out, for different levels of security. Some companies, schools, and organizations will allow clients or business partners to access the intranet sites from remote locations outside of the LAN (Local Area Network). These extensions of the intranet are called extranet. [TCP/IP](#), [HTTP](#), and other internet protocols are used in an intranet, which resembles a private internet. "With [tunneling](#), companies can send private messages through the public network, using the public network with special encryption/decryption and other security safeguards to connect one part of their intranet to another." By having an intranet, it will allow organizations to communicate and collaborate more effectively in a protected network.

## Some Benefits of an Intranet:

- Cheap to use for a small or large business
- Improved information sharing and collaboration across an organization
- Powerful when linked to corporate databases

## The Key to remember the difference between Intranet and Internet:

According to Merriam-Webster Dictionary online: **Intra = within**



## What it is like:

The "Intranet" is like a protected castle with many inner networks. A castle is protected from the outside world by the "curtain wall and stockade"; much like an intranet's firewall protects the network from the internet (World Wide Web).

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**Keri Stoye**

**Networking Definition – Intranet**

**Fall, 2009**

**Computer Applications in Education ITEC 4/57430**



# ISDN

## For Details, Contact:

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Fall 2009

## ISDN: Integrated Services Digital Network

### ***In a Nutshell:***

- ISDN is a network solution that digitally transfers voice, data, fax, and/or video simultaneously over regular telephone lines.

### ***The Meat:***

Developed in the 1990's, ISDN is considered an upgrade compared to dial-up. ISDN is two to three times faster and provides the chance to make or receive telephone calls on the same line (offering a DSL-like connection before DSL). ISDN bandwidth is dedicated, or guaranteed, and is not affected by restrictive firewall settings.

- BRI (Basic Rate Interface) ISDN consists of two concurrent connections, or channels. Both channels (64kbps bandwidth each) can be combined (128kbps total).
- PRI (Primary Rate Interface) ISDN offers 23 concurrent connections. Each channel can be connected to a different location or combined for larger bandwidth.
- BRI and PRI ISDN's also include another, separate channel that supports system functions.

Home networking with ISDN is fading because its cost is high and DSL is increasingly available. However, ISDN is still a viable option in rural areas, where customers can squeeze as much bandwidth from their phone lines as possible, and ISDN is commonly used in some European countries.

### ***Applications Today:***

Many schools use ISDN for video conferencing. Because the data travels over the public telephone network instead of the Internet, each participant site must use the same standard. In this case, utilizing the common standard of H.320 (ISDN) allows the participant sites to connect even when they use different equipment.

QuickTime™ and a  
TIFF (Uncompressed) decompressor  
are needed to see this picture.

Video conferencing via ISDN provides a predictable connection quality that is unaffected by other users. To connect with another, a user dials the number—just like a regular phone call. While users are only charged for the time they are connected, long-distance charges can snowball.

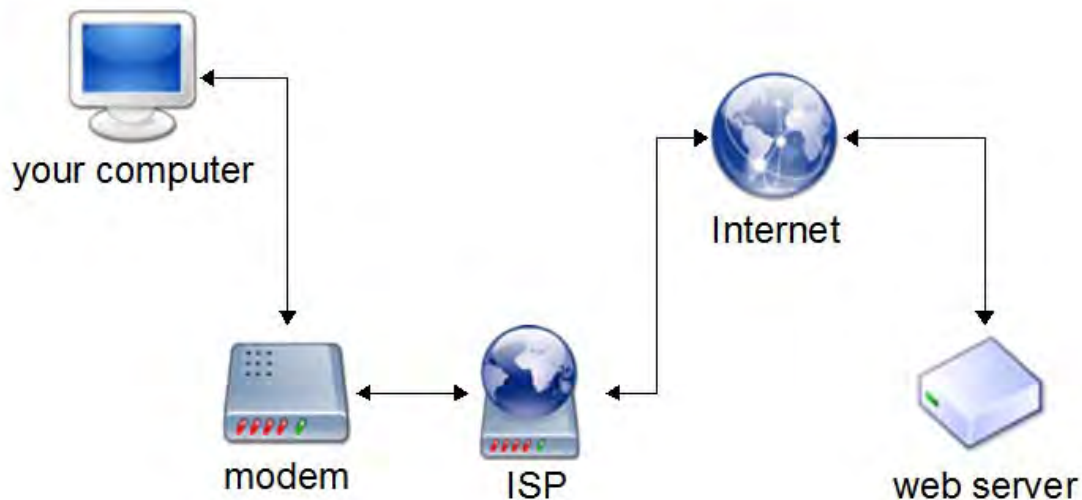


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# ISP: Internet Service Provider

**ISP** stands for **Internet Service Provider**; a company that provides a user with Internet access. It can also be called an IAP, or Internet Access Provider. ISPs supply Internet access through a number of mediums, and often also offer related services such as software tools, e-mail, and web-hosting. By providing access to the Internet, ISPs connect users from many different networks and allow them to share and exchange data.



## Examples of Internet Delivery Methods:

- **Dial-up Modem**-through telephone line
- **DSL (Digital Subscriber Line)**-also uses telephone line but different frequency.
- **Cable modem**-uses high-speed wire to transmit more data.

There are also **WISPs, (Wireless Internet Service Providers)** which offer connection to the Internet via wireless LAN (Local Area Network) or broadband networks.

## Examples of ISPs:

(Click on images for more information about each).



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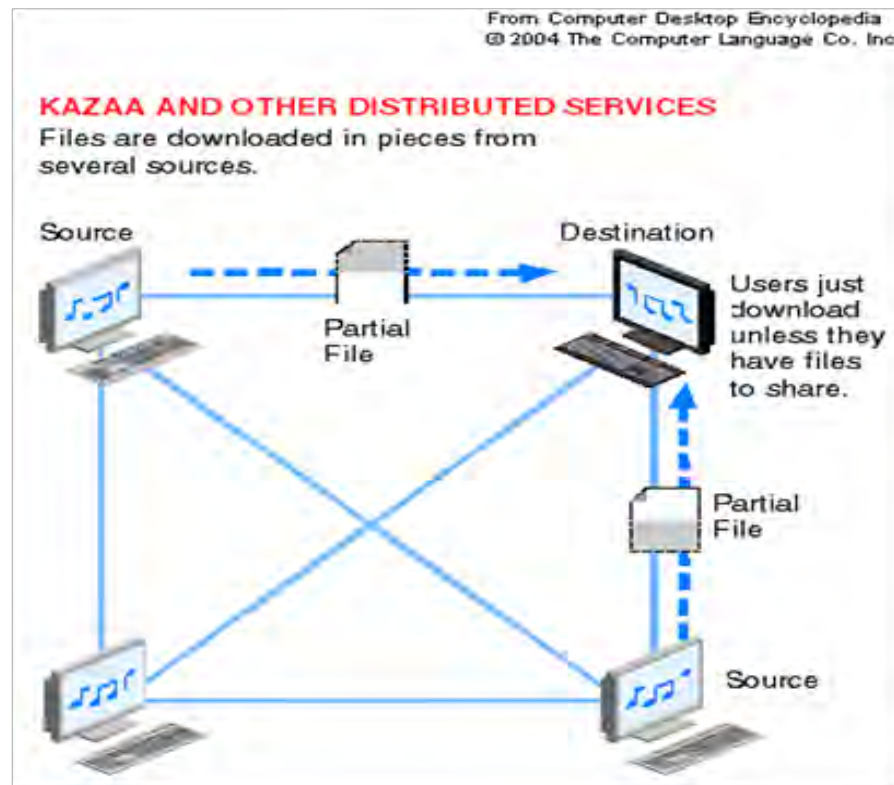
# Kazaa

## What is Kazaa?

- an online file sharing website for downloading music and ringtones
- costs \$19.98 per month for a subscription which includes unlimited downloads
- music is available as long as the subscription is paid
- files cannot be transferred to a portable music device
- ringtones can be downloaded to one cell phone

## How does it work?

Kazaa utilizes its user's computers as "supernodes." Kazaa's directories are distributed to the supernodes. Supernodes communicate with each other to complete searches. Fast computers are made supernodes automatically.



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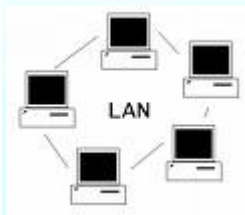
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# LAN

A LAN is a computer term used to describe what a group of people use to access the Internet and other computer devices from one access point or Internet hook up. LAN is also known as a local area network, a group of users networking together in a home, school, or workplace.

LAN can be used to share a network printer, more than one computer, home theatre, gaming devices, Internet Protocol television, and other computer related devices. For example if you have a high speed modem and you connect it to a wireless router, a person could access the internet in different rooms in the house. One person might be browsing the web in the living room, one person might be accessing a data base in the office and another person might be watching a television show on Internet Protocol Television (IPTV). In the workplace several computer users might be sharing a network printer.



More than one person can be on the network.

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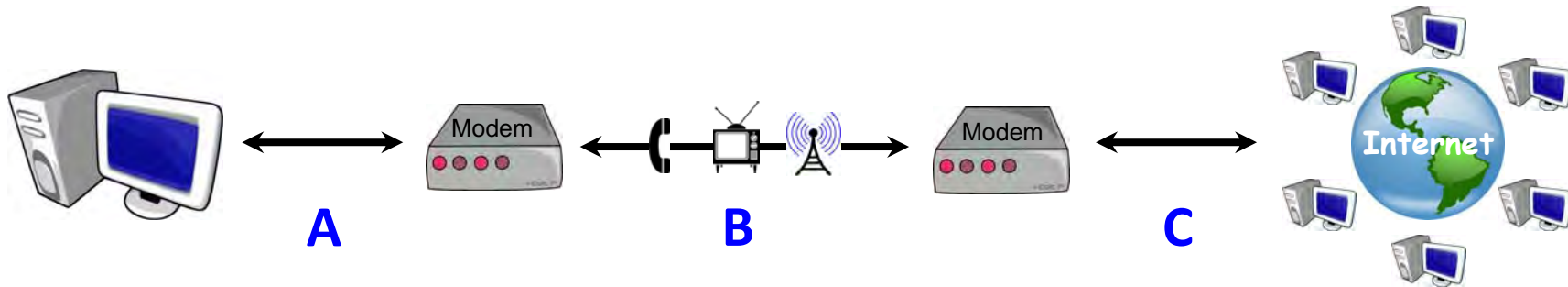
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# MOdulator DEModulator

Modems Make Connecting to the Internet Possible



## How it Works

A **MODEM** is a device that allows computers to communicate with each other via telephone lines, cable TV lines, or radio waves. The most common use of modems is to connect to the globalized network of computers known as the INTERNET.

**A** A computer sends digital data to a modem.

**B** The modem translates (modulates) the digital data so it can be transmitted via a telephone line, cable TV line, or radio waves.

**C** A modem connected to a receiving computer translates (demodulates) the data back into digital form so the computer can "read" it.

To send information back to the first computer, a different computer or a network of computers the process is repeated.

## Types of Modems

There are two types of modems: wireless and wired.

Wireless modems are used with laptop computers and handheld devices and make a *direct* wireless connection to the Internet. This is different than a Wi-Fi enabled device that connects to the Internet by *sharing an already existing wireless network that is connected to the Internet*.

Wired modems are physically connected to a computer with a wire, typically an Ethernet cable, and make connections to other computers via a telephone line or cable TV line.

The most popular wired modems are *DSL (telephone) modems* and *Cable modems*.

Wired DSL and Cable modems stay "on" all the time providing an instantaneous connection to other computers and the Internet. They can transmit large amounts of data at very high rates of speed.

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## Images

World, modem and computer images are public domain royalty free clip art. Downloaded

from <http://www.clker.com>





# Napster

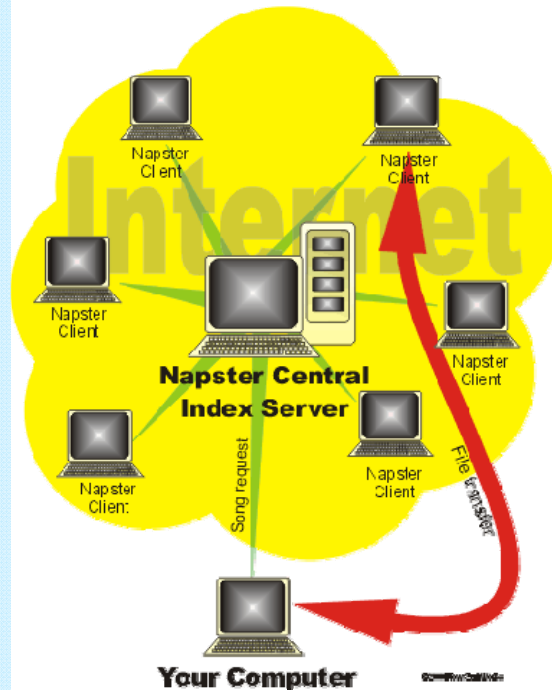
By Denise Goble ITEC 57430

## A Brief History

- Napster Inc. was founded in May 1999 by a 19-year-old student named Shawn Fanning and his business partner, Sean Parker.
- At the height of its popularity, an estimated 85% of college students were members and the Napster community included over 70 million users worldwide. Over 2.79 billion songs were downloaded for free using Napster.
- In December 1999, the Recording Industry Association of America filed a lawsuit against Napster, charging the company with tributary copyright infringement.
- In February 2001, the judge sided with the RIAA and ordered Napster to stop distributing copyrighted material. By July 2001, Napster Inc. was out of business.
- In 2003, the Napster name was sold to Roxio, Inc. and Napster was re-launched as a legal, fee-based subscription service.
- Today, Napster is owned by retail giant Best Buy.

Almost everyone has heard of Napster and knows that it was a widely popular, highly controversial source of online music files. **So what does Napster have to do with computer networking?** Quite simply, it is one of the best examples of worldwide **peer-to-peer (P2P)** networking.

## How it Worked.



- Users downloaded the Napster software at no charge and created a shared file directory. Any MP3s that members were willing to share were copied into the designated directory.
- To download a new song, users would send a request.
- The Napster server would then search the shared directories of other users to find the requested MP3.
- If a match was found, the Napster server would provide a list of available files. Users selected a file, clicked on the link, and the file was copied directly from one client's computer to the other's.
- The result was a copy of the MP3 that could be listened to or copied with no restrictions.

**The Controversy.** The Napster model of sharing music files raised some serious questions about copyright and the internet. The Recording Industry of America and many recording artists were not pleased that Napster was providing a way for consumers to get their music for free. Napster's defense was that sharing music files via the internet was no different from making a copy of a friend's CD. Since their service involved individuals sharing MP3s and no money changed hands, they claimed it was legal under the Audio Home Recording Act of 1992. The courts did not agree, and in 2001 they ordered Napster to stop distributing music files.

**The Napster Legacy.** The Napster of today ([napster.com](http://napster.com)) is a fee-based subscription service that has very little in common with the original version - other than the name. However, it can be argued that Napster has had a tremendous impact on file sharing and internet commerce. Many of today's most popular file and music sharing sites, such as Gnutella and Kazaa, can trace their roots back to Napster and its ground-breaking use of peer-to-peer networking.

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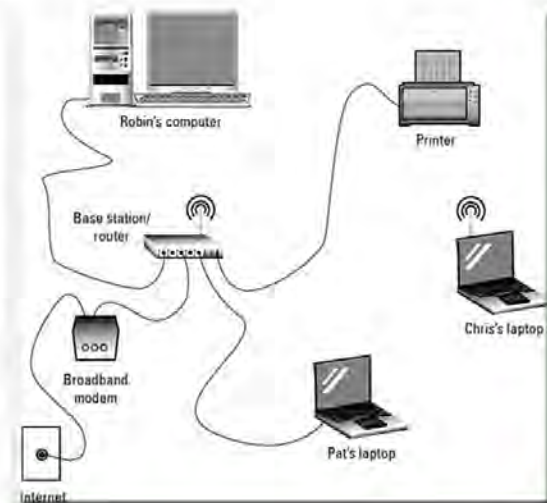
# Network

## What is a Network?

A network is a system where two or more computers or devices are connected together to communicate information. Much more than e-mailing or IM, the computers can share the same files; equipment, such as CD burners, printers, servers, scanners; and internet connection.

## Different types of Networks require the same general components:

- More than one computer!
- A router\* or switch
- A DSL line or broadband modem
- A way for the computers to connect to one another:
  - Ethernet Cable
  - Wireless connection (WiFi\*\*)
  - Fiber Optic



## What are some common types of Networks?

### Glad you asked!

LAN (Local Area Network) – connects network devices over a short distance; i.e. home, school, office building

WAN (Wide Area Network) – spans a large physical distance; i.e. the Internet is a WAN that spans the earth! *Also, LANs can connect to WANs...*

SAN (Storage Area Network or Server Area Network) – an architecture to attach remote computer storage devices

*There are other less common networks that we will not cover here...*

## So, how does this Network thing work?

Great question! The router is physically situated between your laptop, or PC, and the internet connection or broadband modem. All computers on a local network connect to the router, not directly to the modem/DSL line. Even in a wireless setting, the connection is the same. (See Chris' laptop in the diagram above.) A wireless router connects by a physical wire to the high-speed modem. It is considered a "wireless" connection because the laptop or printer is not physically attached to another device by a cable.

\* The router handles most of the network options for you and provides **firewall** (another topic!) protection between the computers on your network and the rest of the internet.

\*\*WiFi in this example is used for networking purposes, not for checking your Facebook page while sipping cappuccino in Starbucks!

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(Wireless network diagram)

# P-2-P



## PEER TO PEER NETWORKING

Peer to peer networking allows computers to be connected and communicate directly, rather than through a central point, such as a server. Peer to peer software makes it possible for anyone in the world to copy files directly from your computer.

### PROS

### CONS



- **No server needed**
- **Equipment is cheap**
- **Information travels among all clients**
- **Files are insecure**
- **Files are scattered among computers**
- **Backup is challenging**

- P2P became famous when millions downloaded songs from Napster.
- Over 150 million people from all over the world use P2P software.
- 41% of users are students 12-18 years old.
- Napster, Kazaa, and Skype all use P2P technology.

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*PACKETS - aren't just for  
ketchup anymore....*

## What is a PACKET?

A packet is a formatted unit of data that transmits between two network devices. The packet is organized into three components; header, body of the data message (payload), and footer (trailer). The packet header includes the internet protocol (IP) address for packet destination and information about the length of the packet. The body of the packet includes the data. The packet footer includes the special sequence to conclude the transfer of data, called the *magic number*. The trailer is also responsible for unpacking the information in the correct order and format for receiving device. Both the header and trailer components can provide important error checking logic as well. The specific organization of the packet improves communication reliability and accurate transmission between devices.

### Packet - E-mail Example

<b>Header</b>	Sender's IP address Receiver's IP address Protocol Packet number	<b>96 bits</b>
<b>Payload</b>	Data	<b>896 bits</b>
<b>Trailer</b>	Data to show end of packet Error correction	<b>32 bits</b>

©2000 Star Staff Works

### Did you know?

There are reliable packets and unreliable packets.

A reliable packet notifies if the packet delivery fails.

An unreliable packet does *not* notify if there is failure and it is called a **datagram**.

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**Images:**

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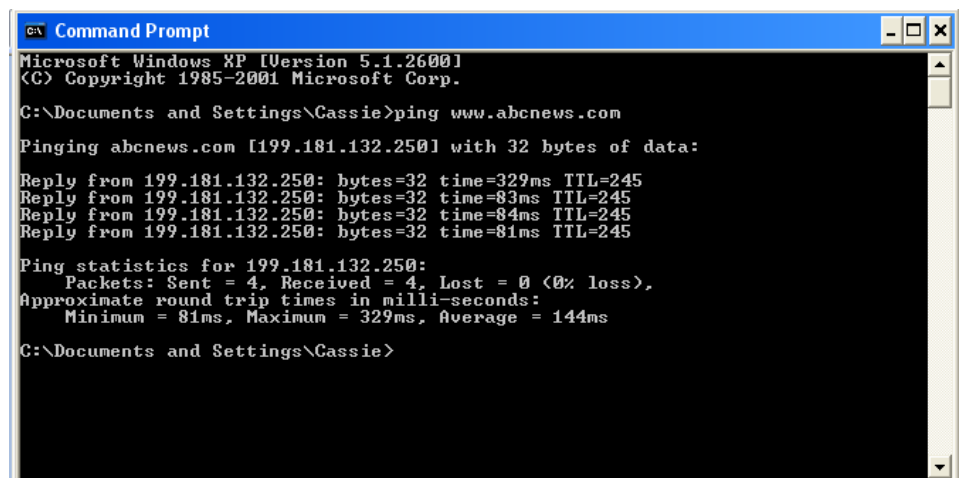
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# What is a Ping?

**Definition:** A ping test is used to determine the quality of communication between computers in a single network or the communication between a computer and an outside source via the internet.

**How it relates to Networking:** A ping test acts as an echo or call and response. Computer A sends out a small packet of information to Computer B. If Computer B receives the ping then it is determined the two computers can communicate with each other. If the computers do not communicate then an error message will be generated. If contact is established, the packet of information is returned to Computer A and the ping test then determines the "latency" or the time it takes for the computers to communicate to each other. Ping Tests are excellent in the beginning stages of trouble shooting networking issues. A ping test can also be used to see how quickly a computer can communicate with an internet site. It can determine the traffic and the communication speed or in the instance of trouble shooting, whether there are issues with internet connectivity or the webpage itself is down.

## Sample Ping Test Image



```
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

C:\Documents and Settings\Cassie>ping www.abcnews.com

Pinging abcnews.com [199.181.132.250] with 32 bytes of data:

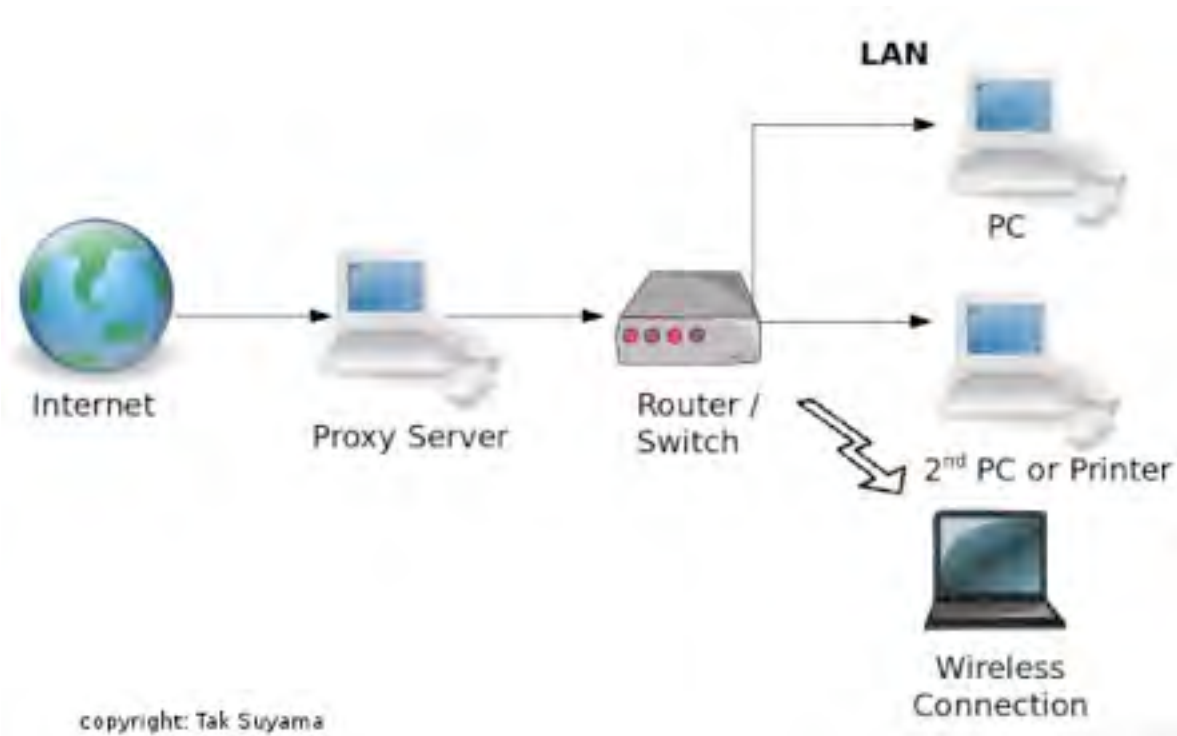
Reply from 199.181.132.250: bytes=32 time=329ms TTL=245
Reply from 199.181.132.250: bytes=32 time=83ms TTL=245
Reply from 199.181.132.250: bytes=32 time=84ms TTL=245
Reply from 199.181.132.250: bytes=32 time=81ms TTL=245

Ping statistics for 199.181.132.250:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 81ms, Maximum = 329ms, Average = 144ms

C:\Documents and Settings\Cassie>
```

This ping test was used to demonstrate internet connectivity between my computer and [www.abcnews.com](http://www.abcnews.com).





# Proxy Server

## Definition

A proxy server is an application or form of hardware that acts like a middle man between servers. A proxy server allows people to obtain material/information from other servers and internet resources at a faster speed, while giving security to the people sharing the information.



## How a proxy server fits into networking

A proxy server is used in between the user and their internet connection. They are most commonly used for internet traffic. A proxy server works the same way as a person using a middleman to ask a question. For example, if I asked my friend to ask my teacher a question and then tell me the answer, my friend would be acting as my proxy server. If another person asked my friend the same question that I had just asked, my friend would quickly be able to give that person the same answer without asking the teacher again. A proxy server works in the same way making peoples searches faster.

## References

Dictionary.com. (2008-07-01). *Dictionary.com: Proxy Server*. Retrieved from <http://dictionary.reference.com/browse/proxy+server>

The Tech Terms Computer Dictionary, *Tech Terms.com: Proxy Server*. Retrieved from <http://www.techterms.com/definition/proxyserver>

Ziff Davis Publishing, *PCMAG.com: Encyclopedia*. Retrieved from [http://www.pcmag.com/encyclopedia\\_term/0,2542,t=proxy+server&i=49892,00.a](http://www.pcmag.com/encyclopedia_term/0,2542,t=proxy+server&i=49892,00.a)  
Sp

# REPEATER

## WHAT IS A REPEATER ?

Does repeater mean a recorder that we use to record sound and repeat it over and over again?

The answer is obviously **NO**.

The concept of “repeater” in computer world refers to an electronical device that receives a signal and retransmits it at a higher level or at a higher power, or onto the other side of an obstruction, so that the signal can cover longer distances.



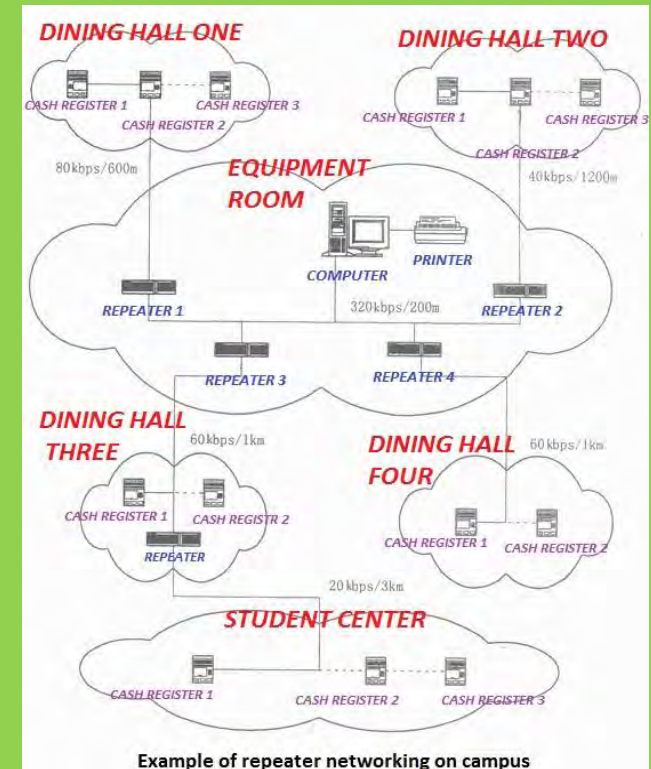
### AN EXAMPLE THAT REPEATER USES IN THE UNIVERSITY NETWORKING

The graph on the right side is a real example for repeater using in our daily life.

We can see repeaters (from No.1 to No.4) are the keys of this networking. With these repeaters, the terminal machine can get signal from all cash registers in each dining hall. And we can easily manage the data and make plans for each hall.

Also from this graph we can see all the machines are connected by cable. This kind of cable networking can be used in a relatively small area, such as in a university, a community, etc.

If we want the signal to cover a larger part of our district, like the signal for police system, we can use wireless repeaters. Wireless repeater is a device that you can place anywhere and it will wirelessly repeat the signal anywhere and it will wirelessly repeat the strongest signal.



Example of repeater networking on campus

1. The term of “repeater” originated with telegraph and referred to an electromechanical device used to regenerate telegraph signals.
2. Networking repeaters regenerate incoming electrical, wireless or optical signals. With physical media like Ethernet or Wi-fi, data transmission can only span a limited distance before the quality of signal degrades.
3. The configuration of the repeater is pretty simple. Usually you only need to configure it with basic network setting, wireless name, SSID and wireless security features, connect it to other wireless router or access point, then you are considered done.





## RESOURCES

*The Usage of Wireless Repeater* (n.d). Retrieved September 17, 2009, from the World Wide Web: <http://www.home-network-help.com/wireless-repeater.html>

R. Kayne, *What is a Network Repeater?* (n.d). Retrieved September 17, 2009, from the World Wide Web: <http://www.wisegeek.com/what-is-a-network-repeater.htm>

*Universal Wireless Repeater* (n.d). Retrieved September 17, 2009, from the World Wide Web: [http://www.ddwrt.com/wiki/index.php/Universal\\_Wireless\\_Repeater](http://www.ddwrt.com/wiki/index.php/Universal_Wireless_Repeater)

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邹继军 饶运涛 (2008-1-24) C A N中继器设计及应用. Retrieved September 17, 2009, from the World Wide Web: <http://www2.minitos.com/article/sort010/info-32853.html>

ITEC  
Assignment 2  
Repeater

Ying Geng  
September 23, 2009

# THE ROUTER:

## *Keeping The Message Moving*



The Router Is Responsible For Allowing The Internet To Exist At All

### WHAT IS IT?

- It is a specialized computer that lets messages flow between the computers.
- Connects the **LAN (Local Area Network)** to the **WAN (Wide Area Network)**.
- Sends **packets**, or data, over the internet to where it needs to go.
- Using this information, routers can figure what direction—if not the exact location—a packet is headed.
- Acting like a traffic controller, the router works to cut down on congestion and keep everything flowing along the best possible path.
- Often, routers have **firewalls** to block unwarranted entry of potential dangers.

### ROUTERS COME IN ALL SIZES

#### Small

If you have two computers, the one with the Internet connection may be used as a simple router, looking to see whether data is intended for one computer or another.

#### Medium

This router may be used to connect a small office network to the internet. They often contain security to protect the network, and they are usually stand-alone devices.

#### Large

These routers are used to handle data at major traffic points on the internet, handling tens of millions of data packets every second.

### Routers Relate

Routers relate to other networking terms. They go between the **LAN** and **WAN**, moving **packets** to their destinations. They often contain **firewalls** to protect the networks from dangers, such as **worms** or **viruses**. The wireless router is connected to the **DSL** or **cable modem**, providing internet access for those in the hotspot, or area within the router's range.

### The Wireless Router

This familiar device is connected to a **cable modem** or **DSL** and allows for wireless internet connection for devices within its range, or hotspot.



# THE ROUTER:

## *Keeping The Message Moving*



### REOURCES FOR NETWORKING TERM

Franklin C. (2009). How Routers Work. *How Stuff Works*. Retrieved (2009, September 01) from <http://computer.howstuffworks.com/router.htm/printable>

Mitchell B. (2009). Wireless Routers. *About.com*. Retrieved (2009, September 01) from <http://compnetworking.about.com/od/wireless/ss/wirelessgear.htm?p=1>

Mitchell B. (2009). Router. *About.com*. Retrieved (2009, September 01) from [http://compnetworking.about.com/cs/routers/g/bldef\\_router.htm?p=1](http://compnetworking.about.com/cs/routers/g/bldef_router.htm?p=1)

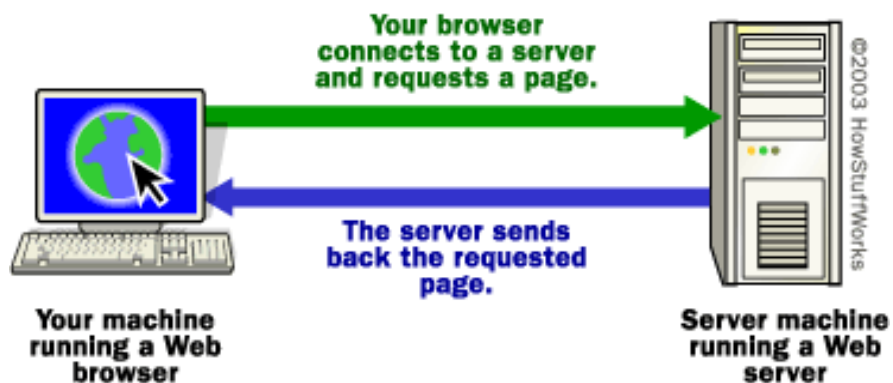
Mitchell B. (2009). LAN-Local Area Network. *About.com*. Retrieved (2009, September 01) from [http://compnetworking.about.com/cs/lanvlanwan/g/bldef\\_lan.htm?p=1](http://compnetworking.about.com/cs/lanvlanwan/g/bldef_lan.htm?p=1)

(2009). Networking Router. *The Computer Technology Documentation Project*. Retrieved (2009, September 14) from <http://www.comptechdoc.org/independent/networking/terms/network-routing.html>

# How Servers Serve You!

**If it weren't for servers the internet wouldn't work!**

A server is a computer which runs software allowing web users like you access to its information. It is connected to the World Wide Web and lets other internet-connected computers (called clients) ask it for information. The server processes these requests and then sends them back to the user's computer. One computer may be both a client and a server.



In other words, when you type in a URL, your computer's internet browser finds the server which stores the site you want to look at. The server finds the specific page you requested in its storage and sends it back to your browser. Then your browser formats the information for your enjoyment.

Sources

Brain, M. (n.d.) *How Web Servers Work*. Retrieved from

<http://computer.howstuffworks.com>.

Getting Web Server Space. (n.d.) in *Dummies.com*. Retrieved from

<http://www.dummies.com>.

Web Servers. (n.d.) in *About.com: Wireless/Networking*. Retrieved from

<http://compnetworking.about.com>.





## SQL – Structured Query Language

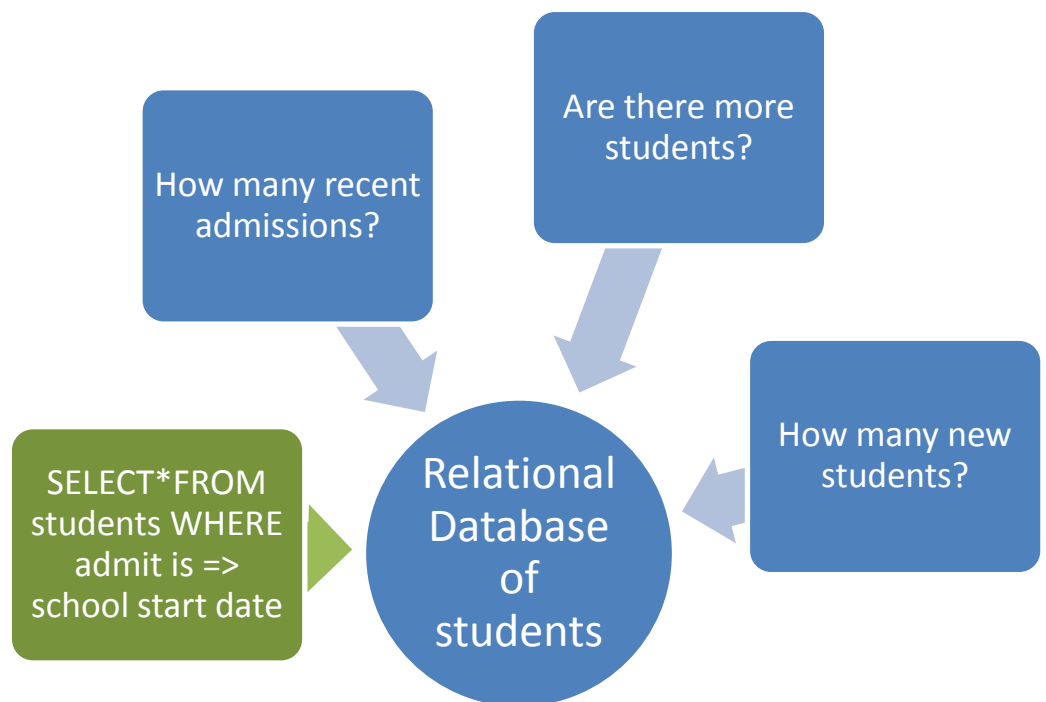
There are many ways to say the same thing. SQL provides a common language for communication with relational databases.

SQL is a language that is understood by relational databases. SQL allows users or other applications to; among other things, search, add, delete, and modify records in a database. The use of this common language facilitates networking between different software applications. For example, the library software (a relational database) wants to know when new students are admitted so it “asks” the student information system (a relational database) for this information – in SQL. Both systems speak SQL so the exchange of information is successful. The preferred pronunciation is “es queue el” although many database administrators use the slang pronunciation “sequel”.

Shown in blue are three different ways to ask the same question in *English*. The database won't answer these questions – it doesn't speak *English*.

With **Structured Query Language (SQL)** the question is properly asked as shown in green:

The results (answer) to this SQL query (question) would give a list of students who entered on or after the first day of school. The database speaks SQL and answers the question.



## References

Chaple, Mike (n.d.) Introduction to SQL. Retrieved on September 12, 2009 from

<http://databases.about.com/od/sql/a/sql.htm>.

*SQL Select Statement* (n.d.) Retrieved on September 12, 2009 from

[http://www.w3schools.com/SQL/sql\\_select.asp](http://www.w3schools.com/SQL/sql_select.asp)

Strickland, Jonathan. "How Data Integration Works." 14 May 2008. HowStuffWorks.com.

Retrieved on September 12, 2009 from

<://communication.howstuffworks.com/data-integration.htm>.

# TCP/IP

## FYI...

- TCP/IP was developed by the Department of Defense (DOD) as a research project to combine various networks into a network of networks.
- TCP/IP is composed of layers. IP corresponds to the Network layer and TCP corresponds to the Transport layer.
- TCP and IP are two separate network protocols, but are used together so frequently that TCP/IP is common terminology
- IP addresses are four numbers separated by a dot with a numerical range of 0-255

## Definition...

TCP/IP is short for Transmission Control Protocol (TCP) and Internet Protocol (IP). At its basic definition, the job of TCP/IP is to transfer and manage data across a network. It is the language of the internet and the way that computers are able to talk with each other.

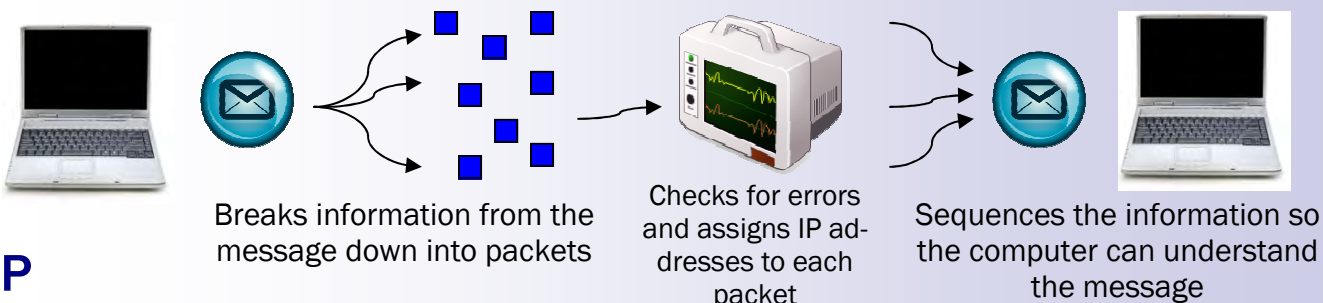
More specifically, it is the standard for describing how information should be broken down into packets. The TCP component is responsible for detecting errors or lost data and arranging the packets until data is accurately received. The IP component is responsible for assigning a unique number to the packets as they are delivered and also assigns a IP address to every computer or workstation in the world.

## How it fits into networking...

TCP/IP is able to be used across any network. TCP/IP data can be sent across a LAN using a router, cable TV service, or any other network through gateways.

One of the major uses of TCP/IP is the internet. Web browsers communicate with web servers through the TCP/IP protocols. Another standard that is used for internet data transmission is the Ethernet standard.

## TCP



## IP



Assigns an address to each computer

## Bibliography...

Mitchell, B. (2009). Retrieved September 14, 2009, from About.com: <http://compnetworking.about.com/od/basicnetworkingconcepts/1/blglossary.htm>

Shelly, G. B., & Vermaat, M. E. (2010). *Discovering Computers 2010: Living in a Digital World*. Boston, MA: Course Technology.

*The Computer Technology Documentation Project*. (4, November 2002). Retrieved September 9, 2009, from Networking Section Introduction: [www.comptechdoc.org/independent/networking](http://www.comptechdoc.org/independent/networking)

*Yale University*. (1995, February 2). Retrieved September 14, 2009, from Introduction to TCP/IP: <http://www.yale.edu/pclt/COMM/TCPIP.HTM>

Boswell, W. (2006, March 30). *About.com*. Retrieved September 26, 2009, from TCP/IP The Language of the Internet: <http://websearch.about.com/b/2006/03/30/tcp-ip-the-language-of-the-internet.htm>

Don't let THIS...



turn into THIS!



# Trojans:

Similar to the purpose of the wooden horse in which the Greeks manipulated a seemingly harmless object to induce destruction, such is the intent of computer programs known as trojans. Most of the time, the user is unaware that there is a damaging program being run on his or her computer because the application looks safe and stays relatively hidden. The trojans can be used to access personal information stored on a computer and send it to other parties through the use of the Internet. Alternatively, they may go as far as erasing or damaging hard drives. Unlike worms and viruses, trojans cannot replicate themselves automatically; the damage is sustained to the computer in which the trojan was installed unless it is knowingly sent to other computer systems. Trojans can appear on computers after the user opens an email attachment containing the virus. It can also be introduced to a computer through chat software or games. Using a firewall can help protect a system from being infected.

Trojans can be extremely detrimental to the operation of networks. Because their main purpose is to gather and transmit information from the host computer to a third party, any information stored in that computer or shared from another within the network may be at risk of being compromised.

# References

Brain, M. (2009). *How computer viruses work*. Retrieved from <http://computer.howstuffworks.com/virus.htm>

Mitchell, B. (2009). *Trojan- Trojans and viruses in computer networking*. Retrieved from [http://compnetworking.about.com/cs/worldwideweb/g/bldef\\_trojan.htm](http://compnetworking.about.com/cs/worldwideweb/g/bldef_trojan.htm)

Noonan, W. & Dubrawsky, I. (2006). Introduction to firewalls. In *Firewall Fundamentals*. Retrieved from <http://proquest.safaribooksonline.com/1587052210/ch01lev1sec3>

*What is a trojan horse virus?* (2009). Retrieved from <http://www.tech-faq.com/trojan-horse-virus.shtml>

# got bugs?



## Is Your Computer Not Feeling Like its Usual Self?



It may have a virus (an infection which receives a piggyback ride from your computer to create havoc without your permission).

A virus is able to attach itself to multiple files which have been opened by the “infected” file which can potentially shut down an entire network and make a computer useless.

## Common Symptoms of a “Bugged” Computer:

- Running Slower than Normal
- Locks Up or “Freezes”
- Drives are Inaccessible
- Unusual Messages
- Distorted Messages
- Restarts on its Own

## How a Computer Gets Bugs?

- Opening Unknown Emails
- Attachments and Pop Ups
- Internet Downloads
- Illicit Software

## Ways to Prevent Bug Infestation:

- ESET NOD32
- Norton Internet Security
- AVG AntiVirus
- Norton AntiVirus

## Where to Learn More about Pest Control:

Brian, M. *How Computer Viruses Work*. (n.d.) Retrieved on September 14, 2009 from <http://computer.howstuffworks.com/virus.htm>

Computer Virus. *Wikipedia*. (n.d.) Retrieved (09, 14 2009) from [http://en.wikipedia.org/wiki/Computer\\_virus](http://en.wikipedia.org/wiki/Computer_virus)

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*Antivirus Software Reviews*. (n.d.) Retrieved on September 14, 2009 from <http://www.consumersearch.com/antivirus-software>

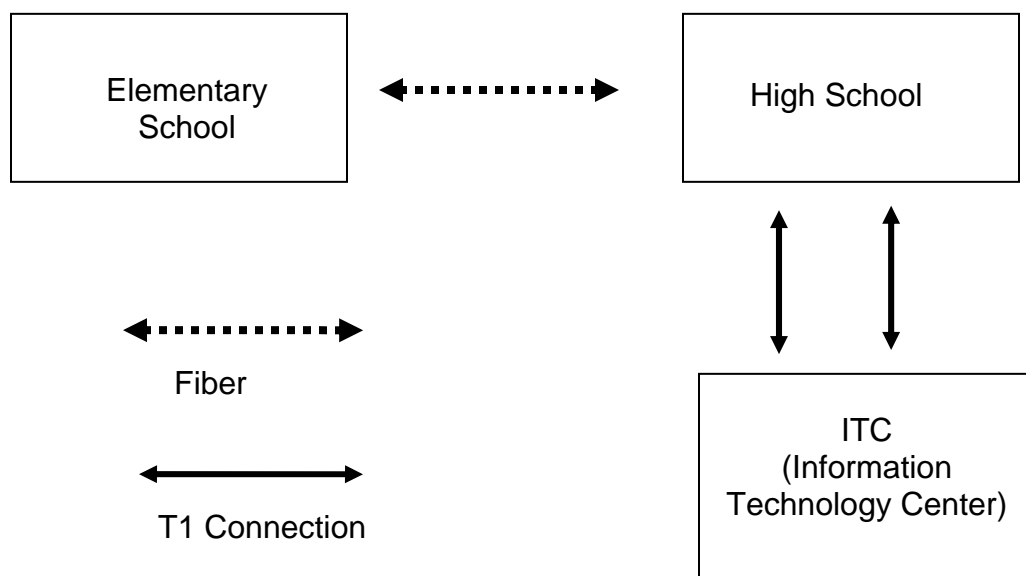
*Computer Virus Symptoms*. (n.d.) Retrieved on September 14, 2009 from <http://www.microsoft.com/security/antivirus/indicators.aspx>

Images provided by: Microsoft Word 2007

# WAN

## Wide Area Network

WANs are networks that cover a large geographical area. A wide area network uses routers and switches to connect LANs and other types of networks. The largest wide area network is the Internet. Home networks or school buildings are examples of LANs (local area network). Connecting the schools and the ITC is an example of a WAN. The diagram below is an example of a school districts WAN.



### References:

Mitchell, Brad (n.d.). *About.com: wireless/networking*. Retrieved from [http://compnetworking.about.com/od/basicnetworkingconcepts/a/network\\_types.htm](http://compnetworking.about.com/od/basicnetworkingconcepts/a/network_types.htm)

(n.d.). *What is a wide area network?*. Retrieved from <http://www.wisegeek.com/what-is-a-wide-area-network.htm>

(n.d.). *Wide area network technologies*. Retrieved from <http://www.edrawsoft.com/Wide-Area-Network.php>



# WHOIS



## Results from a WHOIS search of my personal website.

### WHOIS results for riverplacemusic.com

#### Registrant:

River Place Music Studio  
3479 Topgallant Ct  
Columbus, Ohio 43221  
United States

Registered through:  
GoDaddy.com, Inc. (<http://www.godaddy.com>)

Domain Name:  
RIVERPLACEMUSIC.COM  
Created on: 22-Aug-09  
Expires on: 22-Aug-10  
Last Updated on: 22-Aug-09

#### Administrative Contact:

Landrum, Mary [m.landrum@mac.com](mailto:m.landrum@mac.com)  
River Place Music Studio  
3479 Topgallant Ct  
Columbus, Ohio 43221  
United States  
(614) 216-7948 Fax

#### Technical Contact:

Landrum, Mary [m.landrum@mac.com](mailto:m.landrum@mac.com)  
River Place Music Studio  
3479 Topgallant Ct  
Columbus, Ohio 43221  
United States

#### Current Registrar:

GODADDY.COM, INC.

#### IP Address:

[199.34.228.100](http://199.34.228.100) (ARIN & RIPE IP search)

#### IP Location:

US(UNITED STATES)

#### Lock Status:

clientDeleteProhibited

#### DMOZ

no listings

#### Y! Directory:

[see listings](#)

#### Data as of:

## WHOIS (Who Is?)

WHOIS is a method of looking up internet domain information. A WHOIS lookup can be done at any site from which a domain name can be purchased (register.com, godaddy.com etc.)

### A WHOIS search will give you the following information:

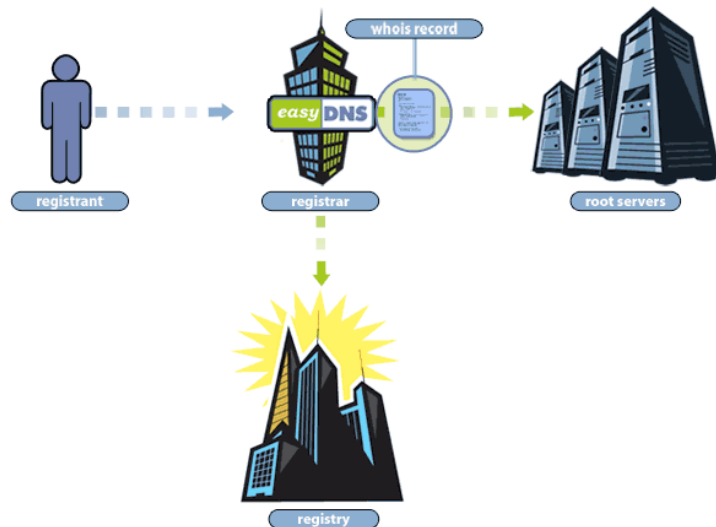
- When a domain was registered.
- By whom a domain was registered.
- Contact information of the site owner.
- Name or network mapped to a numerical IP address.

### What can be found by searching WHOIS?

- Whether domain names have been registered yet or not.
- Information about domains, network and host.

### Potential problems with WHOIS:

- Spammers, Identity Thieves and Scam Artists who search WHOIS for personal information such as contact names and addresses.
- Possible inaccurate information.
- Not consistent because each registrar collects and inputs their own set of information.



#### References:

Kayne, R. (2003) *What is WHOIS?*. Retrieved September 20, 2009 from <http://www.wisegeek.com/what-is-whois.htm>

Yahoo. (2009) *What is WHOIS?*. Retrieved September 20, 2009 from <http://help.yahoo.com/l/us/yahoo/smallbusiness/domains/registrationinfo/registrationinfo-04.html>

Safer WHOIS. (2009) *What is WHOIS Hijacking?*. Retrieved September 20, 2009 from <http://saferwhois.com/what-is-whois-hijacking.html>



**Have you ever walked into a coffee shop or bookstore and seen this symbol and wondered what it meant?**

This symbol indicates there is a **Wi-Fi** connection in the area. **Wi-Fi** can be best described as connection between devices without using cables. For example, you can use **Wi-Fi** to connect to the Internet without having to plug into anything. Technically speaking, the term **Wi-Fi** was created by the Wi-Fi Alliance to indicate the products being used in a wireless network are approved by Institute of Electrical and Electronics Engineers' (IEEE) 802.11 standards (Wi-Fi Alliance, 2009).

**You are probably wondering how that works...**

**Wi-Fi** works by using the same technology as radios. These technologies, called 802.11, allow for fast, secure, and safe connections. **Wi-Fi** operates on 2.4 and 5 GHz with a bandwidth of 10-1 centimeters. To give you an idea of how high a frequency that is, FM radio usually operates between 87.5 - 108.0 MHz with a bandwidth of 10-1 meters (Radio Frequency, 2009). To get a sense of just how high a frequency **Wi-Fi** is, it takes 1000 MHz to equal 1 GHz!

**What does Wi-Fi have to do with networking?**

**Wi-Fi** can be used in both personal and business networking situations.

In a home setting, **Wi-Fi** can be used to connect “a family's computers, media and display devices together to share hardware and media resources such as printers, audio files and Internet access” (Wi-Fi Alliance, 2009). This allows everyone in the house to share files and documents and connect to one single printer in a central location.

Both large and small businesses can benefit from using **Wi-Fi**. Businesses can use **Wi-Fi** to “extend standard wired Ethernet networks to public areas like meeting rooms, training classrooms and large auditoriums” (Wi-Fi Alliance, 2009). A common example of this is free **Wi-Fi** in coffee shops or hotel lobbies.

Now, the next time you are in a bookstore or coffee shop and you see the **Wi-Fi** symbol, you will know exactly what it means. You can then begin to enjoy using the Internet with the freedom of wire free mobility from your laptop or mobile phone!



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iclipart (n.d.). Retrieved on September 25, 2009 from <http://www.iclipart.com/search.php?start=392&submit=&keys=laptop&notkeys=&andor=AND&c1=COLOR&c2=BANDW&s1=&s2=&release1=&release2=&previewcheck=&cat=All&type=REGULAR&rows=8&jump=0&period=&collection=&tl=clipart>

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