Fast Internet course
EDITED VERSION

By Alessio Sperlinga
alessio@alessiosperlinga.it
http://www.bambini.it
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Preface

I started teaching others about the Internet in 1997.
The first courses were in schools and companies in 1998.
In 1999 I wrote the basic version of this manual during a weekend, while putting together the material used during my courses.

I've decided to write a synthetic guide. I've put all the essential information in about 12 pages mainly for a public who may not know anything about computer science.
I've put this course on the net especially for teachers and for people that are beginning to use the internet.

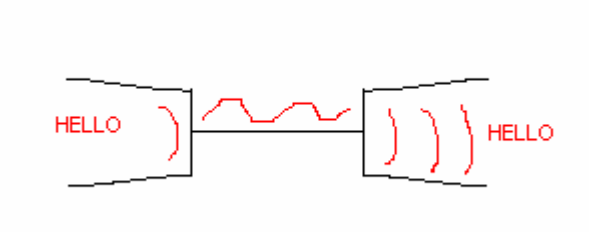
You can find this guide on the site Bambini.it as downloadable file.
Everything is completely free and reusable. It mustn't be used for the sake of financial gain and the name of the author must be always mentioned.
The hundreds of copies which have been download every month let me think that my work is appreciated.

Happy reading!

Alessio Sperlinga

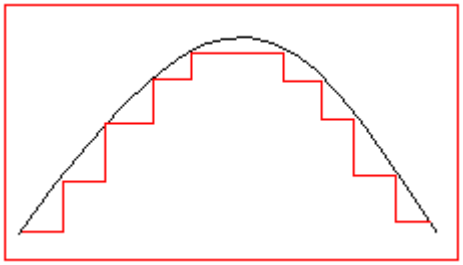
Wire Signals

Do you remember when you were young and used to play "telephone"?



The vibrations of your voice transmitted through the air and, then, along the string were amplified by the receiver's cup.

This is the direct representation of a sound; it is a graph like the ones we can see in an oscilloscope in American films or in a hospital for heartbeats.
A direct signal is called ***analogic*** signal, that is analogous, similar to the real one.



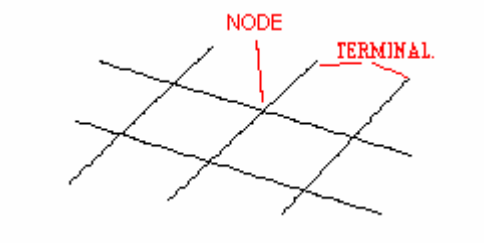
If the analogical signal is measured at regular and frequent enough time intervals a discontinue signal is registered. This signal called ***digital*** is a series of numbers which represent the same sound.

For example, if I transform the above mentioned signal above numbers, the result is: 2 – 4 – 6 – 8 – 10 – 10 – 8 – 6 – 4 – 2 and I can write it on a sheet of paper using less space than the graph.
If I use numbers' properties, i.e. the possibility to divide them, the big number above becomes smaller.
Next, if I transform the number into a bit, that is, I use just two figures (0 and 1) to write the numbers, I will be able to put the information into the computer and make it "travel" through the telephone line as far as another computer which then turns it back into the original information.

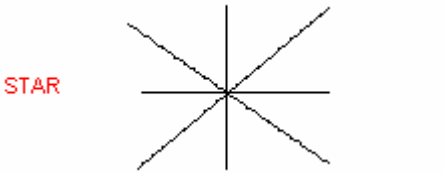
Let's sum up:
I transform information (sound, text, image) into a digital signal to be able to record it and transmit it more easily using the computer and the telephone lines.

Networks for communication

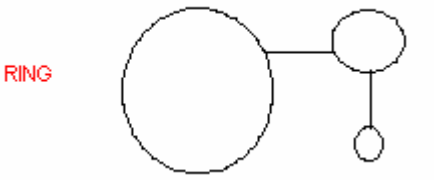
The networks are crossings of wires which transfer information, and were created to allow people to communicate.
It is possible to use radio or laser signals to send information, too.
The interface between two wires is called a "***node***", while the end of the wire is called a "***terminal***".
We can connect a telephone or a computer to a terminal.



Usually networks can be of two types: STAR and RING.



STAR, suitable to connect anyone to anybody else. Different information can be sent from any place. That is, if you have a telephone you can call wherever you want worldwide.



RING, suitable to transfer the same information to everybody. One example of this can be cable TV.
In a network the one who gives out services is called ***server***, the one who receives them is the ***client***.

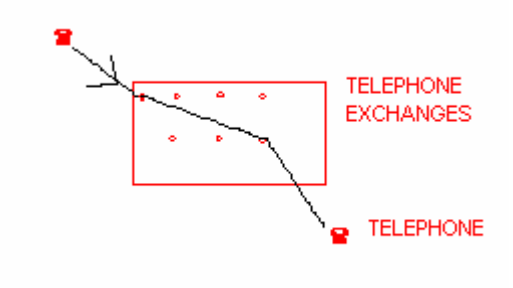
Networks can be ***hierarchic*** or ***distributed.***
In a hierarchic model the information is spread from a central point to the periphery and vice versa like for the computers of a bank or for a television, and the networks have been created to allow a control on the information which circulate on them.
In a distributed model the information move "point to point" and there is neither a centre or a periphery, like the internet, and these networks have been created simply to move the information.

The tools we use to communicate can be ***monodirectional*** like the television, where we can just receive information, or ***interactive*** like the internet, where we can both send and receive information.

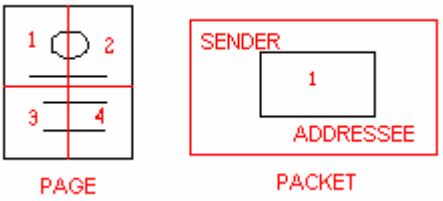
Let's sum up:
We use the networks to send and receive messages.

Rules for communication

People need some rules to communicate, for example, when one is speaking the other is silent and both have to speak a common language. As there are a lot of ways to communicate, such as smoke signals, Morse code, luminous signals and so on… these rules need to be known and become common for many to be used. When that happens we create a ***Communication protocol***.
Methods of communication are the most important things to understand: for example, until the '70's, wire telephone communication was called ***Commutation of circuit***. In fact this meant making a circuit common, joining two wires.



When telephone exchanges were used, as in old films, to get through a telephone call a cable was put both into the internal line socket and in the external one.
After the closing of the circuit (***commutation***) the wire was engaged by the two people speaking.
In the '70's another method was created to use the telephone wires. The Internet works thanks to this system.
When you connect to the Internet, you see a page like a magazine on the screen, that is usually the home-page of the access provider.
The page is filed in the computer you are connected to, which sends you that page using the communication protocol of ***TCP-IP*** that is based on ***Packet Commutation***.



The page is divided into numbered parts, that are put into a "***Packet***" that contains the address of the computer you are connected to (***sender***) and the address of your computer (***addressee***).
When packages arrive, your computer controls if they are complete or if there is something missing and, at the end, it rebuilds the original page on your screen.
The most important advantage of this system is that packages coming from different computers can be transmitted by the same wire. Your information travel in the same way as cars on a highway.
If there is traffic, all will go more slowly.

Let's sum up:
To communicate, we need to speak a common language and need to have some rules, that's a communication protocol.

How to connect to the Internet

When you want to put a telephone in your house, you already know that phone lines are nets of nets of wires that cover the whole world.
The Internet uses the same wires in a different way: it transmit files instead of voices.
In this way there can be many more companies that rent phone wires to connect their computers, because it's cheaper than creating a new net of wires and signal amplifiers.
If these companies decide to sell or give you a connection to the Internet, they are called **Internet Service Providers.**
In practice you rent a connection to their computer, through which you connect to all other computers on the Internet.

To rent a connection to the Internet we must have:
a computer, a modem, the programs to connect to the Internet.

- You have to connect the modem to your computer and to your home telephone jack. You can buy a modem in any computer store and it can costs from $30.00 to $200.00.
  The modem (modulator/demodulator) transforms your computer signal into a format suitable for the telephone line and vice versa.
- You can find the programs (software) to connect to the Internet in electronic shops, computer shops, telephone shops, in supermarkets and from computer magazines.

The cost for internet providers varies depending on the additional services that the provider offers as well as your location and the type of calling plan you have. "Flat" tariffs that provide you access to the Internet with a fixed monthly cost run from 20,00 to 50,00 dollars, some also include a toll free connection number.

To choose where to connect and to install the software in your computer, you should ask someone more expert for help.
The most important thing to know is that whenever you connect to the Internet you use your home telephone, so you pay your telephone company as well as your internet provider.
So when you subscribe a contract with the provider make sure it has a toll free or local number or check if your telephone service provider has a convenient internet provider solution.

Once everything is installed, you just have to launch the connecting program and your computer will connect to the Internet. During this operation, first of all you are asked your user name and your password, then your modem will whistle like a fax and on your screen messages such as “connecting…”, and “verifying user name and password…” will be displayed.

The password guarantees that nobody can use your Internet access, and your user name will be used to create your e-mail address.
For example, you can see above that my user name is “alessio.sperlinga”, my provider is “AOL”, America On Line , and my e-mail address is alessio.sperlinga@aol.com .

The @ symbol is called AT.

Let’s sum up:
You need a computer, a modem and a program to connect. You mustn’t forget an expert friend to help you. The costs are the telephone units to call your provider and stay connected.

What the Internet can give us

In practise Internet supplies with two fundamental things:

- Information
- Electronic mail

Usually we pick up information at newspaper kiosks buying magazines and newspapers, or from the television.
The Internet is the greatest newspaper agent in the world, available in all languages and opened 24 hours a day.
In addition, using a computer to read something makes it possible to see not just a static sheet of paper but a program to interact with. So for example, a game magazine on the Internet often includes real games you can try while reading.

For over a century we have used mail to exchange information, even if recently, after the advent of the telephone, the traffic has decreased.
In any case, mail is now part of our society's customs: some people send good wishes, cards and postcards regularly.
If you have access to the Internet, you will have a mailbox on your provider's computer. All of the Internet users have an email address.

When somebody writes to you, the file is moved from the writer's computer to your provider's computer and when you connect to the Internet it gets copied onto your computer.
The electronic mail, or simply e-mail, is as quick as a fax and as cheap as a bike.
When you connect to the Internet and send a message you spend the same amount as a local call even if the person whom you are writing to is on the other side of the planet.
Moreover, with the message you can send files such as reports or programs or drawings, therefore avoiding the costs of sending floppy disks or travelling for miles to reach another person.

Let's sum up:
We can have and send more information, more quickly, with lower costs.

How to surf the internet

When you telephone somebody, often you use a telephone directory, which is a table with two columns, as the one on the left below. On the Internet it's the same thing, as you can see on the right of the outline, **but , instead of using the telephone number to connect to someone, you can use his "domain name".**

Name	Telephone		Domain	IP address
Alfa	5123456		www.ibm.com	194.244.48.74
Beta	7998461		www.beta.com	194.245.48.70
Gamma	6454366		www.caritas.it	…

The name is made of three parts and is generally written in lower case letters; for example www.caritas.it means World Wide Web (www), that's the web of wires that covers the whole world, Caritas is the name of the association and ".it" means Italy.
Each country has its domain such as .fr for France, but there are also American domains such as: **.com for commercial bodies**, i.e. for Sony we'll use www.sony.com, **.edu for universities, .gov for governmental bodies, .net for bodies dealing with telecommunications, .org for international organizations.**

If you are looking for IBM on the Internet it's probable that typing www.ibm.com in the address bar, you will get the information you are looking for.

The program displayed on your video is named Browser and the most widely used are Internet Explorer, Netscape, Mozilla and Opera.
These programs are easy to use, **surfing the Internet just means writing an internet address, press enter (or go button), press the Back button to go back or the Bookmark button to record an address** in our personal bookmark list.

Let's sum up:
Turn on the modem, launch the browser program, write an address and press enter.

Discovering the Internet

Where is the telephone directory?
They're called Search engine or Portal and they are sites that help you find things on the Internet. You can search using an index or writing a keyword and pressing enter. **The results are showed as a list and when you pass your mouse over them it becomes a hand with the index finger pointed up. If you click you will connect to that page.** That blue underlined writing you have clicked on is a hyperlink or hyper textual link.

- http://www.google.com American search engine
- http://www.about.com/ Human guide to the Internet
- http://www.yahoo.com American directory index
- http://searchenginewatch.com Everything about search engines

Are there newspapers on the Internet?
Yes, sure there are. The advantage is that you can connect also to agents who supply newspapers with news and that you can read news in papers from different countries.

- http://www.onlinenewspapers.com Index of newspapers
- http://www.eurotv.com/ European television programs
- http://www.tvguide.com/ American guide to television programs

What can we see?
- http://www.earthcam.com/ Cams from all over the world

Can I find free programs on the Internet?
On the Internet you can find sites witch include free programs or programs that you can download and try. They are organised by issue. To copy a program in your computer you have just to click once on the underlined title.

- http://download.com Programs for Windows
- http://www.tucows.com/ Programs for various operating systems

Can I chat with someone?
There are programs named IRC, Internet Relay Chat, that allow you to chat as you were using a walky-talky. Usually areas where you can chat are divided by topic and sometimes have a moderator who dismiss people who go off the topic or use foul language.

- http://www.talkcity.com/ Chat community
- http://www.mirc.com Probably the number one

Who can I contact if I have any problem?
On the Internet there are some areas named newsgroups, divided by issue and in every language. There are thousands.
It works like this: You have a problem of any type, for example about Windows. You search a newsgroup about Windows. You write a letter to ask your question. If somebody feels like answering, he does.
Usually people who found a newsgroup are experts in that field and answer freely.

The newsgroups let you solve problems without having to know someone more expert, as usually you have to.

- http://www.google.com/grphp?hl=en&tab=wg&ie=UTF-8&oe=UTF-8&q= Access to american newsgroups

Can I shop on the Internet?
Yes, of course. It's like buying ordering by post, but you can pay by credit card. Delivery costs can weigh on prices but if you cannot find something in your town it's the best way.

- http://www.amazon.com The greatest book shop in the world
- http://www.cdnow.com Compact disk shop

Can I send messages to mobile telephones?
- http://www.sms.ac To send messages to mobiles

Can I have an e-mail box or a memorandum book without being subscribed to the Internet?
There are many firms that supply e-mail boxes for free, advertisements appear every time you connect to them.

- http://mail.yahoo.com Free e-mail boxes
- http://www.hotmail.com Free e-mail boxes
- http://calendar.yahoo.com/ Online agenda

Can I put my site on the Internet?
If you have a subscription to a national provider, usually you can use a small space on its computer. If you don't want to depend on your provider there are some sites that supply free space. They earn from advertising too.

- http://geocities.yahoo.com/ Free space community
- http://www.fortunecity.com/ Free space community

Are there any other manuals or courses about the Internet on the Internet?
- http://www.eff.org/Net_info/EFF_Net_Guide/ The Online guide from Electronic Frontieres Foundation