

# DISCOVERING THE INTERNET

## TEACHING DOCUMENT





## WHO ARE WE?

Mailo is an **Internet messaging service** that has made it possible, since 1998, to communicate among e-mail addresses.

Mailo is a European service that **fully respects the privacy** of its users.

In 2010, Mailo invented the first **safe e-mail service for children**.

In 2016, Mailo set up the first **e-mail service for schools**. The goal is to teach pupils the theory and practice of the Internet in general and e-mail messaging in particular.

To that end, Mailo has prepared **teaching materials** to help understand this technological environment.

DISCOVERING THE COMPUTER

DISCOVERING THE INTERNET

DISCOVERING THE E-MAIL

# INTERNET: A GLOBAL NETWORK

The Internet network was invented and developed in the **1970s**.

It was opened to the public in the **1990s**.

**Electronic messaging (e-mail)** was one of the first applications used on the Internet.



The Internet is used by billions of people but it belongs to nobody.

No state controls the Internet, even though many governments are trying to spy on it.

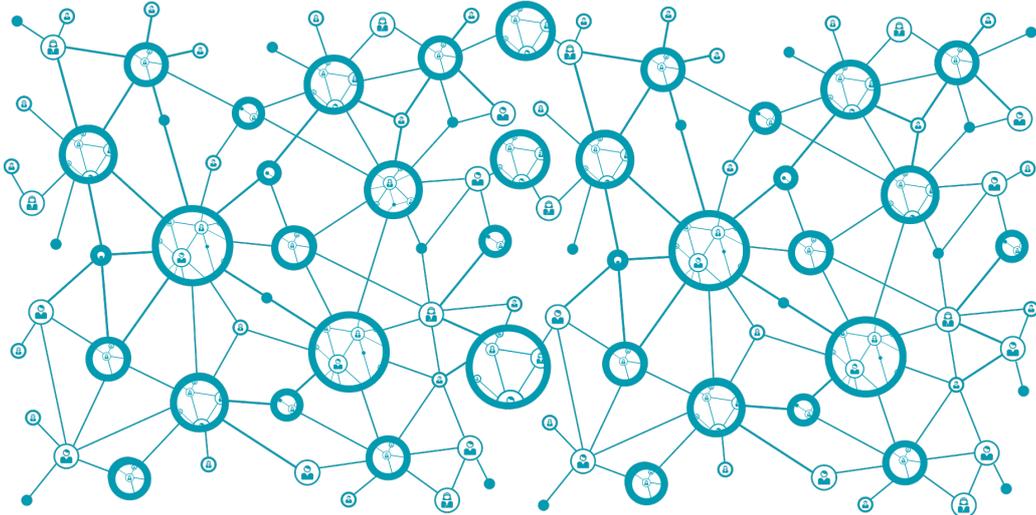
It is today made up of **billions of computers** on every continent.

**Submarines cables** go across the oceans to connect the different continents.

The Internet network is often called **web**.

We also use **WWW**, the initials of **World Wide Web**.

# A NETWORK OF NETWORKS



Internet is available in almost **every country in the world**, but states do not have their own networks.

The networks are owned by private companies: the **telecom operators**.

Internet is made up of **tens of thousands of autonomous networks** (47000 in 2014).

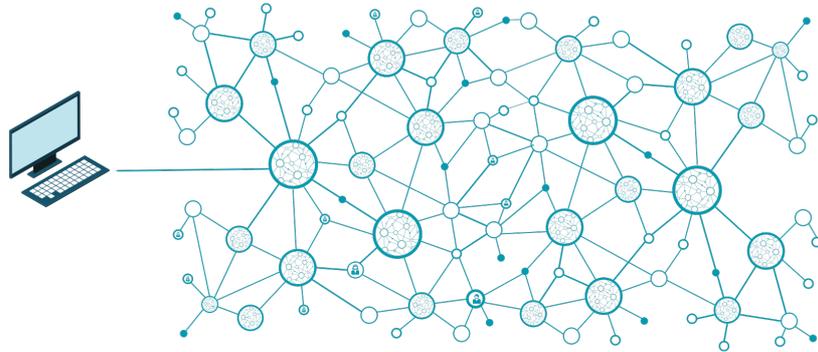
Internet has no hub, no heart or central point.

Each telecom operator has its **own network**.

Operator networks are more or less extensive according to the operator's size.

Operator networks are **interconnected**.

# CONNECTING TO THE INTERNET



Each user must subscribe to an **Internet Service Provider (ISP)** to be able to connect to the Internet.

ISPs are telecom operators and also have their network on the Internet.

The user is then connected to the ISP network and, through it, to the whole Internet.

There are different ways of connecting to the Internet.  
Some accesses are **more or less fast and more or less expensive**.  
For example:

Type of access	Availability	Speed
Optical fiber	City	Very fast
ADSL phone line	City and countryside	Fast
Mobile network 3G	Populated areas	Not very fast
Mobile network 4G	Populated areas	Fast
Satellite	Remote and little inhabited areas	Slow

When traveling, it is also possible to connect through a **Wifi connection** often available in public places.



Wifi networks usually require the use of a password. Some coffee shops or stores also make their Wifi connection available to their customers for free and give them their password.

# IP ADDRESSES

Each computer on the Internet has an IP (Internet Protocol) address. IP addresses are provided by the telecom operator which manages the network where the computer is connected.

When the Internet was created, IP addresses looked like 213.182.54.12, meaning that they were composed of four numbers between 0 and 255, but this only allowed to manage about 4 billion different addresses.

213.182.54.12

Now, a new IPv6 protocol allows the use of more complex but also more numerous addresses, that connect as many computers and smart objects as needed throughout the planet.

2001:db8:0:85a3:0:0:ac1f:8001

In any case, the Internet is not anonymous!  
It is possible to identify each user by their IP address.

To simplify exchanges on the Internet, computers also have names, such as:  
www.mailo.com

There are name servers (DNS) which allow, from a name, to find the real IP address of the desired computer.



# BROWSING THE INTERNET

To browse the Internet, it is necessary to use a software called **browser**.

There are several browsers and the main ones are:

	Publisher
 Firefox	Mozilla
 Chrome	Google
 Internet Explorer / Edge	Microsoft
 Safari	Apple
 Opera	Opera Software

Most browsers have a **URL address bar** at the top, which contains the URL of the current page.



Internet browsing is done page by page, using a protocol called HTTP.

If the **connection is secure**, the protocol is HTTPS, based on SSL encryption.

Each Internet page has a URL address which references it and allows it to be accessed.

It is possible to navigate from page to page by clicking on links that lead to other pages. These can be on the same computer or on other computers around the world.



# DESCRIPTION OF A URL ADDRESS

Each page on the Internet is referenced by a URL.

All Internet URLs have the same form. By analyzing the URL, it is possible to know the service which provides this page and whether it is secure.

protocol : // full name of the computer / path of the page on the computer

The protocol mostly used on the Internet is HTTP.

https if the page is secure

http if the page is not secure

The full name of the computer allows to know on which computer is the page currently shown.

This name is often in the form:

computer name . domain name

The computer name is often **www**, but it is only a convention. Other computer names can be used.

The requested page is usually found in a specific folder on the computer, just like on a PC.

The path is a series of folder names, separated by the / character, and ending with the file name itself.

For example:



https://	The page is secure
www-2.mailo.com	The page is provided by the <b>www-2</b> computer of the <b>mailo.com</b> service
/mailo/auth/home.php	The displayed page is the <b>home.php</b> file in the folder <b>auth</b> which is in the <b>mailo</b> folder on the computer

# DOMAIN NAMES

In a URL address, the most important part is the domain name.



In the URL above, the domain name is **mailo.com**

The domain name defines the service that publishes the page.

It consists of two elements:

service name . extension

The extension allows to define the type of service.

There are three types of extensions:

## Generic extensions

- .com for commercial services (most used extension)
- .org for non commercial organizations
- .net for Internet-related services

## Regional extensions

- |                 |             |                 |                |
|-----------------|-------------|-----------------|----------------|
| .be Belgium     | .br Brazil  | .ch Switzerland | .ca Canada     |
| .cn China       | .de Germany | .es Spain       | .eu Europe     |
| .fr France      | .gr Greece  | .it Italy       | .lu Luxembourg |
| .nl Netherlands | .pl Poland  | .pt Portugal    | .ru Russia     |

Recently, many new extensions have appeared:

.app .web .paris .shop .online .blog .site .news .hotel ...

The most common and best-known extension is **.com**

It was initially intended for commercial services but is now used in all areas.



# SEARCHING ON THE INTERNET

To go to a known service, simply type the domain name in the browser's URL address bar. For example:

Typing...	you reach the URL...	of the service...
mailo.com	<a href="https://www.mailo.com/">https://www.mailo.com/</a>	E-mail service Mailo
qwant.com	<a href="https://www.qwant.com/">https://www.qwant.com/</a>	Search engine Qwant
wikipedia.org	<a href="https://www.wikipedia.org/">https://www.wikipedia.org/</a>	Encyclopedia Wikipedia
thetimes.co.uk	<a href="http://www.thetimes.co.uk/">http://www.thetimes.co.uk/</a>	Newspaper The Times

When a user searches for a service of which they do not know the exact domain name, they can use an Internet search engine.

An Internet search engine is a service like any other, whose purpose is to provide links to many other pages on the Internet.

An Internet search engine knows almost all existing pages on the Internet and indexes them in a very large database.

When a user asks a question in a search engine, the latter offers a number of web pages it considers most appropriate.

There are several search engines. For example:

	Service	URL address
	European search engine Qwant	<a href="https://www.qwant.com/">https://www.qwant.com/</a>
	American search engine Google	<a href="https://www.google.com/">https://www.google.com/</a>
	Microsoft's American search engine	<a href="https://www.bing.com/">https://www.bing.com/</a>

# FINDING ON THE INTERNET

When a search is performed on a search engine, it is important to correctly **interpret the result** in order to find the most relevant service or page.

For additional clarity, the search engine Qwant offers links **sorted in categories**.

Category	Type of suggested pages
 Web	websites
 Live	news articles
 Social	pages found in social networks
 Images	images, photos, drawings...
 Videos	links to videos
 Shopping	Internet shopping sites (e-shopping)

For each link proposed by the search engine, it is important to **analyse the URL** to which it points to assess the relevance of the page.

It is particularly important to **identify the domain name**:

- If the domain name is serious, the page is likely to be serious.
- It is easy to recognize links to Wikipedia.
- If the domain name contains the words blog, facebook or twitter, it certainly consists of users' comments.
- If the domain name contains a brand name, such as fnac or amazon, it is an online shopping site.

# DESCRIPTION OF A WEB PAGE

Most web pages are pages of text in **HTML** format. This format, invented specifically for web pages, allows full integration of many different elements.

text

images

videos

tables

lists of items

forms to fill

HTML format also allows to create within pages links towards other pages, thus allowing Internet browsing.

and many other features...

HTML files usually have a name ending in **.html**

The design of HTML files is achieved by including **CSS** style sheets.

writing colors

fonts

font sizes

background colors and images

borders and table frames

item positioning

alignments

spacing

and many other features...

CSS files usually have a name ending in **.css**



# DESCRIPTION OF A WEB PAGE – CONTINUED

HTML pages can become dynamic by adding scripts.

Scripts use commands that the browser understands and that it is able to perform during the web page display.

The most known scripting language is JavaScript.

JavaScript files usually have a name ending in .js

Sometimes, when a script is not well written by the one who designed the HTML page, it can slow down the browser and display an alert message:

A script on this page may be busy, or it may have stopped responding. You can stop the script now, or you can continue to see if the script will complete.

In most cases, it is preferable to stop the script.

Creating a HTML page for the web is not very difficult.

There are websites which teach the most useful languages, such as <http://www.w3schools.com>.

# LEXICON

.com	Most used extension
3G	3rd generation of mobile network
4G	4th generation of mobile network
ADSL	Internet access via the telephone line
Cable	Internet access based on optical fiber cables
CSS	Format used for graphics of web pages
DNS	Server used to find an IP address from a name
Domain name	Main part of a URL address, determining the service
E-commerce	Electronic commerce, Internet shopping
E-mail	Electronic message
Extension	Final part of a domain name, such as .com
HTML	File format used to build web pages
HTTP	Protocol used to browse the Internet
http://	Beginning of most non secure URLs
https://	Beginning of most secure URLs
IP	Initials of Internet Protocol
IP address	Technical address of a computer on the Internet
ISP	Internet service provider
JavaScript	Programming language used in some web pages
Script	Programming language
Search engine	Service allowing to find pages or other services on the Internet
SSL	Data exchange security protocol
URL	Web page address
Wifi	Local and wireless access to Internet
WWW	Initials of World Wide Web