Chapter 02 The Internet and World Wide Web
2016-2017

Dr. Zeinab EL-Gazayerly
Chapter 2

Communications, Networks, Internet and World Wide Web
Objectives Overview

What is the communications? Discuss the evolution of the Internet

Identify and briefly describe various broadband Internet connections and state differences between broadband Internet connections and dial-up connections

Describe the types of Internet (access providers)

Describe the purpose of an IP address and its relationship to a domain name

Explain the purpose of a Web browser and identify the components of a Web address

Describe how to use a search engine to search for information on the Web and differentiate between a search engine and a subject (directory)
Objectives Overview

- Describe the types of Web sites
- Explain how Web pages use graphics, animation, audio, video, virtual reality, and plug-ins
- Identify and briefly describe the steps required for Web publishing
- Describe the types of e-commerce
- Explain how e-mail, mailing lists, instant messaging, chat rooms, VoIP, newsgroups and message boards, and FTP work
- Identify the rules of netiquette
WHAT IS COMMUNICATIONS?

- A process in which two or more computers or devices transfer data (بيانات), instructions (تعليمات), and information (معلومات).

- Sometimes called telecommunications (الاتصالات السلكية واللاسلكية).
WHAT IS COMMUNICATIONS?

- Electronic mail (e-mail)
- Voice mail (البريد الصوتي)
- Fax (facsimile)
- Telecommuting (العمل عن بعد)
- Online services (الخدمات عبر الإنترنت)
- Videoconferencing (التدابير عن طريق الفيديو)
- Internet
- World Wide Web
COMMUNICATIONS NETWORKS

Basic communications system

- Two computers, one to send and one to receive data
- Communications devices that send and receive data
- A communications channel over which data is sent
Digital vs. analog signals (الرقمية مقابل الإشارات التناظرية)

- Modem
  - External (الخارجية) modem
  - Internal (الداخلية) modem
    - Network interface cards
    - بطاقات واجهة شبكة الاتصال

![Diagram showing digital to analog to digital communications channel](image)
A COMMUNICATIONS SYSTEM
COMMUNICATIONS NETWORKS

- **Local Area Networks (LAN)**
  - Covers limited geographical area
  - Server manages resources

- **Wide Area Networks (WAN)**
  - Covers large geographical area
  - Can consist of several LANs
Communications channel

- Transmissions media
  - Twisted-pair cable

(وسائط الإرسال)
  - كابل مزدوج مجدول

(COMMUNICATIONS NETWORKS)
Home Networks

- Connects multiple computers in your home
- Share Internet access and resources
SCHOOL’S LOCAL AREA NETWORK
The Internet is a worldwide collection of networks that links millions of businesses, government agencies, educational institutions, and individuals.
The Internet

- some services found on the Internet

[Images of computer screens and web pages]

[Images of a world map and various web browsers]

[Images of weather forecasts and news articles]

[Images of email and messaging interfaces]
The Internet

- Who controls the Internet?
  - No one—it is a public, cooperative, and independent network
  - Several organizations set standards

World Wide Web
- Oversees research, sets standards and guidelines
How the Internet Works

How can you connect to the Internet?

**Slow-speed technology**

**Dial-up access**
- modem in your computer uses a standard telephone line to connect to the Internet

Connection must be established each time you log on.
- Slow but inexpensive

**High-speed connection**

- Digital subscriber line (DSL), cable telephone Internet services (CATV), cable modem, fixed wireless, and satellite modems

Connection is always on—whenever the computer is running
NETWORKING THE CLASSROOM, SCHOOL, AND DISTRICT

- School network server
- Example classroom
  - Three Macintosh computers
  - Printer
HOW THE INTERNET WORKS

- Data is divided into packets (يتم تقسيم البيانات إلى حزم)
- Routers send packets across the Internet (أجهزة التوجيه إرسال الحزم عبر الإنترنت)
- Packet switching (تبديل الحزمة)
- Transmission control protocol/Internet protocol (TCP/IP) is the communications protocol used by the Internet
Choosing a Broadband Provider

Choose the broadband connection that will best meet your Internet connection needs

Cable, DSL, Or Satellite?
FIND THE RIGHT SERVICE FOR YOU

- Cable: Best if You Can Get it
- DSL: Most Service Options
- Satellite: Best for Rural Homes

 المنازل الريفية
What are ways to access the Internet?

1. **ISP (internet service provider),** is a **Regional or National (الإقليمية أو الوطنية) access provider (موفر الوصول إلى)**
2. **OSP (online service provider) (موفر خدمة الإنترنت) for example (AOL American online) and (Microsoft network MSN)**
3. **Wireless Internet Service Provider (موفر خدمة إنترنت لاسلكية)**
How the Internet Works

- How might data travel the Internet using a cable modem connection?
How the Internet Works

- What is a **domain name**?
  - Text version of Internet protocol (IP) address
    - IP address is the number that uniquely identifies each computer or device connected to Internet
    - the number in each group is between 0 and 255

<table>
<thead>
<tr>
<th>Original Top-Level Domains</th>
<th>Type of Domain</th>
</tr>
</thead>
<tbody>
<tr>
<td>com</td>
<td>Commercial organizations, businesses, and companies</td>
</tr>
<tr>
<td>edu</td>
<td>Educational institutions</td>
</tr>
<tr>
<td>gov</td>
<td>Government agencies</td>
</tr>
<tr>
<td>mil</td>
<td>Military organizations</td>
</tr>
<tr>
<td>net</td>
<td>Network providers</td>
</tr>
<tr>
<td>org</td>
<td>Nonprofit organizations</td>
</tr>
<tr>
<td>museum</td>
<td>Accredited museums</td>
</tr>
<tr>
<td>biz</td>
<td>Businesses of all sizes</td>
</tr>
<tr>
<td>info</td>
<td>Businesses, organizations, or individuals providing general information</td>
</tr>
<tr>
<td>name</td>
<td>Individuals or families</td>
</tr>
<tr>
<td>pro</td>
<td>Certified professionals such as doctors, lawyers, and accountants</td>
</tr>
<tr>
<td>aero</td>
<td>Aviation community members</td>
</tr>
<tr>
<td>coop</td>
<td>Business cooperatives such as credit unions and rural electric coops</td>
</tr>
</tbody>
</table>
What is the World Wide Web (WWW)?

A worldwide collection of electronic documents

Also called the Web

Each electronic document is called a Web page

Can contain text, graphics, sound, video, and built-in connections

A Web site is a collection of related Web pages
The World Wide Web

What is a Web browser?

Program that allows you to view Web pages

- Microsoft Internet Explorer
- Netscape
- Safari
- Mozilla
- Opera
The World Wide Web

How does a Web browser display a home page?

Step 1.
Click the Web browser program name

Step 2.
If necessary, connect to the Internet

Step 3.
Connection to the Internet occurs, and a home page displays
The World Wide Web

- What is a **home page**?
  - The first page that a Web site presents
  - Often provides connections to other Web pages

![CNN Home Page](image)
How do handheld computers and cellular telephones access the Web?

- Use a microbrowser that displays Web pages that contain mostly text
- Must be Web-enabled
The World Wide Web

- **What is downloading?**
  - The process of a computer receiving information
  - Depending upon connection speed, downloading can take from a few seconds to several minutes
What is a URL?

It stands for Uniform Resource Locator. It is an unique address for a Web page.

A web server delivers the Web page to your computer.
What is a **link**?

- Built-in connection to another related Web page location
  - Item found elsewhere on same Web page
  - Different Web page at same Web site
  - Web page at a different Web site
How can you recognize links?

- Pointer changes to a small hand when you point to a link
- A link can be text or an image
- Text links are usually underlined and in a different color
What is a subject directory?

- Search tool with organized set of topics and subtopics
- Lets you find information by clicking links rather than entering keywords
What is a search engine?

Program used to find Web sites and Web pages by entering words or phrases called search text

Also called a keyword

<table>
<thead>
<tr>
<th>Search Tool</th>
<th>Web Address</th>
<th>Subject Directory</th>
<th>Search Engine</th>
</tr>
</thead>
<tbody>
<tr>
<td>A9.com</td>
<td>a9.com</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>AltheWeb</td>
<td>alltheweb.com</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Alta Vista</td>
<td>altavista.com</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>AOL Search</td>
<td>search.aol.com</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>AOMI</td>
<td>aomi.com</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Ask Jeeves</td>
<td>askjeeves.com</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Excite</td>
<td>excite.com</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Gigablast</td>
<td>gigablast.com</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Google</td>
<td>google.com</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>HotBot</td>
<td>hotbot.com</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>LookSmart</td>
<td>looksmart.com</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Lycos</td>
<td>lycos.com</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>MSN Search</td>
<td>search.msn.com</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Netscape Search</td>
<td>search.netscape.com</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Open Directory Project</td>
<td>dmoz.org</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Overture</td>
<td>overture.com</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Teoma</td>
<td>teoma.com</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>WebCrawler</td>
<td>webcrawler.com</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Yahoo!</td>
<td>yahoo.com</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>
What is a **hit**?

- Any Web site name that is listed as the result of a search

---

**Step 1.** Go to search engine

**Step 2.** Select type of search you want to run

**Step 3.** View hits

**Step 4.** Click link to view Web site
What are the 9 basic types of Web sites?

- Portal (بوابة)
- News (أخبارية)
- Informational
- Business/Marketing
- Educational
- Entertainment
- Advocacy
- Blog
- Personal
What is a portal (بوابة)?

- A Web site that offers a variety of services from one, convenient location (موقع مناسب), usually for free

- Searching, sports, e-mail, news, weather, auctions

- (المزادات), Web communities (مجتمعات الإنترنت) (Web sites that join people with similar interests المصالح)
What is a **news** Web site?

- Contains newsworthy (إخبارية) material
- Stories and articles relating to current events (الأحداث الجارية), life, money, sports, and the weather
What is an informational Web site?

- Contains factual information
- Created by organizations and government agencies
The World Wide Web

- What is a business/marketing (الأعمال التجارية والتسويق) Web site?
  - Contains content that promotes products or services
  - Allows you to purchase products or services online
What is an educational Web site?

- Offers avenues for formal and informal teaching and learning

- Some companies offer online training for employees
- Some colleges offer online classes and degrees
What is an **entertainment** Web site?
- Offers an interactive and engaging environment
- Featuring music, video, sports, games, and more
What is an advocacy Web site?

- Contains content that describes a cause, opinion, or idea (يحتوي على المحتوى الذي يصف قضية، أو الرأي، أو فكرة)
The World Wide Web

- What is a blog?

  Uses a regularly updated journal format to reflect the interests, opinions, and personalities of the author and sometimes site visitors.
What is a personal Web site?

- Web page maintained by private individual
- Reasons: sharing life experience with the world or job hunting
What are the guidelines for evaluating the value of a Web site?
What is multimedia?

- Application integrating text with other media elements
  - Graphics
  - Animation (الرسوم المتحركة)
  - Audio
  - Video
  - Virtual reality (الواقع الافتراضي)
What **graphics formats** are used on the Web?

- **BMP**
- **JPEG** (pronounced JAY-peg)
- **PNG** (pronounced ping)
- **GIF** (pronounced JIFF)
- **TIFF**
What is a thumbnail (صورة صغيرة)?

- Small version of a larger graphic—used to improve Web page display time
  - Usually click on thumbnail to display larger graphic
What is animation?

Appearance of motion created by displaying a series of still images in sequence
What is audio?

- Music, speech, or any other sound
- Individual compressed sound files that you download from the Web to your computer
  - Common Web audio file formats are AA, AAC, AIFF, ASF, MP3, WAV, WMA, RA, and QT
- Once downloaded, you can play (listen to) the contents of the files
What is **streaming audio**?

The process of transferring audio in a continuous and even flow (في تدفق مستمر)

Enables (تمكن) you to listen to music as it downloads to your computer
What is video?

- Consists of full-motion images that are played back at various speeds
- MPEG (Moving Pictures Experts Group) is a popular video compression standard
What is virtual reality (VR)?

- Use of computers to simulate real or imagined environment (محاكاة بيئة حقيقية أو متصورة)
- Appears as a three dimensional (3-D) space
  - Used for games and many practical applications
The World Wide Web

What are plug-ins?

- Programs that extend the capability of a browser
- You can download many plug-ins at no cost from various Web sites

**Popular Plug-in Applications**

<table>
<thead>
<tr>
<th>Plug-In Application</th>
<th>Description</th>
<th>Web Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acrobat Reader</td>
<td>View, navigate, and print Portable Document Format (PDF) files — documents formatted to look just as they look in print</td>
<td>adobe.com</td>
</tr>
<tr>
<td>Flash Player</td>
<td>View dazzling graphics and animation, hear outstanding sound and music, display Web pages across an entire screen</td>
<td>macromedia.com</td>
</tr>
<tr>
<td>QuickTime</td>
<td>View animation, music, audio, video, and VR panoramas and objects directly in a Web page</td>
<td>apple.com</td>
</tr>
<tr>
<td>RealOne Player</td>
<td>Listen to live and on-demand near-CD-quality audio and news cast-quality video; stream audio and video content for faster viewing; play MP3 files; create music CDs</td>
<td>real.com</td>
</tr>
<tr>
<td>Shockwave Player</td>
<td>Experience dynamic interactive multimedia, 3-D graphics, and streaming audio</td>
<td>macromedia.com</td>
</tr>
<tr>
<td>Windows Media Player</td>
<td>Listen to live and on-demand audio; play or edit WMA and MP3 files; burn CDs, watch DVD movies</td>
<td>microsoft.com</td>
</tr>
</tbody>
</table>
What is Web publishing?

- Development and maintenance (تطوير وصيانة) of Web pages

1. Plan the Web site

2. Analyze and design the Web site

3. Create the Web site

4. Deploy the Web site

5. Maintain the Web site

Development and maintenance (تطوير وصيانة) of Web pages:

- Development and maintenance (تطوير وصيانة) of Web pages

- Development and maintenance (تطوير وصيانة) of Web pages

- Development and maintenance (تطوير وصيانة) of Web pages

- Development and maintenance (تطوير وصيانة) of Web pages
What is E-commerce?

- Short for electronic commerce
- Business transaction that occurs over the Internet

Business to consumer (B2C)
Sale of goods to general public

Consumer to consumer (C2C)
One consumer sells directly to another

Business to business (B2B)
Business providing goods and services to other businesses
What is **E-mail**?

- **Short for electronic mail**
- **The transmission of messages and files via a computer network**
  - Messages can consist of simple text or can contain attachments, such as documents, graphics, or audio/video clips
  - Internet access providers usually provide an e-mail program
  - Some Web sites—such as MSN Hotmail and Yahoo!—provide free e-mail services
- **One of the original services on the Internet**
Other Internet Services

How do you send an e-mail message?

Step 1.
Start an e-mail program (Microsoft Outlook, for example)

Step 2.
Click the New Mail Message button

Step 3.
Enter the recipient’s e-mail address, the subject, and the message

Step 4.
Click the Insert file button if you want to attach a picture, for example, and click Send

Step 5.
The recipient opens the message
What is an e-mail address?

Unique name that consists of a user name and domain name that identifies the user

SamJohnson@scsite.com
How does an e-mail message travel?

**Step 1.**
Using e-mail software, you create and send message.

**Step 2.**
Your software contacts software on your ISP’s outgoing mail server.

**Step 3.**
Software on outgoing mail server determines best route for data and sends message, which travels along Internet routers to recipient’s incoming mail server.

**Step 4.**
When recipient uses e-mail software to check for e-mail messages, the message transfers from incoming mail server to recipient’s computer.
Other Internet Services

- What is FTP?
  - File Transfer Protocol—Internet standard that allows you to upload and download files with other computers on the Internet
Other Internet Services

- What are newsgroups and message boards?

  - Newsgroup
    - Online area where users discuss a particular subject
  - Message board
    - Type of discussion group
    - Many Web sites use message boards because they are easier to use
What is a mailing list?

- Group of e-mail addresses given a single name
- When a message is sent to the mailing list, everyone on the list receives the message
- To add your name to a mailing list you must subscribe to it; to remove your name you must unsubscribe
Other Internet Services

- What is a chat?
  - Real-time typed conversation that takes place on a computer
  - Chat room is location on server that permits users to discuss topics of interest
What is instant messaging (IM)?

- A real-time Internet communications service that notifies you when one or more people are online and allows you to exchange messages or files

Step 1. Login to the IM server

Step 2. The server determines if any of your established friends, family, or coworkers, called *buddies*, are online

Step 3. You send instant messages to an online buddy

Step 4. Your Instant Message travels through a messaging server and then to the online buddy
Other Internet Services

- **What is internet telephony?**

  Enables users to speak to other users over the Internet using their computer.
Netiquette

- What is netiquette?

- Code of acceptable behaviors users should follow while on the Internet

Golden Rule: Treat others as you would like them to treat you.

عامل الآخرين كما تحب أنهم يعاملوك