Principles & Architecture

EPITA Bachelor of Science

Principles and Architecture of Information Systems

Chapter #6

Internet and E-Commerce

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Structure

- Chapter 1 : Introduction and Organisations
- Chapter 2 : Hardware
- Chapter 3 : Software
- Chapter 4 : Database Systems
- Chapter 5 : Network
- Chapter 6 : Internet and E-Commerce
- Chapter 7 : Major Information Systems
- Chapter 8 : Systems Development
- Chapter 9 : Security,Privacy and Ethical issues

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Introduction

- **The Internet provides a critical infrastructure for delivering and accessing information and services**
- **Originally developed as a document-management system, the World Wide Web has grown to become a primary source of news and information, an indispensible conduit for commerce, and a popular hub for social interaction, entertainment, and communication**
- **The Internet and Web provide numerous resources for finding information, communicating and collaborating, socializing, conducting business and shopping, and being entertained**

Discussion

- **Can you name some Internet utilities?**

Why Learn About the Internet?

- **Businesses use the Internet to:**
- **Sell and advertise their products and services, reaching out to new and existing customers**
- **People working in every field and at every level use the Internet in their work**
- **Most companies have Internet sites that:**
- **List job opportunities, descriptions, qualifications, salaries, and benefits**

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Popular uses for the Internet and Web

- **Publishing information**
- **Assisting users in finding information**
- **Supporting communication and collaboration**
- **Building online community**
- **Providing software applications**
- **Providing a platform for expressing ideas**
- **Delivering media of all types**
- **Providing a platform for commerce**
- **Supporting travel and navigation**

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Use and Functioning of the Internet

- **ARPANET:**
  - Ancestor of the Internet
  - Project started by the U.S. Department of Defense (DoD) in 1969
- **Internet Protocol (IP):**
  - Enables computers to route communications traffic from one network to another

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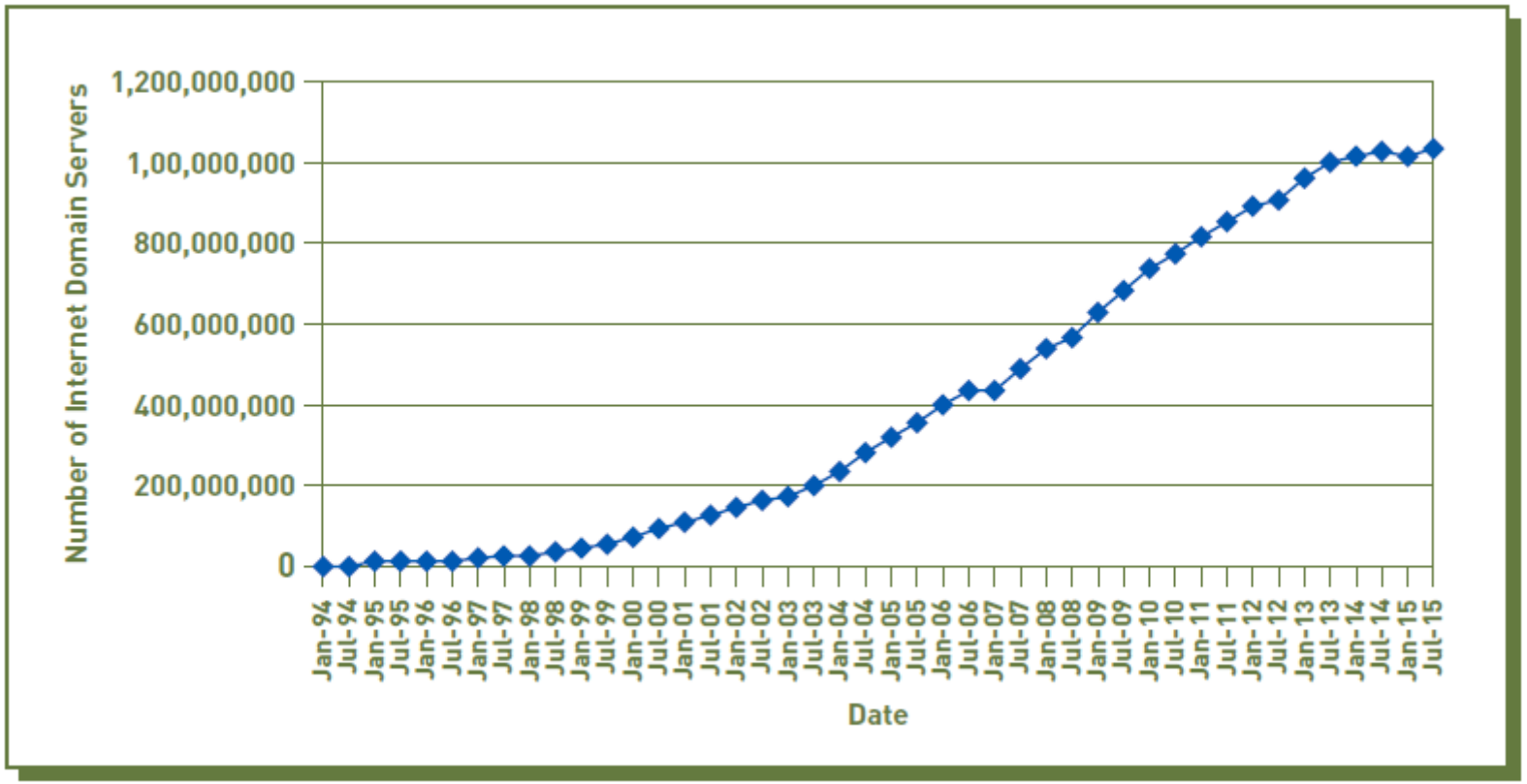
Internet growth



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How the Internet works

- **Backbone:**
  - One of the Internet's high-speed, long-distance communications links
- **Transmission Control Protocol (TCP):**
  - Transport-layer protocol that most Internet applications use with IP
- **Uniform Resource Locator (URL):**
  - An assigned address on the Internet for each computer

How the Internet works

- **IP address:**
  - 64-bit number that identifies a computer on the Internet
- **Internet Corporation for Assigned Names and Numbers (ICANN)**
  - Responsible for managing IP addresses and Internet domain names (.com, .fr, .org…)
  - Has authority to resolve domain name disputes

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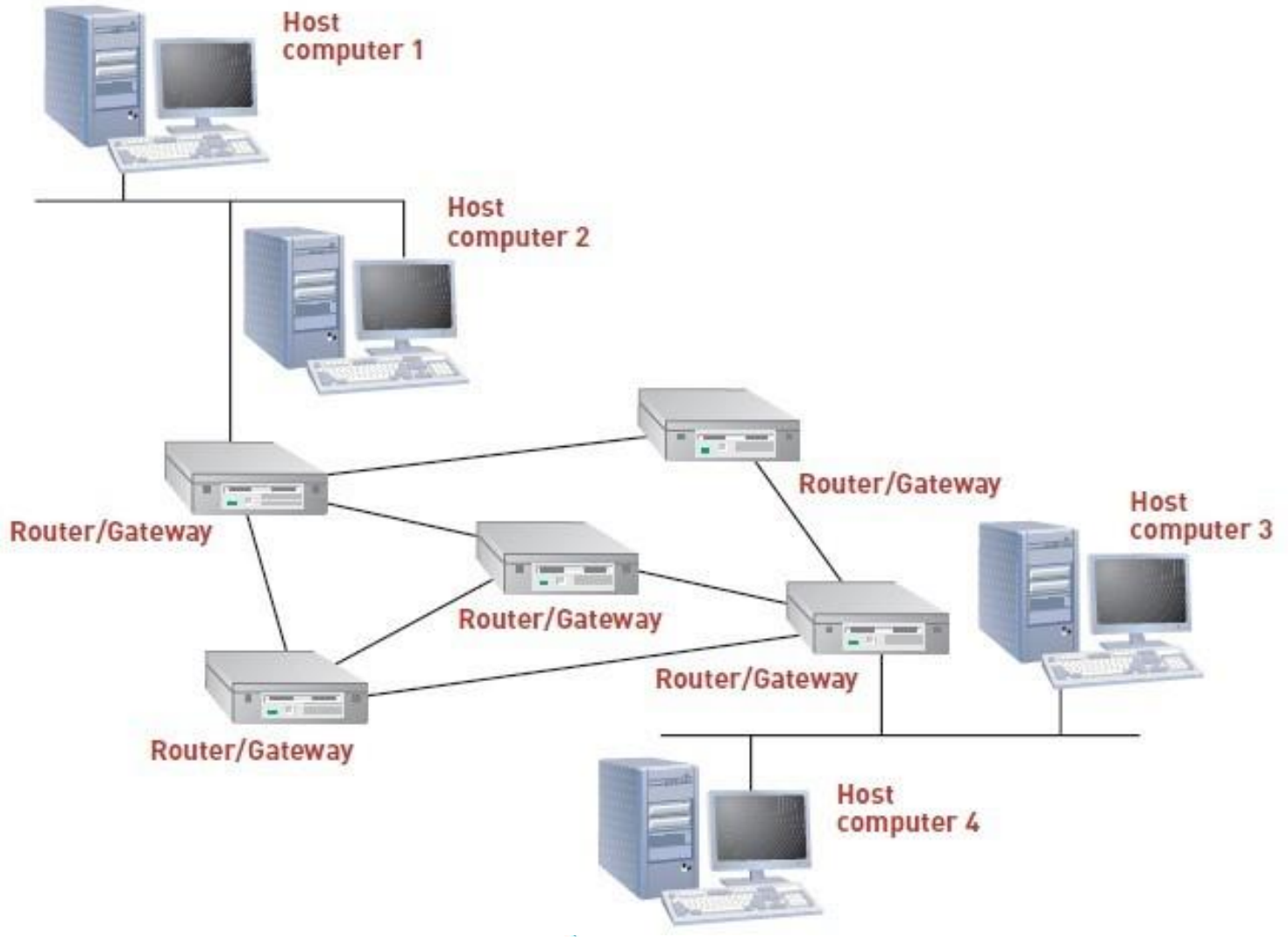
Routing messages over the Internet



Cloud Computing

- **Computing environment in which:**
  - **Software and storage are provided as an Internet service and accessed with a Web browser**
- **Extremely scalable and often takes advantage of virtualization technologies**
- **Advantages to businesses:**
  - **Businesses can save on system design, installation, and maintenance**
  - **Employees can access corporate systems from any Internet-connected computer**

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The World Wide Web

- **Developed by Tim Berners-Lee at CERN in Geneva in 1992**
- **Originally conceived of as an internal document- management system**
- **The Web has grown to become:**
  - **A primary source of news and information**
  - **An indispensable conduit for commerce**
  - **A popular hub for social interaction, entertainment, and communication**

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How the Web Works

- **The Internet:**
  - **Made up of computers, network hardware such as routers and fiber-optic cables, software, and the TCP/IP protocols**
- **The Web:**
  - **Consists of server and client software, the Hypertext Transfer Protocol (http), standards, and mark-up languages that combine to deliver information and services over the Internet**

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How the Web Works

- **Hyperlink:**
  - **Highlighted text or graphics in a Web document that, when clicked, opens a new Web page**
- **Web browser:**
  - **Web client software such as Internet Explorer, Firefox, and Safari used to view Web pages**
- **Hypertext Markup Language (HTML):**
  - **Standard page description language for Web pages**

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How the Web Works

- **HTML tags:**
  - Tell the Web browser how to format text
- **Extensible Markup Language (XML):**
  - Markup language for Web documents containing structured information
- **Cascading Style Sheet (CSS):**
  - Markup language that defines the visual appearance of content in a Web page

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Web Programming Languages

- **Java:**
  - Object-oriented programming language from Sun Microsystems based on C++
  - Allows small programs (applets) to be embedded within an HTML document
- **Other languages:**
  - Asynchronous JavaScript and XML (AJAX)
  - Hypertext Preprocessor (PHP)
  - Adobe Flash and Microsoft Silverlight

Web Services

- **Standards and tools that streamline and simplify communication among Web sites**
- **XML: The key to Web services**
- **Other components used in Web service applications:**
  - **SOAP (Simple Object Access Protocol)**
  - **WSDL (Web Services Description Language)**
  - **UDDI (Universal Discovery Description and Integration)**

Search Engines and Web Research

- **Search engine:**
  - Enables you to find information on the Web by specifying keywords
  - Market is dominated by Google
  - Uses an automated approach that scours the Web with automated programs called spiders
- **Wikipedia:**
  - Can be used for online research
- **Wikimedia:**
  - Has wikis for books, news, media, and open learning

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Communication and Collaboration

- **Web Portals**
- **Corporate Portals**
- **E-mail**
- **Instant messaging**
- **Microblogging, status updates, and news feeds**
- **Conferencing**

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Online Media and entertainment

- **Podcast**
- **Music streaming**
- **Movies, video, and television**
- **E-books and audio books**
- **Online games**
- **Travel agencies**
- **Google map**

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Intranet and Extranet

Type	Users	Need User ID and Password?
Internet	Anyone	No
Intranet	Employees and managers	Yes
Extranet	Business partners	Yes

E-Commerce

- **Electronic commerce:**
  - **Conducting business activities electronically over computer networks**
- **Business activities that are strong candidates for conversion to e-commerce:**
  - **Paper based**
  - **Time-consuming**
  - **Inconvenient for customers**

Business-to-Business (B2B) E-Commerce

- **Subset of e-commerce**
- **All the participants are organizations**
- **Useful tool for connecting business partners in a virtual supply chain to cut resupply times and reduce costs**
- **An organization will use both:**
  - **Buy-side e-commerce to purchase goods and services and**
  - **Sell-side e-commerce to sell products to its customers**

Business-to-Consumer (B2C) E-Commerce

- **Form of e-commerce in which customers deal directly with an organization and avoid intermediaries**
- **Disintermediation: The elimination of intermediate organizations between the producer and the consumer**

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Consumer-to-Consumer (C2C) E-Commerce

- **Subset of e-commerce that involves consumers selling directly to other consumers**
- **Popular sites: Le Bon Coin, Vinted, BlaBlaCar, AirBnB**

- **Etsy is a C2C Web site that:**
  - **Specializes in the buying and selling of handmade and vintage items**
  - **Facilitates sales worth more than $10 million each month**

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Multistage model for e-Commerce

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Multistage Model for E-Commerce

- **Search and identification**
- **Selection and negotiation**
- **Purchasing products and services electronically**
- **Product and service delivery**
- **After-sales service**

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Defining an Effective E-Commerce Model and Strategy

Advantages of Electronic and Mobile Commerce

- **What are the advantages ?**

Advantages of Electronic and Mobile Commerce

- **Reduce costs**
- **Speed the flow of goods and information**
- **Increase accuracy**
- **Improve customer service**

Investment and Finance

- **The Internet has revolutionized the world of investment and finance**
- **The brokerage business adapted to the Internet faster than any other arm of finance – Disruption**
- **Online banking customers:**
  - **Can check balances of their savings, checking, and loan accounts**
  - **Transfer money among accounts**
  - **Pay their bills**

Threats to Electronic and Mobile Commerce

- **Businesses must ensure that e-commerce and m-commerce transactions are safe and consumers are protected**
- **Methods to increase security:**
  - **Address Verification System**
  - **Card Verification Number technique**
  - **Visa's Advanced Authorization process**
  - **Federal Financial Institutions Examination Council's "Authentication in an Internet Banking Environment" guidelines**

Strategies for Successful E-Commerce and M-Commerce

- **Companies must develop effective Web sites that include the following characteristics:**
  - **Easy to use**
  - **Accomplish the goals of the company**
  - **Safe and secure**
  - **Affordable to set up and maintain**

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Measures to attract customers

- **Obtain and register a domain name**
- **Make your site search-engine friendly**
- **Include a meta tag in your store's home page**
- **Building Traffic to Your Web Site**
- **Use Web site traffic data analysis software**
- **Provide quality, keyword-rich content**
- **Add new content to the Web site on a regular basis**
- **Acquire links to your site**

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E-Commerce Software

- **Catalog management**
- **Product configuration**
- **Shopping cart**
- **E-commerce transaction processing**
- **Web traffic data analysis**