# Internet and e-Business Overview
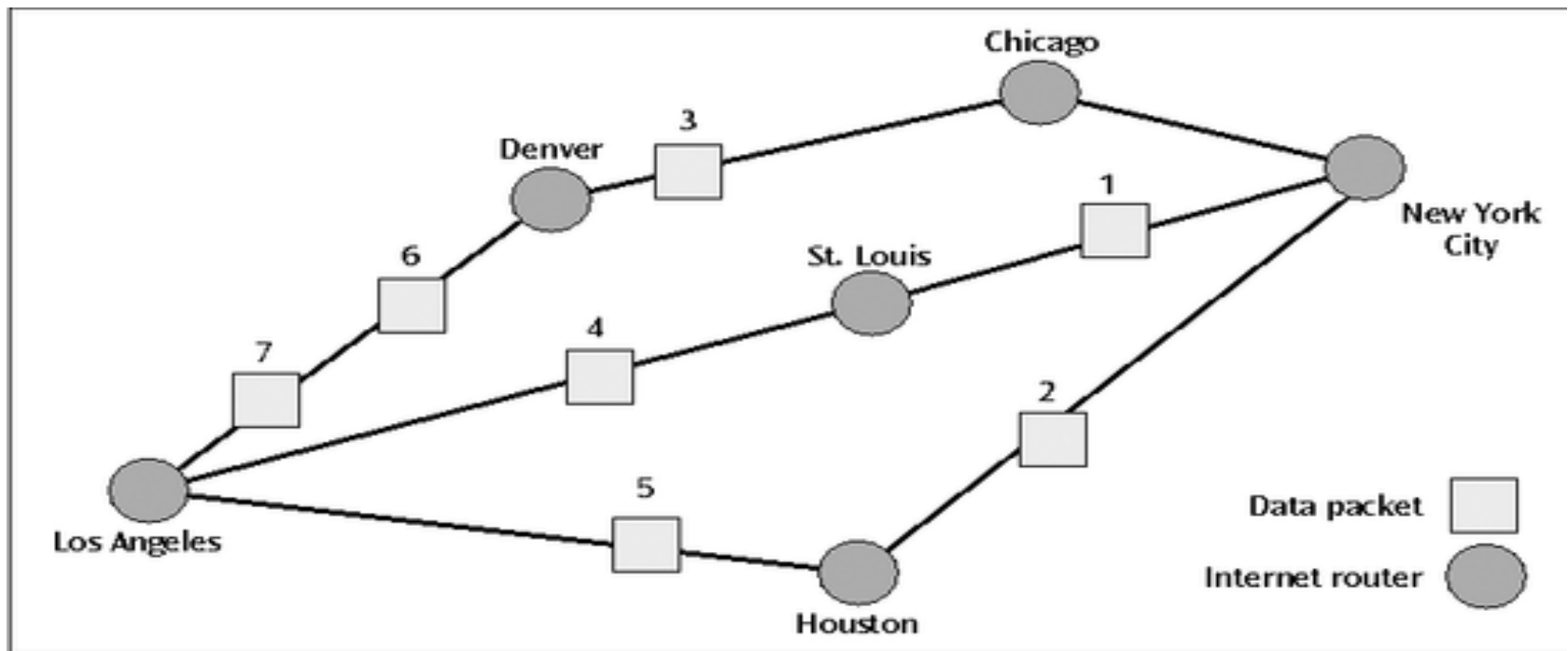
# History of the Internet

- 1957 – USSR launched Sputnik I
  - Cold war, US was shocked and paranoid
  - Nukes were a major concern
- Eisenhower incepted the Advanced Research Projects Agency (ARPA)
  - Technological think-tank
  - Space, ballistic missiles and nuclear test monitoring
  - *** Communications even in time of nuclear strike/fallout

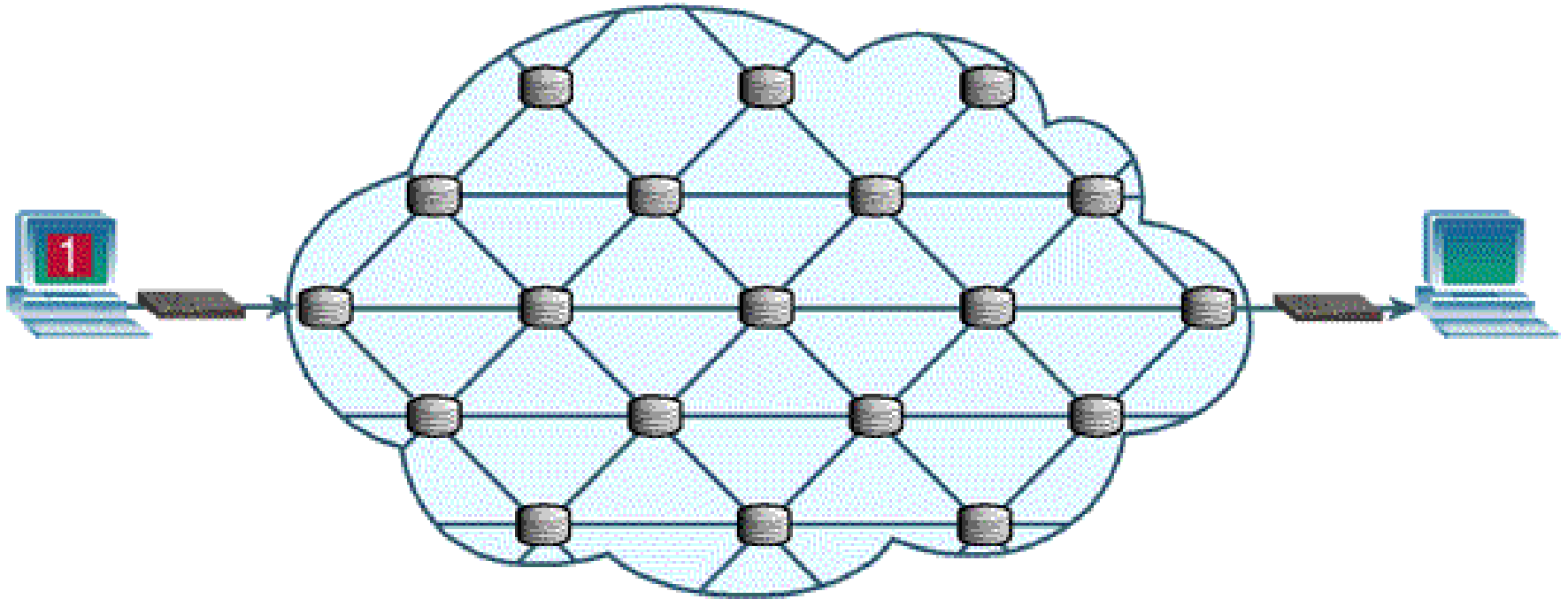# Important Concept: Packet Switching

- In the early 60's ARPA looked at the concept of "packet switching":
  - The practice of breaking data transmissions into packets that can travel independently across a network
  - Packets are assigned sequence numbers so they can be reassembled in the correct order at the destination
  - Routers direct packets across the network/Internet to their assigned destination
- The successful implementation of this concept, made the ARPANet (a direct precedent of the modern Internet) possible

# Packet Switching

# Packet Switching



Packet routing through WAN / Internet

# The Beginnings of the World Wide Web

- In 1991, Tim Berners-Lee came up with a system of linked documents, which he called the World Wide Web, built upon ARPANet technology

It utilized:

- A text-based Web browser called WorldWideWeb
- An application called a Web server, which organized Web pages on a server and allowed others to access them
- During the 1990s, Berners-Lee's company gave away the Web browser and Web server to interested Internet users at no charge

# The Beginnings of the World Wide Web

Mosaic:

- Was developed in 1992 (released in early 1993) by programmers at the University of Illinois

- Was the first graphical Web browser

  - Used both images and text for linking documents for retrieval and display

- Development of commercial Web browsers followed in quick succession with the development of Netscape Navigator and Microsoft Internet Explorer
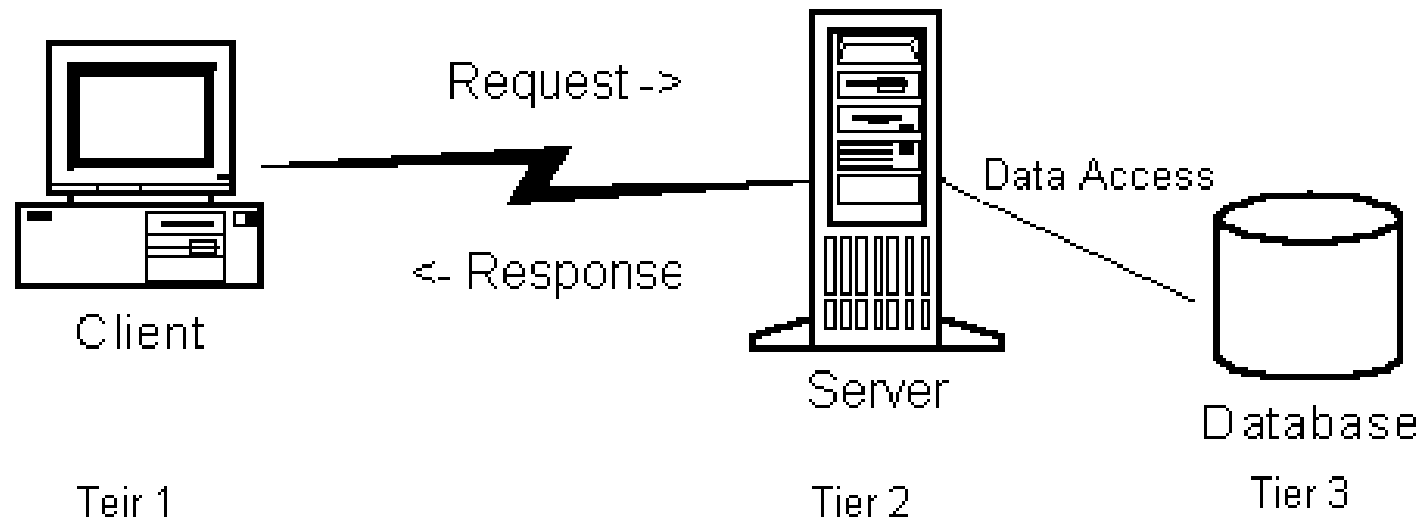
# Clarification of Terms

- "Internet" refers to computers and the connections between them. Also, it usually refers to the rules, or protocols, that allow computers to communicate with each other seamlessly.

- The World Wide Web (WWW) is a subset of the Internet — a group of specially formatted documents called Web pages

# Basic Components
# of the World Wide Web

- **Components of the World Wide Web include:**
  - **Web sites, a collection of related Web pages available from a single source**
  - **Web server, the software that "serves" Web pages when requested by a user**
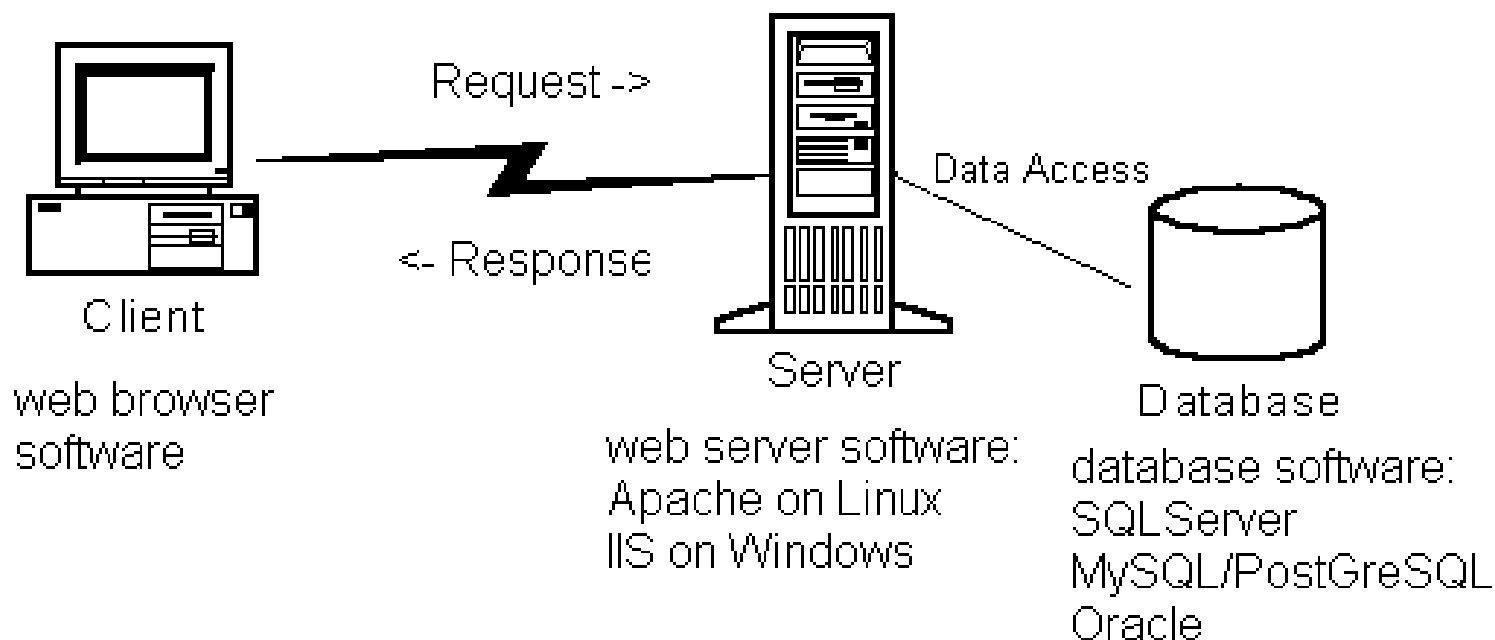  - **Web browser, a software application used to locate and display the pages**

# Internet Requests

- Most of the Internet is based on a 3-tier architecture
- Works on a request/response cycle

Request ->

<- Response

Client

Teir 1

Server

Tier 2

Data Access

Database

Tier 3

# WWW Software

- Each tier has specific software to perform specific tasks



Client
web browser software

Request ->

<- Response

Server
web server software:
Apache on Linux
IIS on Windows

Data Access

Database
database software:
SQLServer
MySQL/PostGreSQL
Oracle

# Commercialization of the Internet and the World Wide Web

- The three major events that led directly to the commercialization of the Internet and the World Wide Web are:
    - The free distribution of Berners-Lee's early Web browser and Web server software within the Internet community
    - The development of graphical Web browsers (first one was Mosaic)
    - The legalization of commercial activity on the Internet

# e-Business vs. e-Commerce

- e-Business may be defined broadly as any business process that relies on an automated information system

- Today, is mostly done with web based technologies

- e-Business usually includes e-commerce (in fact, many people use the 2 terms interchangeably)

- Subtle difference:  e-Commerce is the portion of e-business that seeks to add revenue streams using the Worldwide Web (i.e. selling product or services online)

# e-Business Models

- An e-business model is the way in which an e-business generates revenues

- E-business models can be broadly categorized as:

    – Business-to-Consumer (B2C)

    – Business-to-Business (B2B)

    – Business-to-Government (B2G)

    – Consumer-to-Consumer (C2C)

    – Consumer-to-Business (C2B)

# Business-to-Consumer (B2C)

- Sells products or services directly to consumers

- Brick-and-click model- brick-and-mortar business using a Web storefront to reach consumers

- Subscription model- the e-business provides high-value content for a subscription fee

- Catalog model- brick-and-mortar business that migrates business completely to Web-based ordering

# Business-to-Business (B2B)

- Sells products or services to other businesses or brings multiple buyers and sellers together in a central marketplace

- Business between companies can be transacted over an extranet, allowing participants to view each other's data and complete business transactions

- B2B exchange model uses Web sites that bring multiple buyers and sellers together in a virtual centralized marketspace

# Business-to-Government (B2G)

- Businesses that sell to government agencies

- Similar to the B2B exchange model

- Provides a marketspace for businesses to sell their products and services to government agencies

# Consumer-to-Consumer (C2C)

- Consumers sell directly to other consumers

- Transactions executed through on-line classified ads and auctions

- e.g. eBay.ca

# Consumer-to-Business (C2B)

- Consumers name own price which businesses accept or decline

- The Web site collects the demand bids and then offers the bids to participating sellers

- e.g. Priceline.com

# E-Business Advantages

- Seller advantages include:
    - Increased sales opportunities
    - Decreased transaction costs
    - 24/7 operation
    - Increased speed and accuracy of information exchange

- Consumer advantages include:
    - Wider product availability
    - Easy comparison shopping and one-stop shopping for business buyers
    - Ability to shop 24/7
    - Access to global markets

# E-Business Disadvantages

- Seller disadvantages include:
  - Rapidly changing technology
  - System security and reliability problems
  - Network deficiencies
  - Increase in instances of failure to pay for merchandise or fraud

- Consumer disadvantages include:
  - Poor customer service
  - Transaction security and privacy
  - Complex return policies
  - Lack of trust for unfamiliar sellers