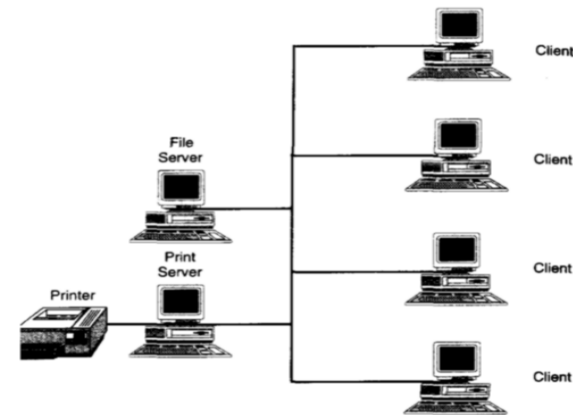


Local Area Network Approaches

- ❖ **Peer to Peer LAN Approach**
 - ◆ All computers have equal access
 - ◆ Any computer can share data with any other computer based on permissions
- ❖ **Client/Server LAN Approach**
 - ◆ Clients are users, typically using LANs (Some processing is best done locally)
 - ◆ Server is mainframe or microcomputer connected to LAN
 - ◆ Global processing for Databases
 - ◆ File Access Control

Copyright © 2007 R.M. Laurie 1

LAN - Client/Server Network



Copyright © 2007 R.M. Laurie 2

Internetworking using ARPANET

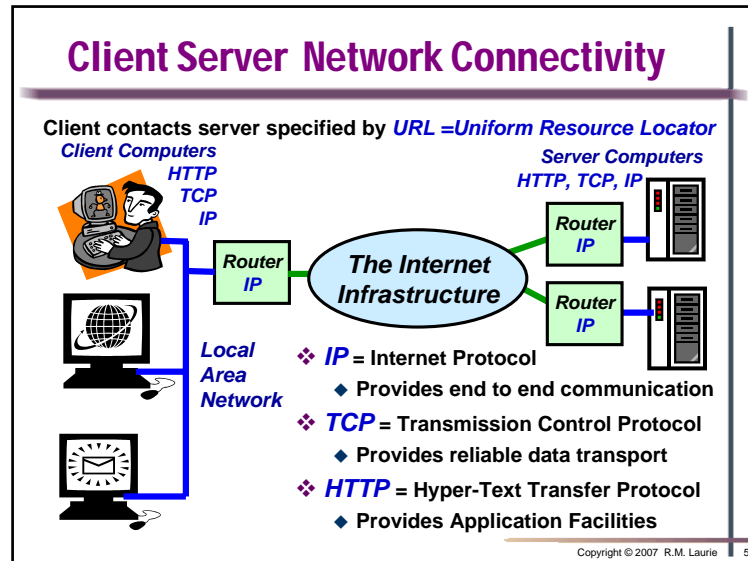
- ❖ It is desired to have a single network
 - ◆ Interconnect LANs using WAN Technology
 - ◆ Access any computer on a LAN remotely via WAN technology
- ❖ Department of Defense sponsors research
 - ◆ ARPA = Advanced Research Projects Agency
 - ◆ Systems Survivability utilizing Redundancy
 - ◆ Connect all computers on military bases worldwide
 - ◆ Research Began 1969, ARPANET operational 1985
- ❖ Specification made Available to Public
 - ◆ *Open System*=Anyone can build compatible system
 - ◆ ARPANET Internetworking Protocol = TCP/IP
- ❖ ARPANET extended to civilian use and is now called *The Internet*

Copyright © 2007 R.M. Laurie 3

Global Information Infrastructure

- ❖ **Infrastructure = Basic Service on which society depends**
 - ◆ Roads, telephones, mail, electricity, Internet
- ❖ **Internet is general purpose and efficient**
 - ◆ Almost any network application can use
 - ◆ Supports a wide variety of services
 - ◆ TCP/IP provides communication facilities
 - ◆ HTTP, HTTPS, and FTP provide application facilities
 - ◆ Accommodates changes in computers, networks, and services

Copyright © 2007 R.M. Laurie 4



Accessing a Web Site

- ❖ **HTTP (Hyper Text Transfer Protocol)** accesses web sites files located on the web server
- ❖ Each web site has **URL (Uniform Resource Locator)**
 - ◆ <http://www.islandman.org> ◆ .edu (education)
 - ◆ <http://www.nmcnet.edu> ◆ .com (commercial)
 - ◆ <http://mail.yahoo.com> ◆ .gov (government)
 - ◆ <http://maps.google.com> ◆ .mil (military)
 - ◆ <ftp://ftp.islandman.org> ◆ .net (network admin.)
 - ◆ <http://www.mtu.edu/cs/courses/index.html> ◆ .org (non-profit)

http
://www
.mtu.edu
/cs/courses
/index.html

Protocol
Server
Domain
TLD
Folder Path
File

- ❖ **Domain Name Server** matches URL with **IP address**
 - ◆ www.nmcnet.edu → **12.178.198.111** (Octet <= 255)
 - ◆ www.whois.ws → **69.25.212.161**

Copyright © 2007 R.M. Laurie 6

The World Wide Web and HTML

- ❖ WWW utilizes the Internet to retrieve documents from anywhere on earth
- ❖ Hypertext documents contain reference **links** to other documents that can be anywhere
- ❖ HTML is a document description language
 - ◆ Web Publishing Syntax
 - ◆ CPU and Operating System Independence
 - ◆ Web Browser Independence
- ❖ Provides document layout description for:
 - ◆ Text, Images, Animation, Sound, Hyperlinks
 - ◆ Interaction with server forms and programs

Copyright © 2007 R.M. Laurie 7

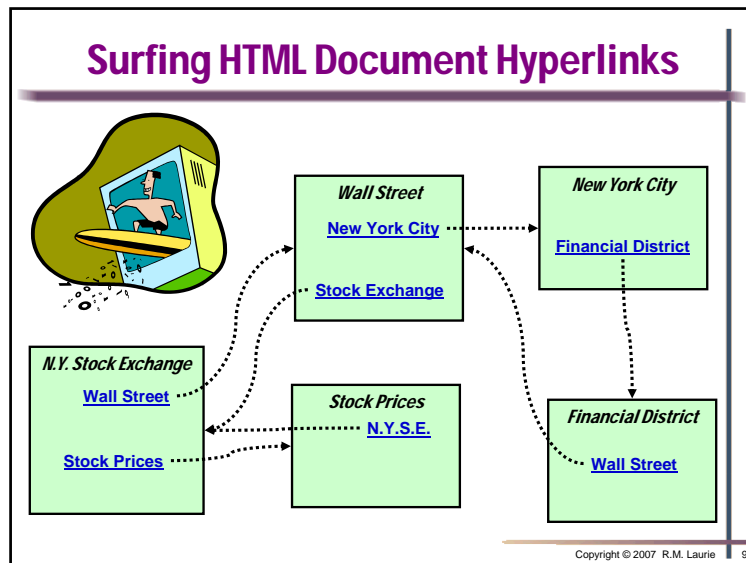
HTML: Simple Document Example

HTML Tag nesting order: Last Open is First Closed

```

<html>
  <head>
    <title>CS103 is fun!</title>
  </head>
  <body>
    <h3>
      My first HTML file
    </h3>
  </body>
</html>
    
```

Copyright © 2007 R.M. Laurie 8



Copyright Protection

- ❖ **Copyright**
 - ◆ Legal protection for written or artistic work
 - ◆ Author has exclusive rights to its use
- ❖ **Exceptions**
 - ◆ Public domain
 - ◆ Fair use exclusion for education
- ❖ **Credit your sources using Footnote**
- ❖ **Infringement of copyright**
 - ◆ Representing something as your own
 - ◆ Downloading music illegally
 - ◆ Software piracy

Internet: Hands-on Exercise 2

Copyright © 2007 R.M. Laurie 10

Web Search Engines

- ❖ **Web Search Engine** is a web site that can be used to query for information
 - ◆ <http://www.google.com>
 - ◆ <http://www.yahoo.com>
 - ◆ <http://www.altavista.com>
 - ◆ <http://babelfish.altavista.com>
 - ◆ <http://www.ask.com>
- ❖ **Logical Operators (Advanced Search)**
 - ◆ **AND** = Every keyword must be present on page
 - ◆ **OR** = Either keyword must be present on page
 - ◆ **NOT** = Exclude document with this keyword
- ❖ **Do Steps 1 through 4**
 - ◆ Print Step 4 Only

Copyright © 2007 R.M. Laurie 11

E-Commerce

- ❖ **The exchange of goods and services using the Internet and World Wide Web**
 - ◆ Buyer and seller
 - ◆ Products and suppliers
 - ◆ A place to “meet”
 - ◆ Marketing to attract the buyer
 - ◆ Accept and process the order
- ❖ **Secure transactions**
 - ◆ https = secure http protocol
 - ◆ Encryption
- ❖ **Privacy threatened by spyware**
 - ◆ <http://www.spybot.info>
 - ◆ <http://www.lavasoftusa.com/>

Internet: Hands-on Exercise 3

Copyright © 2007 R.M. Laurie 12