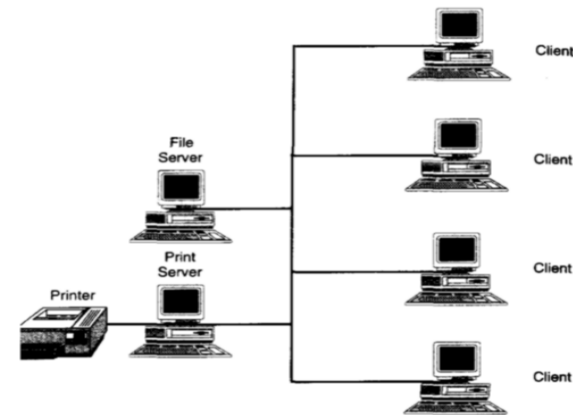


## Local Area Network Approaches

- ❖ **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

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## LAN - Client/Server Network



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## Internetworking using ARPANET

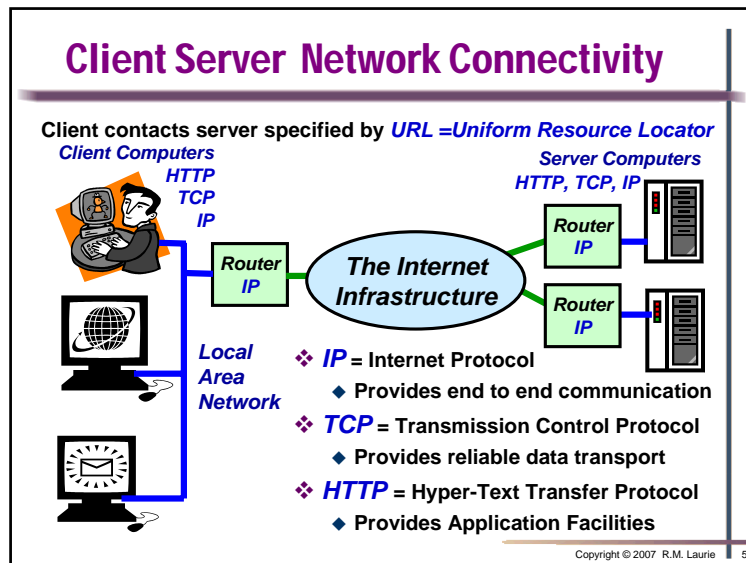
- ❖ It is desired to have a single network
  - ◆ Interconnect LANs using WAN Technology
  - ◆ Access any computer on a LAN remotely via WAN technology
- ❖ Department of Defense sponsors research
  - ◆ ARPA = Advanced Research Projects Agency
  - ◆ Systems Survivability utilizing Redundancy
  - ◆ Connect 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*

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## 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

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### 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>
  - ◆ <http://www.nmcnet.edu>
  - ◆ <http://mail.yahoo.com>
  - ◆ <http://maps.google.com>
  - ◆ <ftp://ftp.islandman.org>
  - ◆ .edu (education)
  - ◆ .com (commercial)
  - ◆ .gov (government)
  - ◆ .mil (military)
  - ◆ .net (network admin.)
  - ◆ .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](http://www.nmcnet.edu) → **12.178.198.111** (Octet <= 255)
  - ◆ [www.whois.ws](http://www.whois.ws) → **69.25.212.161**

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### 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

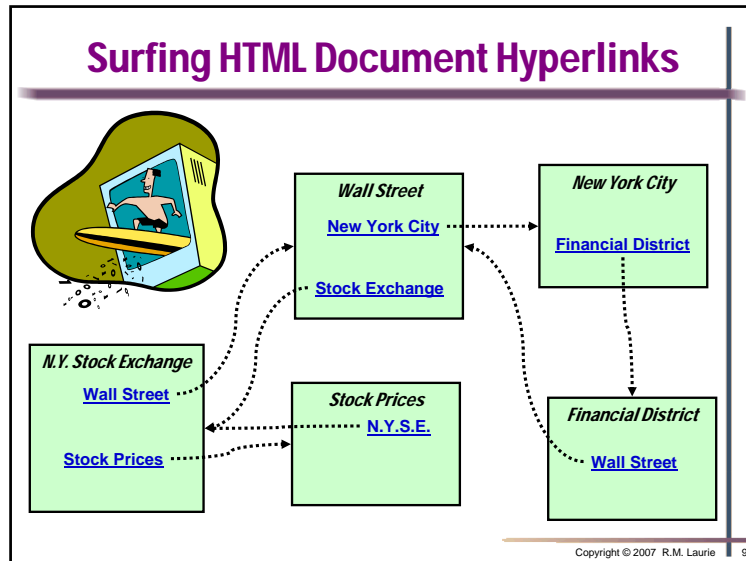
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### HTML: Simple Document Example

**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>
```

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### 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

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### 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

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### 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](https://) = secure http protocol
  - ◆ Encryption
- ❖ **Privacy threatened by spyware**
  - ◆ <http://www.spybot.info>
  - ◆ <http://www.lavasoftusa.com/>

Internet: Hands-on Exercise 3

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