

# Networks and The World Wide Web

Instructor: Dmitri A. Gusev

Spring 2007

CSC 120.02: Introduction to Computer Science

Lecture 4, February 1, 2007

# Open Systems Interconnection (OSI) Reference Model

7	Application layer
6	Presentation layer
5	Session layer
4	Transport layer
3	Network layer
2	Data Link layer
1	Physical layer

# Network Protocols

## Internet Protocol (IP)

Transmission Control  
Protocol (TCP)

User Datagram  
Protocol (UDP)

Simple Mail Transfer  
Protocol (SMTP)

File Transfer Protocol (FTP)

Telnet

Hypertext Transfer Protocol (HTTP)

# Network Addresses

Computers on the Internet are identified by their *IP addresses*. An IP address is displayed a series of four decimal numbers separated by dots.

Example: 192.168.1.101

(looked up by ipconfig)

An IP address is stored in 4 bytes, and each number in the IP address is in the range 0 to 255.

# Classes of Networks

Class	Bytes used for the network address	Bytes used for the host number
A	1	3
B	2	2
C	3	1

# Domain Name System

Example: The hostname

holly.acs.brockport.edu corresponds to the IP address *137.21.162.111* (found using nslookup). Computer name: holly Domain name: acs.brockport.edu

ICANN: The Internet Corporation for Assigned Names and Numbers

Contract with the U.S. gov't renewed: 08/17/06

IANA: The Internet Assigned Numbers Authority

# Top-Level Domains (TLDs)

.com, .net, .org, .edu, .int, .mil, .gov

In 2000, ICANN introduced seven new gTLDs (generic TLDs): .aero, .biz, .coop, .info, .museum, .name, and .pro.

See <http://icann.org/faq/>

<http://www.internic.net/whois.html>

<http://www.nic.name/>

Country codes: .au, .br, .ca, etc., see

<http://www.uwhois.com/cgi/domains.cgi?User=NoAds>

# HTML

- Hypertext Markup Language
- *Tags* indicate how the information should be displayed



# Java Applets

A *Java applet* is a Java program designed to be embedded into an HTML document, transferred over the Web, and executed in a browser.

```
<APPLET  
  code="AssemblyLanguageApplet.class"  
  width=350 height=200></APPLET>
```

# JSP Scriptlets

A *Java Server Page*, or *JSP*, is a Web page that has *JSP scriptlets* embedded in them.

```
<H1><% out.println("A HUGE HEADER"); %></H1>
```

Unlike applets, the JSPs are executed on the server side. They help dynamically define the content of a Web page **before** it is shipped to the client.

# XML

The *Extensible Markup Language*, or *XML*, allows the author to define his or her own set of tags.

*XML* is a *metalanguage*, i.e., a language used to define other languages.

The *Standard Generalized Markup Language* (*SGML*) was used to define HTML. *XML* is a simplified version of *SGML*.

# XSL

The *Extensible Stylesheet Language* (or *XSL*) can be used to transform an XML document into other formats

