

Web Fundamentals

COEN 161

What is internet?

What is internet?

- A world-wide network of computers
- At the lowest level, since 1982, all connections use TCP/IP
- TCP/IP hides the differences among devices connected to the Internet

Internet Protocols

- Internet Protocol (IP)
 - Addressing Protocol
 - 32-bit addresses written as four 8-bit numbers (0-255)

145.10.34.3 ← google.com

- Domain Name Server (DNS)
 - Format: host-name.domain-name
 - Hierarchical - from right to left
 - **DNS Servers** - convert domain names to IPs

Web Architecture

Client-Server

- Server
 - Runs continuously waiting for a client to message it
 - Provides “services” e.g. providing web pages
- Client
 - Sends a message to the server requesting “service”
 - Usually provides some parameters with additional info for the request

World Wide Web

- Sir Tim Berners-Lee
 - Proposed the “web” in 1989 at CERN
 - Intended to allow multiple scientists to access research documents
- Documents -> Hypertext
- Hypermedia -> More than text -> images, sound, etc.

Web or Internet?

Web or Internet?

- The Web uses a protocol that runs on top of the internet: **HTTP**

Uniform Resource Locator

- Are used to identify documents (resources) on the internet.
- Format:

protocol:resource-address

- Example: <http://www.somewhere.com/download/index.html>
- Additional features:
 - Anchor - <http://www.somewhere.com/download/index.html#downloads>
 - Port - <http://www.cse.scu.edu:8080/>
 - Query String - <http://www.google.com/search?q=here+doc&start=10>

Web Technologies

- **Hypertext Markup Language (HTML):** used for writing web pages
- **Cascading Style Sheets (CSS):** stylistic info for web pages
- **PHP Hypertext Processor (PHP):** dynamically create pages on a web server
- **JavaScript:** interactive and programmable web pages
- **Asynchronous JavaScript and XML (AJAX):** accessing data for web applications
- **eXtensible Markup Language (XML):** meta-language for organizing data
- **Structured Query Language (SQL):** interaction with databases

Popular Resources

- W3schools - <https://www.w3schools.com/>
 - Your holy book for the quarter
- Mozilla Developer Network - <https://developer.mozilla.org>
 - A more technical, in-depth reference
- Codecademy - <https://www.codecademy.com/>
 - For extra hands-on practice