

B211 Internet Computing

What in the World is the World Wide Web?

B211 Week 3 Lecture 1

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Learning Objectives

1. Learn the concepts which underlies the World Wide Web.
2. Define what the WWW is.

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Lecture Outline

- History of the World Wide Web
- The Browser Wars
- Definition of the World Wide Web.

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A Little History - The beginning the Web

- The World Wide Web was originally conceived as a tool to link information kept by different researchers in CERN, the European Research Center for Nuclear Physics.
- In 1989, the original proposal for this system was put forward by Tim Berners-Lee.

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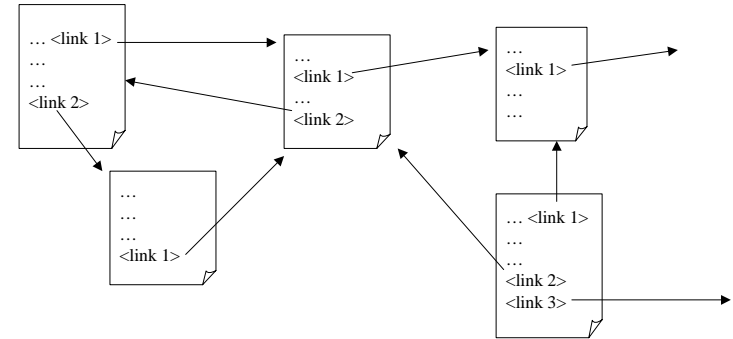
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The Original Vision

- Tim Berners-Lee original intention was to:
 - Access to information for all
 - The use of hypertext
 - Facilitate Collaborations
- He described the web as a "*distributed heterogeneous collaborative multimedia information system*".

Hypertext

- Using links to tie together documents:



History - Graphical Browsers

- The original “browsers” Berners-Lee wrote in 1989 to view these hyperlinked documents was all text-based. He later wrote a graphical one called “worldwideweb”.
- In 1993, the graphical browser Mosaic was released by Marc Andreessen of NCSA (National Center for Supercomputing Applications).
- In 1994, Andreessen left NCSA and together with Jim Clark formed Netscape Communications. The development of the Netscape’s browser, Navigator, drove the popularity of the WWW.

History - W3C and Microsoft Internet Explorer

- Also in 1994, CERN and MIT (Massachusetts Institute of Technology), with Berners-Lee leading, formed the World-Wide-Web Consortium W3C, to
 - develop web protocols
 - encourage inter-operability between web sites
- In 1995, Microsoft finally recognised the potential of the Internet and the Web, and shifted its business focus to large scale penetration of the Web

History - Microsoft, Netscape and W3C

- The developments of Microsoft's Internet Explorer, in competition with Netscape's Navigator/Communicator, plus the activities of the W3C, have largely led us to the WWW scene today.
- It is the WWW, by its nature a lot more user friendly than the applications that has existed on the Internet before it, which led to the world-wide adoption of the Internet as a tool for everyone to use.

WWW – The Concept

- Universal Readership
- The use of hypertext
- Allows searching for information
- Based on the client-server model
- Communication by *format negotiation*
 - that is, two parties involved in communication can negotiate between themselves what format they want to communicate in.
 - HTTP supports this.

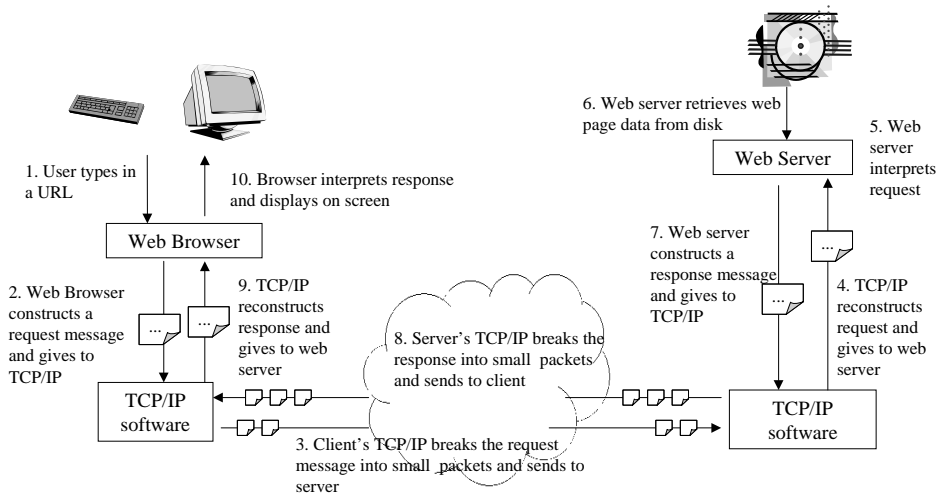
WWW – The Original Protocols

- Addressing using:
 - Universal Resource Locators (URL)
- Information Exchange using:
 - Hypertext Transfer Protocol (HTTP)
- Formatting using:
 - The Hypertext Markup Language (HTML)

WWW – The Protocols (cont'd)

- Today, there are a lot more protocols that have been developed which people consider to be a part of the WWW.
- Eg
 - XML (eXtensible Mark-up Language)
 - CSS (Cascading Style Sheets)
 - DOM (Document Object Model)
 - etc.

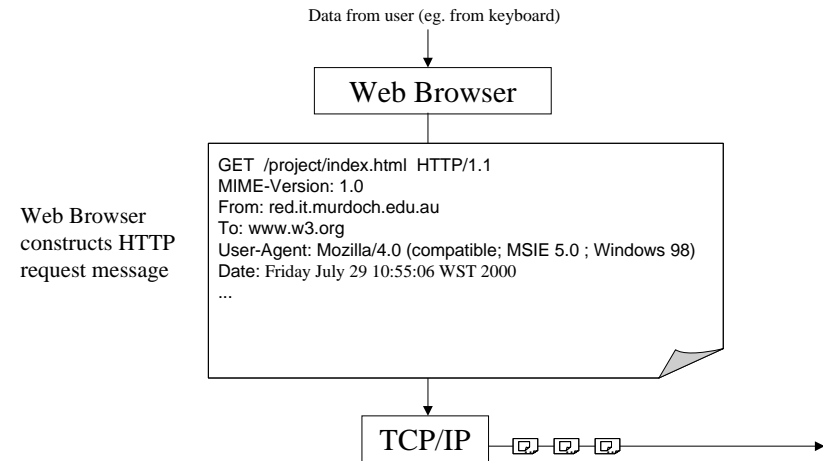
Web Page Access, from week 1:



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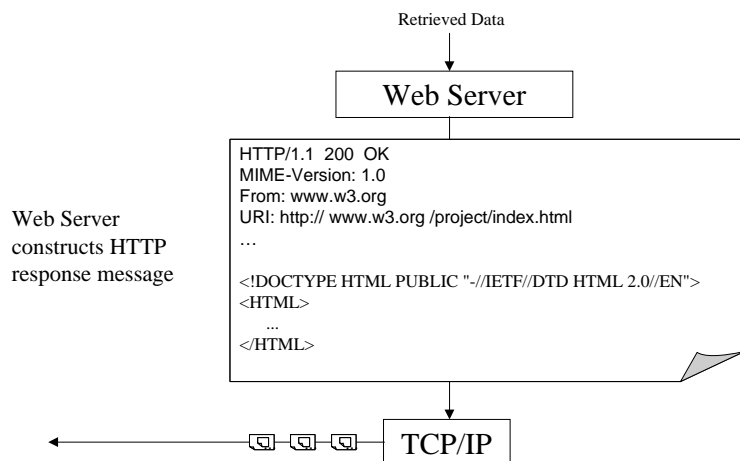
What happens in Step 2:



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What happens in Step 7:



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The Workings of the Web Client/Server

- We will at the details of the operations of HTTP, and the format of MIME, etc, in the next lecture on "*The Internals Web Clients and Servers*".

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What is the WWW?

- The World Wide Web Consortium (W3C) describes the web as:
 - The World Wide Web (known as "WWW", "Web" or "W3") is the universe of network-accessible information, the embodiment of human knowledge.
 - The Web has a body of software, and a set of protocols and conventions.
- This description basically includes the web in anything W3C chooses to work on.

What is the WWW? (cont'd)

- We can use the following as a “definition” for the World Wide Web:
 - The World Wide Web (WWW) is a global information system where
 - 1) resources are addressed using URLs, or its subsequent extensions/follow-ons;
 - 2) Communication occurs using HTTP or its subsequent extensions/follow-ons;

What is the WWW? (cont'd)

3) Information is linked using hypertext based on HTML, or its subsequent extensions/follow-ons;

- Keep in mind that like all other definitions, not all people may agree with it.

Difference with “*the Internet*”

- Note the difference between how we have defined the WWW and the Internet.
 - The Internet is defined using TCP/IP which deals with how to transport packets. It doesn't mention specific protocols for applications.
 - The WWW defines protocols for applications.
 - So WWW can be considered an application of the Internet.
- Then again, we could conceivably implement the WWW over a non-TCP/IP network, which would make non-Internet based.